



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

MEETING AGENDA

Thursday, June 20, 2024

12:30 – 1:30 p.m.

Zoom Meeting

*Please note that this schedule may change upon adjournment of previous meetings, and at the Chair's privilege.
The agenda will be followed in subsequent order and items may be heard earlier than the scheduled time.*

I. Call to Order and Welcome

Trustee Vivian de las Cuevas-Diaz, Chair

II. Approval of Minutes

January 31, 2024, Meeting Minutes

III. Informational Items

Dr. James Clark, Provost, and Executive Vice President for Academic Affairs

- a. **Information Item I**: BOG Anticipated New Academic Degree Programs for 2024-2025
- b. **Information Item II**: Review of Post Tenure Review Report

IV. Action Items for Consideration of Recommendation to the Board of Trustees

Dr. James Clark, Provost and Executive Vice President for Academic Affairs

- a. **Action Item I**: Request for Approval: Proposal to Implement Ph.D. in Aerospace Engineering
- b. **Action Item II**: Request for Approval: Proposal to Implement Masters in Aerospace Engineering
- c. **Action Item III**: Request for Approval: BOG Regulation 8.014: 120 Credit Hour Exception Revisions
- d. **Action Item IV**: Request for Approval: FSU Regulation 5.079 Revision
- e. **Action Item V**: Request for Approval: BOG Regulation 8.005: Review of General Education Courses
- f. **Action Item VI**: Request for Approval: Tenure Report
- g. **Action Item VII**: Request for Approval: 2024-2025 Linking Industry to Nursing Education (LINE) Fund Proposal

V. Open Forum for Board of Trustees

Trustee Vivian de las Cuevas-Diaz, Chair

VI. Adjournment

Trustee Vivian de las Cuevas-Diaz, Chair



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

MEETING MINUTES

January 31, 2024



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

MEETING MINUTES

Wednesday January 31, 2023

Augustus B. Turnbull Conference Center, Room 208

555 W Pensacola St., Tallahassee, FL 3306

4:00-5:00pm

In Person Attendees: Trustee Vivian de las-Cuevas Diaz (Chair), Trustee Kathryn Ballard, Trustee Bridgett Birmingham, Trustee Justin Roth, Trustee Deborah Sargeant

Committee Staff: Provost James Clark and other Academic Affairs Staff

Also in attendance: Board Chair Peter Collins, Board Vice-Chair Bob Sasser, Trustee Maximo Alvarez (zoom), Trustee Jim Henderson, Trustee Jack Hitchcock, Trustee John Thiel (zoom), President McCullough and other university staff.

I. CALL TO ORDER AND WELCOME

Vivian de las-Cuevas Diaz (Chair) called the meeting to order at 4:02pm and confirmed quorum.

II. APPROVAL OF MINUTES

Trustee Sargeant moved to approve the committee meeting minutes from November 10, 2023.

Trustee Birmingham seconded the motion, and the minutes were approved unanimously.

III. INFORMATIONAL ITEMS

A. Admissions Update

John Barnhill, Associate Vice President updated the committee on the Fall 2024 admission. Associate VP Barnhill played an admission reactions video and shared the admitted student profile and stories of FSU's incoming students. At the request of the Trustees, Associate Provost Joe O'Shea gave an update on Honors Program admissions.

B. Visitors Center Update

John Barnhill, Associate Vice President updated the committee on the status of the research to improve the visitor experience, including the visitors center.

C. College of Engineering Update

Suvranu De, Dean of the FAMU-FSU College of Engineering updated the committee on the field of Materials Sciences and Engineering.

D. Tenure Update

Janet Kistner, Vice President of Faculty Development and Advancement updated the committee on the tenure process and the status of faculty currently seeking tenure.

E. Centers & Institutes Evaluations

Jarrett Terry, Assistant Vice President of for Academic Affairs, updated the committee on the annual evaluation process and regulations that govern the evaluation of FSU's centers and institutes. Lisa Magruder, Director, gave a mission and operational presentation on the Florida Institute for Child Welfare.

IV. ACTION ITEMS

A. Action Item I: Request for Approval: Federal Charter Schools Grant for the Collegiate School at FSU Panama City

Debbi Whitaker, the Director of The Collegiate School and Elizabeth Crowe, Assistant Dean for Academic Affairs at FSU Panama City presented this action item to the committee for consideration.

Trustee Birmingham moved to approve the request. Trustee Sargeant seconded the motion, and the approval for The Collegiate School at FSU Panama City was approved unanimously.

B. Action Item II: Request for Approval: Degree Terminations Resulting from the BOG Productivity Analysis

Jennifer Buchanan, Associate Vice President for Faculty Development and Advancement presented this action item to the committee for consideration.

Trustee Birmingham moved to approve the request. Trustee Sargeant seconded the motion, and the approval to terminate the degrees as presented was approved unanimously. Degrees terminated are: Bachelors in Asian Studies, Russian and Eastern European Studies, Russian and Eastern European Studies; and Masters in Asian Studies and Russian and Eastern European Studies, Foundations of Education, STEM and Teaching.

C. Action Item III: Request for Approval: Proposal to Explore Bachelor's in Modern Languages, Literatures, and Cultures.

Jennifer Buchanan, Associate Vice President for Faculty Development and Advancement presented this action item to the committee for consideration.

Trustee Birmingham moved to approve the request. Trustee Sargeant seconded the motion, and the approval to explore a Bachelor's in Modern Languages, Literatures, and Cultures was approved unanimously.

V. OPEN FORUM FOR TRUSTEES

VI. ADJOURNMENT

Trustee Sargeant moved to adjourn the meeting. Trustee Birmingham seconded the motion, and the meeting was adjourned at 5:16pm.



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

INFORMATION ITEM I



FLORIDA STATE UNIVERSITY
OFFICE OF THE PROVOST

TO: President Richard McCullough

FROM: Provost James Clark

DATE: June 20, 2024

SUBJECT: BOG Anticipated New Academic Degree Programs for 2024-2025
Information Item

In March 2024, the Board of Governors amended Regulation 8.011: Authorization of New Academic Degree Programs and Other Curricular Offerings. The amended Regulation requires institutions to provide the Board of Governors an annual list of Anticipated New Academic Degree Programs for the upcoming academic year in lieu of including those programs in the annual Accountability Plan. The list should be considered by the University Board of Trustees as an information item and does not require a vote. The Florida State University "Anticipated New Academic Programs for the 2024-25 Academic Year" is attached for the Board's consideration.



Background:

At the March 2024 meeting, the Board of Governors amended 8.011, Authorization of New Academic Degree Programs and Other Curricular Offerings, changing reporting requirements for new degree programs. The amended regulation requires universities to provide the Board office with a list of the new academic degree programs that will be considered by the university boards of trustees for the upcoming academic year. The university's board of trustees must review this list before submission. Please note this can be an information item and does not require a vote. The Board office will share the combined list for the System with CAVP and CAVP ACG to discuss program duplication and System coordination.

Instructions:

Please use the table below to report the new academic degree program proposals the university plans to submit to the Board office in the 2024-2025 Academic Year. Your institution's board of trustees must have reviewed this list prior to submission to the Board office. Please submit the completed table via the Information Request System by **June 28, 2024**.

Anticipated New Academic Programs for the 2024-25 Academic Year

CIP Code	Name	Level	Other SUS Institutions that Offer the Program	Projected Student Enrollment for Year 1
14.0201	Aerospace Engineering	MS	UCF, UF	19
14.0201	Aerospace Engineering	PhD	UCF, UF	6
43.0301	Emergency Management and Homeland Security	BS	UCF, FIU	10
16.0101	Modern Languages, Literatures, and Cultures	BA	FAU, FIU, NCF, UF, USF	50
14.0901	Computer Engineering	MS	FAU, FIU, UCF, UF, USF	3
14.0901	Computer Engineering	PhD	FAU, UCF, UF, USF	2
30.1901	Food and Nutrition	PhD	UF	24
51.1509	Genetic Counseling	MS	N/A	10
52.0901	Hospitality	MS	FIU, UCF, USF	6
52.0901	Hospitality	PhD	UCF	4
52.0701	Entrepreneurship	PhD	N/A	4

50.0910	Jazz Studies	MS	N/A	10
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Signature of Provost/ Vice President for Academic Affairs

5/29/2024

Date

June 20, 2024

Date submitted to the University Board of Trustees



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

INFORMATION ITEM II



FLORIDA STATE UNIVERSITY
OFFICE OF THE PROVOST

TO: President Richard D. McCullough

FROM: Provost James C. Clark

DATE: June 20, 2024

SUBJECT: Post-Tenure Review Report
Information Item

In 2022, the Florida Legislature amended Section 1001.706, Florida Statutes and authorized the Board of Governors to “adopt a regulation requiring tenured state university faculty members to undergo a comprehensive post tenure review every 5 years,” also providing minimum review criteria and processes.”

The Board of Governors adopted BOG Regulation 10.003 Post-Tenure Faculty Review, effective March 29, 2023. The BOG Regulation requires that “each board of trustees shall adopt policies requiring each tenured state university faculty member to undergo a comprehensive post-tenure review.” FSU-BOT Regulation 4.073: Post-Tenure Faculty Review became effective June 15, 2023. It aligns as closely as possible with current FSU faculty evaluation policies while also meeting the requirements specified in BOG Regulation 10.003.

Performance Rating Scale

- Exceeds Expectations: a clear and significant level of accomplishment beyond the average performance of faculty across their academic discipline and unit.
- Meets Expectations: expected level of accomplishment compared to faculty across their academic discipline and unit.
- Does Not Meet Expectations: performance falls below the normal range of annual variation in performance compared to faculty across their academic discipline and unit.
- Unsatisfactory: failure to meet expectations that reflect disregard or failure to follow previous advice or other efforts to provide correction or assistance, or performance involved incompetence or misconduct, as defined in applicable university regulation and policies.

Outcomes Associated with Performance Ratings:

- Ratings of “Exceeds” or “Meets” expectations will result in a monetary reward (to be determined).
- A rating of “Does Not Meet Expectations” requires placement on a 12-month Performance Improvement Plan.
- A rating of “Unsatisfactory” shall result in a proposal to terminate employment.

Selection of the 2024 Post-Tenure Review (PTR) Cohort

As required by BOG Regulation 10.003, the 2024 PTR cohort included faculty who were awarded tenure or promoted to Full Professor in 2019 (46). The Regulation also requires inclusion of 20% of faculty members tenured prior to 2019 and allows universities to decide how this group is selected. Eligible tenured faculty members were permitted to volunteer to be in the 2024 PTR cohort, as described in FSU-BOT Regulation 4.073, and a sufficient number of faculty members (88) volunteered to meet the required 20% of faculty tenured prior to 2019.

Overview of the PTR Process:

1. Faculty submit evidence of their accomplishments and performance of assigned responsibilities for the designated five-year period.
2. Supervisors add annual evaluations and any findings of disciplinary actions based on substantiated evidence of failure to comply with university policies, BOG regulations, or applicable laws during the review period. They also summarize the faculty members’ performance in a letter to their dean.
3. Deans review the Post-Tenure Review materials and submit a letter to the provost that includes a recommended rating from the Performance Rating Scale for each faculty member in the cohort with the evidence to support their proposed ratings. Criteria for assigning PTR ratings are described in the document Florida State University Criteria for Post-Tenure Review.
4. The provost reviews the materials received from deans and either accepts or modifies the deans’ recommended ratings. Prior to finalizing the ratings, the provost confers with the president.

Outcomes of FSU’s 2024 Post-Tenure Review

Rating	Number
Exceeds Expectations	88
Meets Expectations	46
Does Not Meet Expectations	0
Unsatisfactory	0

Florida State University Criteria for Post-Tenure Review

Each year, Deans review all materials submitted by the Post-Tenure Review (PTR) participants in their colleges. These materials include annual evaluations, the chair's letter (if applicable) and any findings of an investigation of non-compliance with university policies, Board of Governors (BOG) regulations, or applicable laws that resulted in disciplinary action issued by the University during the review period. Based on this information, deans add a letter to the PTR materials that provides their assessment of each faculty member's performance and a recommended rating using the Performance Rating Scale (see below). Evidence to support the recommended rating must be based on the faculty member's level of achievement as documented in the submitted materials. The provost will review materials of each faculty member's materials, including the dean's letter and rating, and will either approve or modify the recommended rating. The provost will confer with the president prior to finalizing the PTR ratings.

Here, we describe the university-wide criteria, which derive from the criteria outlined in BOG Regulation 10.003, for each of the four ratings of the Performance Rating Scale, along with examples of the types of evidence that would support assigning the ratings to faculty members. Because of the variety of academic disciplines in the university and the differences in the nature of the work tenured faculty do across disciplines, the examples of evidence in support of PTR ratings will vary across academic disciplines. Deans and the provost must take into consideration the criteria used by academic units to evaluate the performance of faculty for promotion, tenure, merit, and annual evaluations. The list of examples for each rating is not intended to be exhaustive, nor must faculty have evidence of all examples on the list to receive the rating.

Performance Rating Scale

1. Exceeds expectations: Faculty who receive this rating must perform significantly above the average performance of faculty in the academic unit and in the academic discipline at peer institutions. Faculty members who receive this rating must be found to have followed university policies, BOG regulations, and applicable state laws during the review period.

Below are examples of the types of evidence used to support a rating of "Exceeds Expectations" in the areas of Research/Creative Works, Teaching, and Service.

Research/Creative Works:

- Publications in top-tier journals that are comparable in number and impact to the top 20% of faculty members in their discipline at peer institutions
- Books/monographs published by prestigious publishing houses that are commensurate in number and impact with the accomplishments of the top 20% of faculty members in their discipline at peer institutions
- Performances and exhibitions at prestigious national and international venues comparable to the top 20% of faculty members in their discipline at peer institutions
- Invited presentations and keynote addresses at major national and international conferences

- Received one or more major honorific awards for excellence and impact of research/creative works
- Significant and sustained external research support from federal, state, and other funding agencies, where appropriate

Teaching:

- Student evaluations of teaching are within the top 20% for faculty in the academic unit.
- Received awards for teaching, advising, and/or mentoring
- Served as Chair for a higher-than-average number of dissertation, master's, or undergraduate thesis committees in the academic unit
- Awarded grants or contracts to fund educational programs and curricular innovations
- Presentations at national and international teaching/pedagogical conferences
- Leading workshops on teaching at the university or at national conferences
- Leadership roles in organizations focused on teaching excellence and pedagogy
- Development of new courses and curricular revisions
- Obtained advanced credentials or certification in course or curriculum development

Service:

- Chairing university, college, and department committees
- Serving on grant review panels for federal, state, or private funding agencies
- Serving as editor or associate editor of one or more scholarly journals
- Leadership roles in national/international academic societies
- Appointments to professional boards
- Provides formal mentorship to an above-average number of junior faculty in the academic unit

2. Meets Expectations: Performs within the average range of faculty members in their academic unit and accomplishments are commensurate with average productivity of faculty in their academic discipline at peer institutions. Faculty members who receive this rating must be found to have followed university policies, BOG regulations, and applicable state laws during the review period.

Below are examples of the types of evidence used to support a rating of “Meets Expectations” in the areas of Research/Creative Works, Teaching, and Service.

Area: Research/Creative Works

- Quantity and quality of published works in the average range relative to faculty productivity in the academic unit and commensurate with faculty in their academic discipline at peer institutions
- Quantity and quality of presentations at conferences and national meetings in the average range of faculty in the academic unit and commensurate with faculty in their academic discipline at peer institutions
- Has or is actively seeking external funding for research during the review period, where appropriate
- Performances or exhibits at venues commensurate with the average number and quality of performance/exhibits of faculty in the academic unit and commensurate with faculty in their academic discipline at peer institutions

Area: Teaching

- Student evaluations of teaching are within the normal range for faculty in the academic unit
- Serves as Chair for an average number of dissertation, master's, or undergraduate thesis committees in the academic unit
- Effective mentorship of students (e.g., meets regularly, completes evaluations on time, provides opportunities for students to present and publish research)
- Attends workshops and other professional development opportunities to improve and enhance their teaching effectiveness
- Accepts teaching assignments to meet the needs of the academic unit

Area: Service

- Serves on university, college, and department committees
- Reviews manuscripts for scholarly publications
- Positively contributes to student recruitment activities
- Positively contributes to faculty recruitment activities
- Provides formal mentorship to an average number of junior faculty within the academic unit

3. Does Not Meet Expectations: performance falls below the normal range of variation in performance compared to faculty in the academic unit and below the average productivity of faculty in their academic disciplines at peer institutions but the faculty member is thought to be capable of improvement. Faculty members with evidence of noncompliance with university policies, BOG regulations, or applicable state laws during the review period may receive this rating.

Below are examples of the types of evidence used to support a rating of “Does Not Meet Expectations” in the areas of Research/Creative Works, Teaching, and Service.

Area: Research/Creative Works

- Quantity and/or quality of research publications and presentations are below the average range of productivity of faculty in the academic unit and in their academic discipline at peer institutions
- Quantity and/or quality of performances/exhibitions are below the average range of productivity of faculty in the academic unit and faculty in the academic discipline at peer institutions
- Unsuccessful in obtaining external support for research or failure to apply for research grants, where appropriate

Area: Teaching

- Student evaluations of teaching are below the average range for faculty in the academic unit
- Serves as Chair of fewer dissertation, master's, or undergraduate thesis committees than faculty in the academic unit
- No evidence that efforts are being made to improve teaching

Area: Service

- Serves on few or no University, College, or Department committees
 - Makes limited positive contributions as a committee member
 - Little to no participation in service to the academic discipline
 - No formal mentorship of junior faculty in the academic unit
4. Unsatisfactory: failure to meet expectations that reflect disregard or failure to follow previous advice or other efforts to provide correction or assistance, or performance that involves incompetence or misconduct as defined in applicable university regulations and policies. A faculty member who has received one or more overall annual evaluations of “Does Not Meet Expectations” or three or more annual evaluations of “Does Not Meet Expectations” in Research/Creative Works, Teaching, or Service during the review period may receive a rating of unsatisfactory. Faculty members with evidence of noncompliance with university policies, Board of Governors regulations, or applicable state laws during the review period may receive this rating.

Below are examples of the types of evidence used to support a rating of “Unsatisfactory” in the areas of Research/Creative Works, Teaching, and Service.

Area: Research/Creative Works

- Quantity and quality of publications substantially below typical productivity of faculty at peer institutions and the academic unit
- Minimal or no documented efforts to improve research productivity
- Little to no positive impact on the academic discipline or profession

Area: Teaching

- Student evaluations substantially below the typical range of the academic unit
- Sustained pattern of missing classes, late submission of grades, or failure to provide constructive feedback to students in a timely manner
- Consistently high DFW rates relative to faculty in the academic unit

Area: Service

- Serves on few or no University, College, or Department committees
- Fails to attend meetings or make positive contributions as a committee member
- Little or no evidence of positive contributions in service to the academic discipline



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

ACTION ITEM I



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

ACTION ITEM I

June 20, 2024

SUBJECT: Proposal to Implement Ph.D. in Aerospace Engineering

PROPOSED COMMITTEE ACTION

The FAMU-FSU College of Engineering requests approval to recommend that the Board of Governors approve implementation of a Ph.D. degree in Aerospace Engineering, effective Fall 2025.

AUTHORITY FOR BOARD OF TRUSTEES ACTION

BOG Regulation 8.011: Authorization of New Academic Degree Programs and Other Curricular Offerings, states that each university Board of Trustees shall review and approve new doctoral degree programs and forward them to the Board of Governors for final approval. The current proposal has been approved internally by all individuals and faculty committees described in FSU Regulation 5.099: Development, Approval, Termination, and Suspension of Degree Programs.

BACKGROUND INFORMATION

The proposed Ph.D. in Aerospace Engineering will provide highly-trained graduates to meet aerospace workforce needs and research leadership in academia and industry. It will build upon the existing research strength of the state-wide Florida Center for Advanced Aero-Propulsion (FCAAP) that is housed at FSU, through which FAMU-FSU faculty members work collaboratively with faculty from UF, UCF, Embry-Riddle, and Miami University to develop cutting-edge technologies and a technology-savvy aerospace workforce. The program qualifies as a Program of Strategic Emphasis (STEM category) in the Florida Board of Governors 2025 Strategic Plan and will be offered face-to-face at the FAMU-FSU College of Engineering.

The demand for aerospace engineers is particularly pronounced in high-technology sectors supporting aircraft development such as manufacturing, electronics, human performance in space, and sensing. The Bureau of Labor Statistics anticipates a 6% percent growth in the employment of aerospace engineers nationally from 2022 to 2032 (<https://data.bls.gov/projections/occupationProj>). The same projection for Florida is much higher, 18.4% growth from 2023-2031. Florida has a significant presence in the

aerospace, defense, marine, and space industries (Lockheed Martin, Boeing, Raytheon, Northrop Grumman, and General Dynamics), which employ aerospace engineers. In 2022, there were 4,580 aerospace engineers employed in Florida with an average hourly wage of \$55.70 (<https://www.floridajobs.org/workforce-statistics/data-center/statistical-programs/occupational-employment-statistics-and-wages>).

In addition to a firm grounding in the fundamentals of aeronautical engineering, the curriculum will include courses in these core areas: fluid dynamics and aerodynamics, dynamical systems and controls, thermal transport, and the mechanics of materials. The program will require a combination of 51 credit hours (coursework and research, culminating in a dissertation). The Board's approval to implement does not obligate the University to provide any specific resources requested; any resource request will be reviewed as part of the annual allocation of resources.

ADDITIONAL COMMITTEE CONSIDERATIONS

Per BOG Regulation 8.011, Board of Governors final approval is required. The approved proposal will be submitted to BOG staff for technical review before it is placed on the November Board of Governors agenda.

Supporting Documentation Included: Proposal to Implement Ph.D. and Master's in Aerospace Engineering

Submitted by: Office of Faculty Development and Advancement



State University System of Florida Board of Governors
REQUEST TO OFFER A NEW DEGREE PROGRAM

In accordance with Board of Governors Regulation 8.011

(Please do not revise this proposal format without prior approval from Board staff)

Florida State University

Institution Submitting Proposal

FAMU-FSU College of Engineering

Name of College(s) or School(s)

Aerospace Engineering

Academic Specialty or Field

Proposed CIP Code (2020 CIP)

14.0201

Proposed Implementation Term

Fall 2025

Name of Department(s)/Division(s)

Aerospace Engineering

Complete Name of Degree

Proposed Program Type

☒ E&G Program

☐ Market Tuition Rate Program

☐ Self-Supporting Program

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met before the program's initiation.

Date Approved by the University
Board of Trustees

Board of Trustees Chair's Signature Date

President's Signature Date

Provost's Signature Date

Projected Enrollments and Program Costs

Provide headcount (HC) and full-time equivalent (FTE) student estimates for Years 1 through 5. HC and FTE estimates should be identical to those in Appendix A – Table 1. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Appendix A – Table 3A or 3B. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 by dividing the total E&G by FTE.

Implementation Timeframe	HC	FTE	E&G Cost per FTE	E&G Funds	Contract & Grants Funds	Auxiliary/ Philanthropy Funds	Total Cost
Year 1	25	18	\$17,101	\$307,825	\$456,871		\$764,696
Year 2	45	35					
Year 3	51	48					
Year 4	67	67					
Year 5	75	61	\$11,531	\$703,375	\$1,158,849		\$1,862,223

Programs of Strategic Emphasis Waiver (for baccalaureate programs only)

Does the program fall under one of the CIP codes listed below?

☐ Yes

☐ No

If yes, students in the program will be eligible for the Programs of Strategic Emphasis (PSE) waiver. See [Board Regulation 7.008](#) and the [PSE Waiver Guidance](#) for additional details.

CIP CODE	CIP TITLE	CATEGORY
11.0101	Computer and Information Sciences	STEM
11.0103	Information Technology	STEM
13.1001	Special Education	EDUCATION
13.1202	Elementary Teacher Education	EDUCATION
14.0801	Civil Engineering	STEM
14.0901	Computer Engineering	STEM
14.1001	Electrical and Electronics Engineering	STEM
27.0101	Mathematics	STEM
40.0801	Physics	STEM
52.0301	Accounting	GAP ANALYSIS
52.0801	Finance	GAP ANALYSIS
52.1201	Management Information Systems	STEM

Additional Required Signatures

I confirm that I have reviewed and approved Need and Demand Section III.F. of this proposal.

DocuSigned by:



Signature of Equal Opportunity Officer

Date of Signature

I confirm that I have reviewed and approved Non-Faculty Resources Section IX.A. and IX.B. of this proposal.

DocuSigned by:

Gale Etischmaier

Signature of Library Dean/Director

Date of Signature

Introduction

I. Program Description and Relationship to System-Level Goals

A. Describe within a few paragraphs the proposed program under consideration and its overall purpose, including:

- **degree level(s)**
- **majors, concentrations, tracks, specializations, or areas of emphasis**
- **total number of credit hours**
- **possible career outcomes for each major (provide additional details on meeting workforce needs in Section III)**

Florida A&M and Florida State Universities propose to offer a graduate degree program in Aerospace Engineering (AE) beginning Spring 2025. The graduate program will offer master's and doctoral degrees. The proposed program will be offered jointly within the FAMU-FSU College of Engineering and operate within the FAMU-FSU Mechanical Engineering Department. It will use faculty that currently teach within the existing Mechanical Engineering program at the FAMU-FSU College of Engineering. Additional faculty hires are proposed to expand the program in strategic directions that build upon existing strengths and future challenges in aerospace fields.

The AE graduate program will consist of one major. Completion of the master's program, whether thesis or non-thesis, requires a minimum of 30 credits. For students holding a master's degree, completion of the doctoral program requires 48 credits. Alternatively, for students entering the doctoral program immediately after their bachelor's degree, completion requires 60 credits. In their first year, students will gain a firm grounding in the fundamentals of AE through core courses (12 credits) taught by faculty members within the Mechanical Engineering department (these courses are already available). The student and their research advisor will determine which elective specialization courses are best for their research. Students will also register for the existing weekly Mechanical Engineering Graduate Seminar Series, taken every semester through graduation (0 credits). In this seminar series, students will be exposed to FAMU and FSU faculty and external researchers working in areas highly relevant to aerospace engineering (e.g., fluid dynamics, controls, robotics, thermal transport, large-scale computations, mechanics of materials). This seminar series also includes discussions about professional development skills given by industry speakers, government laboratory researchers, and academics about leadership strategies and tactics.

As background information, Aerospace Engineering primarily revolves around creating, advancing, testing, and manufacturing aircraft, spacecraft, and associated systems and structures. Historically, the discipline has centered on challenges about atmospheric and

space travel, encompassing two key and interconnected branches: aeronautical engineering, which concentrates on the theory, technology development, and application of flight within Earth's atmosphere, and astronautical engineering, which delves into the science and technology of spacecraft and launch vehicles. Aerospace engineers play a crucial role in advancing technologies and incorporating them into aerospace vehicle systems for various purposes such as transportation, communication, exploration, and defense. Their responsibilities encompass the creation and production of aircraft, spacecraft, propulsion systems, satellites, and missiles. Additionally, they are involved in designing and testing various components and subassemblies related to aircraft and aerospace products. The AE program at FAMU and FSU will advance the State and Federal calls to increase competence in science, technology, engineering, and math (STEM) in upcoming generations and to promote advanced aerospace engineering to solve fundamental problems that have immediate technical applications. In Florida, the aerospace industry is an essential component of the State's economy. Furthermore, there are several federal research laboratories in the Panhandle region, including Eglin and Tyndall Air Force Bases, the Naval Surface Warfare Center—Panama City Division and the Naval Air Station in Pensacola, that need new, well-trained AE graduates in their workforce. In addition, many industries in Florida, like defense and aerospace contractors, need aerospace engineers at the master's and doctoral level. With the advanced knowledge attained in aerospace engineering, graduates of the program will demonstrate the application of acquired knowledge through analyzing, synthesizing, evaluating, and creating solutions in various disciplines such as materials, thermal management, fluid dynamics, acoustics, controls, solid mechanics, among others. They will effectively transfer this knowledge to innovate future aerospace technologies, both locally in the State of Florida and globally. Furthermore, doctoral-trained graduates are also eligible for careers in academia.

B. If the proposed program qualifies as a Program of Strategic Emphasis, as described in the Florida Board of Governors 2025 System Strategic Plan, indicate the category.

- **Critical Workforce**

- ☐ Education
- ☐ Health
- ☐ Gap Analysis

- **Economic Development**

- ☐ Global Competitiveness
- ☒ Science, Technology, Engineering, and Math (STEM)

☐ **Does not qualify as a Program of Strategic Emphasis.**

II. Strategic Plan Alignment, Projected Benefits, and Institutional Mission and Strength

A. Describe how the proposed program directly or indirectly supports the following:

- **System strategic planning goals (see the link to the 2025 System Strategic Plan on the [New Program Proposals & Resources](#) webpage)**
- **the institution's mission**
- **the institution's strategic plan**

The AE program contributes directly to several of the State University System (SUS) Strategic Planning Goals in the 2025 System Strategic Plan. The specific areas in which the PhD in AE will impact or contribute are:

- Teaching and Learning
 - Strengthen the Quality and Reputation of the Universities
 - Increase Degree Productivity & Program Efficiency
 - Increase the Number of Degrees Awarded in Programs of Strategic Emphasis
- Scholarship, Research and Innovation
 - Increase Research Activity and Attract More External Funding

The new AE program also aligns well with the mission of Florida State University which involves incorporating elements that preserve, expand, and disseminate knowledge in various disciplines while emphasizing a philosophy of learning rooted in the liberal arts tradition. For example, the AE program will adopt an interdisciplinary approach, integrating the physics of fluids, materials, mathematics, technology, and professional development. This approach ensures a well-rounded education, aligning with the university's commitment to preserving and expanding knowledge across diverse fields. While this program heavily focuses on engineering, liberal arts will also be components within the aerospace curriculum. This will involve including courses and training that foster critical thinking, communication skills, and ethical considerations, thereby ensuring graduates possess a holistic education that extends beyond their technical knowledge.

The program will also include a curriculum that emphasizes excellence in teaching and research. We will provide students with opportunities to engage in cutting-edge research, collaborate with industry professionals, and participate in hands-on projects that contribute to advancements in aerospace engineering and technology. The AE program will also foster a culture of creativity and innovation within the program. It will encourage students to explore novel ideas, pursue entrepreneurial endeavors, and contribute to developing new technologies and solutions in the aerospace industry. This program will also include service-learning components that allow students to apply their aerospace knowledge to address real-world challenges. Many opportunities exist within the Department of Engineering via the Mechanical Engineering Graduate Student Association (MEGSA—RSO [Recognized Student Organization]) to encourage community engagement, partnerships with local industries, and outreach programs, such as the Challenger Learning Center, that contribute to the betterment of society. As part of the College of Engineering and Department of Mechanical Engineering's mission of leadership and professional development, we will also emphasize the development of ethics, skill, and character in students. We will provide opportunities for personal and professional growth, instilling a commitment to lifelong learning from coursework and research experiences. We will foster an environment that encourages personal responsibility and sustained achievement through active engagements with faculty throughout their graduate program. The new AE graduate program will cultivate a program that embraces diversity and inclusion. This includes creating a supportive and inclusive learning environment that reflects the university, college and department's commitment to a community fostering free inquiry.

By incorporating these elements, the aerospace graduate program can effectively align

with Florida State University's mission, contributing to the preservation, expansion, and dissemination of knowledge while fostering a commitment to excellence, diversity, and community engagement.

The AE program is also consistent with FAMU's mission. Florida Agricultural and Mechanical University (FAMU) is an 1890 land-grant institution dedicated to the advancement of knowledge, the resolution of complex issues, and the empowerment of citizens. FAMU's distinction as a doctoral/research institution will continue to provide mechanisms to address emerging issues through local and global partnerships. Expanding upon the University's land-grant status will enhance the lives of constituents through innovative research, engaging cooperative extension, and public service.

In direct support of its mission, the proposed AE program aligns with FAMU's dedication to the "advancement of knowledge and resolution of complex issues." There are several ways in which aerospace engineering contributes to these advancements including:

1. **Technological Innovation:** Aerospace engineering is at the forefront of technological innovation. The field constantly pushes the boundaries of flow physics, materials and structures operating in extreme environments, and complex control theories, leading to developing cutting-edge technologies and solutions. This innovation not only improves aerospace systems but often has broader applications in other industries.
2. **Scientific Discovery:** The pursuit of aerospace engineering often involves exploring unknown frontiers in both space exploration and atmospheric research. This exploration leads to new scientific discoveries and motivates a deeper understanding of fundamental principles in physics, materials science, computational science, and other related disciplines.
3. **Environmental Sustainability:** Aerospace engineers work towards making air and space travel more environmentally sustainable. This involves developing fuel-efficient propulsion systems, light-weight materials, and exploring alternative energy sources. As air and space vehicles are pushed to high speeds and more frequent use, addressing the environmental impact of aerospace activities contributes to important global sustainability challenges.
4. **National Security and Defense:** Aerospace engineering is integral to the development of defense and security technologies. Advancements in aircraft design, missile systems, and satellite technology contribute to national defense capabilities and strategic security.
5. **Space Exploration and Colonization:** Aerospace engineering drives advancements in developing spacecraft, propulsion systems, life support systems, and robotics for exploring other planets. The knowledge gained from these endeavors contributes not only to space science but also to potential future human colonization of other celestial bodies.
6. **Communication and Connectivity:** Aerospace engineering is instrumental in the development of satellite systems that enable global communication, weather monitoring, navigation, and Earth observation. These systems contribute to enhanced connectivity, disaster management, and a greater understanding of global climate.

patterns.

7. **Medical and Biological Research:** Space missions often involve experiments in microgravity environments. The results of these experiments can have applications in medical and biological research on Earth. For example, studying the effects of space travel on the human body contributes to our understanding of physiology and potential medical advancements.
8. **Global Collaborations:** Many aerospace projects involve international collaborations. Working together on projects such as space exploration or satellite programs fosters global cooperation and the sharing of knowledge and resources, contributing to peaceful relations and diplomacy.

Overall, aerospace engineering contributes to the advancement of knowledge and the resolution of complex issues by driving technological innovation, exploring new frontiers, addressing environmental challenges, enhancing national security, enabling global connectivity, inspiring education, and fostering global collaboration. The interdisciplinary nature of aerospace engineering ensures that its impact extends far beyond the confines of the field itself.

Along with the Board of Governors' 2025 Strategic Plan and the FSU and FAMU missions, the proposed AE program aligns well with FAMU's goal for High Impact Research, Commercialization, Outreach, and Extension Services. Specific to Strategic Priority 3 of FAMURising, the graduate program in AE will address the following goals:

- Goal 1: Expand and enhance cutting-edge research and creative scholarship for the benefit of the State of Florida, the nation, and the world.
- Goal 2: Increase research productivity, commercialization and return on investment.
- Goal 3: Increase the number of nationally recognized graduate programs.

A graduate program in Aerospace Engineering will add opportunities for FAMU and the Joint College faculty to engage in cutting-edge research to keep pace with constantly changing societal needs for safe and efficient aircraft and provide a workforce that can design, test and manufacture aerospace technology for the benefit of the nation as a whole. Faculty associated with the program are already active in research. The graduate program will serve to increase their research contributions to FSU, FAMU and the State of Florida, and train graduates who can also use advanced knowledge in positions that require advanced decision-making and skills necessary to implement effective solutions around the development and deployment of aerospace systems and structures. Having a strong research-oriented doctoral program attracts increased numbers of students with diverse backgrounds, which is also aligned with FAMU's mission.

B. Describe how the proposed program specifically relates to existing institutional strengths. This can include:

- **existing related academic programs**
- **existing programs of strategic emphasis**
- **institutes and centers**
- **other strengths of the institution**

The Department of Mechanical Engineering (ME) at FAMU-FSU has a long history of

excellence in research and teaching in the fields of fluid dynamics, aerodynamics, and flow control. Current ME faculty are internationally recognized in aerodynamics research and are very active in a wide range of federally funded research programs in both experimental and computational aerodynamics. The research enterprise has been successful not only because of excellent faculty, but also for very talented and well-trained graduate and undergraduate students. The ME Department offers a wide range of fundamental core and technical electives in fields ranging from fluid dynamics theory, gas dynamics, fluid-structure interactions, smart materials, uncertainty quantification, and flow control. These courses are offered to graduate students to support their research. Our undergraduate courses in areas related to aerodynamics start at the sophomore level and continue through senior technical electives to prepare these students for successful careers in industry and graduate school.

With respect to strategic interest, aerodynamic engineering is well aligned with STEM and supports the overall strategic vision of the State of Florida. It is also well aligned with both universities as FSU has a strong interest in expanding aerodynamics research in the Panhandle through the new Triumph program in Panama City. This program will require support from faculty to help guide the research and develop academic programs to support this major external investment of \$98M. FAMU is also very interested in growing STEM programs to increase African American graduates in the field of aerospace engineering. We expect these new activities will attract more students, post doctorate researchers, and research dollars which will help propel FAMU to a research intensive (R1) university.

Aerospace graduate education and research is also well aligned with institutes and centers at FAMU and FSU. The Aero-Propulsion, Mechatronics, and Energy (AME) Building supports the educational and research mission of the Florida Center for Advanced Aero-Propulsion (FCAAP) Center within the FAMU-FSU College of Engineering. FCAAP is a state-funded center that started in 2008 to support research and workforce development in the State of Florida. This center is headquartered at FSU and includes faculty at multiple universities across the state including FAMU, the University of Florida, the University of Central Florida, and Embry-Riddle. Additional long-running research centers have been spun off of FCAAP, including a Federal Aviation Administration Center of Excellence on Commercial Space Transport (2011-2021) and a more recent Air Force Office of Scientific Research (AFOSR) Center of Excellence AEROMORPH on morphing high speed aircraft (awarded 2023). These research centers provide excellent experimental and computational resources and exceptional faculty that will be leveraged in this program.

Additional strengths worth noting include recently developed aerospace educational programs within the Mechanical Engineering Department. This includes an online Aerospace Certificate program through FSU that started in the fall of 2021. Given its relevance to the proposed graduate program, key dates associated with this online certificate are included in the planning process table. Several faculty members within the Mechanical Engineering Department (led by Prof. Rajan Kumar) are also involved with an Air Force Research Laboratory (AFRL) Scholars program where undergraduate and graduate students take courses and conduct experiments within the ME department during fall and spring semesters and spend summers working with AFRL scientists at Eglin and Wright Patterson Air Force Bases. This collaboration may be in the form of on-site work at AFRL or conducting experiments at FCAAP and reporting to AFRL scientists.

A similar program exists through a FAMU NASA MUREP program to support minority students interested in aerospace research. This program is led by a former department chair within the ME Department, Prof. Chiang Shih, and Co-PI Prof. Carl Moore. Lastly, the ME Department also runs a NASA University Leadership Initiative, led by Prof. Lance Cooley, which focuses on hydrogen-based aero-propulsion concepts. This not only aligns with the mission of the aerospace program but also the broader mission of FSU to support hydrogen energy applications. In summary, there are a large number of programs focused on aerospace engineering which provide excellent opportunities for graduate students interested in this field.

C. Provide the date the pre-proposal was presented to the Council of Academic Vice Presidents Academic Program Coordination (CAVP ACG). Specify any concerns raised and provide a narrative explaining how each concern has been or will be addressed.

No concerns were raised in the CAVP ACG on 11/15/2023.

D. In the table below provide an overview of the institutional planning and approval process leading up to the submission of this proposal to the Board office. Include a chronology of all activities, providing the names and positions of university personnel and external individuals who participated.

- If the proposed program is at the bachelor's level, provide the date the program was entered into the APPRiSe system, and, if applicable, provide a narrative responding to any comments received through APPRiSe.
- If the proposed program is a doctoral-level program, provide the date(s) of the external consultant's review in the planning table. Include the external consultant's report and the institution's responses to the report as Appendix B.

Planning Process

Date	Participants	Planning Activity Description
May 29, 2015	Chiang Shih and Jennifer Buchanan	Create a graduate program in Aerospace Engineering – Masters and Ph.D.
December 11, 2015	CAVP Academic Coordination Group	First CAVP-ACG Meeting
March 4, 2016	Review of BOT	Proposal to Explore is approved by FSU BOT. No second proposal to explore is required.
June 12, 2018	Murray Gibson, Farrukh Alvi, Eric Hellstrom, Rajan Kumar, and Chiang Shih	Create an online graduate certificate program in aeronautical engineering designed as a pathway to an MS/PhD program.
Summer 2018	Lou Cattafesta, Rajan Kumar, and Chiang Shih	Meeting with FAMU-FSU college computing services (CCS) and FSU Office of Distance Learning
Fall 2018	Lou Cattafesta and Rajan	Develop two pilot courses for the

	Kumar	program
Spring 2019	Mohd Ali, Jonas Gustavsson, Rajan Kumar, and Chiang Shih	Develop three more courses
Summer 2019	Mohd Yousuf Ali, Jonas Gustavsson, Rajan Kumar, Lou Cattafesta, and Chiang Shih	Develop into fully asynchronous distance learning courses
Fall 2019	Mohd Yousuf Ali, Jonas Gustavsson, Rajan Kumar, Lou Cattafesta, and Chiang Shih	Five graduate level courses are ready to be offered face-2-face and online asynchronously
November 2019	Department of Mechanical Engineering's Graduate Committee chaired by William Oates	Department graduate committee approves to start a certificate program in Aerospace Engineering – Aerodynamics
December 2019	FAMU-FSU College of Engineering – College Curriculum Committee Sam Awoniyi, Linda DeBrunner, Patrick Hollis, John Telotte, Kamal Tawfiq, Deb Gautier, Subashini Iyer, Frederika Manciangli, Michelle Rambo-Roddenberry, Mohd Yousuf Ali, Lisa Spainhour	FAMU-FSU College of Engineering approves to start a certificate program in Aerospace Engineering – Aerodynamics
April 2020	William Oates and Murray Gibson	FAMU and FSU approves the College of Engineering's recommended proposal to start a certificate program in Aerospace Engineering – Aerodynamics
Fall 2021	Department of Mechanical Engineering	Online Graduate Certificate program in Aerospace Engineering – Aerodynamics is offered
10/19/2023	William Oates, Mohd Yousuf Ali, Jennifer Buchanan, Amy Guerette, and Sundra Kincey	Discuss pre-proposal for the graduate degree program in Aerospace engineering
11/15/2023	CAVP Academic Coordination Group	CAVP Pre-Proposal Approval
11/28/2023	William Oates, Mohd Yousuf Ali, Jennifer Buchanan, Amy Guerette, and Sundra Kincey	Proposed Aerospace program proposal guidelines
12/07/2023	William Oates, Mohd Yousuf Ali, Chaing Shih, Alex Berger, and Huixuan Wu	Proposal for FAMU-FSU Aerospace MS/PhD program
12/08/2023	William Oates, Mohd Yousuf Ali, and Kassidy Hof-Mahoney	Library resources for the proposed AE program
01/29/2024	William Oates, Mohd Yousuf Ali, Jennifer Buchanan, Amy Guerette, and Sundra Kincey	Aerospace Degree Proposal Follow-Up

02/22/2024	Chair Oates & ME faculty	Status update on Aerospace Graduate Degree proposal developments
02/27/2024	William Oates and Wei Guo	Approval for the proposed graduate program in AE by the department graduate committee members
03/01/2024	William Oates, Michelle Rambo-Rodenberry, Kari Aime, and FAMU-FSU College of Engineering Curriculum Committee	Approval for the proposed graduate program in AE by the FAMU-FSU college of engineering curriculum committee members
03/05/2024	William Oates, Mohd Yousuf Ali, Jennifer Buchanan, Amy Guerette, and Sundra Kinsey	Discuss next steps for approval from university curriculum committee
03/05/2024	Dr. Mark Glauser	External Reviewer has agreed to review the proposed program

E. In the table below, provide a timetable of key events necessary for implementing the proposed program following approval of the program by the Board office or the Board of Governors through to the addition of the program to the State University System Academic Degree Program Inventory.

Events Leading to Implementation

Date	Implementation Activity
June 20	BOT review and request for approval
June - July 2024	Board of Governors Staff Review for BOG Consideration
June – July 2024	Develop MOUs between collaborating departments
July – September 2024	Collaborate with BOG Staff in Preparation for November BOG Meeting
November 2024	Review by BOG
Fall 2024-Summer 2025	Development of additional AE courses (1. Rotary Wing Aerodynamics, 2. Structural Dynamics, and 3. Fracture Mechanics)
Spring 2025	Marketing and recruitment of students
Spring 2025	Update internal systems
Fall 2025	Enroll first cohort

Institutional and State-Level Accountability

III. Need and Demand

A. Describe the workforce need for the proposed program. The response should, at a minimum, include the following:

- current state workforce data as provided by Florida's Department of Economic Opportunity
- current national workforce data as provided by the U.S. Department of

Labor's Bureau of Labor Statistics

- **requests for the proposed program from agencies or industries in the university's service area**
- **any specific needs for research and service that the program would fulfill**

Aerospace engineering includes interdisciplinary graduate training in fluid dynamics, structures, thermal transport, dynamics, control, and materials which relies heavily on experimental, computational, and theoretical research. Graduate research and workforce development is a pivotal driver for creating novel aerospace systems and enhancing existing ones, critical for the evolution of technologies in aerospace transportation as well as energy, avionics, communications, information, homeland security, and national defense. Major federal funding agencies, such as the National Science Foundation, Department of Energy, Department of Defense, and NASA, allocate significant resources to support extensive research programs in aerospace engineering. Moreover, many industries, particularly in the State of Florida, are invested in aerospace and are actively seeking knowledgeable professionals in this field.

The demand for aerospace engineers is particularly pronounced in high-technology sectors that support aircraft development such as manufacturing, electronics, human performance in space, and sensing. The Bureau of Labor Statistics anticipates a 6% percent growth in the employment of aerospace engineers from 2022 to 2032 (<https://data.bls.gov/projections/occupationProj>). Florida, with its significant presence in aerospace, defense, marine, and space industries, hosts major players like Lockheed Martin, Boeing, Raytheon, Northrop Grumman, and General Dynamics, all of which employ aerospace engineers. These professionals are crucial for the development and application of new materials and structures for lighter, fuel efficient, and agile military aircraft and cutting-edge commercial planes. Nationally renowned companies like Boeing, General Dynamics, GE, Lockheed Martin, and Northrop Grumman heavily involve aerospace engineers in key roles. The anticipated percent growth in employment of aerospace engineers from 2023-2031 is 18.4% in Florida – which is **three** times the national growth rate.

Aerospace engineering (AE) graduates find opportunities not only in corporate settings but also in national and industrial labs, contributing to research and development. The expanding budgets of federal agencies' Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs in AE fields indicate a growing demand for AE graduates. Recent placements from FAMU and FSU's Mechanical Engineering program highlight the strength of the job market, with graduates assuming leadership roles in big and small high-tech businesses. Notable employers include Space-X, Boeing, Northrop Grumman, and various national labs.

The Mechanical Engineering Department Chair has engaged with select companies and the Eglin Air Force Research Laboratory to explore their potential hiring of MS and PhD graduates in Aerospace Engineering. Positive responses indicate a demand for MS and doctoral-prepared graduates in AE. The salary outlook for these graduates is promising, with recent Ph.D. recipients from the existing program earning upwards of approximately \$126,880 per year (<http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections>).

National and Florida Workforce Demand

In the table below, provide occupational linkages or jobs graduates will be qualified to perform based on the training provided for the proposed program that does not currently appear in the most recent version of the Search by CIP or SOC Employment Projections Data Tool provided periodically by Board staff.

Occupational Linkages for the Proposed Program

SOC Code (XX-XXXX)	Occupation Title	Source / Reason for Inclusion

Complete the table below and summarize its contents in narrative form. Include data for all linked occupations, including those in the table above. Use data from the Search by CIP or SOC Employment Projections Data Tool provided periodically by Board staff.

Labor Market Demand, CIP Code 14.0201

Occupations	Percent Change in Job Openings		Annual Average Job Openings		Total # of New Jobs		Education Level Needed for Entry
	FL 2023-31	U.S. 2022-32	FL 2023-31	U.S. 2022-32	FL 2023-31	U.S. 2022-32	
Aerospace Engineer	18.4%	6.1%	499	3,800	1,085	3,900	Bachelor's
Engineering Teachers, Post secondary	15.8%	9.3%	89	4,100	128	4,200	Doctoral Degree (Ph.D.)

Sources:

Date Retrieved: 02/21/2024

U.S. Bureau of Labor Statistics - <https://data.bls.gov/projections/occupationProj>

Florida Department of Economic Opportunity - <http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections>

B. Provide and describe data that support student demand for the proposed program. Include questions asked, results, and other communications with

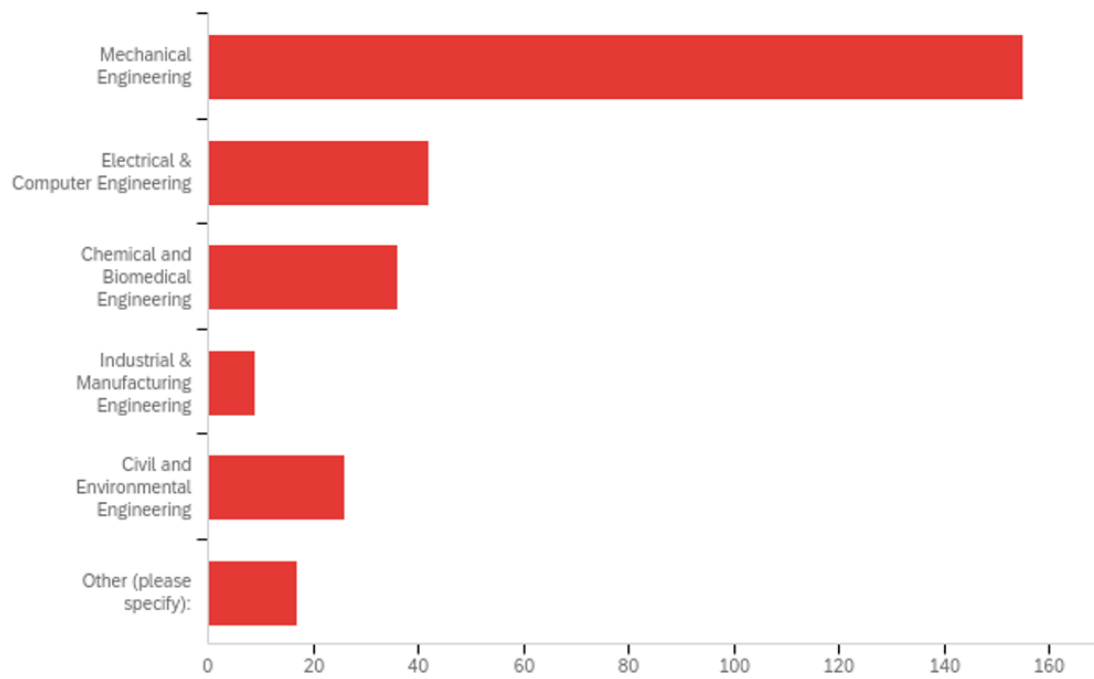
prospective students.

Prospective students are drawn to the prospect of enrolling in a graduate degree program in aerospace engineering due to the diverse career opportunities available in commercial aviation, defense, space exploration, and research. Pursuing a graduate degree is seen as a pathway to acquiring specialized knowledge and skills that can unlock lucrative and thrilling career paths. Florida, recognized as a hub for aerospace opportunities, provides an array of possibilities, including:

- **NASA and Space Industry:** The presence of the esteemed Kennedy Space Center offers aerospace engineers the chance to engage in various NASA missions, encompassing spacecraft launches and maintenance, research initiatives, and contributions to space exploration. Leading private space industry players like SpaceX, Blue Origin, and Boeing have firmly established themselves in Florida.
- **Defense and Military:** Florida is home to key military bases such as Eglin, Tyndall, and MacDill Air Force Research Laboratories, presenting opportunities in defense projects and technology. Aerospace engineers can contribute to defense-related initiatives, including the development of military aircraft, missile systems, and other defense technologies.
- **Commercial Aviation:** Prominent companies like Embraer, Spirit AeroSystems, and Lockheed Martin have a significant presence in Florida, offering compelling career opportunities for Ph.D. graduates.
- **Space Tourism:** The emerging sector of space tourism, led by companies like Virgin Galactic and Blue Origin, presents exciting prospects for aerospace engineers with graduate degrees to contribute to this groundbreaking industry.
- **Education and Research:** Aerospace engineers holding a PhD can explore opportunities in teaching, research, and curriculum development, contributing to the academic and research landscape of aerospace engineering.

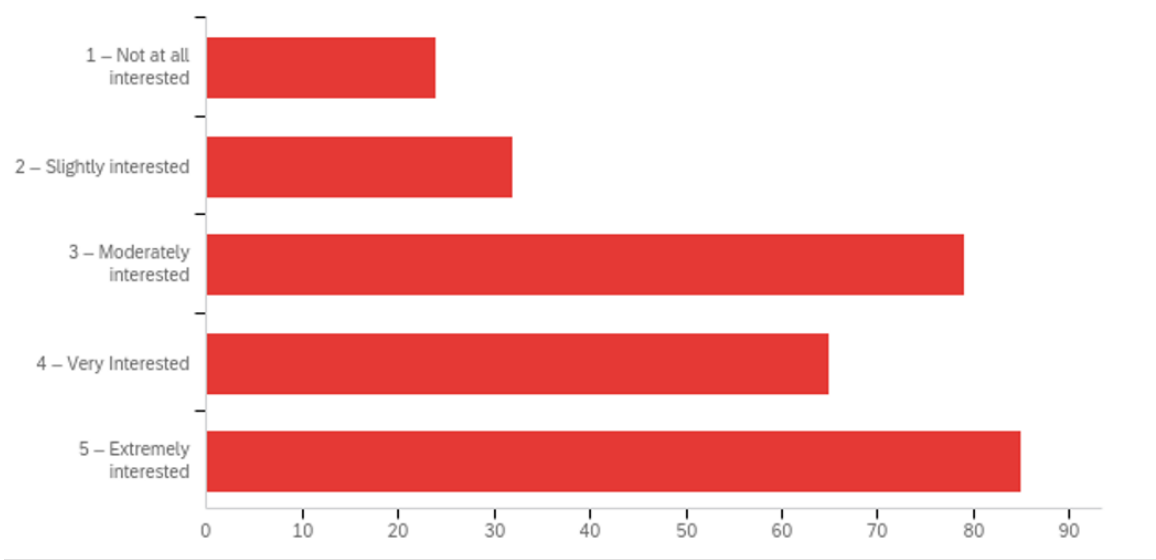
The FAMU-FSU College of Engineering conducted a survey to assess students' interest in pursuing graduate studies in Aerospace Engineering. The survey included the following questions, and it received responses from 289 individuals.

Q1 - What is your current undergraduate major or field of study?



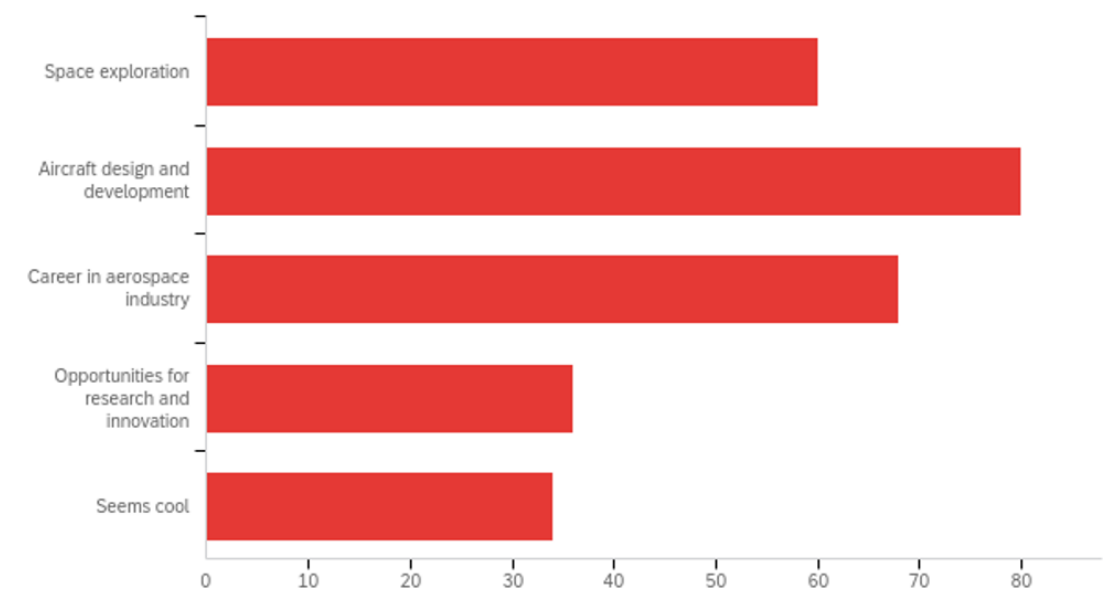
#	Answer	%	Count
1	Mechanical Engineering	54.39%	155
2	Electrical & Computer Engineering	14.74%	42
3	Chemical and Biomedical Engineering	12.63%	36
4	Industrial & Manufacturing Engineering	3.16%	9
5	Civil and Environmental Engineering	9.12%	26
6	Other (please specify):	5.96%	17
	Total	100%	285

Q2 - On a scale of 1 to 5, how interested are you in pursuing graduate studies in aerospace engineering at FAMU-FSU COE?



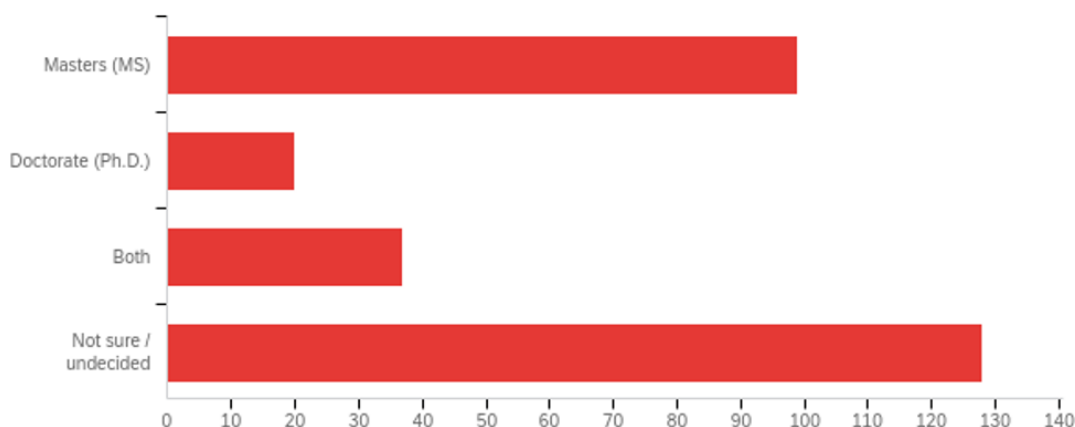
#	Answer	%	Count
1	1 – Not at all interested	8.42%	24
2	2 – Slightly interested	11.23%	32
3	3 – Moderately interested	27.72%	79
4	4 – Very Interested	22.81%	65
5	5 – Extremely interested	29.82%	85
	Total	100%	285

Q3 - What motivates your interest in pursuing graduate studies in aerospace engineering?



#	Answer	%	Count
1	Space exploration	21.58%	60
2	Aircraft design and development	28.78%	80
3	Career in aerospace industry	24.46%	68
4	Opportunities for research and innovation	12.95%	36
5	Seems cool	12.23%	34
	Total	100%	278

Q4 - 4. Are you interested in Masters or Doctorate program at FAMU-FSU COE?



#	Answer	%	Count
1	Masters (MS)	34.86%	99
2	Doctorate (Ph.D.)	7.04%	20
3	Both	13.03%	37
4	Not sure / undecided	45.07%	128
	Total	100%	284

C. Complete Appendix A – Table 1 (1-A for undergraduate and 1-B for graduate) with projected student headcount (HC) and full-time equivalents (FTE).

- Undergraduate FTE must be calculated based on 30 credit hours per year
- Graduate FTE must be calculated based on 24 credit hours per year

In the space below, explain the enrollment projections. If students within the

institution are expected to change academic programs to enroll in the proposed program, describe the anticipated enrollment shifts and impact on enrollment in other programs.

Year One

New students (PhD HC=6, FTE=6, MS HC=19, FTE=12) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. After full implementation and development of marketing strategies, the program anticipates growing the program each year until it reaches approximately 24 PhD students (FTE=18) and 65 masters students (FTE=51) by year five. These estimates are based on five year historical numbers at the University of Florida and the University of Central Florida. With additional marketing efforts, the program may expand enrollment in the out years.

Year Two

New students (PhD HC=9, FTE=9, MS HC=34, FTE=26) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. These students are largely distributed among: 1) Individuals who have recently graduated from preceding degree programs at this university, 2) Individuals who graduated from preceding degree programs at other Florida public universities, and 3) Individuals who graduated from preceding degree programs at non-public Florida institutions.

Year Three

New students (PhD HC=14, FTE=10, MS HC=48, FTE=37) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. These students are largely distributed among: 1) Individuals who have recently graduated from preceding degree programs at this university, 2) Individuals who graduated from preceding degree programs at other Florida public universities, and 3) Individuals who graduated from preceding degree programs at non-public Florida institutions.

Year Four

New students (PhD HC=20, FTE=16, MS HC=63, FTE=53) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. These students are largely distributed among: 1) Individuals who have recently graduated from preceding degree programs at this university, 2) Individuals who graduated from preceding degree programs at other Florida public universities, and 3) Individuals who graduated from preceding degree programs at non-public Florida institutions.

Year Five

New students (PhD HC=24, FTE=18, MS HC=65, FTE=51) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. These students are largely distributed among: 1) Individuals who have recently graduated from preceding degree

programs at this university, 2) Individuals who graduated from preceding degree programs at other Florida public universities, and 3) Individuals who graduated from preceding degree programs at non-public Florida institutions.

D. Describe the anticipated benefits of the proposed program to the university, local community, and the state. The benefits of the program should be described both quantitatively and qualitatively.

Anticipated benefits of introducing a program in aerospace engineering are extensive, promising numerous advantages for FAMU, FSU, the Panhandle region, the State of Florida, and the nation. These encompass the following:

- Create avenues for recruiting students interested in pursuing Aerospace Engineering and establish an educational framework for them to obtain a graduate degree.
- Leverage significant investments from FAMU and FSU in start-up packages and infrastructure support for faculty researching emerging fields.
- Introduce a cost-effective STEM program.
- Enhance research visibility for the FAMU-FSU College of Engineering.
- Expand opportunities for FAMU and FSU to secure more substantial funding for aerospace research, especially interdisciplinary grants.
- Address the pressing educational need to produce more engineers in the U.S. and Florida, particularly in aerospace.

Contribute to research, economic development, and job creation in the Panhandle region and across the State.

- Enhance the Nation's technical capability by attracting researchers and supporting new product development.
- Assist in overcoming the underrepresentation of minorities in STEM, particularly in engineering. The FAMU-FSU College of Engineering has demonstrated progress in this area, ranking fourth nationally in producing PhDs for African Americans.

E. If other public or private institutions in Florida have similar programs at the four- or six-digit CIP Code or in other CIP Codes where 60 percent of the coursework is comparable, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with appropriate personnel (e.g., department chairs, program coordinators, deans) at those institutions regarding the potential impact on their enrollment and opportunities for possible collaboration in the areas of instruction and research.

Two programs in the State of Florida have Aerospace Engineering graduate programs - the University of Florida and the University of Central Florida. The Chair, William S. Oates, has spoken to both department chairs at these universities to discuss potential impact and collaboration opportunities with these existing programs; see Appendix B.

- F. If the proposed program substantially duplicates a program at Florida Agricultural and Mechanical University (FAMU), a letter of support from FAMU must be provided. The letter must address whether the proposed program may adversely affect FAMU's ability to achieve or maintain student diversity in its existing program. The institution's Equal Opportunity Officer shall review this section of the proposal, sign, and date the additional signature page to indicate that all requirements of this section have been completed.**

There is currently no Aerospace Engineering program offered through the FAMU-FSU College of Engineering. FAMU offers undergraduate Architecture and Engineering Technology degrees; however, these programs are distinctly different from aerospace engineering.

IV. Curriculum

- A. Describe all admission standards and all graduation requirements for the program. Hyperlinks to institutional websites may be used to supplement the information provided in this subsection; however, these links may not serve as a standalone response. For graduation requirements, describe any additional requirements that do not appear in the program of study (e.g., milestones, academic engagement, publication requirements).**

Master's Program

Prospective students must have a BS degree (or a recognized equivalent) in Mechanical or Aerospace Engineering or any one of the following related fields: Any Engineering Major, Chemistry, Computer Science, Materials Science, Mathematics/Applied Mathematics, or Physics/Applied Physics. Non-majors, students without a BS degree in Mechanical Engineering, may be required to take up to twelve credit hours of remedial coursework in Mechanical Engineering as a condition of admission.

Applicants must have at least a 3.0 upper-division GPA and GRE General Exam scores or an approved GRE waiver. International students must take the TOEFL exam and score at least 550 on the paper-based exam, 213 on the computer-based exam, or 80 on the Internet-based exam. Other acceptable English Language Proficiency Exam scores are as follows: Pearson Test in English (50), Duolingo (120), Cambridge C1 Advanced Level (180), and Michigan Language Assessment (55). Applicants must also submit a personal/research statement, résumé, and three letters of recommendation. Please visit the department website for additional details: <https://eng.famu.fsu.edu/me>.

Note: Effective August 2011, the GRE Revised General Test replaced the GRE General Test. To learn more about this test, go to <https://ets.org/gre>.

Ph.D. Program

Prospective students must have an MS degree in Mechanical or Aerospace Engineering or any one of the following related fields: any Engineering Major, Chemistry, Computer Science, Materials Science, Mathematics/Applied Mathematics, or Physics/Applied Physics. Non-majors, students without a BS degree in Mechanical or Aerospace

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Engineering, may be required to take up to 12 credit hours of remedial coursework in Mechanical Engineering as a condition of admission.

Applicants must have at least a 3.0 upper-division GPA and GRE General Exam scores or an approved GRE waiver. International students must take the TOEFL Exam and score at least 550 on the paper-based exam, 213 on the computer-based exam, or 80 on the Internet-based exam. Other acceptable English Language Proficiency Exam scores are as follows: Pearson Test in English (50), Duolingo (120), Cambridge C1 Advanced Level (180), and Michigan Language Assessment (55). Applicants must also submit a personal statement, résumé, and three letters of recommendation. Please visit the department website for additional details: <https://eng.famu.fsu.edu/me>.

Note: Effective August 2011, the GRE Revised General Test replaced the GRE General Test. To learn more about this test, go to <https://ets.org/gre>.

BS to PhD Program

In addition to the standard PhD program the department offers a direct BS to PhD program. This program is limited to students with excellent academic transcripts and demonstrated potential for advanced research. Applicants must submit strong letters of recommendation from professors or persons qualified to evaluate their academic potential. Admission to the program is finalized at the end of the second semester. During their first two semesters, students must maintain a minimum graduate GPA of 3.50. Final admission to the PhD program is granted by the Graduate Committee.

Students initially admitted to the master's program may request a transfer to the BS-PhD program at the end of their second semester. The student must have maintained a graduate GPA of 3.50 or better during their first two semesters.

B. Describe the specific expected student learning outcomes associated with the proposed program and include strategies for assessing the proposed program's learning outcomes. If the proposed program is a baccalaureate degree, include a hyperlink to the published Academic Learning Compact and the document itself as Appendix C.

Institutional Effectiveness (IE) for Aerospace Engineering – PhD

- Program Outcome (PO) Name: Time to Degree
 - PO Statement: Doctoral students will progress in the Aerospace Engineering program at adequate pace.
 - PO Assessment Plan: For this PO, we will track how many of our doctoral students progress from matriculation to graduation within five years, which is the expected program duration. To calculate the completion rate, we will take the number of students who earn their doctorate in a given academic year (defined as Summer, Fall, Spring) and divide it by the total number of students in the original cohort from five years ago (Summer, Fall, Spring). This

performance objective will be assessed by official FAMU-FSU College of Engineering enrollment and graduation statistics.

- PO Numeric Target: At least 80% of doctoral students in a cohort will graduate with their doctorate in Aerospace Engineering within 5 years from the matriculation year.
- Student Learning Outcome (SLO) Name: Oral Communication and Presentation Skills
 - SLO Statement: Upon completion of the course of instruction, the student will communicate effectively through oral and visual means.
 - SLO Assessment Plan: PhD committees are formed with a minimum of four members (chair, university representative, member in-area, member-out of area). The university representative is outside of the department. The student's adviser will gather completed rubrics, securely store them, and compile the scores for the annual assessment report. The 'Oral Communication and Presentation Skills' are evaluated based on whether: The dissertation defense was presented using a clear and logical structure, engaging delivery, appropriate voice, and effective visuals, and with evidence of prior rehearsal. The 'Oral Communication and Presentation Skills' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point).
 - SLO Numeric Target: At least 80% of students will achieve level of 'Exemplary' (4 points) or 'Proficient' (3 points) on the rubric criterion 'Oral Communication and Presentation Skills' from all committee members.
- Student Learning Outcome (SLO) Name: Research Skills
 - SLO Statement: Students will review literature, apply research methodologies, and analyze and interpret data and results.
 - SLO Assessment Plan: The 'Research Skills' are evaluated based on three criteria (each one is evaluated separately as a distinct criterion in the corresponding rubric). 'Literature Review' criterion: The student exhibits a thorough and comprehensive understanding of the research topic, providing a critical examination of relevant literature. 'Methodology' criterion: Thorough, clear, and well-justified, covering research design, data collection, and analysis comprehensively. 'Results and Discussion' criterion: Clear, accurate, and comprehensive, addressing the research question with appropriate data and analysis. Insightful, coherent, and well-structured interpretation of results. Addresses study's applications, limitations, and contributions. The three criteria falling under 'Research Skills' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point).
 - SLO Numeric Target: At least 80% of students will achieve level of 'Exemplary' (4 points) or 'Proficient' (3 points) on all three rubric criteria that fall under the

'Research Skills' umbrella (Literature review, methodology, and results and discussion) from all committee members.

Institutional Effectiveness (IE) for Aerospace Engineering – MS

- Program Outcome (PO) Name: Time to Degree
 - PO Statement: Master's students will progress in the Aerospace Engineering program at adequate pace.
 - PO Assessment Plan: For this PO, we will track how many of our master's students progress from matriculation to graduation within two years, which is the expected program duration. To calculate the completion rate, we will take the number of students who earn their master's in a given academic year (defined as Summer, Fall, Spring) and divide it by the total number of students in the original cohort from two years ago (Summer, Fall, Spring). This performance objective will be assessed by official FAMU-FSU College of Engineering enrollment and graduation statistics.
 - PO Numeric Target: At least 80% of master's students in a cohort will graduate with their MS in Aerospace Engineering within 2 years from the matriculation year.

- Student Learning Outcome (SLO) Name: Oral Communication and Presentation Skills
 - SLO Statement: Upon completion of the course of instruction, the student will communicate effectively through oral and visual means.
 - SLO Assessment Plan: For non-thesis students, we will employ a rubric for their project presentation in EAS 5102. For thesis students, we will utilize the same rubric for their thesis defense.
 - *Non-Thesis Students:* The 'Oral Communication and Presentation Skills' are evaluated based on whether: Design project presentation in the required course (EAS 5102 Fundamentals of Aerodynamics) has a clear and logical structure, engaging delivery, appropriate voice and effective visuals, and evidence of rehearsal. The 'Oral Communication and Presentation Skills' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point). The course instructor will gather completed rubrics, securely store them, and compile the scores for the annual assessment report.
 - *Thesis Students:* MS (Master's) committees are formed with a minimum of three members (chair, member in-area, member-out of area). The student's adviser will gather completed rubrics, securely store them, and compile the scores for the annual assessment report. The 'Oral Communication and Presentation Skills' are evaluated based on whether: The thesis defense has a clear and logical structure, engaging delivery, appropriate voice and effective visuals, and evidence of rehearsal. The 'Oral Communication and Presentation Skills' are

evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point).

- SLO Numeric Target: At least 80% of students will achieve level of 'Exemplary' (4 points) or 'Proficient' (3 points) on the rubric criterion 'Oral Communication and Presentation Skills'.
- Student Learning Outcome (SLO) Name: Review of Applicable Theories and Literature
 - SLO Statement: Students will demonstrate broad knowledge of disciplinary fundamentals.
 - SLO Assessment Plan: For non-thesis students, we will employ a rubric for their project presentation in EAS 5102. For thesis students, we will utilize the same rubric for their thesis defense.
 - *Non-Thesis Students:* The 'Literature Review' are evaluated based on: A class (EAS 5102 Fundamentals of Aerodynamics) project to evaluate a student's understanding of essential concepts, theories, and foundational principles within the discipline. The 'Literature Review' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point). The course instructor will gather completed rubrics, securely store them, and compile the scores for the annual assessment report.
 - *Thesis Students:* MS (Master's) committees are formed with a minimum of three members (chair, member in-area, member-out of area). The student's adviser will gather completed rubrics, securely store them, and compile the scores for the annual assessment report. The 'Literature Review' are evaluated based on: The student exhibits a thorough and comprehensive understanding of the research topic, providing a critical examination of relevant literature. The 'Literature Review' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point).
 - SLO Numeric Target: At least 80% of students will achieve level of 'Exemplary' (4 points) or 'Proficient' (3 points) on the rubric criterion 'Literature Review'.

C. If the proposed program is an AS-to-BS capstone, provide evidence that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as outlined in [State Board of Education Rule 6A-10.024](#). Additionally, list any prerequisites and identify the specific AS degrees that may transfer into the proposed program.

☒ **Not applicable to this program because it is not an AS-to-BS Capstone.**

D. Describe the curricular framework for the proposed program, including the following information where applicable:

- total number of semester credit hours for the degree

- **number of credit hours for each course**
- **required courses, restricted electives, and unrestricted electives**
- **a sequenced course of study for all majors, concentrations, tracks, or areas of emphasis**

FAMU and FSU students will follow an identical curriculum. Throughout their Aerospace Engineering program, students will participate in the Interdisciplinary Seminar Series (0 credits). The curricular framework for MS and PhD programs is detailed below.

Master's Program

I. Thesis Option

Aerospace Engineering students must take the following minimum distribution of courses for a total of 30 credit hours:

Core Courses

Nine credit hours:

- EML 5060 Analysis in Mechanical Engineering, and
- Two core courses in the major area (either Dynamics and Controls, Fluid Mechanics and Heat Transfer, or Solid Mechanics and Materials Science)

Core courses in Dynamics and Controls:

- EGM 5444 Advanced Dynamics
- EML 5317 Advanced Design and Analysis of Control Systems
- EML 5361 Multivariable Control
- EML 5930r Special Topics in Mechanical Engineering

Core courses in Fluid Mechanics and Heat Transfer:

- EML 5152 Fundamentals of Heat Transfer
- EML 5155 Convective Heat and Mass Transfer
- EML 5709 Fluid Mechanics Principles with Selected Applications
- EML 5930r Special Topics in Mechanical Engineering

Core courses in Solid Mechanics and Materials Science:

- EGM 5611 Introduction to Continuum Mechanics
- EML 5930r Special Topics in Mechanical Engineering

Aerospace Engineering Courses

- Six credit hours: two courses in Aerospace Engineering.

Electives

Nine credit hours:

- Select three graduate-level courses in any engineering field, mathematics, or any

science discipline (computer science, physics, etc.).

- Courses must be selected in consultation with the student's major professor.
- One of the three electives may include EML 5905 Directed Individual Study or EML 5910 Supervised Research.

Thesis

Six credit hours:

- EML 5971 Thesis, and
- EML 8976 Master's Thesis Defense

II. Non-Thesis Option

The non-thesis option requires 30 credit hours, of which at least 27 credit hours must be letter-graded courses. Students must complete 21 credit hours of coursework within aerospace or mechanical engineering. Nine credit hours may be taken outside the department in any of the following areas: engineering, mathematics, or any science discipline (computer science, physics, etc.).

Ph.D. Program

The standard PhD program requires 48 credit hours of coursework, of which at least 24 credit hours must be dissertation hours. The remaining letter-graded credit hours are divided into three areas:

General Engineering and Mathematics

Students must complete six credit hours of general engineering and advanced mathematics courses. One of those courses must be EML 5061 Analysis in Mechanical Engineering II. The remaining course must be from the approved course list. See the department website for the approval list.

Electives

Students must complete 18 credit hours of graduate-level, letter-graded electives. Courses may be taken in any engineering program, mathematics, and/or any science discipline.

BS to PhD Program

The BS-PhD program requires 60 credit hours of coursework, of which at least 24 credit hours must be dissertation hours. The remaining 36 letter-graded credit hours are divided into five areas:

General Engineering and Mathematics

Students must complete 9 credit hours of general engineering and advanced mathematics courses at the 5000 or higher level. One of those courses must be EML 5061 Analysis in Mechanical Engineering II. The remaining course must be from the approved course list. See the department website for the approval list.

Core Courses

Students must complete EML 5060 Analysis in Mechanical Engineering I and two courses

in their chosen depth area for 9 semester hours.

Aerospace Engineering Courses

Students must complete 6 credit hours of general aerospace-engineering courses.

Electives

Students must complete 12 credit hours of electives. Courses may be taken in any engineering program, mathematics, and/or any science discipline. Students may substitute one elective course with a Directed Individual Study (DIS) course or Supervised Research (SR) course.

Additional Requirements

Preliminary Examination

All PhD students must register for and pass EML 8968 (Preliminary Examination) before their fourth semester ends. The exam is designed to evaluate a student's grasp of a specified spectrum of Aerospace Engineering (at the undergraduate level) and their ability to think creatively. It consists of an oral examination following a written research proposal and is administered each term. After passing the exam, the student will be granted doctoral candidacy status, allowing them to register for dissertation credit hours.

Prospectus Defense

Within one year of obtaining candidacy status each PhD student must present a prospectus to their committee on a research project suitable for a doctoral dissertation. A forty-five-minute presentation of the proposed dissertation topic will be presented to the students' graduate committee for approval.

Dissertation Defense

Demonstrated ability to perform original research at the forefront of mechanical engineering is the final and major criterion for granting the doctoral degree. The candidate's dissertation serves, in part, to demonstrate such competence; on completion it is defended orally in a public seminar before the doctoral dissertation committee, which may then recommend the awarding of the degree.

E. Provide a brief description for each course in the proposed curriculum.

Below is the brief description of courses for the proposed curriculum. The definition of the prefixes used are:

EAS—Aerospace Engineering

EGM—Engineering Science

EGN—Engineering: General

EMA—Materials Engineering

EML—Engineering: Mechanical

- **EAS 5102. Fundamentals of Aerodynamics (3).** Prerequisites: EML 3015C and EML 3016C. This course includes fundamental fluid mechanics and aerodynamic principles in the design of airfoil and aircraft wings. The course provides a comprehensive review concerning applications, technological advances, and social impacts on the development of a modern flight vehicle.
- **EGM 5330. Random Data Measurement and Analysis (3).** Prerequisite: Graduate standing or instructor permission. This course explores random data, mean values, mean-square values, probability density and distribution functions, moments and characteristic functions, spectral and correlation analysis; bias and random error estimates in data measurements; input-output system models; measurement examples.
- **EGM 5348. Introduction to Scientific and High-Performance Computing (4).** Prerequisites: an understanding of linear algebra and knowledge of a programming language (C, C++, FORTRAN) or a scripting language (MATLAB, Python). This course covers fundamental concepts for scientific computing such as numerical solution methods, error analysis, and parallelization methodologies. Students explore essential tools and environments for high-performance computing and consider effective use of computational resources.
- **EGM 5444. Advanced Dynamics (3).** Prerequisite: EGN 3321, EML 3220, and MAP 3306. In this course, topics include particle and rigid body kinematics, particle and rigid body kinetics, D'Alembert Principle, LaGrange's equations of motion, system stability, computational techniques, orbital dynamics, multi-body dynamics.
- **EGM 5611. Introduction to Continuum Mechanics (3).** Prerequisite: Graduate standing. Solid and fluid continua. Cartesian tensor theory. Kinematics of infinitesimal deformation, relations between stress, strain, and strain rate for elastic, plastic, and viscous solids and for compressible and viscous fluids. General equations of continuum mechanics, integral forms, and their physical interpretation. Particular forms of equations and boundary conditions for elastic and viscoelastic solids and Newtonian fluids.
- **EGM 5612. Solid Mechanics and Electromagnetics of Continuous Media (3).** Prerequisites: Familiarity with topics of strength of materials, concepts of stresses and strains, a basic understanding of thermodynamics and electromagnetics. This course introduces concepts of continuum thermo-mechanics and electromagnetics with application in solving field-coupled boundary value problems.
- **EGM 5810. Viscous Fluid Flows (3).** Prerequisite: EML 5709. Presents the basic fundamentals underlying the mechanics of gas, air, and fluid flows. Discussion of the possible methods of estimating and predicting the characteristics and parameters governing those flows.
- **EGM 6845. Turbulent Flows (3).** Prerequisite: EML 5709. In-depth study of turbulent, flows, statistical description of turbulence; instability and transition; turbulence closure modeling; free shear and boundary layer flows; complex shear flows; development of computational strategies; recent literature on applications and chaos phenomena.
- **EMA 5226. Mechanical Metallurgy (3).** Prerequisites: EML 3234. Tensile instability,

crystallography, theory of dislocations, plasticity, hardening mechanisms, creep and fracture, electron microscopy, composite materials.

- **EMA 5514. Electron Microscopy (3).** Prerequisite: Instructor permission. This course focuses on fundamentals and techniques of electron microscopy as applied to the determination of physical, chemical, and structural properties of materials and materials behavior in practice.
- **EMA 5814. Computational Material Physics (3).** This course covers numerical simulation techniques for predicting various physical properties of conventional materials, nanomaterials, and biomaterials. Students use computational material physics tools to understand, predict, and design new materials and guide experimental studies at the atomistic level.
- **EML 5042. Modeling and Simulation of Mechanical Systems (3).** Prerequisites: EML 3014C, EML 3018C, or instructor permission. This course is an introduction to various concepts of modeling and simulation of mechanical systems, including models of systems, numerical solutions of ODEs, software tools for modeling and simulation of complex mechanical systems.
- **EML 5045. Manufacturing Processes Control (3).** Prerequisites: EML 3234 and EML 3012C. Corequisites: EML 4312 or EML 5311. This course introduces essential knowledge in the control of manufacturing systems and processes.
- **EML 5060. Analysis in Mechanical Engineering (3).** Prerequisite: Graduate standing in mechanical engineering. Familiarizes the student with methods of analysis in mechanical engineering. Surveys applications of integration and series, ordinary and partial differential equations, and linear algebra.
- **EML 5061. Analysis in Mechanical Engineering II (3).** Prerequisite: EML 5060 or equivalent. This course familiarizes students with applications of vector calculus and partial differential equations in mechanical engineering.
- **EML 5072. Applied Superconductivity (3).** Prerequisites: EEL 3472; EML 3100; EML 3234; PHY 3101. Introduction to superconductivity for applications, fundamentals of the superconducting state, transport current and metallurgy of superconductors, Superconducting electrons and magnets, system engineering.
- **EML 5103. Advanced Engineering Thermodynamics (3).** Prerequisite: Graduate standing in mechanical engineering. This course in thermal fluids covers the axiomatic formulations of the first and second laws of thermodynamics; general thermodynamic relationships and properties of real substances; energy, exergy, and second-law analysis of energy-conversion processes; reactive systems and multiphase equilibrium; entropy generation minimization and thermodynamic optimization; as well as applications to low-temperature refrigeration and power-generation systems.
- **EML 5152. Fundamentals of Heat Transfer (3).** Prerequisite: Graduate standing in mechanical engineering. This is an introductory course in basic heat transfer concepts. Topics include conduction and heat diffusion equation, forced and free convection, radiative heat transfer, boiling heat transfer, and condensation.

- **EML 5155. Convective Heat and Mass Transfer (3).** Prerequisites: EGM 5810; EML 5152. Familiarizes the student with methods to evaluate a convection heat transfer coefficient and a mass transfer coefficient for a variety of engineering applications. Evaluation of the driving force in mass transfer and combined problems.
- **EML 5162. Cryogenics (3).** Prerequisites: EML 3015C, EML 3016, and EML 3234. Miscellaneous requirement: EML 4512 and PHY 3101 are recommended. This course focuses on the fundamental aspects of cryogenics system and engineering properties of materials and fluids at low temperatures; cryogenic heat transfer and fluid dynamics, low temperature refrigeration and system engineering.
- **EML 5224. Acoustics (3).** Prerequisites: EML 3015C, EML 3016C. Corequisite: EML 5710. This course provides an introduction to physical acoustics with an emphasis on a thermal-fluids perspective.
- **EML 5289. Vehicle Design (3).** Prerequisites: EML 3014C and EML 3018C, or instructor permission. This is an introductory course in vehicle design concentrating primarily on vehicle dynamics. Students examine the key features of vehicle design that relate to performance: suspension, steering, chassis, and tires. By using the latest in industry standard software, students consider the various design parameters influencing vehicle performance and handling.
- **EML 5311. Design and Analysis of Control Systems (3).** Prerequisite: MAP 3306. Mathematical modeling of continuous physical systems. Frequency and time domain analysis and design of control systems. State variable representations of physical systems.
- **EML 5317. Advanced Design and Analysis of Control Systems (3).** Design of advanced control systems (using time and frequency domains) will be emphasized. Implementation of control systems using continuous (operational amplifier) or digital (microprocessor) techniques will be addressed and practiced.
- **EML 5361. Multivariable Control (3).** Prerequisite: EML 4312 or 5311. Course covers H₂ and H_∞ control design for linear systems with multiple inputs and multiple outputs and globally optimal techniques, fixed-structure (e.g., reduced-order) techniques. Includes introductory concepts in robust control.
- **EML 5422. Fundamentals of Propulsions Systems (3).** Prerequisite: EML 3015C, EML 3016C, and graduate standing in mechanical engineering. This course offers an analysis of the performance of propulsion systems using fundamental principles of thermodynamics, heat transfer, and fluid mechanics. Systems studied include turbojet, turbofan, ramjet engines, as well as piston-type internal combustion engines.
- **EML 5451. Energy Conversion Systems for Sustainability (3).** Prerequisites: Requires graduate standing. This course discusses the challenge of making the global energy system independent of finite fossil-energy sources and, instead, dependent on environmentally sustainable energy sources. The course emphasizes strategies for producing energy that is free of greenhouse-gas emissions, including renewable energy sources such as solar, wind, and biomass. The course focuses on direct energy conversion and covers topics such as photovoltaic cells, fuel cells, and thermoelectric systems.

- **EML 5453. Sustainable Power Generation (3).** Prerequisites: EML 4450 or EML 5451 or graduate student standing in engineering or sciences. This course is a continuation of sustainability energy-conversion systems and focuses on solar electricity, biopower, biofuels, and hydrogen. The course also discusses the practicality of hydrogen-based transportation.
- **EML 5525. Design and Modeling for Manufacturing Processes (3).** Prerequisites: EML 3012C and EML 3018C. This course covers descriptive and analytical treatment of manufacturing processes and production equipment, automation, as well as applications of mechanics stress analysis, vibrations, heat transfer. The course includes discrete time simulation.
- **EML 5537. Design Using FEM (3).** The Finite Element Method - what it is, elementary FEM theory, structures and elements, trusses, beams, and frames, two-dimensional solids, three-dimensional solids, axisymmetric solids, thin-walled structures, static and dynamic problems, available hardware and software, basic steps in FEM analysis, pre/post processing, interpretation of results, advanced modeling techniques, design optimization, advanced materials using FEM.
- **EML 5543. Materials Selection in Design (3).** Prerequisite: EML 3234 or equivalent. This course examines the application of materials predicated on material science and engineering case studies covering most engineering applications.
- **EML 5705. Active Flow Control (3).** Prerequisites: EML 3014C (or an equivalent undergraduate controls course) and EML 5709. This course covers active flow control. Active flow control is a rapidly emerging field of significant technological importance to the design and capability of a new generation of fluid systems, spawning major research initiatives in government industry, and academic sectors.
- **EML 5709. Fluid Mechanic Principles with Selected Applications (3).** Prerequisites: Graduate standing in mechanical engineering, EML 3015, and EML 5060 (or other course equivalents). This course explores introductory concepts, description, and kinematical concepts of fluid motion, basic field equations, thermodynamics of fluid flow, Navier-Stokes equations, elements of the effects of friction and heat flow, unsteady one-dimensional motion, selected nonlinear steady flows.
- **EML 5710. Introduction to Gas Dynamics (3).** Prerequisite EML 3016C. This course concentrates on the unique features of compressibility in fluid mechanics. It provides the student with knowledge and understanding of the fundamentals of compressible fluid flow and is basic to studies in high-speed aerodynamics, propulsion, and turbomachinery.
- **EML 5725. Introduction to Computational Fluid Dynamics (3).** Prerequisite: EML 5709. Topics for this course include introduction to conservation laws in fluid dynamics; weak solutions; solving the full potential equations for subsonic, transonic, and supersonic flows; solving system of equations. In particular, upwind schemes and flux splitting will be introduced in solving the Euler equations. Coordinate transformation and grid generation methods will also be covered.
- **EML 5802. Introduction to Robotics (3).** Prerequisite: Graduate standing in

mechanical engineering. This course studies the fundamentals of robot operation and application including basic elements, robot actuators and servo-control, sensors, senses, vision, voice, microprocessor system design and computers, kinematic equations, and motion trajectories.

- **EML 5803. Mechatronics II (3).** This course focuses on developing greater competence in the application of electromechanical components to solve engineering problems and build 'smart' systems. The course focuses on the design interplay between electrical and mechanical systems. Students use microprocessors, circuits, sensors, and actuators in both labs and projects to develop multi-purpose electromechanical devices. The course provides instruction and practical exercises in programming, electronics, signal conditioning, communication protocols, mechanical design, prototyping techniques, and system integration.
- **EML 5831. Introduction to Mobile Robotics (2).** Prerequisite: EML 3811 and EML 3811L or instructor permission. Corequisite: EML 5831L. This course examines kinematic modeling and simulation of mobile robots; mobile robot sensors; fundamental methods of computer vision; Kalman filtering and mobile robot localization; SLAM; path, trajectory planning, and obstacle avoidance; intelligent control architectures; and advanced topics in localization, mapping, and motion planning.
- **EML 5831L. Mobile Robotics Lab (1)** Prerequisite: EML 3811 and EML 3811L or instructor permission. Corequisite: EML 5831. This course offers a hands-on implementation of core and advanced mobile robotics algorithms. In addition, it introduces widely used mobile robotics software packages.
- **EML 5832. Bio/Robotic Locomotion (3).** Prerequisite: Permission of Instructor. This course introduces the fundamental concepts for biological and robotic locomotion with limbs. Muscular-skeletal biomechanics for vertebrate and invertebrate animals are briefly reviewed including an overview of the function of muscles. Morphology, gaits, posture, and the effect of scale on legged locomotion are discussed. The history of legged robots is reviewed. Reduced-order dynamic models of walking and running are introduced. Techniques for analyzing the stability of these periodic hybrid-dynamic systems are covered. The course includes the development and analysis of simulation and hardware platforms of locomotion systems.
- **EML 5930 : Introduction to Bayesian Uncertainty Analysis for Engineers:** This course will introduce students to Bayesian uncertainty analysis in engineering problems. It will compare Bayesian statistics to frequentist statistics. A tutorial based lecture series will be utilized to provide students with hands-on experience computing uncertainty of models in light of data. Matlab code will be provided.
- **EGM 5653 - Theory of Elasticity:** *Prerequisite: EGM 5611.* This is an introductory course which provides background necessary to mechanical engineers who wish to pursue the area of theoretical or analytical solid mechanics. Topics include Cartesian tensors, kinetics and kinematics of motion, constitutive equations, linearized theory of elasticity, and solutions to boundary value problems.
- **EML 5930 Introduction to Hypersonic Flows:** This course is a technical elective course designed for graduate level engineering students in the Aeronautics Track and

area of thermal and fluid sciences. The course includes fundamental of hypersonic aerodynamics and aerothermodynamics. It provides a comprehensive review concerning applications, technological advances, and social impacts on the development of a modern hypersonic flight vehicle. The course provides an overview of the guiding principles, compressible flow simulations and experimental observations to understand hypersonic flows.

- **EML 5905r. Directed Individual Study (1–9).** (S/U grade only). Instructor permission required. Individual study topics are determined by the instructor and student. May be repeated to a maximum of forty-five semester hours.
- **EML 5910r. Supervised Research (1–5).** (S/U grade only). A maximum of three semester hours may apply to the master's degree. May be repeated to a maximum of five semester hours.
- **EML 5930r. Special Topics in Mechanical Engineering (1–6).** Prerequisite: Instructor permission. This course explores various topics in mechanical engineering with emphasis on recent developments. Content and credit will vary. Consult the instructor.
- **EML 5935r. Mechanical Engineering Seminars (0).** (S/U grade only). May be repeated to a maximum of ten times.
- **EML 5946. Professional Internship Experience in Mechanical Engineering (4).** This course provides practical experience through working as an intern at selected industry or research laboratories supervised by the on-the-job mentors and by the Department of Mechanical Engineering. The course is designed to provide the student with professional internship experience in preparation for his/her future career development.
- **EML 5955r. MS Professional Traineeship Project (3–6).** Prerequisite: B.S. degree in Mechanical Engineering (or a related field) and EML 5946. In this two-semester course, students work on practice-oriented engineering design or research development project defined by industry or research laboratories to partially fulfill graduation requirements for the BS-MS professional Traineeship degree.
- **EML 5971r. Master's Thesis Research (1-12.)** (S/U grade only). This course provides a means of registering for thesis research work and recording progress towards its completion. Student must consult with the academic department for appropriate registration of course credit hours. May be repeated to a maximum of forty-five (45) credit hours; repeatable within the same term.
- **EML 6365. Robust Control (3).** Prerequisite: EML 5361. Course covers control design for systems with uncertain dynamics; robust H design, structured singular value synthesis; LMI and Riccati equation solution techniques.
- **EML 6980r. Dissertation (2–9).** (S/U grade only). May be repeated to a maximum of ninety-nine semester hours.
- **EML 8968. Preliminary Doctoral Examination (0).** (P/F grade only.)

- **EML 8976r. Master's Thesis Defense (0).** (P/F grade only.)
- **EML 8985r. Dissertation Defense (0).** (P/F grade only.) May be repeated to a maximum of three times.

The following is a list of new courses that will be developed over the first five years of the program. This list complements existing Mechanical Engineering courses to include additional topics important to aerospace engineering such as rotary wing systems, space applications, structural dynamics, and control.

- **Rotary Wing Aerodynamics:** This course covers vortex wake modeling, analytical inflow theories. Modern computational methods for rotary wing aerodynamic analysis. Aerodynamic Noise.
- **Structural Dynamics:** This course includes modeling of discrete systems; review of linear system theory, mathematical modeling of single-degree-of-freedom (SDOF) systems, viscous damping; structural damping; coulomb damping, Laplace transforms; Harmonic balance; Fourier series; Fourier integral; convolution integral; Duhamel's integral; work, energy, and Lagrange's equations, matrix eigenvalue problems; nature of modes; response of multi-degree-of-freedom systems by modal decoupling; rigid-body modes; stability; Hamilton's principle and calculus of variations, extension and torsion of rods; bending vibration of Euler-Bernoulli beams; bending-shear vibration of Timoshenko beams; beams with axial force, rotating beams; membranes and plates
- **Orbital Mechanics:** First graduate-level astrodynamics class that includes two-body orbital mechanics, orbit determination, orbit prediction, orbital maneuvers, lunar and interplanetary trajectories, orbital rendezvous and space navigation.
- **Planetary Entry, Descent and Landing:** This is a graduate-level elective that provides an integrated overview of planetary entry systems. The course content includes vehicle systems and definition, entry flight mechanics and dynamics, aerothermodynamics and thermal protection systems, aerodynamic decelerators and landing systems, and case studies based on recent robotic and human exploration mission concepts.
- **Introduction to System of Systems Engineering Principles:** This course covers methods related to the study, development, analysis, and design of complex systems and systems of systems. Lectures will cover each method by introducing its theoretical formulation, application criteria, and some example applications. The goal of the course is not to provide comprehensive coverage of each method, but to provide sufficient fundamental coverage of it to allow for the practical use of the methods on the group project.
- **Aerospace Nonlinear Control:** This course covers topics including Dynamical Systems and Differential Equations, Nonlinear Second-Order Dynamical Systems, Stability Theory for Nonlinear Dynamical Systems, Dissipative Theory for Nonlinear Dynamical Systems, Absolute Stability Theory, Input-Output Stability, Nonlinear Control.
- **Fundamentals of Fracture Mechanics:** This course is an advanced study of failure of structural materials under load, mechanics of fracture, and microscopic and macroscopic aspects of the fracture of engineering materials.

- **Composite Materials:** This course is an initial exposure to composite materials. It focuses on how heterogeneity/anisotropy in composites influence thermomechanical behavior. The behavior of both continuous and short fiber reinforced composites will be emphasized. Stress analysis for design, manufacturing processes and test methods of composite materials will be covered.
- F. For degree programs in medicine, nursing, and/or allied health sciences, identify the courses with the competencies necessary to meet the requirements in [Section 1004.08, Florida Statutes](#). For teacher preparation programs, identify the courses with the competencies required in [Section 1004.04, Florida Statutes](#).**
- ☒ **Not applicable to this program because the program is not a medicine, nursing, allied health sciences, or teacher preparation program.**
- G. Describe any potential impact on related academic programs or departments, such as an increased need for general education or common prerequisite courses or an increased need for required or elective courses outside of the proposed academic program. If the proposed program is a collaborative effort between multiple academic departments, colleges, or schools within the institution, provide letters of support or MOUs from each department, college, or school in Appendix D.**

As a graduate program, general education courses will be minimal; however, a strong mathematical background is required to understand fluid dynamics, nonlinear solid mechanics, and computational materials science. The Department of Mechanical Engineering has a long track record of working with several faculty within FSU's Mathematics Department. This has continued up to the present day through Mechanical Engineering seminars from faculty within the Math Department and meetings between faculty from Mechanical Engineering and Mathematics to build research partnerships. In certain instances, graduate students will take mathematics courses to supplement AE courses. This may be required to build a deeper understanding of numerical methods, interpret data with advanced statistics, machine learning algorithm development, and various other techniques to solve partial differential equations. We will continue to build these relationships to strengthen AE research via faculty collaborations and better educate our students with important mathematics courses.

- H. Identify any established or planned educational sites where the program will be offered or administered. Provide a rationale if the proposed program will only be offered or administered at a site(s) other than the main campus.**

This program will be offered as part of the FAMU-FSU College of Engineering in Tallahassee Florida. Students will take classes on the FAMU main campus, in the FAMU-FSU College of Engineering, and on the FSU main campus. Students will do their research where their advisor has their research labs on the FAMU main campus, in buildings in the FAMU-FSU College of Engineering, and in research buildings in Innovation Park (in Tallahassee).

- I. Describe the anticipated mode of delivery for the proposed program (e.g., face-to-face, distance learning, hybrid). If the method(s) of delivery will require specialized services or additional financial support, describe the projected**

costs below and discuss how they are reflected in Appendix A – Table 3A or 3B.

The courses will be delivered in the traditional face-to-face manner at the FAMU-FSU College of Engineering, FAMU main campus, or on the FSU campus as part of the cooperative agreement between the two universities.

J. Provide a narrative addressing the feasibility of delivering the proposed program through collaboration with other institutions, both public and private. Cite any specific queries of other institutions concerning shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

The Ph.D. in Aerospace Engineering will be offered jointly between FAMU and FSU as part of the joint College. No more institutions will be involved in the course offerings now. Given the recent Triumph award in additive manufacturing and aerospace to the FSU Panama City Campus, expansions to include research at this facility will be considered once the infrastructure is developed.

K. Describe any currently available sites for internship and/or practicum experiences. Describe any plans to seek additional sites in Years 1 through 5.

☒ **Not applicable to this program because the program does not require internships or practicums.**

V. Program Quality Indicators - Reviews and Accreditation

A. List all accreditation agencies and learned societies concerned with the proposed program. If the institution intends to seek specialized accreditation for the proposed program, as described in [Board of Governors Regulation 3.006](#), provide a timeline for seeking specialized accreditation. If specialized accreditation will not be sought, please explain.

The Aerospace Engineering undergraduate programs hold accreditation from ABET, the accrediting body for engineering programs. Notably, the FAMU-FSU College of Engineering lacks an undergraduate program in Aerospace Engineering. Additionally, it is important to note that there are no specific accreditation agencies for graduate programs (both M.S. and Ph.D.) in Aerospace Engineering.

B. Identify all internal or external academic program reviews and/or accreditation visits for any degree programs related to the proposed program at the institution, including but not limited to programs within the academic unit(s) associated with the proposed degree program. List all recommendations from the reviews and summarize the institution's progress in implementing those recommendations.

The FAMU-FSU Department of Mechanical Engineering underwent a Program Self-Study (Quality Enhancement Review—QER) in February of 2019. Key outcomes of the review and recommendations related to the graduate program are highlighted here. We also summarize progress since this review in implementing the QER recommendations. One overall goal that was included in the QER was to establish a nationally recognized graduate program with active recruitment strategies and excellent professional

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preparation. Two of the objectives and strategies to achieve this goal included: 1) Develop an online degree program in Aeronautical Engineering through an asynchronous distance learning delivery system and 2) Establish new degree programs (MS and PhD) in the area of aerospace engineering. We have developed a distance learning aerospace certification program and now are aimed at establishing the AE graduate degree programs.

A broader assessment of the 2019 QER is given through three of the department's primary goals:

1. Establish a nationally recognized graduate program with active recruitment strategies and excellent professional preparation.
2. Expand our internationally-recognized research programs, especially in terms of interdisciplinary research collaborations and professional development.
3. Be recognized as one of the top ME programs in terms of educational innovations, outstanding research activities, and promotion of diversity.

With respect to aerospace engineering, we have made significant strides in all three of these goals.

Regarding item 1, we have developed active recruiting strategies that include Research Experiences for Undergraduates supported by the National Science Foundation (NSF) and the Department of Energy (DOE). This has led to two female SMART Fellows within our department. One of these students was the first FAMU SMART Fellow within our department. We have also begun actively recruiting US students at major conferences such as the AIAA SciTech conference which is the largest aerospace conference in the US. Our College of Engineering has provided financial support for these recruiting efforts. The department has also supported travel for FAMU faculty and students to attend the Black Engineer of the Year (BEYA) STEM Conference which includes ~12,000 attendees with 45% of these attendees being college students. Faculty within the ME Department have also been more active on social media (i.e., LinkedIn) to highlight student achievements and research opportunities for graduate and undergraduate students. With respect to professional development, one key highlight is the Mechanical Engineering Graduate Student Association (MEGSA) which is an officially Recognized Student Organization (RSO) that gives graduate students excellent leadership experience by organizing seminars and participating in K-12 outreach programs. The Department Chair also created a podcast, Mechanically Incorrect, that highlights faculty research achievements and failures along the way toward success in academia. This has been done as one way for students to learn more about our faculty members' journeys in engineering.

In support of items 2 and 3, we have expanded research activities in the field of hypersonics that include cooperative agreements with Wright Patterson and Eglin Air Force Research Laboratories (AFRL/RW, RQ), invested in wind tunnel experimental facilities to reach Mach 5 in the Poly-Sonic Wind Tunnel (PSWT) (support from both FAMU and FSU), hired four faculty (assistant & associate level) working in the fields of hypersonics, advanced fluid flow diagnostic tools, extreme materials, and robotics (female hire). The junior faculty working on extreme materials is a joint hire between ME and IME (Industrial and Manufacturing Engineering). Our department is also actively recruiting

faculty affiliated with the new FSU Quantum Information and Science initiative to expand our computational and experimental research activities, which aligns with FSU research goals. Faculty hiring has aligned well with recommendations in our QER, which included: hypersonic flows, quantum computing, and robotics/autonomous control.

Our department was also awarded the first AFOSR Center of Excellence, AEROMORPH, to FSU to study next-generation high-speed morphing vehicles using intelligent structures. Regarding interdisciplinary research, these research activities have included computations, experimental methods, controls, information theory, energy systems, and materials science. AEROMORPH and the cooperative agreements with AFRL also include major efforts towards workforce development of students working in our, and Air Force, laboratories. Other workforce development activities have included NASA minority programs and Department of Energy materials research for hydrogen storage. In addition, the Mechanical Engineering graduate seminar has been expanded to include professional development speakers who discuss a variety of topics such as industry/academic/government laboratory professions, navigating graduate school, and leadership.

Whereas we have achieved several of the goals stated in the 2019 QER, there were also weaknesses and threats pointed out. Key weaknesses and *opportunities to overcome these weaknesses* through the creation of an aerospace degree program are given as follows:

- Specific research programs are fragile due to a lack of a critical mass of faculty or the departure of core faculty members (e.g., robotics). *We propose to increase the number of faculty members within our department by 6-10 to support aerospace graduate research and education. These faculty members may also support mechanical engineering and thus stabilize the critical mass of core mechanical and aerospace engineering faculty members.*
- Faculty lines are not always owned by the College of Engineering (e.g., Maglab lines, Materials & Energy cluster hiring), so it may be difficult to replace lost faculty. *It is expected that faculty lines associated with aerospace engineering would reside within the College of Engineering and Department of Mechanical Engineering. A subset of these lines may be joint hires within departments that have interest in this research field such as Mathematics, Materials Science & Engineering, Industrial & Manufacturing Engineering, and Electrical & Computer Engineering. This should provide stability to replace faculty.*
- Difficult to sustain collective core value for internal coherence to develop long-term strategic focus. *The addition of aerospace engineering will create a new strategic focus that will align with the overall strategic direction of mechanical engineering since aerospace engineering overlaps core areas of need within our department including controls, dynamical structures, and advanced materials.*
- Large class sizes due to an inadequate number of faculty. *Additional aerospace faculty will be able to teach many mechanical engineering undergraduate courses. Class size reduction has already been implemented in 2023 upon hiring four new mechanical and aerospace engineering faculty, and this model will continue with additional aerospace engineering faculty.*
- Inadequate representation of women faculty and inadequate representation of

minority and women students. *Mechanical Engineering recently hired one female roboticist, Dr. Taylor Higgins, and will continue to be committed to recruit and mentor female faculty through proper advertising of opportunities within this new program.*

- Inadequate recruitment of FAMU students, especially FAMU scholars. *This will be the first aerospace engineering graduate program at an HBCU which should provide excellent opportunities to attract top FAMU students and scholars.*
- C. For appropriate degree programs, discuss how employer-driven or industry-driven competencies were identified and incorporated into the curriculum. Additionally, indicate whether an industry or employer advisory council exists to provide input for curriculum development, student assessment, and academic-force alignment. If an advisory council is not already in place, describe any plans to develop one or other plans to ensure academic-workforce alignment.**

An advisory council currently exists for the Department of Mechanical Engineering which includes several aerospace industry engineers and Air Force Research Laboratory research scientists. Given the strong overlap of this advisory council, they will assist in providing input to our curriculum and other graduate student support such as internships and scholarships.

VI. Faculty Participation

- A. Use Appendix A – Table 2 to identify existing and anticipated full-time faculty who will participate in the proposed program through Year 5, excluding visiting or adjunct faculty. Include the following information for each faculty member or position in Appendix A – Table 2:**

- the faculty code associated with the source of funding for the position
- faculty member's name
- the highest degree held
- academic discipline or specialization
- anticipated participation start date in the proposed program
- contract status (e.g., tenure, tenure-earning, or multi-year annual [MYA])
- contract length in months
- percent of annual effort that will support the proposed program (e.g., instruction, advising, supervising)

This information should be summarized below in narrative form. Additionally, provide the curriculum vitae (CV) for each identified faculty member in Appendix E.

The source of funding for all faculty within this program is associated with the Mechanical Engineering Budget 218000110 budget. Faculty members involved in the program are listed below along with details describing their background and amount of participation. All existing faculty members will start supporting the program in year 1 and they are projected to continue supporting the program in year 5.

Alexandre Berger has a PhD in Aerospace Engineering. He specializes in experimental fluid dynamics at both low and high (hypersonic) speeds. He is a tenure-earning faculty

member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 4% for the first year and 13% for the fifth year.

Brandon Krick has a PhD in Mechanical Engineering. He specializes in experimental mechanics and tribology. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

Carl Moore has a PhD in Mechanical Engineering. He specializes in dynamics and haptic systems. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 10% for the fifth year.

Chiang Shih has a PhD in Mechanical Engineering. He specializes in experimental fluid dynamics. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 8% for the first year and is anticipated to retire by the fifth year.

Christian Hubicki has a PhD in Mechanical Engineering. He specializes in robotics and optimal control. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

David Larbalestier has a PhD in Physical Metallurgy. He specializes in experimental characterization of superconducting materials. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and is anticipated to retire by the fifth year.

Eric Hellstrom has a PhD in Materials Science & Engineering. He specializes in experimental characterization of ceramics and superconductors. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and is anticipated to retire by the fifth year.

Farrukh Alvi has a PhD in Mechanical Engineering. He specializes in experimental fluid dynamics. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 5% for the fifth year since he is on a reduced teaching load while working in the FSU Provost office.

Fumitake Kametani has a PhD in Materials Science & Engineering. He specializes in characterization and microscopy of advanced materials. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 5% for the fifth year.

Huixuan Wu has a PhD in Mechanical Engineering. He specializes in experimental fluid dynamics and instrumentation development. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 18% for the fifth year.

Jizhe Cai has a PhD in Aerospace Engineering. He specializes in experimental characterization of extreme materials. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 15% for the first year and 40% for the fifth year.

Juan Ordonez has a PhD in Mechanical Engineering. He specializes in modeling of advanced energy systems for naval and aerospace applications. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

Kourosh Shoele has a PhD in Mechanical Engineering. He specializes in modeling of fluid-structure interactions. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

Mohd Ali has a PhD in Mechanical Engineering. He specializes in experimental fluid dynamics. He is a teaching faculty member on a twelve-month appointment. His percentage of annual effort that will support the aerospace graduate program is 10% for the first year and 18% for the fifth year.

Neda Yaghoobian has a PhD in Mechanical Engineering. She specializes in modeling of fluid dynamic, atmospheric behavior, and fire dynamics. She is a tenured faculty member on a nine-month appointment. Her percentage of annual effort that will support the aerospace graduate program is 10% for the first year and 40% for the fifth year.

Rajan Kumar has a PhD in Aerospace Engineering. He specializes in experimental characterization of fluid dynamics. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 10% for the first year and 20% for the fifth year.

Unnikrishnan Sasidharan Nair has a PhD in Mechanical Engineering. He specializes in modeling of high speed fluids. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

Wei Guo has a PhD in Physics. He specializes in characterizing quantum turbulence and quantum computing hardware. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 12% for the fifth year.

William Oates has a PhD in Mechanical Engineering. He specializes in modeling and experimental characterization of smart materials and adaptive structures. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 15% for the first year and 20% for the fifth year. The larger percentage listed here is in anticipation of administrative duties as Department Chair.

Additional faculty members are proposed to be hired over the five-year build-up period. This includes 2 faculty on existing lines that are unfilled. One of these is expected to be at the Assistant Professor level in the field of aerospace structures. This person must

have a PhD in aerospace, mechanical engineering or closely related field. They are expected to be hired into Mechanical Engineering in the fall of 2024 (as part of an ongoing search) and start in the fall of 2025 in the Aerospace Engineering graduate program. His/her percent effort will increase from 20% in year one to 30% in year 5. The second position is expected to be at the Associate Professor level. This person will also have a PhD in aerospace or mechanical engineering or a closely related field. This person is expected to start within the program in the fall of 2025. This existing line is associated with the departure of Prof. Lou Cattafesta from the Mechanical Engineering department in 2023. He/she is expected to commit 30% of their time to this program. Nine additional new faculty lines are proposed (4 tenure-earning Assistant Professors, 2 Associate Professors and 3 Research Faculty). These faculty members are also expected to have PhDs in aerospace or mechanical engineering or a closely related field. They are all expected to contribute 30% of their time to the program by year 5. The hiring will be distributed over years 1-5. In 2026, we plan to hire one Associate Professor and one Assistant Professor. In 2027, we expect to hire 2 Assistant Professors and 1 Research Faculty. In 2028, we expect to hire 2 Research Faculty.

B. Provide specific evidence demonstrating that the academic unit(s) associated with the proposed program has been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, and other qualitative indicators of excellence (e.g., thesis, dissertation, or research supervision).

All faculty members engaged in this program are active in teaching, research, and service. The most active researchers have on the order of \$1.2M-\$1.3M research expenditures per year while the average annual research expenditure is on the order of \$350,000. This includes basic research through Department of Defense programs (e.g., ARO, AFOSR, ONR, DARPA), the National Science Foundation (NSF), and the Department of Energy (DOE). One of our Assistant Professors, Prof. Unni Nair, received the ONR Young Faculty Award in 2023 which is a highly prestigious young faculty grant. He will be expanding research in computational fluid dynamics of high speed flows. Five other faculty within this cohort have been awarded the NSF CAREER and two have been awarded the DARPA Young Faculty Award (YFA). With respect to teaching, all tenured and tenure-track faculty teach a nominal 3 courses per year (2+1 or 1+2) excluding new faculty. We provide junior faculty with a reduced course load (1+1) so that they can spend more time building their research program, recruiting students, and learning new pedagogical methods. Other exclusions to this teaching load are applied to faculty members with high research activity or high service load (e.g., department chair, center director). However, some faculty continue to teach despite large service and research loads. For example, Prof. Rajan Kumar created a new course on hypersonic flows which was co-taught with Prof. Unni Nair in the spring of 2023. Prof. Kumar is the Director of FCAAP and also had over \$1M of research expenditures last year. Teaching instructors are expected to be on 12 month contracts and teach a full load of 3+3+2 courses. Exclusions to this rule are considered for courses that contain additional experimental laboratory elements or recitations. Additionally, the Mechanical Engineering Department created an online Aerospace Engineering Certificate through FSU which included the creation of seven new online courses that are currently offered asynchronously. Additionally, four of the seven new courses are Quality Matters (QM) certified. These

teaching activities are in addition to normal Mechanical Engineering course offerings. All faculty are required to participate in a variety of service activities including contributions to department, college, and university committees and contributions to the broader community which may include research communities and/or K-12 programs.

VII. Estimate of Investment

A. Use Appendix A – Table 3A or 3B to provide projected costs and associated funding sources for Year 1 and Year 5 of program operation. In narrative form, describe all projected costs and funding sources for the proposed program(s). Data for Year 1 and Year 5 should reflect snapshots in time rather than cumulative costs.

The base reallocation (E&G) for Year 1 is \$237,825 of faculty salaries and benefits. Additional programmatic expenses are \$10,000 for graduate student recruitment. The base reallocation (E&G) in Year 1 also includes \$10,000 for 0.3 FTE A&P or OPS for support staff plus \$50,000 OPS funds for assistantships and fellowships to help attract high-quality graduate students whose salary is primarily supported by C&G. The total E&G reallocated in Year 1 is \$307,825. The estimated amount of C&G in Year 1 is \$456,871. This estimate is based on five-year research expenditure averages of the faculty involved in the program times their percent effort to the new program. The C&G is assumed to be distributed across faculty summer salaries, student stipends, materials, and travel expenses.

In Year 5, the Continuing Base (E&G) includes \$588,375 in faculty salaries and benefits, \$15,000 for student recruiting events and other programmatic expenses, \$50,000 in A&P/OPS staff support, and \$50,000 OPS funds for assistantships and fellowships. The C&G in Year 5 is estimated to be \$1,158,849 based on estimated research grants and contracts of new faculty members.

B. See Appendix A for details. Use Appendix A – Table 4 to show how existing Education & General (E&G) funds will be reallocated to support the proposed program in Year 1. Describe each funding source identified in Appendix A – Table 4, and justify below the reallocation of resources. Describe the impact the reallocation of financial resources will have on existing programs, including any possible financial impact of a shift in faculty effort, reallocation of instructional resources, greater use of adjunct faculty and teaching assistants, and explain what steps will be taken to mitigate such impacts.

The Mechanical Engineering Budget 218000110 includes \$3,534,076 base before reallocation. The amount to be reallocated is \$307,825. A negligible impact on the Mechanical Engineering Department is anticipated given the shared mission of engineering research and education between mechanical and aerospace engineering. Furthermore, aerospace engineering research and education are well aligned with other programs at the College of Engineering including Industrial and Manufacturing Engineering, Electrical and Computer Engineering, and Materials Science and Engineering. We expect the alignment of aerospace engineering with existing engineering programs to minimize any unforeseen impacts on resource allocation.

C. If the institution intends to operate the program as self-supporting, market

tuition rate, or establish a differentiated graduate-level tuition, as described in [Board of Governors Regulation 8.002](#), provide a rationale and a timeline for seeking Board of Governors' approval.

☒ Not applicable to this program because the program will not operate as self-supporting, market tuition rate, or establish a differentiated graduate-level tuition.

D. Provide the expected resident and non-resident tuition rate for the proposed program for both resident and non-resident students. The tuition rates should be reported per credit hour unless the institution has received approval for a different tuition structure. If the proposed program will operate as a continuing education program per [Board of Governors Regulation 8.002](#), describe how the tuition amount was calculated and how it is reflected in Appendix A – Table 3B.

Registration and tuition fees are established by the Board of Education and the FSU and FAMU Board of trustees as required by the Florida Legislature. The program will apply the graduate tuition fees as outlined in the following schedule. The fees are subject to change without notice.

	In-State	Out-of-State
FSU*	\$479.32	\$1,110.72
FAMU**	\$405.67	\$1,022

*Per credit hour does not include the Student Facilities Use Fee assessed to Main Campus Students at the rate of \$20 per semester.

**Per credit hour does not include a required fees of \$70 for fall and spring semesters each and \$33 for summer semester.

E. Describe external financial and in-kind resources available to support the proposed program and explain how this amount is reflected in Appendix A – Table 3A or 3B.

VIII. Self-Supporting and Market Tuition Rate Programs

Note: Skip this section if the proposed program will not operate as a self-supporting or market tuition rate program.

Proposed Program Type

☐ Market Tuition Rate Program

☐ Online

☐ Continuing Education

☐ Self-Supporting Program

☒ N/A

A. Provide supporting documentation in a separate attachment that serves as evidence that the new program will not supplant any existing similar or equivalent E&G degree offering. Describe the evidence in narrative form below. ***Note that Board Regulation 8.002 considers a program similar if it is offered under the same CIP code as one funded under the E&G budget entity.***

The Department Chair, William Oates, contacted chairs in Florida who have aerospace graduate programs. This includes programs at the University of Florida and the University of Central Florida. Both chairs have given their support to starting a program at the FAMU-FSU College of Engineering. Email correspondences are included in Appendix B describing the details of these discussions.

In terms of the potential impact on the FAMU-FSU Department of Mechanical Engineering, there will be some level of impact on this department since there is a subset of graduate students within ME who conduct aerospace engineering research. However, the overall number of graduate students in aerospace and mechanical engineering is expected to grow by offering the additional choice of either a graduate degree in mechanical or aerospace engineering. This is primarily due to a broader range of course offerings and research opportunities in both mechanical and aerospace engineering.

B. If the proposed self-supporting or market tuition rate program will be a track under an existing E&G program or has a similar existing E&G program, provide a side-by-side tuition and fee comparison in the table below. Provide a link to the university's website that provides students with information about financial assistance and obligations for repayment of loans for these programs.

☒ **Not applicable because the program will not be a track under an existing E&G program or is not similar to an existing E&G program.**

Tuition and Fee Comparison	
E&G Track or Program	Proposed Program

C. Explain whether the program leads to initial licensing or certification in occupational areas identified as a state critical workforce need. If so, which licenses and certifications will graduates receive upon completion, and explain why implementing the program as self-supporting or market tuition rate is the best strategy to increase the number of graduates in the state.

Note: Questions D – M pertain only to market tuition rate programs. If the proposed program will be self-supporting, skip to Section IX.

D. Explain the process used to determine the proposed market tuition rate and provide the tuition of similar programs offered by other SUS institutions and private institutions as appropriate so that the tuition of at least five similar programs is provided. If the proposed tuition rates differ for resident and non-resident students, explain why.

- E. Explain how offering the proposed program at a market tuition rate is aligned with the university's mission. If the program qualifies as a Program of Strategic Emphasis, provide additional justification for charging higher tuition for the proposed program.**
- F. Provide a declaratory statement that offering the proposed program at the market tuition rate does not increase the state's fiscal liability or obligation.**
- G. Explain any proposed restrictions, limitations, or conditions to be placed on the program.**
- H. Explain how the university will ensure sufficient courses are available to meet student demand and facilitate program completion.**
- I. If applicable, provide a baseline of current enrollments, including a breakout of resident and non-resident enrollment in similar courses funded by the E&G budget entity.**
- J. Describe any outcome measures that will be used to determine the program's success.**
- K. List the campuses and/or sites at which the proposed program will be offered. If the program is only offered online, indicate that, and provide the location from which the program will be managed.**
- L. Provide an estimate of the total and net annual revenue the university anticipates collecting for Years 1 and 5 if the proposal is approved. This information should be consistent with the data provided in Appendix A – Table 3B, which is required as a part of this proposal.**
- M. Describe how revenues will be spent, including whether private vendors will be utilized and for what purpose. Additionally, identify all budget entities used for the program.**

IX. Non-Faculty Resources

- A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5 below, including but not limited to the following:**
 - the total number of volumes and serials available in the discipline and related disciplines
 - all major journals that are available to the university's students**The Library Director must sign the additional signatures page to indicate they have reviewed Sections IX.A. and IX.B.**

The following library resources through FAMU are available to support aerospace engineering:

Electronic Databases

The databases contain full-text articles, abstracts, conference proceedings, book chapters, newsletters, online journals, e-book collections, and other research content in the fields of science, engineering, and technology.

1. Abstracts in New Technology and Engineering
2. Access Engineering
3. ACM Digital Library
4. ACS Journals
5. Applied Science & Technology Source
6. Ceramic Abstracts
7. Civil Engineering Abstracts (ProQuest)
8. Compendex
9. Computing (Advanced Technologies and Aerospace Database)
10. Engineering Collection
11. Engineered Materials Abstracts (ProQuest)
12. Engineering Village
13. Environmental Engineering Abstracts
14. IEEE Xplore
15. Inspec
16. IOP Electronic Journals
17. Mary Ann Liebertpub
18. Materials Business Files
19. Materials Research Database
20. Mechanical & Transportation Engineering Abstracts
21. Mechanical Engineering Abstracts
22. ProQuest Engineering Research Database
23. ScienceDirect
24. SpringerLink
25. Solid State & Superconductivity Abstracts
26. Sustainability Science Abstracts

Online Journals (Accessible Directly from the Online Catalog)

Additional journals and journal articles related to aerospace engineering are available in the online databases, which are also accessible from online. The list below is limited to the titles that are accessible directly from the online catalog. The full list of journals, that are accessible through the databases, is significantly more extensive.

1. *International Journal of Aerospace Engineering* (2007-). Hindawi Publishing Corporation.
2. *Journal of Aerospace Engineering* (1988). American Society of Civil Engineers. Aerospace Division.
3. *Advances in Aerospace Engineering* (2014). Hindawi Publishing Corporation.
4. *Transport and Aerospace Engineering* (2014).
5. *Aircraft Engineering and Aerospace Technology* (1986).
6. *Proceedings of the Institution of Mechanical Engineers*. Part G, Journal of Aerospace Engineering (1989-). Institution of Mechanical Engineers.
7. *Journal of the Institution of Engineers. Series C. Mechanical, Production, Aerospace and Marine Engineering* (2012). Institution of Engineers.
8. *IEEE transactions on Aerospace and Electronic Systems* (1965). IEEE Aerospace and Electronic Systems Society.

9. *SAE International Journal of Aerospace* (2009). Society of Automotive Engineers.
10. *International Journal of Aviation, Aeronautics, and Aerospace* (2014-). Embry-Riddle Aeronautical University.
11. *IEEE Aerospace and Electronic Systems Magazine* (1988). IEEE Aerospace and Electronic Systems Society.
12. *Mathematics in Engineering, Science and Aerospace: MESA* (2010-).
13. *Astrodynamics* (2017-).
14. *International Journal of Micro Air Vehicles* (2009-).
15. *International Journal of Aerospace Innovations* (2009-2013).
16. *International Journal of Aeronautical and Space Sciences*.
17. *Journal of KONBIN* (2006).
18. *Aviation* (2003).
19. *Aerospace* (2014).
20. *Annals of Solid and Structural Mechanics* (2010-)
21. *The International Journal of Aerospace Psychology* (2017-). Taylor and Francis: Association for Aviation Psychology.
22. *Visualization in Engineering* (2013). Curtin University.
23. *SAE International Journal of Passenger Cars* (2009-). Society of Automotive Engineers.
24. *SAE International Journal of Alternative Powertrains* (2012-2019). Society of Automotive Engineers.
25. *International Journal of Engine Research*. Society of Automotive Engineers (2000). Society of Automotive Engineers.
26. *International Journal of Heat and Fluid Flow* (1979-). Institution of Mechanical Engineers.
27. *SAE International Journal of Materials and Manufacturing* (2009). Society of Automotive Engineers.
28. *Stapp Car Crash Journal* (2000-). Stapp Car Crash Conference. SAE International Society. Society of Automotive Engineers.
29. *SAE International Journal of Fuels and Lubricants* (2009-). Society of Automotive Engineers.
30. *SAE International Journal of Commercial Vehicles* (2009-). Society of Automotive Engineers.
31. *SAE International Journal of Passenger Cars. Electronic and Electrical Systems* (2009-). Society of Automotive Engineers.
32. *SAE International Journal of Engines* (2009-). Society of Automotive Engineers.
33. *Applied Adhesion Science* (2013-). Brazilian Society of Adhesion and Adhesives.
34. *The Journal of Air Law and Commerce* (1939-). Southern Methodist University, School of Law. Northwestern University, School of Law. Northwestern University, School of Business. Northwestern University, Transportation Center.

Books (Electronic Books)

The books listed below are a sample of the books and conference proceedings that are available directly from the online catalog. There are over 1,100 books listed in the catalog that are related to aerospace engineering. The books listed below are some of the most recent publications, between the years of 2020 to 2024. Additional books and book chapters are available from the online databases.

1. [Post-Processing Techniques for Additive Manufacturing](#)
Alam, Zafar, editor.; Iqbal, Faiz, editor.; Ahmad Khan, Dilshad, editor. 2024
2. [Energy-efficient electrical systems for buildings](#)
Karti, Moncef, author. 2024
3. [Aircraft performance : an engineering approach](#)
Sadraey, Mohammad H., author. 2024
4. [Human factors in simulation and training : application and practice](#)
Vincenzi, Dennis A., editor. 2024
5. [Advanced Materials Processing and Manufacturing : Research, Technology, and Applications](#)
Bolokang, Amogelang Sylvester, author.; Mathabathe, Maria Ntsoaki, author. 2024
6. [Automation in Construction Toward Resilience : Robotics, Smart Materials and Intelligent Systems](#)
Farsangi, Ehsan Noroozinejad, editor. 2024
7. [Navigating the Complexity Across the Peace-Sustainability-Climate Security Nexus](#)
Amadei, Bernard, 1954- author. 2024
8. [Human factors in simulation and training : theory and methods](#)
Vincenzi, Dennis A., editor. 2024
9. [Laser-based technologies for sustainable manufacturing](#)
Kumar, Avinash, Dr., editor.; Ashwani Kumar, editor.; Kumar, Abhishek, editor. 2024
10. [Composite Materials : High Strain Rate Studies](#)
Velmurugan, R. (Professor of aerospace engineering), editor.; Ruan, Dong, editor.; Gurusideswar, S. (Professor of aerospace engineering), editor. 2024
11. [Data Driven Methods for Civil Structural Health Monitoring and Resilience : Latest Developments and Applications](#)
Noori, Mohammad, author. 2024
12. [Post-Processing Techniques for Additive Manufacturing](#)
Alam, Zafar, editor.; Iqbal, Faiz, editor.; Ahmad Khan, Dilshad, editor. 2024
13. [Energy-efficient electrical systems for buildings](#)
Karti, Moncef, author. 2024
14. [Aircraft performance : an engineering approach](#)
Sadraey, Mohammad H., author. 2024
15. [Human factors in simulation and training : application and practice](#)
Vincenzi, Dennis A., editor. 2024

Books

1. Advanced Materials Processing and Manufacturing: Research, Technology, and Applications Bolokang, Amogelang Sylvester, author.; Mathabathe, Maria Ntsoaki, author.2024.
2. Automation in Construction Toward Resilience : Robotics, Smart Materials and Intelligent Systems, Farsangi, Ehsan Noroozinejad, editor. 2024
3. Navigating the Complexity Across the Peace-Sustainability-Climate Security Nexus Amadei, Bernard, 1954- author. 2024
4. Human factors in simulation and training: theory and methods Vincenzi, Dennis A., editor. 2024
5. Laser-based technologies for sustainable manufacturing Kumar, Avinash, Dr., editor.;

Ashwani Kumar, editor.; Kumar, Abhishek, editor. 2024

6. Composite Materials : High Strain Rate Studies Velmurugan, R. (Professor of aerospace engineering), editor.; Ruan, Dong, editor.; Gurusideswar, S. (Professor of aerospace engineering), editor. 2024
7. Data Driven Methods for Civil Structural Health Monitoring and Resilience : Latest Developments and Applications Noori, Mohammad, author. 2024
8. Applications of unsaturated polyester resins : synthesis, modifications, and preparation methods, Thomas, Sabu, editor.; Chirayil, Cintil Jose, editor. 2023
9. Applications of multifunctional nanomaterials Thomas, Sabu, editor.; Kalarikkal, Nandakumar, editor.; Abraham, Ann Rose, editor. 2023
10. Elastic wave propagation in structures and materials Gopalakrishnan, S. (Srinivasan), author. 2023
11. Radar and radionavigation : pre-professional training for aviation radio specialists Kozlov, Anatoly Ivanovich, author.; Shatrakov, Yuri Grigoryevich, author.; Zatuchny, Dmitry Alexandrovich, author. 2023
12. Synthetic and Natural Nanofillers in Polymer Composites : Properties and Applications Nurazzi, N. M., editor. 2023
13. Sheet Metal 2023., Hagenah, H. 2023
14. Basic fracture mechanics and its applications Saxena, A. (Ashok), author. 2023
15. Reliability engineering : a life cycle approach Bradley, Edgar, author. 2023
16. Nanomaterials for sustainable tribology Raina, Ankush, editor. 2023
17. Space situational awareness : guiding the transition to a civil capability : hearing before the Subcommittee on Space and Aeronautics of the Committee on Science, Space and Technology, of the House of Representatives, One Hundred Seventeenth Congress, second session, May 12, 2022. United States. Congress. House. Committee on Science, Space, and Technology (2011-). Subcommittee on Space and Aeronautics, author. 2023
18. Engineering dynamics : fundamentals and applications Islam, M. Rashad, author.; Ahmed, Mahbub (Engineer), author.; Mazumder, A K M Monayem H, author. 2023
19. Design and analysis of functionally graded adhesively bonded joints of FRP composites Panigrahi, Sashi Kanta, author.; Nimje, Sunil V., author. 2023
20. Advanced manufacturing processes Singh, Yashvir, editor. 2023
21. Advances in combustion technology Mishra, Debi Prasad (Professor of aerospace engineering), editor. 2023
22. Fundamentals of thermal spraying S, Ariharan, editor. 2023
23. Additive manufacturing with medical applications Kumar Banga, Harish, editor. 2023
24. Ratio of momentum diffusivity to thermal diffusivity : introduction, meta-analysis, and scrutinization Animasaun, Isaac Lare, author. 2023
25. Rapid cure composites : materials, processing and manufacturing Hameed, Nishar, editor. 2023
26. Smart coatings : fundamentals, developments, and applications Kathavate, Vaibhav

Sanjay, author.; Deshpande, Pravin Pralhad, author. 2023

27. Materials for lightweight constructions Kumaran, S. Thirumalai, editor. 2023
28. Creep : fatigue models of composites and nanocomposites Razdolsky, Leo, author. 2023
29. Advances in structural adhesive bonding Dillard, David A., editor. 2023
30. Metaversed : see beyond the hype Martins, Luis Bravo, author.; Wolfe, Samantha G, author. 2023
31. Reliability and physics-of-healthy in mechatronics Delaux, David, editor.; El Hami, Abdelkhalak, editor.; Grzesowiak, Henri, editor. 2023
32. Polymer crystallization : methods, characterization, and applications Parameswaranpillai, Jyotishkumar, editor. 2023
33. Carbon nanotubes : functionalization and potential applications Abraham, Ann Rose, editor.; George, Soney C., editor.; Haghi, A. K., editor. 2023
34. Advanced Control of Flight Vehicle Maneuver and Operation. Liu, Chuang.; Dai, Honghua.; Yue, Xiaokui. 2023
35. Space missions of global importance : planetary defense, space weather protection, and space situational awareness : hearing before the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Sixteenth Congress, second session, February 12, 2020. United States. Congress. Senate. Committee on Commerce, Science, and Transportation, author. 2023
36. Aerospace and associated technology : proceedings of the joint conference of ICTACEM 2021, APCATS 2021, AJSAE 2021 and AeSI 2021 Ghosh, Anup, editor. 2023
37. Autonomous Trajectory Planning and Guidance Control for Launch Vehicles Song, Zhengyu. editor.; Zhao, Dangjun. editor.; Theil, Stephan. editor. 2023
38. Design for Electromagnetic Compatibility--In a Nutshell Theory and Practice Keller, Reto B. author. 2023
39. Building the space workforce of the future : STEM engagement for a 21st century education : hearing before the Subcommittee on Aviation and Space of the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Sixteenth Congress, first session, November 5, 2019. United States. Congress. Senate. Committee on Commerce, Science, and Transportation. Subcommittee on Aviation and Space, author. 2023
40. Polymer composite systems in pipeline repair : design, manufacture, application, and environmental impacts Mavinkere Rangappa, Sanjay, editor. 2023
41. Flexible Automation and Intelligent Manufacturing: The Human-Data-Technology Nexus Proceedings of FAIM 2022, June 19–23, 2022, Detroit, Michigan, USA Kim, Kyoung-Yun; Kim, Kyoung-Yun. editor.; Monplaisir, Leslie. editor.; Rickli, Jeremy. editor. 2023
42. Computational methods for nonlinear dynamical systems : theory and applications in aerospace engineering Wang, Xuechuan, 1956- author. 2023
43. 10th Manufacturing Engineering Society International Conference (MESIC 2023).

Morales-Palma, Domingo.; Martínez-Donaire, Andrés J.; Borrego Puche, Marcos.; Centeno Báez, Gabriel.; Vallellano, Carpofo. 2023

44. High-reliability autonomous management systems for spacecraft Zhang, Jianjun, 1942- author.; Li, Jing, author. 2023
45. Essentials of mechanical stress analysis Javidinejad, Amir, author. 2023
46. Applications of unsaturated polyester resins : synthesis, modifications, and preparation methods Thomas, Sabu, editor.; Chirayil, Cintil Jose, editor. 2023
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80. Computational methods for nonlinear dynamical systems : theory and applications in aerospace engineering Wang, Xuechuan, 1956- author. 2023
81. 10th Manufacturing Engineering Society International Conference (MESIC 2023). Morales-Palma, Domingo.; Martínez-Donaire, Andrés J.; Borrego Puche, Marcos.; Centeno Báez, Gabriel.; Vallellano, Carpofo. 2023

82. High-reliability autonomous management systems for spacecraft Zhang, Jianjun, 1942- author.; Li, Jing, author. 2023
83. Essentials of mechanical stress analysis Javidinejad, Amir, author. 2023
84. Advanced composites in aerospace engineering applications Mazlan, Norkhairunnisa, editor; Sapuan, S. M., editor.; Ilyas, R. A. editor. 2022
85. Polymeric nanocomposites with carbonaceous nanofillers for aerospace applications Kausar, Ayesha, Author. 2022
86. Computational fluid dynamics in aerospace engineering: recent advances Sekar, Manigandan, author.; Webb, Phil, author.; Sohret, Yasin, author. 2022
87. Trends in development of accelerated testing for automotive and aerospace engineering Klyatis, Lev M., author. 2020.

The following library resources through FSU are available to support aerospace engineering as of January 2024:

Databases

This is a selection of databases that contain research materials, including articles, conference proceedings, data sets, and more, related to the field of aerospace engineering and the wider field of engineering accessible through FSU Libraries.

1. AccessEngineering
2. ACM Digital Library
3. Aerospace Research Central or American Institute of Aeronautics and Astronautics (AIAA)
4. American Society of Civil Engineers (ASCE) Civil Engineering Database
5. American Society of Civil Engineers (ASCE) Journals
6. Applied Science & Technology Source
7. ASM Alloy Phase Diagram Database
8. ASTM Compass
9. BCC Research
10. Compendex (Engineering Village)
11. Derwent Innovations Index
12. Electronics & Communications Abstracts
13. Emerald Library E-Journals (Emerald Insight)
14. Engineering Village
15. Environmental Engineering Abstracts
16. Environmental Impact Statements: Digests
17. IEEE Xplore
18. INSPEC (Engineering Village)
19. INSPEC Archive (Engineering Village)
20. Journal of Visualized Experiments (JOVE)
21. Materials Business File
22. Materials Science & Engineering Database
23. Mechanical & Transportation Engineering Abstracts
24. METADEX
25. OSTI.GOV
26. PubMed (NLM)

27. Science (AAAS)
28. SciFinder-n
29. SciTech Premium Collection (ProQuest)
30. Scopus
31. Solid State and Superconductivity Abstracts
32. Tallahassee-Leon County Geographic Information Systems
33. TerraFly
34. Textile Technology Complete
35. Thieme MedOne Education (E-Books)
36. Toxicology Abstracts
37. TOXLINE
38. U.S. Department of the Interior Bureau of Land Management General Land Office Documents
39. UCentral
40. Virology and AIDS Abstracts

Serials

FSU has **246** current and historical aerospace related scholarly journals accessible through the library catalog. Additional research articles and information can be found through the previously listed databases.

1. *Advances in Aerospace Engineering* (2014) Hindawi Publishing Corporation.
2. *Aerospace* (2014) MDPI AG.
3. *Aerospace America* (1984) American Institute of Aeronautics and Astronautics.
4. *Aerospace power journal* (1999) AU Press.
5. *Aerospace science and technology* (1997) Gauthier-Villars.
6. *AIAA journal* (1963) American Institute of Aeronautics and Astronautics.
7. *Air and space lawyer* (1984) Forum Committee on Air and Space Law, American Bar Association.
8. *Air & space power journal* (2002) AU Press.
9. *Air power history* (2021) Air Force Historical Foundation.
10. *Aircraft engineering* (1986) Bunhill Publications.
11. *Aircraft engineering and aerospace technology* (1986) Emerald Group Pub.
12. *Airpower journal* (1987) AU Press.
13. *Annals of air and space law* (1976) Institute of Air and Space Law.
14. *Archives of environmental health* (2004) Heldref Publications.
15. *Armed forces and society* (1974) Transaction Publishers.
16. *Astrodynamics* (2017) Tsinghua University Press.
17. *Aviation* (2003) Taylor & Francis.
18. *Aviation space and environmental medicine* (2014) Aerospace Medical Association.
19. *CEAS space journal* (2011) Springer.
20. *Extreme life, biospeology & astrobiology* (2009) Bioflux Pub. House.
21. *Human performance in extreme environments* (1996) Society for Human Performance in Extreme Environments.
22. *IEEE transactions on aerospace and electronic systems* (1965) Institute of Electrical and Electronics Engineers.
23. *IEEE aerospace and electronic systems magazine* (1988) Institute of Electrical and Electronics Engineers.
24. *IEEE Transactions on Software Engineering* (n.d.) Institute of Electrical and

Electronics Engineers.

25. *International journal of aeronautical and space sciences* (n.d.) Korean Society for Aeronautical and Space Sciences.
26. *International journal of aerospace engineering* (2007) Hindawi Pub. Corp.
27. *International journal of aerospace innovations* (2009) Multi-Science Pub. Co Ltd.
28. *International journal of aviation, aeronautics, and aerospace* (2014) Embry-Riddle Aeronautical University.
29. *International journal of aviation psychology* (1991) Lawrence Erlbaum Associates.
30. *International journal of micro air vehicles* (2009) SAGE Publications.

Books

FSU has **871** books under the Library of Congress subject heading “aerospace engineering” and **2596** books in the wider field of aerospace studies. These volumes include books in our physical collection and books we have digital access to. Here is a selection of some of the recently published books in our collection.

1. Aswal, D. K., Sarkar, P. S., & Kashyap, Y. S. (2022). *Neutron Imaging: Basics, Techniques and Applications*. Springer Singapore. <https://doi.org/10.1007/978-981-16-6273-7>
2. Bennett, S. A. (2021). *Safety in Aviation and Astronautics: A Socio-technical Approach* (1st edition). Routledge. <https://doi.org/10.4324/9781003111283>
3. Cakaj, S. (2022). *Ground Station Design and Analysis for LEO Satellites: Analytical, Experimental and Simulation Approach* (1st ed.). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781119899280>
4. Cao, H. (2023). *Dual-Mass Linear Vibration Silicon-Based MEMS Gyroscope*. Springer Nature Singapore. <https://doi.org/10.1007/978-981-19-9247-6>
5. Catalina Popescu. (2022). *Filling the Center, Fighting the Power Void: Choosing Trajan as a Successor*. SAGE Publications: SAGE Business Cases Originals. <https://doi.org/10.4135/9781529772227>
6. Di Rito, G. (2023). *Electro-Mechanical Actuators for Safety-Critical Aerospace Applications*. MDPI - Multidisciplinary Digital Publishing Institute. <https://doi.org/10.3390/books978-3-0365-7932-0>
7. Dolgikh, G. I. (2022). *Sea Level Fluctuations*. MDPI - Multidisciplinary Digital Publishing Institute.
8. Doro-on, A. M. (2022). *Handbook of Systems Engineering and Risk Management in Control Systems, Communication, Space Technology, Missile, Security and Defense Operations* (1st ed.). Taylor & Francis. <https://doi.org/10.4324/9780429272233>
9. Furey, H. (2021). *Beyond the Code: A Philosophical Guide to Engineering Ethics*. Routledge. <https://doi.org/10.4324/9781315643816>
10. Graham, A., & Halpern, N. (2021). *Airport Marketing* (Second edition.). Taylor & Francis. <https://doi.org/10.4324/9780203117903>
11. Gynnild, A. (2022). *Droner i sivilsamfunnet: Aktører, teknologi og etiske utfordringer*. Cappelen Damm Akademisk/NOASP Nordic Open Access Scholarly Publishing. <https://doi.org/10.23865/noasp.161>
12. Jameson, A. (2022). *Computational Aerodynamics* (1st ed., Vol. 49). University Press. <https://doi.org/10.1017/9781108943345>
13. Keller, R. B. (2023a). *Design for Electromagnetic Compatibility—In a Nutshell Theory and Practice* (1st ed. 2023.). Springer Nature. <https://doi.org/10.1007/978-3-031-14186-7>

14. Keller, R. B. (2023b). *Design for Electromagnetic Compatibility--In a Nutshell: Theory and Practice* (1st Edition 2023). Springer International Publishing. <https://doi.org/10.1007/978-3-031-14186-7>
15. Koskinen, H. E. J., & Kilpua, E. K. J. (2022). *Physics of Earth's Radiation Belts: Theory and Observations* (1st Edition 2022). Springer International Publishing. <https://doi.org/10.1007/978-3-030-82167-8>
16. Liu, S., Li, L., Tang, J., Wu, S., & Gaudiot, J.-L. (2020). *Creating Autonomous Vehicle Systems* (1st ed., Vol. 9). Springer International Publishing. <https://doi.org/10.1007/978-3-031-01805-3>
17. McElroy Jr, M. W. (2022). *The Space Industry of the Future: Capitalism and Sustainability in Outer Space* (1st ed.). Routledge. <https://doi.org/10.4324/9781003268734>
18. Refait, P. (2022). *Corrosion and Protection of Steels in Marine Environments: State-of-the-Art and Emerging Research Trends*. MDPI - Multidisciplinary Digital Publishing Institute.
19. Salmi, M. (2022). *Design and Applications of Additive Manufacturing and 3D Printing*. MDPI - Multidisciplinary Digital Publishing Institute.
20. Schuurman, M. (2023). *Air Safety Investigation: The Journey*. TU Delft Open. <https://doi.org/10.5074/t.2023.004>
21. Song, Z., Zhao, D., & Theil, S. (2023a). *Autonomous Trajectory Planning and Guidance Control for Launch Vehicles* (1st ed. 2023.). Springer Nature Singapore. <https://doi.org/10.1007/978-981-99-0613-0>
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23. Stoica, L., Riches, S., & Johnston, C. (2016). *High Temperature Electronics Design for Aero Engine Controls and Health Monitoring* (1st ed.). River Publishers. <https://doi.org/10.1201/9781003338420>
24. United States Congress House Committee on Science, S. (2022). *Examining R&D pathways to sustainable aviation: Hearing before the Subcommittee on Space and Aeronautics of the Committee on Science, Space, and Technology, House of Representatives, One Hundred Seventeenth Congress, first session, March 24, 2021*. U.S. Government Publishing Office.
25. United States Congress Senate Committee on Commerce, S. (2023). *Building the space workforce of the future: STEM engagement for a 21st century education : hearing before the Subcommittee on Aviation and Space of the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Sixteenth Congress, first session, November 5, 2019*. U.S. Government Publishing Office.
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29. Wiedemann, M. (2024a). *System Lightweight Design for Aviation* (1st ed. 2024.).

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B. Discuss any additional library resources needed to implement and/or sustain the program through Year 5. Describe how those costs are reflected in Appendix A – Table 3A or 3B.

☒ **Not applicable to this program because no additional library resources are needed to implement or sustain the proposed program.**

C. Describe any specialized equipment and space currently available to implement and/or sustain the proposed program through Year 5.

The [Aero-propulsion, Mechatronics, and Energy \(AME\) center](#) at FAMU-FSU College of Engineering was established in 2011. This 60,000-square-foot state-of-the-art facility supports advanced research in aerospace and aviation, mechatronics, and sustainable energy engineering. The AME center houses research laboratories, faculty and student offices, classrooms, and other infrastructures, which will be used for both teaching and research training of aerospace degree-seeking students. A brief description of selected facilities is given as follows.

Aero-propulsion Centric Experimental Facilities:

The Polysonic wind tunnel (PSWT) at FAMU-FSU College of Engineering is capable of operating in the Mach number regime of 0.2 to 5, including transonic speeds, and produces a unit Reynolds number of 2 – 30 million/ft. The facility features two separate test sections: 1) 12-in x 12-in x 24-in test section with solid walls for sub/supersonic Mach number testing, and 2) 12-in x 12-in x 48-in with slotted walls for testing in the transonic speed regime. Test models will be supported by a sting balance (six degree of freedom load cell) capable of pitch (-10° to 50°) and roll ($\pm 180^{\circ}$) during the blowdown. The PSWT is designed to produce excellent flow quality, which is achieved through 10:1 inlet contraction ratio, 5 fine mesh flow conditioning screens, flow straightener and settling chamber acoustic treatment. The facility is designed to operate at various Reynolds numbers at a fixed Mach number with the help of varying stagnation pressure and an ejector system. The facility has been calibrated over the entire operational regime and exhibits excellent flow quality. The rms pressure fluctuations at supersonic speed are less than 0.2%, turbulence intensity less than 0.2% and flow angularity over the entire measurement section is less than 0.2° , respectively. The facility is equipped to carry out shadowgraph (fluid density fluctuations), surface oil flow visualizations, steady and unsteady pressures, aerodynamic forces and moments, and flow diagnostic measurements. The facility is connected to a high-pressure storage system of 110m^3 of dry air at 500psia pressure. Typical run times are 30 - 100 seconds depending upon the test conditions.

The low-speed wind tunnel at FAMU-FSU is an open circuit facility with a square test section measuring 30-in x 30-in that extends 60-in in the flow direction. The facility is driven by an axial fan powered by a 150HP, direct drive AC induction motor. The motor is controlled by a Toshiba variable frequency drive that outputs a constant frequency power signal between 2 and 50 Hz. The range of freestream velocity is 2 m/s to 80 m/s and a corresponding maximum Reynolds number of 2.4 million/ft. To achieve flow uniformity

and low-turbulence ($< 0.05\%$), the facility is designed and equipped with 9:1 contraction ratio, honeycomb inlet and three stainless steel meshes of appropriate porosity.

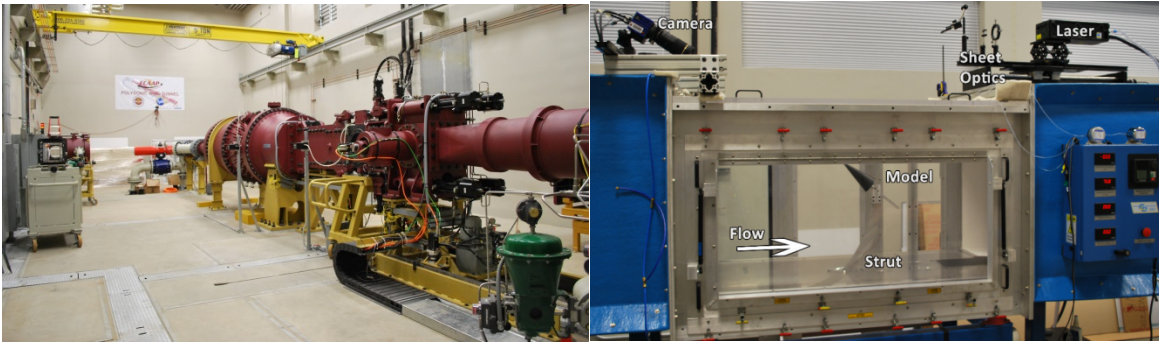


Figure - The FAMU-FSU Polysonic Wind Tunnel (left) and the PIV setup in the low speed wind tunnel with a cone model (right).

The wind tunnels are equipped with required instrumentation, including a six-component strain gauge balance to measure aerodynamic forces and moments, an electronic pressure scanner (ESP) for steady pressure distributions and Kulite pressure transducers for unsteady pressures. The facilities are designed for maximum optical access and with flow diagnostic capabilities such as Schlieren, shadowgraph and surface oil flow visualization measurement methods. The wind tunnels are also equipped for time-averaged and time-resolved PIV, including double pulsed Nd-YAG 400mJ/pulse laser, a 150W 30kHz photonics laser, CMOS / CCD cameras and necessary optics to measure off-body velocity field. We have also recently procured a fast-response Pressure Sensitive Paint (PSP) instrumentation to measure unsteady surface pressure fluctuations. Both of these facilities and advanced optical diagnostic techniques will be used in the proposed study.

In addition the center has a number of jet facilities to study jet noise and high-temperature material characterization, actuator development laboratory, a flow diagnostic development laboratory and a fully-equipped machine shop.

Computational Facilities:

The faculty has a number of well-validated, in-house, theoretical, and computational tools. These computational tools have two principal components: (a) the software that simulates the required physical fields of interest (denoted the “solver”), and (b) the software-suite that performs physical, statistical, and modal analyses on the simulated data (denoted the “post-processor”). A critical resource for the research includes the computational framework utilized by the solver and the post-processor. They are as follows:

Solver: The solver will be executed on the computational clusters at FAMU-FSU College of Engineering. Multi-core simulations thus obtained will be validated using complementary experiments and will serve as digital-twins for the flowfields studied. The common engineering-resource-pool nodes will be utilized for small-scale pilot simulations. For advanced simulations, the high-order capability of the solver facilitates superior resolution of the turbulent flowfields on reasonable grid-sizes of the order of 100-150 million. This will necessitate parallel computing on 600-800 cores, that will be provided by the RCC facility at FAMU and FSU. If needed, additional computing resources will be requested at the NSF-supported National Supercomputer Centers (see <http://www.xsede.org>) and the Department of Defense High-Performance Computing Centers.

Post-processor: This software-suite will be primarily executed on workstation computers utilized by the PIs and other personnel involved in this research. Three specialized workstations are available for this purpose, that can handle graphic-intensive data-interrogation, and memory-intensive long-time spectral and statistical signal analyses.

Mechatronics – Robotics, Control and Intelligence Facilities:

Mechatronics is the synergistic integration of mechanical, electrical, control, and computer systems to create functional products. The field of mechatronics generally covers topics such as robotics, Micro-Electro-Mechanical-Systems (MEMS), intelligent systems, automated guided vehicles, and smart materials. AME mechatronics group's research focuses on a variety of robot designs and control methodologies. A major challenge in this field pertains to exploitation of bio-inspired systems that can adapt to their surroundings while efficiently navigating cluttered and unpredictable terrains. This includes (1) legged robotics systems traversing up walls, across obstacles, swimming and diving underwater, etc.. (2) Human/Robotic Interactions and Biomechanics. (3) Bipedal robot locomotion and optimal control.

Detailed description of specialized instrumentation, manufacturing and diagnostics facilities of the mechatronics group can be found in the following web links: [Center for Intelligent Systems, Control, and Robotics](#), and [Optimal Robotics Laboratory](#).

Aerospace-centric Materials Research Facilities: In addition to the AME center, aerospace engineering faculty and students will have access to aerospace-related materials research facilities and collaborators from [High Performance Materials Institute \(HPMI\)](#) with expertise in high-performance composite and nanomaterials, structural health monitoring, multifunctional nanomaterials advanced manufacturing and process modeling. HPMI has world-class facilities in materials processing, synthesis, thermal and mechanical testing, imaging and microscopy as well as outstanding capability in computational modeling and simulation. Detailed description of HPMI's specialized equipment and resources can be found in this link: [Equipment | High-Performance Materials Institute](#).

Cryogenics Facilities: Cryogenics is used to cool aviation components, and to store rocket fuel at extremely low temperatures, with liquid hydrogen and liquid oxygen being the most widely used fuel and oxidizer. The advancement of cryogenic thermal and fluid management technology is considered an integral part of the development of deep space exploratory missions. The FSU Cryogenics Laboratory is a fully developed 3000 ft² facility for the conduct of low temperature experimental research in fluid dynamics, heat transfer and materials characterization. The laboratory is housed at the National High Magnetic Field Laboratory (NHMFL), which is adjacent to the FAMU-FSU College of Engineering in Tallahassee, FL. These facilities include: Cryogenic Helium Experimental Facility, Liquid Helium Flow Visualization Facility, Laser Induced Fluorescence Imaging Facility, Cryogenic Magnetic Levitation Facility, Multi-layer Thermal Conductivity Measurement Facility, etc.. More detailed description of these facilities can be found in [Cryogenics Lab](#).

- D. Describe any additional specialized equipment or space needed to implement and/or sustain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Appendix A – Table 3A or 3B. Costs for new construction should be provided in response to Section IX.E. below.**

☒ Not applicable to this program because no new I&R costs are needed to implement or sustain the program through Year 5

Although no new specialized equipment or space are requested, additional facilities and laboratory space are desired to sustain and grow the program beyond the first five years of the graduate program. These directions include additional graduate research thrusts (e.g., space applications, propulsion, combustion) and an undergraduate aerospace degree program. Critical research areas of national need that complement current expertise at the FAMU-FSU College of Engineering include aerospace structures, combustion technology, and liquid hydrogen research and test facilities. The latter aligns with a new hydrogen initiative. With respect to expansions to an undergraduate aerospace degree program, additional makerspace for aerospace structure design and development, and a cryogenics laboratory. The latter will take advantage of world-class resources and expertise (including mechanical engineering department professors) in the field of cryogenics. Moreover, this will offer opportunities to train undergraduates in the growing field of quantum information in science where superconductivity hardware is one of the main quantum computing hardware platforms. Furthermore, this is another strategic research thrust at FSU.

- E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Appendix A – Table 3A or 3B includes only I&R costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase due to the program, describe and estimate those expenses in narrative form below. High enrollment programs, in particular, are expected to necessitate increased costs in non-I&R activities.**

☒ Not applicable to this program because no new capital expenditures are needed to implement or sustain the program through Year 5.

Similarly, no capital expenditures are requested here; however, investments that may need consideration to sustain the program include faculty start-up funds and a future research building for space and propulsion applications. Whereas the start of a strong AE graduate program can be created with existing facilities at the Aero-Propulsion, Mechatronics, and Energy Building located near the FAMU-FSU College of Engineering, these facilities focus on subsonic, transonic, supersonic and hypersonic (Mach ~5-6) fluid dynamics and robotic applications. An additional research building should be considered in the long term to expand the program to space applications. This will be important for the growth of the graduate program and the future development of an undergraduate program.

- F. Describe any additional special categories of resources needed to operate the proposed program through Year 5, such as access to proprietary research facilities, specialized services, or extended travel. Explain how those projected costs of special resources are reflected in Appendix A – Table 3A or 3B.**

☒ Not applicable to this program because no additional special categories of resources are needed to implement or sustain the program through Year 5.

- G. Describe fellowships, scholarships, and graduate assistantships to be**

allocated to the proposed program through Year 5 and explain how those are reflected in Appendix A – Table 3A or 3B.

☐ **Not applicable to this program because no fellowships, scholarships, and/or graduate assistantships will be allocated to the proposed program through Year 5.**

Fellowships and/or scholarships are proposed for the first year \$50,000 and similarly \$50,000 in the fifth year, to attract highly qualified U.S. students into the aerospace field. These funds will be a small fraction of the expected C&G funds that will support graduate students as shown in Table 3A. These funds will provide additional salaries for highly qualified PhD students at competitive rates to top AE programs within the U.S. The students will be selected by the graduate committee in the Mechanical Engineering Department with input from a faculty member's recommendations who intends to mentor and support the student with a base salary.

X. Required Appendices

The appendices listed in tables 1 & 2 below are required for all proposed degree programs except where specifically noted. Institutions should check the appropriate box to indicate if a particular appendix is included to ensure all program-specific requirements are met. Institutions may provide additional appendices to supplement the information provided in the proposal and list them in Table 2 below.

Table 1. Required Appendices by Degree Level

Appendix	Appendix Title	Supplemental Instructions	Included Yes/No	Required for Degree Program Level		
				Bachelors	Masters/ Specialist	Doctoral/ Professional
A	Tables 1-4			X	X	X
B	Consultant's Report and Institutional Response					X
C	Academic Learning Compacts	Include a copy of the approved or proposed Academic Learning Compacts for the program		X		
D	Letters of Support or MOU from Other Academic Units	Required only for programs offered in collaboration with multiple academic units within the institution		X	X	X

E	Common Prerequisite Request Form	This form should also be emailed directly to the BOG Director of Articulation before submitting the program proposal to the Board office for review.		X		
F	Request for Exemption to the 120 Credit Hour Requirement	Required only for baccalaureate degree programs seeking approval to exceed the 120 credit hour requirement		X		
G	Request for Specialized Admissions Status	Required only for baccalaureate degree programs seeking approval for specialized admissions status		X		
H	Attestations for Self-Supporting and Market Tuition Rate Programs	Required only for self-supporting or market tuition rate programs			X	X
I	Faculty Curriculum Vitae			X	X	X

Table 2. Additional Appendices

Appendix	Appendix Title	Description
A	Faculty Participation	Faculty data
B	Program Collaborations	Email discussion with chairs

APPENDIX A
TABLE 1-B
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES
(MS+PhD Graduate Degree Programs)

Source of Students (Non-duplicated headcount in any given year)*	Year 1 HC	Year 1 FTE	Year 2 HC	Year 2 FTE	Year 3 HC	Year 3 FTE	Year 4 HC	Year 4 FTE	Year 5 HC	Year 5 FTE
Individuals drawn from agencies/industries in your service area (e.g., older returning students)	2	1	3	1	3	3	1	1	3	3
Students who transfer from other graduate programs within the university**	4	4	4	2	4	2	2	2	2	2
Individuals who have recently graduated from preceding degree programs at this university	6	4	12	10	4	12	10	19	12	10
Individuals who graduated from preceding degree programs at other Florida public universities	6	4	12	10	19	15	26	22	26	20
Individuals who graduated from preceding degree programs at non-public Florida institutions	7	5	14	12	21	16	28	23	32	26
Additional in-state residents***	0	0	0	0	0	0	0	0	0	0
Additional out-of-state residents***	0	0	0	0	0	0	0	0	0	0
Additional foreign residents***	0	0	0	0	0	0	0	0	0	0
Other (Explain)***	0	0	0	0	0	0	0	0	0	0
Totals	25	18	45	35	51	48	67	67	75	61

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.

** If numbers appear in this category, they should go DOWN in later years.

*** Do not include individuals counted in any PRIOR category in a given COLUMN.

APPENDIX A

Table 2
Anticipated Faculty Participation

Faculty Code	Faculty Name or "New Hire" Highest Degree Held Academic Discipline or Specialty	Rank	Contract Status	Initial Date for Participation in Program	Mos. Contract Year 1	FTE Year 1	% Effort for Prg. Year 1	PY Year 1	Mos. Contract Year 5	FTE Year 5	% Effort for Prg. Year 5	PY Year 5
A	Rajan Kumar, PhD Mechanical Engineering	Full Prof	Tenure	Fall 2025	9	0.75	0.10	0.08	9	0.75	0.20	0.15
A	Yousuf Ali, Ph.D. Mechanical Engineering	Instructor	MYA	Fall 2025	12	1.00	0.10	0.10	12	1.00	0.18	0.18
A	Chiang Shih, PhD Mechanical Engineering	Full Prof	Tenure	Fall 2025	9	0.75	0.10	0.08	9	0.75	0.00	0.00
A	William Oates, PhD Mechanical Engineering	Full Prof	Tenure	Fall 2025	9	0.75	0.15	0.11	9	0.75	0.20	0.15
A	Farrukh Alvi, PhD Mechanical Engineering	Full Prof	Tenure	Fall 2025	12	1.00	0.05	0.05	12	1.00	0.05	0.05
A	Huixuan Wu, PhD Mechanical Engineering	Associate Prof	Tenure	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.18	0.14
A	Alex Berger, PhD Aerospace Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.13	0.10
A	Kourosh Shoele, PhD Mechanical Engineering	Associate Prof	Tenure	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Neda Yaghoobian, PhD Mechanical Engineering	Associate Prof	Tenure	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.12	0.09
A	Jizhe Cai, PhD Aerospace Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Christian Hubicki, PhD Mechanical Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Unni Nair, PhD Mechanical Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Wei Guo, PhD Physics	Full Prof	Tenure	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.12	0.09
A	Juan Ordonez, PhD Mechanical Engineering	Full Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.10	0.08
A	Carl Moore, PhD Mechanical Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.10	0.08
A	David Larbalestier, PhD	Full Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.00	0.00

APPENDIX A

**Table 2
Anticipated Faculty Participation**

	Engineering											
A	Eric Hellstrom, PhD Engineering	Full Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.00	0.00
A	Brandon Krick, PhD Mechanical Engineering	Associate Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Fumitake Kametani, PhD Engineering	Associate Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.05	0.04
B	New Hire, PhD Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.20	0.15
B	New Hire, PhD Engineering	Associate Prof	Tenured	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.20	0.15
C	New Hire, PhD Engineering	Associate Prof	Tenured	Fall 2026	0	0.00	0.00	0.00	9	0.75	0.30	0.23
C	New Hire, PhD Engineering	Assistant Prof	track	Fall 2026	0	0.00	0.00	0.00	12	1.00	0.30	0.30
C	New Hire, PhD Engineering	Assistant Prof	track	Fall 2027	0	0.00	0.00	0.00	9	0.75	0.30	0.23
C	New Hire, PhD Engineering	Assistant Prof	track	Fall 2027	0	0.00	0.00	0.00	9	0.75	0.30	0.23
C	New Hire, PhD Engineering	Research Prof	MYA	Fall 2027	0	0.00	0.00	0.00	12	1.00	0.05	0.05
C	New Hire, PhD Engineering	Research Prof	MYA	Fall 2028	0	0.00	0.00	0.00	12	1.00	0.05	0.05
C	New Hire, PhD Engineering	Research Prof	MYA	Fall 2028	0	0.00	0.00	0.00	12	1.00	0.05	0.05
Total Person-Years (PY)								1.01				3.12

Faculty Code	Code Description	Source of Funding	PY Workload by Budget Classification		
			Year 1		Year 5
A	Existing faculty on a regular line	Current Education & General Revenue	0.94		1.69
B	New faculty to be hired on a vacant line	Current Education & General Revenue	0.08		0.30
C	New faculty to be hired on a new line	New Education & General Revenue	0.00		1.13
D	Existing faculty hired on contracts/grants	Contracts/Grants	0.00		0.00
E	New faculty to be hired on contracts/grants	Contracts/Grants	0.00		0.00
F	Existing faculty on endowed lines	Philanthropy & Endowments	0.00		0.00
G	New faculty on endowed lines	Philanthropy & Endowments	0.00		0.00

APPENDIX A
Table 2
Anticipated Faculty Participation

H	Existing or new faculty teaching outside of regular/tenure-track line course load	Enterprise Auxiliary Funds	0.00		0.00
Overall Totals for			1.01		3.12

APPENDIX A
TABLE 3A
EROLLEMENT AND GROWTH
PROJECTED COSTS AND FUNDING SOURCES

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Institutions should not edit the categories or budget lines in the table below. This table is specific to state-funded (E&G) programs, and institutions are expected to explain all costs and funding sources in Section VII.A. of the proposal. Detailed definitions for each funding category are located at the bottom of the table.															
2	Budget Line Item	Reallocated Base* (E&G) Year 1	Enrollment Growth (E&G) Year 1	New Recurring (E&G) Year 1	New Non-Recurring (E&G) Year 1	Contracts & Grants (C&G) Year 1	Philanthropy/ Endowments Year 1	Other Funding Year 1 - Please Explain in Section VII.A. of the Proposal	Subtotal Year 1	Continuing Base** (E&G) Year 5	New Enrollment Growth (E&G) Year 5	Other*** (E&G) Year 5	Contracts & Grants (C&G) Year 5	Philanthropy/ Endowments Year 5	Other Funding Year 5 - Please Explain in Section VII.A. of the Proposal	Subtotal Year 5
3	Salaries and Benefits (Faculty)	237,825	0	0	0	91,374	0	0	\$329,199	588,375	0	0	231,770	0	0	\$820,144
4	Salaries and Benefits (A&P and USPS)	10,000	0	0	0	0	0	0	\$10,000	50,000	0	0	0	0	0	\$50,000
5	OPS (including assistantships & fellowships)	50,000	0	0	0	274,122	0	0	\$324,122	50,000	0	0	695,309	0	0	\$745,309
6	Programmatic Expenses****	10,000	0	0	0	91,374	0	0	\$101,374	15,000	0	0	231,770	0	0	\$246,770
7	Total Costs	\$307,825	\$0	\$0	\$0	\$456,871	\$0	\$0	\$764,696	\$703,375	\$0	\$0	\$1,158,849	\$0	\$0	\$1,862,223
8	*Identify reallocation sources in Table 4.															
9	**Includes recurring E&G funded costs ("reallocated base," "enrollment growth," and "new recurring") from Years 1-4 that continue into Year 5.															
10	***Identify if non-recurring.															
11	****include library costs, expenses, OCO, special categories, etc.															
12	Faculty and Staff Summary															
13	Total Positions	Year 1	Year 5													
14	Faculty (person-years)	1.01	3.12													
15	FTE (A&P and USPS)	0.3	1													
16																
17																
18	Table 3 Column Explanations															
19	Reallocated Base* (E&G)	1	E&G funds that are already available in the university's budget and will be reallocated to support the new program. Please include these funds in the Table 4 – Anticipated reallocation of E&G funds and indicate their source.													
20	Enrollment Growth (E&G)	2	Additional E&G funds allocated from the "Student and Other fees Trust Fund" contingent on enrollment increases.													
21	New Recurring (E&G)	3	Recurring funds appropriated by the Legislature to support implementation of the program.													
22	New Non-Recurring (E&G)	4	Non-recurring funds appropriated by the Legislature to support implementation of the program. Please provide an explanation of the source of these funds in the budget section (section VII.A.) of the proposal. These funds can include initial investments, such as infrastructure.													
23	Contracts & Grants (C&G)	5	Contracts and grants funding available for the program.													
24	Philanthropy Endowments	6	Funds provided through the foundation or other Direct Support Organizations (DSO) to support the program.													
25	Continuing Base** (E&G)	7	Includes the sum of columns 1, 2, and 3 over time.													
26	New Enrollment Growth (E&G)	8	See explanation provided for column 2.													
27	Other*** (E&G)	9	These are specific funds provided by the Legislature to support implementation of the program.													
28	Contracts & Grants (C&G)	10	See explanation provided for column 5.													
29	Philanthropy Endowments	11	See explanation provided for column 6.													
30	Other Funding	12	Any funding sources not already covered in any other column of the table. Please provide an explanation for any funds listed in these columns in the narrative for Section VII.A. of the proposal.													

Calculated Cost per Student FTE

	Year 1	Year 5
Total E&G Funding	\$307,825	\$703,375
Annual Student FTE	18	61
E&G Cost per FTE	\$17,101	\$11,531

APPENDIX A
TABLE 4
ANTICIPATED REALLOCATION OF EDUCATION GENERAL FUNDS*

Program and/or E&G account from which current funds will be reallocated during Year 1	Base before reallocation	Amount to be reallocated	Base after reallocation
Mechanical Engineering Budget 218000110	\$3,534,076	\$307,825	\$3,226,251
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
Totals	\$3,534,076	\$307,825	\$3,226,251

* If not reallocating E&G funds, please submit a zeroed Table 4

External Review of a Proposal by Florida State University for the establishment of a graduate degree program in Aerospace Engineering

Mark Glauser
Professor Emeritus of Mechanical and Aerospace Engineering
Syracuse University
April 26, 2024

This is my review of the Florida A&M and Florida State Universities proposal to offer a graduate degree program in Aerospace Engineering (AE) beginning Spring 2025. The graduate program will offer master's and doctoral degrees. The proposed program will be offered jointly within the FAMU-FSU College of Engineering and operate within the FAMU-FSU Mechanical Engineering Department. This review was conducted to judge compliance with the Florida Board of Governors New Degree Criteria.

This is an excellent proposal that is timely and well written which addresses all the Board of Governors' criteria. Both qualitative and quantitative material is provided that demonstrates that the proposal meets all the criteria. The proposal to have this program housed in the Mechanical Engineering Department is the proper choice given the current extensive ongoing research in that department that is Aerospace related. This will significantly enhance FAMU-FSUs already well-respected reputation in the Aerospace sector. We at Syracuse University have recently hired 2 recent Ph.D. graduates from the FAMU-FSU Mechanical Engineering program as Assistant Professors in our Aerospace Engineering program (Professors Yiyang Sun and Fernando Zigunov) due to their outstanding research and education in the Aerospace area. Having these two colleagues graduate with Ph.D. degrees in Aerospace Engineering would have made their hiring to support our Aerospace Engineering program somewhat easier. This is due to the fact some of my colleagues were unsure if Professors Sun and Zigunov were sufficiently trained in Aerospace Engineering to be hired into our Aerospace Engineering program. Given my knowledge of the significant level of depth in the Aerospace discipline within the FAMU-FSU Mechanical Engineering Department, I was able to dispel the concerns of my colleagues and we moved forward hiring them as Assistant Professors in Aerospace Engineering. The proposed graduate degree program in Aerospace Engineering will make this a non-issue.

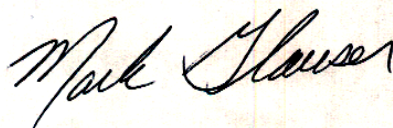
What the FAMU-FSU Mechanical Engineering faculty are asking for is the opportunity to have their graduate students whose main research focus is in the Aerospace area graduate with the degree that is more in line with their expertise. It could be argued that this is more a matter of marketing and packaging than establishing an entirely new program from scratch. Leveraging the already outstanding research and education in the Aerospace discipline within the FAMU-

FSU Mechanical Engineering program explains the relatively minor cost of the new proposed graduate degree program in Aerospace Engineering.

The Board of Governors is concerned about duplication in the state. This is not an issue in this case. As pointed out in the proposal, the AE program at FAMU and FSU will complement the other two programs in the state at UF and UCF (see Appendix B) and advance the State and Federal calls to increase competence in science, technology, engineering, and math (STEM) in upcoming generations and to promote advanced aerospace engineering to solve fundamental problems that have immediate technical applications. In Florida, the aerospace industry is an essential component of the State's economy. Furthermore, there are several federal research laboratories in the Panhandle region, including Eglin and Tyndall Air Force Bases, the Naval Surface Warfare Center—Panama City Division and the Naval Air Station in Pensacola, that need new, well-trained AE graduates in their workforce. In addition, many industries in Florida, like defense and aerospace contractors, need aerospace engineers at the master's and doctoral level. The need for the AE graduate degree program is clearly justified. Let me give some perspective from the State of New York. Our Aerospace sector in New York is significantly smaller than that of Florida and we don't even come close to having the federal facilities that engage in the Aerospace sector that Florida has. Note however, that within New York State we have several Aerospace graduate degree programs including Syracuse University, Cornell University, RPI, Clarkson and the University at Buffalo/SUNY. Given the level of activity in the State of Florida within the Aerospace sector, adding an additional graduate degree program in AE at FAMU-FSU is the proper and timely thing to do.

I believe this is an excellent proposal that the Board of Governors should feel highly confident in approving. Feel free to reach out to me at mglauser@sy.edu or 315 244 0882 (cell) if you would like additional input.

With Best Personal Regards,

A handwritten signature in black ink, reading "Mark Glauser", is centered on a light yellow rectangular background.

Mark Glauser
Emeritus and Research Professor of
Mechanical and Aerospace Engineering
College of Engineering and Computer Science
Fellow; AIAA, APS, ASME, Institute of Physics (UK)
Member, Army Science Board 2013 - 2021



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

ACTION ITEM II



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

ACTION ITEM II

June 20, 2024

SUBJECT: Proposal to Implement Master's in Aerospace Engineering

PROPOSED COMMITTEE ACTION

The FAMU-FSU College of Engineering requests approval to implement a master's degree in Aerospace Engineering, effective Fall 2025.

AUTHORITY FOR BOARD OF TRUSTEES ACTION

BOG Regulation 8.011: Authorization of New Academic Degree Programs and Other Curricular Offerings, states that each university Board of Trustees has the authority to approve new degree programs at the bachelors, master's, and specialist levels. This proposal has been approved internally by all individuals and faculty committees described in FSU Regulation 5.099: Development, Approval, Termination, and Suspension of Degree Programs.

BACKGROUND INFORMATION

The proposed M.S. in Aerospace Engineering will provide highly-trained graduates to meet aerospace workforce needs. It will build upon the existing research strength of the state-wide Florida Center for Advanced Aero-Propulsion (FCAAP) that is housed at FSU, through which FAMU-FSU faculty members work collaboratively with faculty from UF, UCF, Embry-Riddle, and Miami University to develop cutting-edge technologies and a technology-savvy aerospace workforce. The program qualifies as a Program of Strategic Emphasis (STEM category) in the Florida Board of Governors 2025 Strategic Plan and will be offered face-to-face at the FAMU-FSU College of Engineering.

The demand for aerospace engineers is particularly pronounced in high-technology sectors supporting aircraft development such as manufacturing, electronics, human performance in space, and sensing. The Bureau of Labor Statistics anticipates a 6% percent growth in the employment of aerospace engineers nationally from 2022 to 2032 (<https://data.bls.gov/projections/occupationProj>). The same projection for Florida is much higher, 18.4% growth from 2023-2031. Florida has a significant presence in the aerospace, defense, marine, and space industries (Lockheed Martin, Boeing, Raytheon, Northrop

Grumman, and General Dynamics), which employ aerospace engineers. In 2022, there were 4,580 aerospace engineers employed in Florida with an average hourly wage of \$55.70 (<https://www.floridajobs.org/workforce-statistics/data-center/statistical-programs/occupational-employment-statistics-and-wages>).

In addition to a firm grounding in the fundamentals of aeronautical engineering, the curriculum will include courses in these core areas: fluid dynamics and aerodynamics, dynamical systems and controls, thermal transport, and the mechanics of materials. The program will require 30 credit hours of coursework as well as completion and defense of a thesis. The Board's approval to implement does not obligate the University to provide any specific resources requested; any resource request will be reviewed as part of the annual allocation of resources.

ADDITIONAL COMMITTEE CONSIDERATIONS

Per BOG Regulation 8.011, no Board of Governors approval is required. The approved proposal will be submitted to BOG staff for technical review before it is placed in the BOG Degree Program Inventory.

Supporting Documentation Included: Proposal to Implement Ph.D. and Master's in Aerospace Engineering

Submitted by: Office of Faculty Development and Advancement



State University System of Florida Board of Governors
REQUEST TO OFFER A NEW DEGREE PROGRAM

In accordance with Board of Governors Regulation 8.011

(Please do not revise this proposal format without prior approval from Board staff)

Florida State University

Institution Submitting Proposal

FAMU-FSU College of Engineering

Name of College(s) or School(s)

Aerospace Engineering

Academic Specialty or Field

Proposed CIP Code (2020 CIP)

14.0201

Proposed Implementation Term

Fall 2025

Name of Department(s)/Division(s)

Aerospace Engineering

Complete Name of Degree

Proposed Program Type

☒ E&G Program

☐ Market Tuition Rate Program

☐ Self-Supporting Program

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met before the program's initiation.

Date Approved by the University
Board of Trustees

Board of Trustees Chair's Signature Date

President's Signature Date

Provost's Signature Date

Projected Enrollments and Program Costs

Provide headcount (HC) and full-time equivalent (FTE) student estimates for Years 1 through 5. HC and FTE estimates should be identical to those in Appendix A – Table 1. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Appendix A – Table 3A or 3B. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 by dividing the total E&G by FTE.

Implementation Timeframe	HC	FTE	E&G Cost per FTE	E&G Funds	Contract & Grants Funds	Auxiliary/ Philanthropy Funds	Total Cost
Year 1	25	18	\$17,101	\$307,825	\$456,871		\$764,696
Year 2	45	35					
Year 3	51	48					
Year 4	67	67					
Year 5	75	61	\$11,531	\$703,375	\$1,158,849		\$1,862,223

Programs of Strategic Emphasis Waiver (for baccalaureate programs only)

Does the program fall under one of the CIP codes listed below?

☐ Yes

☐ No

If yes, students in the program will be eligible for the Programs of Strategic Emphasis (PSE) waiver. See [Board Regulation 7.008](#) and the [PSE Waiver Guidance](#) for additional details.

CIP CODE	CIP TITLE	CATEGORY
11.0101	Computer and Information Sciences	STEM
11.0103	Information Technology	STEM
13.1001	Special Education	EDUCATION
13.1202	Elementary Teacher Education	EDUCATION
14.0801	Civil Engineering	STEM
14.0901	Computer Engineering	STEM
14.1001	Electrical and Electronics Engineering	STEM
27.0101	Mathematics	STEM
40.0801	Physics	STEM
52.0301	Accounting	GAP ANALYSIS
52.0801	Finance	GAP ANALYSIS
52.1201	Management Information Systems	STEM

Additional Required Signatures

I confirm that I have reviewed and approved Need and Demand Section III.F. of this proposal.

DocuSigned by:



Signature of Equal Opportunity Officer

Date of Signature

I confirm that I have reviewed and approved Non-Faculty Resources Section IX.A. and IX.B. of this proposal.

DocuSigned by:

Gale Etischmaier

CD71BF43EE89430
Signature of Library Dean/Director

Date of Signature

Introduction

I. Program Description and Relationship to System-Level Goals

A. Describe within a few paragraphs the proposed program under consideration and its overall purpose, including:

- degree level(s)
- majors, concentrations, tracks, specializations, or areas of emphasis
- total number of credit hours
- possible career outcomes for each major (provide additional details on meeting workforce needs in Section III)

Florida A&M and Florida State Universities propose to offer a graduate degree program in Aerospace Engineering (AE) beginning Spring 2025. The graduate program will offer master's and doctoral degrees. The proposed program will be offered jointly within the FAMU-FSU College of Engineering and operate within the FAMU-FSU Mechanical Engineering Department. It will use faculty that currently teach within the existing Mechanical Engineering program at the FAMU-FSU College of Engineering. Additional faculty hires are proposed to expand the program in strategic directions that build upon existing strengths and future challenges in aerospace fields.

The AE graduate program will consist of one major. Completion of the master's program, whether thesis or non-thesis, requires a minimum of 30 credits. For students holding a master's degree, completion of the doctoral program requires 48 credits. Alternatively, for students entering the doctoral program immediately after their bachelor's degree, completion requires 60 credits. In their first year, students will gain a firm grounding in the fundamentals of AE through core courses (12 credits) taught by faculty members within the Mechanical Engineering department (these courses are already available). The student and their research advisor will determine which elective specialization courses are best for their research. Students will also register for the existing weekly Mechanical Engineering Graduate Seminar Series, taken every semester through graduation (0 credits). In this seminar series, students will be exposed to FAMU and FSU faculty and external researchers working in areas highly relevant to aerospace engineering (e.g., fluid dynamics, controls, robotics, thermal transport, large-scale computations, mechanics of materials). This seminar series also includes discussions about professional development skills given by industry speakers, government laboratory researchers, and academics about leadership strategies and tactics.

As background information, Aerospace Engineering primarily revolves around creating, advancing, testing, and manufacturing aircraft, spacecraft, and associated systems and structures. Historically, the discipline has centered on challenges about atmospheric and

space travel, encompassing two key and interconnected branches: aeronautical engineering, which concentrates on the theory, technology development, and application of flight within Earth's atmosphere, and astronautical engineering, which delves into the science and technology of spacecraft and launch vehicles. Aerospace engineers play a crucial role in advancing technologies and incorporating them into aerospace vehicle systems for various purposes such as transportation, communication, exploration, and defense. Their responsibilities encompass the creation and production of aircraft, spacecraft, propulsion systems, satellites, and missiles. Additionally, they are involved in designing and testing various components and subassemblies related to aircraft and aerospace products. The AE program at FAMU and FSU will advance the State and Federal calls to increase competence in science, technology, engineering, and math (STEM) in upcoming generations and to promote advanced aerospace engineering to solve fundamental problems that have immediate technical applications. In Florida, the aerospace industry is an essential component of the State's economy. Furthermore, there are several federal research laboratories in the Panhandle region, including Eglin and Tyndall Air Force Bases, the Naval Surface Warfare Center—Panama City Division and the Naval Air Station in Pensacola, that need new, well-trained AE graduates in their workforce. In addition, many industries in Florida, like defense and aerospace contractors, need aerospace engineers at the master's and doctoral level. With the advanced knowledge attained in aerospace engineering, graduates of the program will demonstrate the application of acquired knowledge through analyzing, synthesizing, evaluating, and creating solutions in various disciplines such as materials, thermal management, fluid dynamics, acoustics, controls, solid mechanics, among others. They will effectively transfer this knowledge to innovate future aerospace technologies, both locally in the State of Florida and globally. Furthermore, doctoral-trained graduates are also eligible for careers in academia.

B. If the proposed program qualifies as a Program of Strategic Emphasis, as described in the Florida Board of Governors 2025 System Strategic Plan, indicate the category.

- **Critical Workforce**

- ☐ Education
- ☐ Health
- ☐ Gap Analysis

- **Economic Development**

- ☐ Global Competitiveness
- ☒ Science, Technology, Engineering, and Math (STEM)

☐ **Does not qualify as a Program of Strategic Emphasis.**

II. Strategic Plan Alignment, Projected Benefits, and Institutional Mission and Strength

A. Describe how the proposed program directly or indirectly supports the following:

- **System strategic planning goals (see the link to the 2025 System Strategic Plan on the [New Program Proposals & Resources](#) webpage)**
- **the institution's mission**
- **the institution's strategic plan**

The AE program contributes directly to several of the State University System (SUS) Strategic Planning Goals in the 2025 System Strategic Plan. The specific areas in which the PhD in AE will impact or contribute are:

- Teaching and Learning
 - Strengthen the Quality and Reputation of the Universities
 - Increase Degree Productivity & Program Efficiency
 - Increase the Number of Degrees Awarded in Programs of Strategic Emphasis
- Scholarship, Research and Innovation
 - Increase Research Activity and Attract More External Funding

The new AE program also aligns well with the mission of Florida State University which involves incorporating elements that preserve, expand, and disseminate knowledge in various disciplines while emphasizing a philosophy of learning rooted in the liberal arts tradition. For example, the AE program will adopt an interdisciplinary approach, integrating the physics of fluids, materials, mathematics, technology, and professional development. This approach ensures a well-rounded education, aligning with the university's commitment to preserving and expanding knowledge across diverse fields. While this program heavily focuses on engineering, liberal arts will also be components within the aerospace curriculum. This will involve including courses and training that foster critical thinking, communication skills, and ethical considerations, thereby ensuring graduates possess a holistic education that extends beyond their technical knowledge.

The program will also include a curriculum that emphasizes excellence in teaching and research. We will provide students with opportunities to engage in cutting-edge research, collaborate with industry professionals, and participate in hands-on projects that contribute to advancements in aerospace engineering and technology. The AE program will also foster a culture of creativity and innovation within the program. It will encourage students to explore novel ideas, pursue entrepreneurial endeavors, and contribute to developing new technologies and solutions in the aerospace industry. This program will also include service-learning components that allow students to apply their aerospace knowledge to address real-world challenges. Many opportunities exist within the Department of Engineering via the Mechanical Engineering Graduate Student Association (MEGSA—RSO [Recognized Student Organization]) to encourage community engagement, partnerships with local industries, and outreach programs, such as the Challenger Learning Center, that contribute to the betterment of society. As part of the College of Engineering and Department of Mechanical Engineering's mission of leadership and professional development, we will also emphasize the development of ethics, skill, and character in students. We will provide opportunities for personal and professional growth, instilling a commitment to lifelong learning from coursework and research experiences. We will foster an environment that encourages personal responsibility and sustained achievement through active engagements with faculty throughout their graduate program. The new AE graduate program will cultivate a program that embraces diversity and inclusion. This includes creating a supportive and inclusive learning environment that reflects the university, college and department's commitment to a community fostering free inquiry.

By incorporating these elements, the aerospace graduate program can effectively align

with Florida State University's mission, contributing to the preservation, expansion, and dissemination of knowledge while fostering a commitment to excellence, diversity, and community engagement.

The AE program is also consistent with FAMU's mission. Florida Agricultural and Mechanical University (FAMU) is an 1890 land-grant institution dedicated to the advancement of knowledge, the resolution of complex issues, and the empowerment of citizens. FAMU's distinction as a doctoral/research institution will continue to provide mechanisms to address emerging issues through local and global partnerships. Expanding upon the University's land-grant status will enhance the lives of constituents through innovative research, engaging cooperative extension, and public service.

In direct support of its mission, the proposed AE program aligns with FAMU's dedication to the "advancement of knowledge and resolution of complex issues." There are several ways in which aerospace engineering contributes to these advancements including:

1. **Technological Innovation:** Aerospace engineering is at the forefront of technological innovation. The field constantly pushes the boundaries of flow physics, materials and structures operating in extreme environments, and complex control theories, leading to developing cutting-edge technologies and solutions. This innovation not only improves aerospace systems but often has broader applications in other industries.
2. **Scientific Discovery:** The pursuit of aerospace engineering often involves exploring unknown frontiers in both space exploration and atmospheric research. This exploration leads to new scientific discoveries and motivates a deeper understanding of fundamental principles in physics, materials science, computational science, and other related disciplines.
3. **Environmental Sustainability:** Aerospace engineers work towards making air and space travel more environmentally sustainable. This involves developing fuel-efficient propulsion systems, light-weight materials, and exploring alternative energy sources. As air and space vehicles are pushed to high speeds and more frequent use, addressing the environmental impact of aerospace activities contributes to important global sustainability challenges.
4. **National Security and Defense:** Aerospace engineering is integral to the development of defense and security technologies. Advancements in aircraft design, missile systems, and satellite technology contribute to national defense capabilities and strategic security.
5. **Space Exploration and Colonization:** Aerospace engineering drives advancements in developing spacecraft, propulsion systems, life support systems, and robotics for exploring other planets. The knowledge gained from these endeavors contributes not only to space science but also to potential future human colonization of other celestial bodies.
6. **Communication and Connectivity:** Aerospace engineering is instrumental in the development of satellite systems that enable global communication, weather monitoring, navigation, and Earth observation. These systems contribute to enhanced connectivity, disaster management, and a greater understanding of global climate

patterns.

7. **Medical and Biological Research:** Space missions often involve experiments in microgravity environments. The results of these experiments can have applications in medical and biological research on Earth. For example, studying the effects of space travel on the human body contributes to our understanding of physiology and potential medical advancements.
8. **Global Collaborations:** Many aerospace projects involve international collaborations. Working together on projects such as space exploration or satellite programs fosters global cooperation and the sharing of knowledge and resources, contributing to peaceful relations and diplomacy.

Overall, aerospace engineering contributes to the advancement of knowledge and the resolution of complex issues by driving technological innovation, exploring new frontiers, addressing environmental challenges, enhancing national security, enabling global connectivity, inspiring education, and fostering global collaboration. The interdisciplinary nature of aerospace engineering ensures that its impact extends far beyond the confines of the field itself.

Along with the Board of Governors' 2025 Strategic Plan and the FSU and FAMU missions, the proposed AE program aligns well with FAMU's goal for High Impact Research, Commercialization, Outreach, and Extension Services. Specific to Strategic Priority 3 of FAMURising, the graduate program in AE will address the following goals:

- Goal 1: Expand and enhance cutting-edge research and creative scholarship for the benefit of the State of Florida, the nation, and the world.
- Goal 2: Increase research productivity, commercialization and return on investment.
- Goal 3: Increase the number of nationally recognized graduate programs.

A graduate program in Aerospace Engineering will add opportunities for FAMU and the Joint College faculty to engage in cutting-edge research to keep pace with constantly changing societal needs for safe and efficient aircraft and provide a workforce that can design, test and manufacture aerospace technology for the benefit of the nation as a whole. Faculty associated with the program are already active in research. The graduate program will serve to increase their research contributions to FSU, FAMU and the State of Florida, and train graduates who can also use advanced knowledge in positions that require advanced decision-making and skills necessary to implement effective solutions around the development and deployment of aerospace systems and structures. Having a strong research-oriented doctoral program attracts increased numbers of students with diverse backgrounds, which is also aligned with FAMU's mission.

B. Describe how the proposed program specifically relates to existing institutional strengths. This can include:

- **existing related academic programs**
- **existing programs of strategic emphasis**
- **institutes and centers**
- **other strengths of the institution**

The Department of Mechanical Engineering (ME) at FAMU-FSU has a long history of

excellence in research and teaching in the fields of fluid dynamics, aerodynamics, and flow control. Current ME faculty are internationally recognized in aerodynamics research and are very active in a wide range of federally funded research programs in both experimental and computational aerodynamics. The research enterprise has been successful not only because of excellent faculty, but also for very talented and well-trained graduate and undergraduate students. The ME Department offers a wide range of fundamental core and technical electives in fields ranging from fluid dynamics theory, gas dynamics, fluid-structure interactions, smart materials, uncertainty quantification, and flow control. These courses are offered to graduate students to support their research. Our undergraduate courses in areas related to aerodynamics start at the sophomore level and continue through senior technical electives to prepare these students for successful careers in industry and graduate school.

With respect to strategic interest, aerodynamic engineering is well aligned with STEM and supports the overall strategic vision of the State of Florida. It is also well aligned with both universities as FSU has a strong interest in expanding aerodynamics research in the Panhandle through the new Triumph program in Panama City. This program will require support from faculty to help guide the research and develop academic programs to support this major external investment of \$98M. FAMU is also very interested in growing STEM programs to increase African American graduates in the field of aerospace engineering. We expect these new activities will attract more students, post doctorate researchers, and research dollars which will help propel FAMU to a research intensive (R1) university.

Aerospace graduate education and research is also well aligned with institutes and centers at FAMU and FSU. The Aero-Propulsion, Mechatronics, and Energy (AME) Building supports the educational and research mission of the Florida Center for Advanced Aero-Propulsion (FCAAP) Center within the FAMU-FSU College of Engineering. FCAAP is a state-funded center that started in 2008 to support research and workforce development in the State of Florida. This center is headquartered at FSU and includes faculty at multiple universities across the state including FAMU, the University of Florida, the University of Central Florida, and Embry-Riddle. Additional long-running research centers have been spun off of FCAAP, including a Federal Aviation Administration Center of Excellence on Commercial Space Transport (2011-2021) and a more recent Air Force Office of Scientific Research (AFOSR) Center of Excellence AEROMORPH on morphing high speed aircraft (awarded 2023). These research centers provide excellent experimental and computational resources and exceptional faculty that will be leveraged in this program.

Additional strengths worth noting include recently developed aerospace educational programs within the Mechanical Engineering Department. This includes an online Aerospace Certificate program through FSU that started in the fall of 2021. Given its relevance to the proposed graduate program, key dates associated with this online certificate are included in the planning process table. Several faculty members within the Mechanical Engineering Department (led by Prof. Rajan Kumar) are also involved with an Air Force Research Laboratory (AFRL) Scholars program where undergraduate and graduate students take courses and conduct experiments within the ME department during fall and spring semesters and spend summers working with AFRL scientists at Eglin and Wright Patterson Air Force Bases. This collaboration may be in the form of on-site work at AFRL or conducting experiments at FCAAP and reporting to AFRL scientists.

A similar program exists through a FAMU NASA MUREP program to support minority students interested in aerospace research. This program is led by a former department chair within the ME Department, Prof. Chiang Shih, and Co-PI Prof. Carl Moore. Lastly, the ME Department also runs a NASA University Leadership Initiative, led by Prof. Lance Cooley, which focuses on hydrogen-based aero-propulsion concepts. This not only aligns with the mission of the aerospace program but also the broader mission of FSU to support hydrogen energy applications. In summary, there are a large number of programs focused on aerospace engineering which provide excellent opportunities for graduate students interested in this field.

C. Provide the date the pre-proposal was presented to the Council of Academic Vice Presidents Academic Program Coordination (CAVP ACG). Specify any concerns raised and provide a narrative explaining how each concern has been or will be addressed.

No concerns were raised in the CAVP ACG on 11/15/2023.

D. In the table below provide an overview of the institutional planning and approval process leading up to the submission of this proposal to the Board office. Include a chronology of all activities, providing the names and positions of university personnel and external individuals who participated.

- If the proposed program is at the bachelor's level, provide the date the program was entered into the APPRiSe system, and, if applicable, provide a narrative responding to any comments received through APPRiSe.
- If the proposed program is a doctoral-level program, provide the date(s) of the external consultant's review in the planning table. Include the external consultant's report and the institution's responses to the report as Appendix B.

Planning Process

Date	Participants	Planning Activity Description
May 29, 2015	Chiang Shih and Jennifer Buchanan	Create a graduate program in Aerospace Engineering – Masters and Ph.D.
December 11, 2015	CAVP Academic Coordination Group	First CAVP-ACG Meeting
March 4, 2016	Review of BOT	Proposal to Explore is approved by FSU BOT. No second proposal to explore is required.
June 12, 2018	Murray Gibson, Farrukh Alvi, Eric Hellstrom, Rajan Kumar, and Chiang Shih	Create an online graduate certificate program in aeronautical engineering designed as a pathway to an MS/PhD program.
Summer 2018	Lou Cattafesta, Rajan Kumar, and Chiang Shih	Meeting with FAMU-FSU college computing services (CCS) and FSU Office of Distance Learning
Fall 2018	Lou Cattafesta and Rajan	Develop two pilot courses for the

	Kumar	program
Spring 2019	Mohd Ali, Jonas Gustavsson, Rajan Kumar, and Chiang Shih	Develop three more courses
Summer 2019	Mohd Yousuf Ali, Jonas Gustavsson, Rajan Kumar, Lou Cattafesta, and Chiang Shih	Develop into fully asynchronous distance learning courses
Fall 2019	Mohd Yousuf Ali, Jonas Gustavsson, Rajan Kumar, Lou Cattafesta, and Chiang Shih	Five graduate level courses are ready to be offered face-2-face and online asynchronously
November 2019	Department of Mechanical Engineering's Graduate Committee chaired by William Oates	Department graduate committee approves to start a certificate program in Aerospace Engineering – Aerodynamics
December 2019	FAMU-FSU College of Engineering – College Curriculum Committee Sam Awoniyi, Linda DeBrunner, Patrick Hollis, John Telotte, Kamal Tawfiq, Deb Gautier, Subashini Iyer, Frederika Manciangli, Michelle Rambo-Roddenberry, Mohd Yousuf Ali, Lisa Spainhour	FAMU-FSU College of Engineering approves to start a certificate program in Aerospace Engineering – Aerodynamics
April 2020	William Oates and Murray Gibson	FAMU and FSU approves the College of Engineering's recommended proposal to start a certificate program in Aerospace Engineering – Aerodynamics
Fall 2021	Department of Mechanical Engineering	Online Graduate Certificate program in Aerospace Engineering – Aerodynamics is offered
10/19/2023	William Oates, Mohd Yousuf Ali, Jennifer Buchanan, Amy Guerette, and Sundra Kincey	Discuss pre-proposal for the graduate degree program in Aerospace engineering
11/15/2023	CAVP Academic Coordination Group	CAVP Pre-Proposal Approval
11/28/2023	William Oates, Mohd Yousuf Ali, Jennifer Buchanan, Amy Guerette, and Sundra Kincey	Proposed Aerospace program proposal guidelines
12/07/2023	William Oates, Mohd Yousuf Ali, Chaing Shih, Alex Berger, and Huixuan Wu	Proposal for FAMU-FSU Aerospace MS/PhD program
12/08/2023	William Oates, Mohd Yousuf Ali, and Kassidy Hof-Mahoney	Library resources for the proposed AE program
01/29/2024	William Oates, Mohd Yousuf Ali, Jennifer Buchanan, Amy Guerette, and Sundra Kincey	Aerospace Degree Proposal Follow-Up

02/22/2024	Chair Oates & ME faculty	Status update on Aerospace Graduate Degree proposal developments
02/27/2024	William Oates and Wei Guo	Approval for the proposed graduate program in AE by the department graduate committee members
03/01/2024	William Oates, Michelle Rambo-Rodenberry, Kari Aime, and FAMU-FSU College of Engineering Curriculum Committee	Approval for the proposed graduate program in AE by the FAMU-FSU college of engineering curriculum committee members
03/05/2024	William Oates, Mohd Yousuf Ali, Jennifer Buchanan, Amy Guerette, and Sundra Kinsey	Discuss next steps for approval from university curriculum committee
03/05/2024	Dr. Mark Glauser	External Reviewer has agreed to review the proposed program

E. In the table below, provide a timetable of key events necessary for implementing the proposed program following approval of the program by the Board office or the Board of Governors through to the addition of the program to the State University System Academic Degree Program Inventory.

Events Leading to Implementation

Date	Implementation Activity
June 20	BOT review and request for approval
June - July 2024	Board of Governors Staff Review for BOG Consideration
June – July 2024	Develop MOUs between collaborating departments
July – September 2024	Collaborate with BOG Staff in Preparation for November BOG Meeting
November 2024	Review by BOG
Fall 2024-Summer 2025	Development of additional AE courses (1. Rotary Wing Aerodynamics, 2. Structural Dynamics, and 3. Fracture Mechanics)
Spring 2025	Marketing and recruitment of students
Spring 2025	Update internal systems
Fall 2025	Enroll first cohort

Institutional and State-Level Accountability

III. Need and Demand

A. Describe the workforce need for the proposed program. The response should, at a minimum, include the following:

- current state workforce data as provided by Florida's Department of Economic Opportunity
- current national workforce data as provided by the U.S. Department of

Labor's Bureau of Labor Statistics

- **requests for the proposed program from agencies or industries in the university's service area**
- **any specific needs for research and service that the program would fulfill**

Aerospace engineering includes interdisciplinary graduate training in fluid dynamics, structures, thermal transport, dynamics, control, and materials which relies heavily on experimental, computational, and theoretical research. Graduate research and workforce development is a pivotal driver for creating novel aerospace systems and enhancing existing ones, critical for the evolution of technologies in aerospace transportation as well as energy, avionics, communications, information, homeland security, and national defense. Major federal funding agencies, such as the National Science Foundation, Department of Energy, Department of Defense, and NASA, allocate significant resources to support extensive research programs in aerospace engineering. Moreover, many industries, particularly in the State of Florida, are invested in aerospace and are actively seeking knowledgeable professionals in this field.

The demand for aerospace engineers is particularly pronounced in high-technology sectors that support aircraft development such as manufacturing, electronics, human performance in space, and sensing. The Bureau of Labor Statistics anticipates a 6% percent growth in the employment of aerospace engineers from 2022 to 2032 (<https://data.bls.gov/projections/occupationProj>). Florida, with its significant presence in aerospace, defense, marine, and space industries, hosts major players like Lockheed Martin, Boeing, Raytheon, Northrop Grumman, and General Dynamics, all of which employ aerospace engineers. These professionals are crucial for the development and application of new materials and structures for lighter, fuel efficient, and agile military aircraft and cutting-edge commercial planes. Nationally renowned companies like Boeing, General Dynamics, GE, Lockheed Martin, and Northrop Grumman heavily involve aerospace engineers in key roles. The anticipated percent growth in employment of aerospace engineers from 2023-2031 is 18.4% in Florida – which is **three** times the national growth rate.

Aerospace engineering (AE) graduates find opportunities not only in corporate settings but also in national and industrial labs, contributing to research and development. The expanding budgets of federal agencies' Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs in AE fields indicate a growing demand for AE graduates. Recent placements from FAMU and FSU's Mechanical Engineering program highlight the strength of the job market, with graduates assuming leadership roles in big and small high-tech businesses. Notable employers include Space-X, Boeing, Northrop Grumman, and various national labs.

The Mechanical Engineering Department Chair has engaged with select companies and the Eglin Air Force Research Laboratory to explore their potential hiring of MS and PhD graduates in Aerospace Engineering. Positive responses indicate a demand for MS and doctoral-prepared graduates in AE. The salary outlook for these graduates is promising, with recent Ph.D. recipients from the existing program earning upwards of approximately \$126,880 per year (<http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections>).

National and Florida Workforce Demand

In the table below, provide occupational linkages or jobs graduates will be qualified to perform based on the training provided for the proposed program that does not currently appear in the most recent version of the Search by CIP or SOC Employment Projections Data Tool provided periodically by Board staff.

Occupational Linkages for the Proposed Program

SOC Code (XX-XXXX)	Occupation Title	Source / Reason for Inclusion

Complete the table below and summarize its contents in narrative form. Include data for all linked occupations, including those in the table above. Use data from the Search by CIP or SOC Employment Projections Data Tool provided periodically by Board staff.

Labor Market Demand, CIP Code 14.0201

Occupations	Percent Change in Job Openings		Annual Average Job Openings		Total # of New Jobs		Education Level Needed for Entry
	FL 2023-31	U.S. 2022-32	FL 2023-31	U.S. 2022-32	FL 2023-31	U.S. 2022-32	
Aerospace Engineer	18.4%	6.1%	499	3,800	1,085	3,900	Bachelor's
Engineering Teachers, Post secondary	15.8%	9.3%	89	4,100	128	4,200	Doctoral Degree (Ph.D.)

Sources:

Date Retrieved: 02/21/2024

U.S. Bureau of Labor Statistics - <https://data.bls.gov/projections/occupationProj>

Florida Department of Economic Opportunity - <http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections>

B. Provide and describe data that support student demand for the proposed program. Include questions asked, results, and other communications with

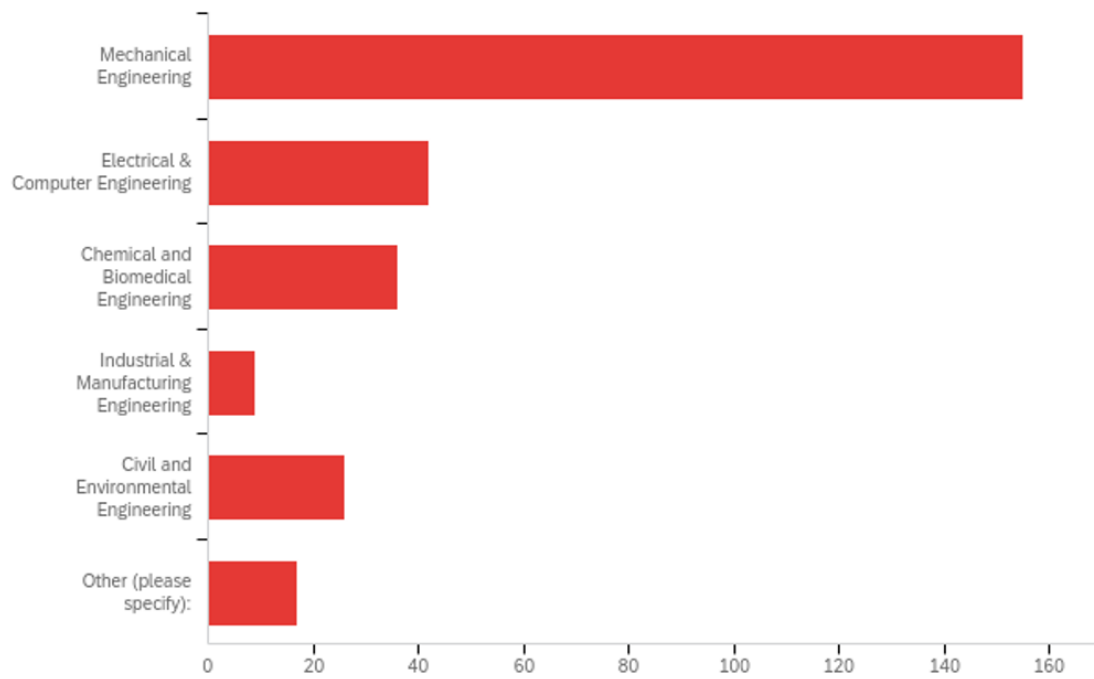
prospective students.

Prospective students are drawn to the prospect of enrolling in a graduate degree program in aerospace engineering due to the diverse career opportunities available in commercial aviation, defense, space exploration, and research. Pursuing a graduate degree is seen as a pathway to acquiring specialized knowledge and skills that can unlock lucrative and thrilling career paths. Florida, recognized as a hub for aerospace opportunities, provides an array of possibilities, including:

- **NASA and Space Industry:** The presence of the esteemed Kennedy Space Center offers aerospace engineers the chance to engage in various NASA missions, encompassing spacecraft launches and maintenance, research initiatives, and contributions to space exploration. Leading private space industry players like SpaceX, Blue Origin, and Boeing have firmly established themselves in Florida.
- **Defense and Military:** Florida is home to key military bases such as Eglin, Tyndall, and MacDill Air Force Research Laboratories, presenting opportunities in defense projects and technology. Aerospace engineers can contribute to defense-related initiatives, including the development of military aircraft, missile systems, and other defense technologies.
- **Commercial Aviation:** Prominent companies like Embraer, Spirit AeroSystems, and Lockheed Martin have a significant presence in Florida, offering compelling career opportunities for Ph.D. graduates.
- **Space Tourism:** The emerging sector of space tourism, led by companies like Virgin Galactic and Blue Origin, presents exciting prospects for aerospace engineers with graduate degrees to contribute to this groundbreaking industry.
- **Education and Research:** Aerospace engineers holding a PhD can explore opportunities in teaching, research, and curriculum development, contributing to the academic and research landscape of aerospace engineering.

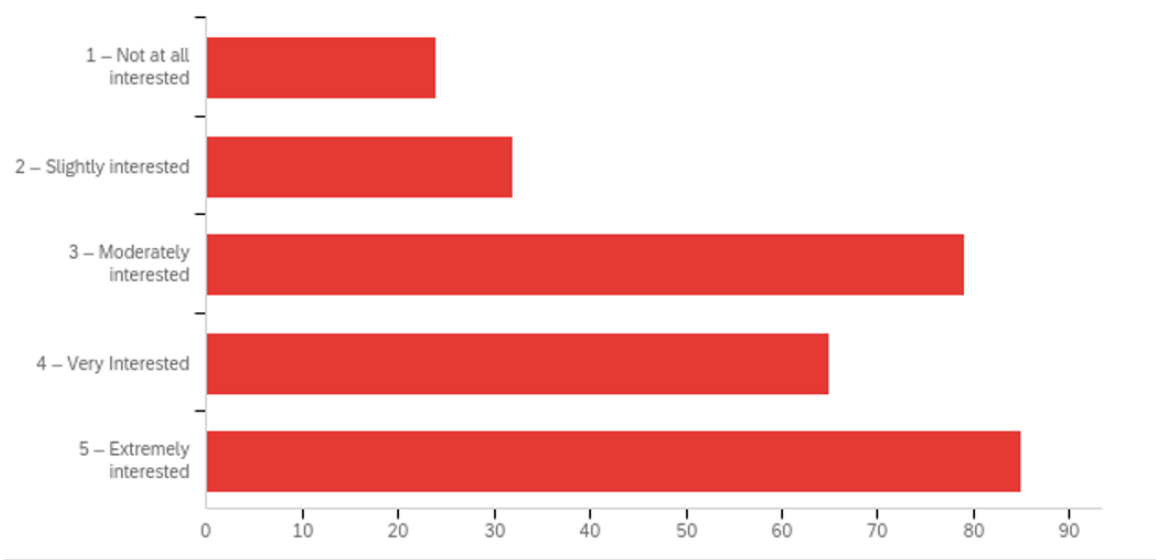
The FAMU-FSU College of Engineering conducted a survey to assess students' interest in pursuing graduate studies in Aerospace Engineering. The survey included the following questions, and it received responses from 289 individuals.

Q1 - What is your current undergraduate major or field of study?



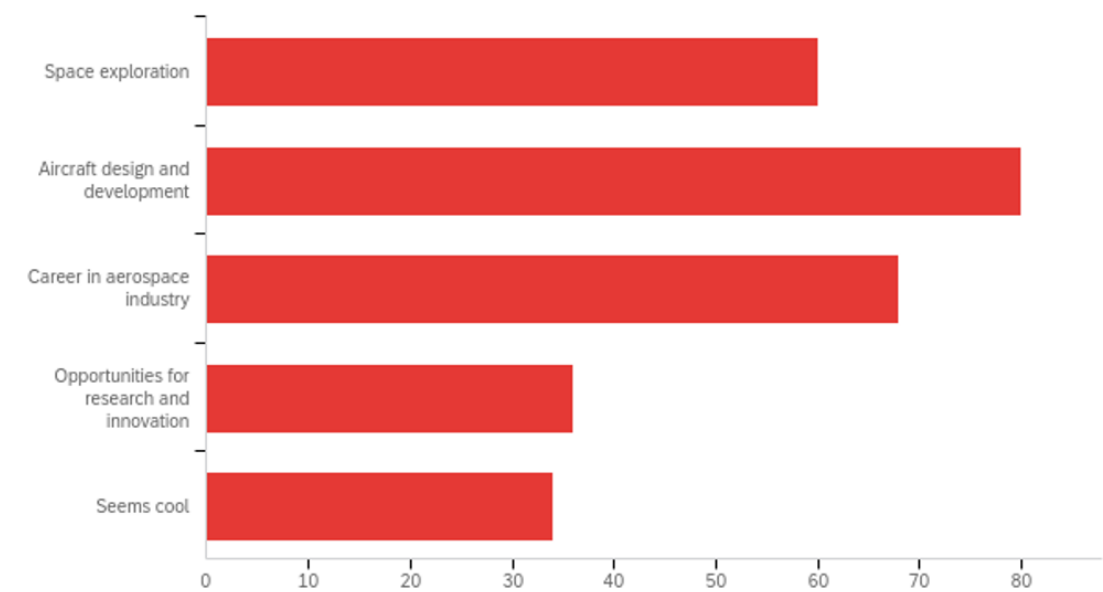
#	Answer	%	Count
1	Mechanical Engineering	54.39%	155
2	Electrical & Computer Engineering	14.74%	42
3	Chemical and Biomedical Engineering	12.63%	36
4	Industrial & Manufacturing Engineering	3.16%	9
5	Civil and Environmental Engineering	9.12%	26
6	Other (please specify):	5.96%	17
	Total	100%	285

Q2 - On a scale of 1 to 5, how interested are you in pursuing graduate studies in aerospace engineering at FAMU-FSU COE?



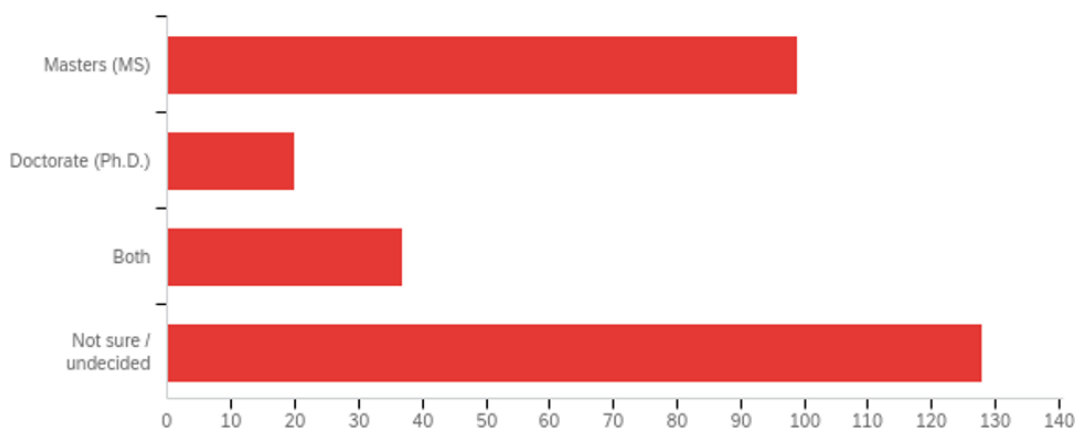
#	Answer	%	Count
1	1 – Not at all interested	8.42%	24
2	2 – Slightly interested	11.23%	32
3	3 – Moderately interested	27.72%	79
4	4 – Very Interested	22.81%	65
5	5 – Extremely interested	29.82%	85
	Total	100%	285

Q3 - What motivates your interest in pursuing graduate studies in aerospace engineering?



#	Answer	%	Count
1	Space exploration	21.58%	60
2	Aircraft design and development	28.78%	80
3	Career in aerospace industry	24.46%	68
4	Opportunities for research and innovation	12.95%	36
5	Seems cool	12.23%	34
	Total	100%	278

Q4 - 4. Are you interested in Masters or Doctorate program at FAMU-FSU COE?



#	Answer	%	Count
1	Masters (MS)	34.86%	99
2	Doctorate (Ph.D.)	7.04%	20
3	Both	13.03%	37
4	Not sure / undecided	45.07%	128
	Total	100%	284

C. Complete Appendix A – Table 1 (1-A for undergraduate and 1-B for graduate) with projected student headcount (HC) and full-time equivalents (FTE).

- Undergraduate FTE must be calculated based on 30 credit hours per year
- Graduate FTE must be calculated based on 24 credit hours per year

In the space below, explain the enrollment projections. If students within the

institution are expected to change academic programs to enroll in the proposed program, describe the anticipated enrollment shifts and impact on enrollment in other programs.

Year One

New students (PhD HC=6, FTE=6, MS HC=19, FTE=12) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. After full implementation and development of marketing strategies, the program anticipates growing the program each year until it reaches approximately 24 PhD students (FTE=18) and 65 masters students (FTE=51) by year five. These estimates are based on five year historical numbers at the University of Florida and the University of Central Florida. With additional marketing efforts, the program may expand enrollment in the out years.

Year Two

New students (PhD HC=9, FTE=9, MS HC=34, FTE=26) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. These students are largely distributed among: 1) Individuals who have recently graduated from preceding degree programs at this university, 2) Individuals who graduated from preceding degree programs at other Florida public universities, and 3) Individuals who graduated from preceding degree programs at non-public Florida institutions.

Year Three

New students (PhD HC=14, FTE=10, MS HC=48, FTE=37) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. These students are largely distributed among: 1) Individuals who have recently graduated from preceding degree programs at this university, 2) Individuals who graduated from preceding degree programs at other Florida public universities, and 3) Individuals who graduated from preceding degree programs at non-public Florida institutions.

Year Four

New students (PhD HC=20, FTE=16, MS HC=63, FTE=53) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. These students are largely distributed among: 1) Individuals who have recently graduated from preceding degree programs at this university, 2) Individuals who graduated from preceding degree programs at other Florida public universities, and 3) Individuals who graduated from preceding degree programs at non-public Florida institutions.

Year Five

New students (PhD HC=24, FTE=18, MS HC=65, FTE=51) for the doctoral and masters programs are anticipated from graduates of the FAMU-FSU College of Engineering or related undergraduate programs at FAMU and FSU. These students are largely distributed among: 1) Individuals who have recently graduated from preceding degree

programs at this university, 2) Individuals who graduated from preceding degree programs at other Florida public universities, and 3) Individuals who graduated from preceding degree programs at non-public Florida institutions.

D. Describe the anticipated benefits of the proposed program to the university, local community, and the state. The benefits of the program should be described both quantitatively and qualitatively.

Anticipated benefits of introducing a program in aerospace engineering are extensive, promising numerous advantages for FAMU, FSU, the Panhandle region, the State of Florida, and the nation. These encompass the following:

- Create avenues for recruiting students interested in pursuing Aerospace Engineering and establish an educational framework for them to obtain a graduate degree.
- Leverage significant investments from FAMU and FSU in start-up packages and infrastructure support for faculty researching emerging fields.
- Introduce a cost-effective STEM program.
- Enhance research visibility for the FAMU-FSU College of Engineering.
- Expand opportunities for FAMU and FSU to secure more substantial funding for aerospace research, especially interdisciplinary grants.
- Address the pressing educational need to produce more engineers in the U.S. and Florida, particularly in aerospace.

Contribute to research, economic development, and job creation in the Panhandle region and across the State.

- Enhance the Nation's technical capability by attracting researchers and supporting new product development.
- Assist in overcoming the underrepresentation of minorities in STEM, particularly in engineering. The FAMU-FSU College of Engineering has demonstrated progress in this area, ranking fourth nationally in producing PhDs for African Americans.

E. If other public or private institutions in Florida have similar programs at the four- or six-digit CIP Code or in other CIP Codes where 60 percent of the coursework is comparable, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with appropriate personnel (e.g., department chairs, program coordinators, deans) at those institutions regarding the potential impact on their enrollment and opportunities for possible collaboration in the areas of instruction and research.

Two programs in the State of Florida have Aerospace Engineering graduate programs - the University of Florida and the University of Central Florida. The Chair, William S. Oates, has spoken to both department chairs at these universities to discuss potential impact and collaboration opportunities with these existing programs; see Appendix B.

- F. If the proposed program substantially duplicates a program at Florida Agricultural and Mechanical University (FAMU), a letter of support from FAMU must be provided. The letter must address whether the proposed program may adversely affect FAMU's ability to achieve or maintain student diversity in its existing program. The institution's Equal Opportunity Officer shall review this section of the proposal, sign, and date the additional signature page to indicate that all requirements of this section have been completed.**

There is currently no Aerospace Engineering program offered through the FAMU-FSU College of Engineering. FAMU offers undergraduate Architecture and Engineering Technology degrees; however, these programs are distinctly different from aerospace engineering.

IV. Curriculum

- A. Describe all admission standards and all graduation requirements for the program. Hyperlinks to institutional websites may be used to supplement the information provided in this subsection; however, these links may not serve as a standalone response. For graduation requirements, describe any additional requirements that do not appear in the program of study (e.g., milestones, academic engagement, publication requirements).**

Master's Program

Prospective students must have a BS degree (or a recognized equivalent) in Mechanical or Aerospace Engineering or any one of the following related fields: Any Engineering Major, Chemistry, Computer Science, Materials Science, Mathematics/Applied Mathematics, or Physics/Applied Physics. Non-majors, students without a BS degree in Mechanical Engineering, may be required to take up to twelve credit hours of remedial coursework in Mechanical Engineering as a condition of admission.

Applicants must have at least a 3.0 upper-division GPA and GRE General Exam scores or an approved GRE waiver. International students must take the TOEFL exam and score at least 550 on the paper-based exam, 213 on the computer-based exam, or 80 on the Internet-based exam. Other acceptable English Language Proficiency Exam scores are as follows: Pearson Test in English (50), Duolingo (120), Cambridge C1 Advanced Level (180), and Michigan Language Assessment (55). Applicants must also submit a personal/research statement, résumé, and three letters of recommendation. Please visit the department website for additional details: <https://eng.famu.fsu.edu/me>.

Note: Effective August 2011, the GRE Revised General Test replaced the GRE General Test. To learn more about this test, go to <https://ets.org/gre>.

Ph.D. Program

Prospective students must have an MS degree in Mechanical or Aerospace Engineering or any one of the following related fields: any Engineering Major, Chemistry, Computer Science, Materials Science, Mathematics/Applied Mathematics, or Physics/Applied Physics. Non-majors, students without a BS degree in Mechanical or Aerospace

Engineering, may be required to take up to 12 credit hours of remedial coursework in Mechanical Engineering as a condition of admission.

Applicants must have at least a 3.0 upper-division GPA and GRE General Exam scores or an approved GRE waiver. International students must take the TOEFL Exam and score at least 550 on the paper-based exam, 213 on the computer-based exam, or 80 on the Internet-based exam. Other acceptable English Language Proficiency Exam scores are as follows: Pearson Test in English (50), Duolingo (120), Cambridge C1 Advanced Level (180), and Michigan Language Assessment (55). Applicants must also submit a personal statement, résumé, and three letters of recommendation. Please visit the department website for additional details: <https://eng.famu.fsu.edu/me>.

Note: Effective August 2011, the GRE Revised General Test replaced the GRE General Test. To learn more about this test, go to <https://ets.org/gre>.

BS to PhD Program

In addition to the standard PhD program the department offers a direct BS to PhD program. This program is limited to students with excellent academic transcripts and demonstrated potential for advanced research. Applicants must submit strong letters of recommendation from professors or persons qualified to evaluate their academic potential. Admission to the program is finalized at the end of the second semester. During their first two semesters, students must maintain a minimum graduate GPA of 3.50. Final admission to the PhD program is granted by the Graduate Committee.

Students initially admitted to the master's program may request a transfer to the BS-PhD program at the end of their second semester. The student must have maintained a graduate GPA of 3.50 or better during their first two semesters.

B. Describe the specific expected student learning outcomes associated with the proposed program and include strategies for assessing the proposed program's learning outcomes. If the proposed program is a baccalaureate degree, include a hyperlink to the published Academic Learning Compact and the document itself as Appendix C.

Institutional Effectiveness (IE) for Aerospace Engineering – PhD

- Program Outcome (PO) Name: Time to Degree
 - PO Statement: Doctoral students will progress in the Aerospace Engineering program at adequate pace.
 - PO Assessment Plan: For this PO, we will track how many of our doctoral students progress from matriculation to graduation within five years, which is the expected program duration. To calculate the completion rate, we will take the number of students who earn their doctorate in a given academic year (defined as Summer, Fall, Spring) and divide it by the total number of students in the original cohort from five years ago (Summer, Fall, Spring). This

performance objective will be assessed by official FAMU-FSU College of Engineering enrollment and graduation statistics.

- PO Numeric Target: At least 80% of doctoral students in a cohort will graduate with their doctorate in Aerospace Engineering within 5 years from the matriculation year.
- Student Learning Outcome (SLO) Name: Oral Communication and Presentation Skills
 - SLO Statement: Upon completion of the course of instruction, the student will communicate effectively through oral and visual means.
 - SLO Assessment Plan: PhD committees are formed with a minimum of four members (chair, university representative, member in-area, member-out of area). The university representative is outside of the department. The student's adviser will gather completed rubrics, securely store them, and compile the scores for the annual assessment report. The 'Oral Communication and Presentation Skills' are evaluated based on whether: The dissertation defense was presented using a clear and logical structure, engaging delivery, appropriate voice, and effective visuals, and with evidence of prior rehearsal. The 'Oral Communication and Presentation Skills' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point).
 - SLO Numeric Target: At least 80% of students will achieve level of 'Exemplary' (4 points) or 'Proficient' (3 points) on the rubric criterion 'Oral Communication and Presentation Skills' from all committee members.
- Student Learning Outcome (SLO) Name: Research Skills
 - SLO Statement: Students will review literature, apply research methodologies, and analyze and interpret data and results.
 - SLO Assessment Plan: The 'Research Skills' are evaluated based on three criteria (each one is evaluated separately as a distinct criterion in the corresponding rubric). 'Literature Review' criterion: The student exhibits a thorough and comprehensive understanding of the research topic, providing a critical examination of relevant literature. 'Methodology' criterion: Thorough, clear, and well-justified, covering research design, data collection, and analysis comprehensively. 'Results and Discussion' criterion: Clear, accurate, and comprehensive, addressing the research question with appropriate data and analysis. Insightful, coherent, and well-structured interpretation of results. Addresses study's applications, limitations, and contributions. The three criteria falling under 'Research Skills' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point).
 - SLO Numeric Target: At least 80% of students will achieve level of 'Exemplary' (4 points) or 'Proficient' (3 points) on all three rubric criteria that fall under the

'Research Skills' umbrella (Literature review, methodology, and results and discussion) from all committee members.

Institutional Effectiveness (IE) for Aerospace Engineering – MS

- Program Outcome (PO) Name: Time to Degree
 - PO Statement: Master's students will progress in the Aerospace Engineering program at adequate pace.
 - PO Assessment Plan: For this PO, we will track how many of our master's students progress from matriculation to graduation within two years, which is the expected program duration. To calculate the completion rate, we will take the number of students who earn their master's in a given academic year (defined as Summer, Fall, Spring) and divide it by the total number of students in the original cohort from two years ago (Summer, Fall, Spring). This performance objective will be assessed by official FAMU-FSU College of Engineering enrollment and graduation statistics.
 - PO Numeric Target: At least 80% of master's students in a cohort will graduate with their MS in Aerospace Engineering within 2 years from the matriculation year.

- Student Learning Outcome (SLO) Name: Oral Communication and Presentation Skills
 - SLO Statement: Upon completion of the course of instruction, the student will communicate effectively through oral and visual means.
 - SLO Assessment Plan: For non-thesis students, we will employ a rubric for their project presentation in EAS 5102. For thesis students, we will utilize the same rubric for their thesis defense.
 - *Non-Thesis Students:* The 'Oral Communication and Presentation Skills' are evaluated based on whether: Design project presentation in the required course (EAS 5102 Fundamentals of Aerodynamics) has a clear and logical structure, engaging delivery, appropriate voice and effective visuals, and evidence of rehearsal. The 'Oral Communication and Presentation Skills' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point). The course instructor will gather completed rubrics, securely store them, and compile the scores for the annual assessment report.
 - *Thesis Students:* MS (Master's) committees are formed with a minimum of three members (chair, member in-area, member-out of area). The student's adviser will gather completed rubrics, securely store them, and compile the scores for the annual assessment report. The 'Oral Communication and Presentation Skills' are evaluated based on whether: The thesis defense has a clear and logical structure, engaging delivery, appropriate voice and effective visuals, and evidence of rehearsal. The 'Oral Communication and Presentation Skills' are

evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point).

- SLO Numeric Target: At least 80% of students will achieve level of 'Exemplary' (4 points) or 'Proficient' (3 points) on the rubric criterion 'Oral Communication and Presentation Skills'.
- Student Learning Outcome (SLO) Name: Review of Applicable Theories and Literature
 - SLO Statement: Students will demonstrate broad knowledge of disciplinary fundamentals.
 - SLO Assessment Plan: For non-thesis students, we will employ a rubric for their project presentation in EAS 5102. For thesis students, we will utilize the same rubric for their thesis defense.
 - *Non-Thesis Students:* The 'Literature Review' are evaluated based on: A class (EAS 5102 Fundamentals of Aerodynamics) project to evaluate a student's understanding of essential concepts, theories, and foundational principles within the discipline. The 'Literature Review' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point). The course instructor will gather completed rubrics, securely store them, and compile the scores for the annual assessment report.
 - *Thesis Students:* MS (Master's) committees are formed with a minimum of three members (chair, member in-area, member-out of area). The student's adviser will gather completed rubrics, securely store them, and compile the scores for the annual assessment report. The 'Literature Review' are evaluated based on: The student exhibits a thorough and comprehensive understanding of the research topic, providing a critical examination of relevant literature. The 'Literature Review' are evaluated based on a 4-point scale: Exemplary (4 Points), Proficient (3 Points), Acceptable (2 Points), Deficient (1 Point).
 - SLO Numeric Target: At least 80% of students will achieve level of 'Exemplary' (4 points) or 'Proficient' (3 points) on the rubric criterion 'Literature Review'.

C. If the proposed program is an AS-to-BS capstone, provide evidence that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as outlined in [State Board of Education Rule 6A-10.024](#). Additionally, list any prerequisites and identify the specific AS degrees that may transfer into the proposed program.

☒ **Not applicable to this program because it is not an AS-to-BS Capstone.**

D. Describe the curricular framework for the proposed program, including the following information where applicable:

- total number of semester credit hours for the degree

- **number of credit hours for each course**
- **required courses, restricted electives, and unrestricted electives**
- **a sequenced course of study for all majors, concentrations, tracks, or areas of emphasis**

FAMU and FSU students will follow an identical curriculum. Throughout their Aerospace Engineering program, students will participate in the Interdisciplinary Seminar Series (0 credits). The curricular framework for MS and PhD programs is detailed below.

Master's Program

I. Thesis Option

Aerospace Engineering students must take the following minimum distribution of courses for a total of 30 credit hours:

Core Courses

Nine credit hours:

- EML 5060 Analysis in Mechanical Engineering, and
- Two core courses in the major area (either Dynamics and Controls, Fluid Mechanics and Heat Transfer, or Solid Mechanics and Materials Science)

Core courses in Dynamics and Controls:

- EGM 5444 Advanced Dynamics
- EML 5317 Advanced Design and Analysis of Control Systems
- EML 5361 Multivariable Control
- EML 5930r Special Topics in Mechanical Engineering

Core courses in Fluid Mechanics and Heat Transfer:

- EML 5152 Fundamentals of Heat Transfer
- EML 5155 Convective Heat and Mass Transfer
- EML 5709 Fluid Mechanics Principles with Selected Applications
- EML 5930r Special Topics in Mechanical Engineering

Core courses in Solid Mechanics and Materials Science:

- EGM 5611 Introduction to Continuum Mechanics
- EML 5930r Special Topics in Mechanical Engineering

Aerospace Engineering Courses

- Six credit hours: two courses in Aerospace Engineering.

Electives

Nine credit hours:

- Select three graduate-level courses in any engineering field, mathematics, or any

science discipline (computer science, physics, etc.).

- Courses must be selected in consultation with the student's major professor.
- One of the three electives may include EML 5905 Directed Individual Study or EML 5910 Supervised Research.

Thesis

Six credit hours:

- EML 5971 Thesis, and
- EML 8976 Master's Thesis Defense

II. Non-Thesis Option

The non-thesis option requires 30 credit hours, of which at least 27 credit hours must be letter-graded courses. Students must complete 21 credit hours of coursework within aerospace or mechanical engineering. Nine credit hours may be taken outside the department in any of the following areas: engineering, mathematics, or any science discipline (computer science, physics, etc.).

Ph.D. Program

The standard PhD program requires 48 credit hours of coursework, of which at least 24 credit hours must be dissertation hours. The remaining letter-graded credit hours are divided into three areas:

General Engineering and Mathematics

Students must complete six credit hours of general engineering and advanced mathematics courses. One of those courses must be EML 5061 Analysis in Mechanical Engineering II. The remaining course must be from the approved course list. See the department website for the approval list.

Electives

Students must complete 18 credit hours of graduate-level, letter-graded electives. Courses may be taken in any engineering program, mathematics, and/or any science discipline.

BS to PhD Program

The BS-PhD program requires 60 credit hours of coursework, of which at least 24 credit hours must be dissertation hours. The remaining 36 letter-graded credit hours are divided into five areas:

General Engineering and Mathematics

Students must complete 9 credit hours of general engineering and advanced mathematics courses at the 5000 or higher level. One of those courses must be EML 5061 Analysis in Mechanical Engineering II. The remaining course must be from the approved course list. See the department website for the approval list.

Core Courses

Students must complete EML 5060 Analysis in Mechanical Engineering I and two courses

in their chosen depth area for 9 semester hours.

Aerospace Engineering Courses

Students must complete 6 credit hours of general aerospace-engineering courses.

Electives

Students must complete 12 credit hours of electives. Courses may be taken in any engineering program, mathematics, and/or any science discipline. Students may substitute one elective course with a Directed Individual Study (DIS) course or Supervised Research (SR) course.

Additional Requirements

Preliminary Examination

All PhD students must register for and pass EML 8968 (Preliminary Examination) before their fourth semester ends. The exam is designed to evaluate a student's grasp of a specified spectrum of Aerospace Engineering (at the undergraduate level) and their ability to think creatively. It consists of an oral examination following a written research proposal and is administered each term. After passing the exam, the student will be granted doctoral candidacy status, allowing them to register for dissertation credit hours.

Prospectus Defense

Within one year of obtaining candidacy status each PhD student must present a prospectus to their committee on a research project suitable for a doctoral dissertation. A forty-five-minute presentation of the proposed dissertation topic will be presented to the students' graduate committee for approval.

Dissertation Defense

Demonstrated ability to perform original research at the forefront of mechanical engineering is the final and major criterion for granting the doctoral degree. The candidate's dissertation serves, in part, to demonstrate such competence; on completion it is defended orally in a public seminar before the doctoral dissertation committee, which may then recommend the awarding of the degree.

E. Provide a brief description for each course in the proposed curriculum.

Below is the brief description of courses for the proposed curriculum. The definition of the prefixes used are:

EAS—Aerospace Engineering

EGM—Engineering Science

EGN—Engineering: General

EMA—Materials Engineering

EML—Engineering: Mechanical

- **EAS 5102. Fundamentals of Aerodynamics (3).** Prerequisites: EML 3015C and EML 3016C. This course includes fundamental fluid mechanics and aerodynamic principles in the design of airfoil and aircraft wings. The course provides a comprehensive review concerning applications, technological advances, and social impacts on the development of a modern flight vehicle.
- **EGM 5330. Random Data Measurement and Analysis (3).** Prerequisite: Graduate standing or instructor permission. This course explores random data, mean values, mean-square values, probability density and distribution functions, moments and characteristic functions, spectral and correlation analysis; bias and random error estimates in data measurements; input-output system models; measurement examples.
- **EGM 5348. Introduction to Scientific and High-Performance Computing (4).** Prerequisites: an understanding of linear algebra and knowledge of a programming language (C, C++, FORTRAN) or a scripting language (MATLAB, Python). This course covers fundamental concepts for scientific computing such as numerical solution methods, error analysis, and parallelization methodologies. Students explore essential tools and environments for high-performance computing and consider effective use of computational resources.
- **EGM 5444. Advanced Dynamics (3).** Prerequisite: EGN 3321, EML 3220, and MAP 3306. In this course, topics include particle and rigid body kinematics, particle and rigid body kinetics, D'Alembert Principle, LaGrange's equations of motion, system stability, computational techniques, orbital dynamics, multi-body dynamics.
- **EGM 5611. Introduction to Continuum Mechanics (3).** Prerequisite: Graduate standing. Solid and fluid continua. Cartesian tensor theory. Kinematics of infinitesimal deformation, relations between stress, strain, and strain rate for elastic, plastic, and viscous solids and for compressible and viscous fluids. General equations of continuum mechanics, integral forms, and their physical interpretation. Particular forms of equations and boundary conditions for elastic and viscoelastic solids and Newtonian fluids.
- **EGM 5612. Solid Mechanics and Electromagnetics of Continuous Media (3).** Prerequisites: Familiarity with topics of strength of materials, concepts of stresses and strains, a basic understanding of thermodynamics and electromagnetics. This course introduces concepts of continuum thermo-mechanics and electromagnetics with application in solving field-coupled boundary value problems.
- **EGM 5810. Viscous Fluid Flows (3).** Prerequisite: EML 5709. Presents the basic fundamentals underlying the mechanics of gas, air, and fluid flows. Discussion of the possible methods of estimating and predicting the characteristics and parameters governing those flows.
- **EGM 6845. Turbulent Flows (3).** Prerequisite: EML 5709. In-depth study of turbulent, flows, statistical description of turbulence; instability and transition; turbulence closure modeling; free shear and boundary layer flows; complex shear flows; development of computational strategies; recent literature on applications and chaos phenomena.
- **EMA 5226. Mechanical Metallurgy (3).** Prerequisites: EML 3234. Tensile instability,

crystallography, theory of dislocations, plasticity, hardening mechanisms, creep and fracture, electron microscopy, composite materials.

- **EMA 5514. Electron Microscopy (3).** Prerequisite: Instructor permission. This course focuses on fundamentals and techniques of electron microscopy as applied to the determination of physical, chemical, and structural properties of materials and materials behavior in practice.
- **EMA 5814. Computational Material Physics (3).** This course covers numerical simulation techniques for predicting various physical properties of conventional materials, nanomaterials, and biomaterials. Students use computational material physics tools to understand, predict, and design new materials and guide experimental studies at the atomistic level.
- **EML 5042. Modeling and Simulation of Mechanical Systems (3).** Prerequisites: EML 3014C, EML 3018C, or instructor permission. This course is an introduction to various concepts of modeling and simulation of mechanical systems, including models of systems, numerical solutions of ODEs, software tools for modeling and simulation of complex mechanical systems.
- **EML 5045. Manufacturing Processes Control (3).** Prerequisites: EML 3234 and EML 3012C. Corequisites: EML 4312 or EML 5311. This course introduces essential knowledge in the control of manufacturing systems and processes.
- **EML 5060. Analysis in Mechanical Engineering (3).** Prerequisite: Graduate standing in mechanical engineering. Familiarizes the student with methods of analysis in mechanical engineering. Surveys applications of integration and series, ordinary and partial differential equations, and linear algebra.
- **EML 5061. Analysis in Mechanical Engineering II (3).** Prerequisite: EML 5060 or equivalent. This course familiarizes students with applications of vector calculus and partial differential equations in mechanical engineering.
- **EML 5072. Applied Superconductivity (3).** Prerequisites: EEL 3472; EML 3100; EML 3234; PHY 3101. Introduction to superconductivity for applications, fundamentals of the superconducting state, transport current and metallurgy of superconductors, Superconducting electrons and magnets, system engineering.
- **EML 5103. Advanced Engineering Thermodynamics (3).** Prerequisite: Graduate standing in mechanical engineering. This course in thermal fluids covers the axiomatic formulations of the first and second laws of thermodynamics; general thermodynamic relationships and properties of real substances; energy, exergy, and second-law analysis of energy-conversion processes; reactive systems and multiphase equilibrium; entropy generation minimization and thermodynamic optimization; as well as applications to low-temperature refrigeration and power-generation systems.
- **EML 5152. Fundamentals of Heat Transfer (3).** Prerequisite: Graduate standing in mechanical engineering. This is an introductory course in basic heat transfer concepts. Topics include conduction and heat diffusion equation, forced and free convection, radiative heat transfer, boiling heat transfer, and condensation.

- **EML 5155. Convective Heat and Mass Transfer (3).** Prerequisites: EGM 5810; EML 5152. Familiarizes the student with methods to evaluate a convection heat transfer coefficient and a mass transfer coefficient for a variety of engineering applications. Evaluation of the driving force in mass transfer and combined problems.
- **EML 5162. Cryogenics (3).** Prerequisites: EML 3015C, EML 3016, and EML 3234. Miscellaneous requirement: EML 4512 and PHY 3101 are recommended. This course focuses on the fundamental aspects of cryogenics system and engineering properties of materials and fluids at low temperatures; cryogenic heat transfer and fluid dynamics, low temperature refrigeration and system engineering.
- **EML 5224. Acoustics (3).** Prerequisites: EML 3015C, EML 3016C. Corequisite: EML 5710. This course provides an introduction to physical acoustics with an emphasis on a thermal-fluids perspective.
- **EML 5289. Vehicle Design (3).** Prerequisites: EML 3014C and EML 3018C, or instructor permission. This is an introductory course in vehicle design concentrating primarily on vehicle dynamics. Students examine the key features of vehicle design that relate to performance: suspension, steering, chassis, and tires. By using the latest in industry standard software, students consider the various design parameters influencing vehicle performance and handling.
- **EML 5311. Design and Analysis of Control Systems (3).** Prerequisite: MAP 3306. Mathematical modeling of continuous physical systems. Frequency and time domain analysis and design of control systems. State variable representations of physical systems.
- **EML 5317. Advanced Design and Analysis of Control Systems (3).** Design of advanced control systems (using time and frequency domains) will be emphasized. Implementation of control systems using continuous (operational amplifier) or digital (microprocessor) techniques will be addressed and practiced.
- **EML 5361. Multivariable Control (3).** Prerequisite: EML 4312 or 5311. Course covers H₂ and H_∞ control design for linear systems with multiple inputs and multiple outputs and globally optimal techniques, fixed-structure (e.g., reduced-order) techniques. Includes introductory concepts in robust control.
- **EML 5422. Fundamentals of Propulsions Systems (3).** Prerequisite: EML 3015C, EML 3016C, and graduate standing in mechanical engineering. This course offers an analysis of the performance of propulsion systems using fundamental principles of thermodynamics, heat transfer, and fluid mechanics. Systems studied include turbojet, turbofan, ramjet engines, as well as piston-type internal combustion engines.
- **EML 5451. Energy Conversion Systems for Sustainability (3).** Prerequisites: Requires graduate standing. This course discusses the challenge of making the global energy system independent of finite fossil-energy sources and, instead, dependent on environmentally sustainable energy sources. The course emphasizes strategies for producing energy that is free of greenhouse-gas emissions, including renewable energy sources such as solar, wind, and biomass. The course focuses on direct energy conversion and covers topics such as photovoltaic cells, fuel cells, and thermoelectric systems.

- **EML 5453. Sustainable Power Generation (3).** Prerequisites: EML 4450 or EML 5451 or graduate student standing in engineering or sciences. This course is a continuation of sustainability energy-conversion systems and focuses on solar electricity, biopower, biofuels, and hydrogen. The course also discusses the practicality of hydrogen-based transportation.
- **EML 5525. Design and Modeling for Manufacturing Processes (3).** Prerequisites: EML 3012C and EML 3018C. This course covers descriptive and analytical treatment of manufacturing processes and production equipment, automation, as well as applications of mechanics stress analysis, vibrations, heat transfer. The course includes discrete time simulation.
- **EML 5537. Design Using FEM (3).** The Finite Element Method - what it is, elementary FEM theory, structures and elements, trusses, beams, and frames, two-dimensional solids, three-dimensional solids, axisymmetric solids, thin-walled structures, static and dynamic problems, available hardware and software, basic steps in FEM analysis, pre/post processing, interpretation of results, advanced modeling techniques, design optimization, advanced materials using FEM.
- **EML 5543. Materials Selection in Design (3).** Prerequisite: EML 3234 or equivalent. This course examines the application of materials predicated on material science and engineering case studies covering most engineering applications.
- **EML 5705. Active Flow Control (3).** Prerequisites: EML 3014C (or an equivalent undergraduate controls course) and EML 5709. This course covers active flow control. Active flow control is a rapidly emerging field of significant technological importance to the design and capability of a new generation of fluid systems, spawning major research initiatives in government industry, and academic sectors.
- **EML 5709. Fluid Mechanic Principles with Selected Applications (3).** Prerequisites: Graduate standing in mechanical engineering, EML 3015, and EML 5060 (or other course equivalents). This course explores introductory concepts, description, and kinematical concepts of fluid motion, basic field equations, thermodynamics of fluid flow, Navier-Stokes equations, elements of the effects of friction and heat flow, unsteady one-dimensional motion, selected nonlinear steady flows.
- **EML 5710. Introduction to Gas Dynamics (3).** Prerequisite EML 3016C. This course concentrates on the unique features of compressibility in fluid mechanics. It provides the student with knowledge and understanding of the fundamentals of compressible fluid flow and is basic to studies in high-speed aerodynamics, propulsion, and turbomachinery.
- **EML 5725. Introduction to Computational Fluid Dynamics (3).** Prerequisite: EML 5709. Topics for this course include introduction to conservation laws in fluid dynamics; weak solutions; solving the full potential equations for subsonic, transonic, and supersonic flows; solving system of equations. In particular, upwind schemes and flux splitting will be introduced in solving the Euler equations. Coordinate transformation and grid generation methods will also be covered.
- **EML 5802. Introduction to Robotics (3).** Prerequisite: Graduate standing in

mechanical engineering. This course studies the fundamentals of robot operation and application including basic elements, robot actuators and servo-control, sensors, senses, vision, voice, microprocessor system design and computers, kinematic equations, and motion trajectories.

- **EML 5803. Mechatronics II (3).** This course focuses on developing greater competence in the application of electromechanical components to solve engineering problems and build 'smart' systems. The course focuses on the design interplay between electrical and mechanical systems. Students use microprocessors, circuits, sensors, and actuators in both labs and projects to develop multi-purpose electromechanical devices. The course provides instruction and practical exercises in programming, electronics, signal conditioning, communication protocols, mechanical design, prototyping techniques, and system integration.
- **EML 5831. Introduction to Mobile Robotics (2).** Prerequisite: EML 3811 and EML 3811L or instructor permission. Corequisite: EML 5831L. This course examines kinematic modeling and simulation of mobile robots; mobile robot sensors; fundamental methods of computer vision; Kalman filtering and mobile robot localization; SLAM; path, trajectory planning, and obstacle avoidance; intelligent control architectures; and advanced topics in localization, mapping, and motion planning.
- **EML 5831L. Mobile Robotics Lab (1)** Prerequisite: EML 3811 and EML 3811L or instructor permission. Corequisite: EML 5831. This course offers a hands-on implementation of core and advanced mobile robotics algorithms. In addition, it introduces widely used mobile robotics software packages.
- **EML 5832. Bio/Robotic Locomotion (3).** Prerequisite: Permission of Instructor. This course introduces the fundamental concepts for biological and robotic locomotion with limbs. Muscular-skeletal biomechanics for vertebrate and invertebrate animals are briefly reviewed including an overview of the function of muscles. Morphology, gaits, posture, and the effect of scale on legged locomotion are discussed. The history of legged robots is reviewed. Reduced-order dynamic models of walking and running are introduced. Techniques for analyzing the stability of these periodic hybrid-dynamic systems are covered. The course includes the development and analysis of simulation and hardware platforms of locomotion systems.
- **EML 5930 : Introduction to Bayesian Uncertainty Analysis for Engineers:** This course will introduce students to Bayesian uncertainty analysis in engineering problems. It will compare Bayesian statistics to frequentist statistics. A tutorial based lecture series will be utilized to provide students with hands-on experience computing uncertainty of models in light of data. Matlab code will be provided.
- **EGM 5653 - Theory of Elasticity:** *Prerequisite: EGM 5611.* This is an introductory course which provides background necessary to mechanical engineers who wish to pursue the area of theoretical or analytical solid mechanics. Topics include Cartesian tensors, kinetics and kinematics of motion, constitutive equations, linearized theory of elasticity, and solutions to boundary value problems.
- **EML 5930 Introduction to Hypersonic Flows:** This course is a technical elective course designed for graduate level engineering students in the Aeronautics Track and

area of thermal and fluid sciences. The course includes fundamental of hypersonic aerodynamics and aerothermodynamics. It provides a comprehensive review concerning applications, technological advances, and social impacts on the development of a modern hypersonic flight vehicle. The course provides an overview of the guiding principles, compressible flow simulations and experimental observations to understand hypersonic flows.

- **EML 5905r. Directed Individual Study (1–9).** (S/U grade only). Instructor permission required. Individual study topics are determined by the instructor and student. May be repeated to a maximum of forty-five semester hours.
- **EML 5910r. Supervised Research (1–5).** (S/U grade only). A maximum of three semester hours may apply to the master's degree. May be repeated to a maximum of five semester hours.
- **EML 5930r. Special Topics in Mechanical Engineering (1–6).** Prerequisite: Instructor permission. This course explores various topics in mechanical engineering with emphasis on recent developments. Content and credit will vary. Consult the instructor.
- **EML 5935r. Mechanical Engineering Seminars (0).** (S/U grade only). May be repeated to a maximum of ten times.
- **EML 5946. Professional Internship Experience in Mechanical Engineering (4).** This course provides practical experience through working as an intern at selected industry or research laboratories supervised by the on-the-job mentors and by the Department of Mechanical Engineering. The course is designed to provide the student with professional internship experience in preparation for his/her future career development.
- **EML 5955r. MS Professional Traineeship Project (3–6).** Prerequisite: B.S. degree in Mechanical Engineering (or a related field) and EML 5946. In this two-semester course, students work on practice-oriented engineering design or research development project defined by industry or research laboratories to partially fulfill graduation requirements for the BS-MS professional Traineeship degree.
- **EML 5971r. Master's Thesis Research (1-12.)** (S/U grade only). This course provides a means of registering for thesis research work and recording progress towards its completion. Student must consult with the academic department for appropriate registration of course credit hours. May be repeated to a maximum of forty-five (45) credit hours; repeatable within the same term.
- **EML 6365. Robust Control (3).** Prerequisite: EML 5361. Course covers control design for systems with uncertain dynamics; robust H design, structured singular value synthesis; LMI and Riccati equation solution techniques.
- **EML 6980r. Dissertation (2–9).** (S/U grade only). May be repeated to a maximum of ninety-nine semester hours.
- **EML 8968. Preliminary Doctoral Examination (0).** (P/F grade only.)

- **EML 8976r. Master's Thesis Defense (0).** (P/F grade only.)
- **EML 8985r. Dissertation Defense (0).** (P/F grade only.) May be repeated to a maximum of three times.

The following is a list of new courses that will be developed over the first five years of the program. This list complements existing Mechanical Engineering courses to include additional topics important to aerospace engineering such as rotary wing systems, space applications, structural dynamics, and control.

- **Rotary Wing Aerodynamics:** This course covers vortex wake modeling, analytical inflow theories. Modern computational methods for rotary wing aerodynamic analysis. Aerodynamic Noise.
- **Structural Dynamics:** This course includes modeling of discrete systems; review of linear system theory, mathematical modeling of single-degree-of-freedom (SDOF) systems, viscous damping; structural damping; coulomb damping, Laplace transforms; Harmonic balance; Fourier series; Fourier integral; convolution integral; Duhamel's integral; work, energy, and Lagrange's equations, matrix eigenvalue problems; nature of modes; response of multi-degree-of-freedom systems by modal decoupling; rigid-body modes; stability; Hamilton's principle and calculus of variations, extension and torsion of rods; bending vibration of Euler-Bernoulli beams; bending-shear vibration of Timoshenko beams; beams with axial force, rotating beams; membranes and plates
- **Orbital Mechanics:** First graduate-level astrodynamics class that includes two-body orbital mechanics, orbit determination, orbit prediction, orbital maneuvers, lunar and interplanetary trajectories, orbital rendezvous and space navigation.
- **Planetary Entry, Descent and Landing:** This is a graduate-level elective that provides an integrated overview of planetary entry systems. The course content includes vehicle systems and definition, entry flight mechanics and dynamics, aerothermodynamics and thermal protection systems, aerodynamic decelerators and landing systems, and case studies based on recent robotic and human exploration mission concepts.
- **Introduction to System of Systems Engineering Principles:** This course covers methods related to the study, development, analysis, and design of complex systems and systems of systems. Lectures will cover each method by introducing its theoretical formulation, application criteria, and some example applications. The goal of the course is not to provide comprehensive coverage of each method, but to provide sufficient fundamental coverage of it to allow for the practical use of the methods on the group project.
- **Aerospace Nonlinear Control:** This course covers topics including Dynamical Systems and Differential Equations, Nonlinear Second-Order Dynamical Systems, Stability Theory for Nonlinear Dynamical Systems, Dissipative Theory for Nonlinear Dynamical Systems, Absolute Stability Theory, Input-Output Stability, Nonlinear Control.
- **Fundamentals of Fracture Mechanics:** This course is an advanced study of failure of structural materials under load, mechanics of fracture, and microscopic and macroscopic aspects of the fracture of engineering materials.

- **Composite Materials:** This course is an initial exposure to composite materials. It focuses on how heterogeneity/anisotropy in composites influence thermomechanical behavior. The behavior of both continuous and short fiber reinforced composites will be emphasized. Stress analysis for design, manufacturing processes and test methods of composite materials will be covered.
- F. For degree programs in medicine, nursing, and/or allied health sciences, identify the courses with the competencies necessary to meet the requirements in [Section 1004.08, Florida Statutes](#). For teacher preparation programs, identify the courses with the competencies required in [Section 1004.04, Florida Statutes](#).**
- ☒ **Not applicable to this program because the program is not a medicine, nursing, allied health sciences, or teacher preparation program.**
- G. Describe any potential impact on related academic programs or departments, such as an increased need for general education or common prerequisite courses or an increased need for required or elective courses outside of the proposed academic program. If the proposed program is a collaborative effort between multiple academic departments, colleges, or schools within the institution, provide letters of support or MOUs from each department, college, or school in Appendix D.**

As a graduate program, general education courses will be minimal; however, a strong mathematical background is required to understand fluid dynamics, nonlinear solid mechanics, and computational materials science. The Department of Mechanical Engineering has a long track record of working with several faculty within FSU's Mathematics Department. This has continued up to the present day through Mechanical Engineering seminars from faculty within the Math Department and meetings between faculty from Mechanical Engineering and Mathematics to build research partnerships. In certain instances, graduate students will take mathematics courses to supplement AE courses. This may be required to build a deeper understanding of numerical methods, interpret data with advanced statistics, machine learning algorithm development, and various other techniques to solve partial differential equations. We will continue to build these relationships to strengthen AE research via faculty collaborations and better educate our students with important mathematics courses.

- H. Identify any established or planned educational sites where the program will be offered or administered. Provide a rationale if the proposed program will only be offered or administered at a site(s) other than the main campus.**

This program will be offered as part of the FAMU-FSU College of Engineering in Tallahassee Florida. Students will take classes on the FAMU main campus, in the FAMU-FSU College of Engineering, and on the FSU main campus. Students will do their research where their advisor has their research labs on the FAMU main campus, in buildings in the FAMU-FSU College of Engineering, and in research buildings in Innovation Park (in Tallahassee).

- I. Describe the anticipated mode of delivery for the proposed program (e.g., face-to-face, distance learning, hybrid). If the method(s) of delivery will require specialized services or additional financial support, describe the projected**

costs below and discuss how they are reflected in Appendix A – Table 3A or 3B.

The courses will be delivered in the traditional face-to-face manner at the FAMU-FSU College of Engineering, FAMU main campus, or on the FSU campus as part of the cooperative agreement between the two universities.

J. Provide a narrative addressing the feasibility of delivering the proposed program through collaboration with other institutions, both public and private. Cite any specific queries of other institutions concerning shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

The Ph.D. in Aerospace Engineering will be offered jointly between FAMU and FSU as part of the joint College. No more institutions will be involved in the course offerings now. Given the recent Triumph award in additive manufacturing and aerospace to the FSU Panama City Campus, expansions to include research at this facility will be considered once the infrastructure is developed.

K. Describe any currently available sites for internship and/or practicum experiences. Describe any plans to seek additional sites in Years 1 through 5.

☒ **Not applicable to this program because the program does not require internships or practicums.**

V. Program Quality Indicators - Reviews and Accreditation

A. List all accreditation agencies and learned societies concerned with the proposed program. If the institution intends to seek specialized accreditation for the proposed program, as described in [Board of Governors Regulation 3.006](#), provide a timeline for seeking specialized accreditation. If specialized accreditation will not be sought, please explain.

The Aerospace Engineering undergraduate programs hold accreditation from ABET, the accrediting body for engineering programs. Notably, the FAMU-FSU College of Engineering lacks an undergraduate program in Aerospace Engineering. Additionally, it is important to note that there are no specific accreditation agencies for graduate programs (both M.S. and Ph.D.) in Aerospace Engineering.

B. Identify all internal or external academic program reviews and/or accreditation visits for any degree programs related to the proposed program at the institution, including but not limited to programs within the academic unit(s) associated with the proposed degree program. List all recommendations from the reviews and summarize the institution's progress in implementing those recommendations.

The FAMU-FSU Department of Mechanical Engineering underwent a Program Self-Study (Quality Enhancement Review—QER) in February of 2019. Key outcomes of the review and recommendations related to the graduate program are highlighted here. We also summarize progress since this review in implementing the QER recommendations. One overall goal that was included in the QER was to establish a nationally recognized graduate program with active recruitment strategies and excellent professional

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preparation. Two of the objectives and strategies to achieve this goal included: 1) Develop an online degree program in Aeronautical Engineering through an asynchronous distance learning delivery system and 2) Establish new degree programs (MS and PhD) in the area of aerospace engineering. We have developed a distance learning aerospace certification program and now are aimed at establishing the AE graduate degree programs.

A broader assessment of the 2019 QER is given through three of the department's primary goals:

1. Establish a nationally recognized graduate program with active recruitment strategies and excellent professional preparation.
2. Expand our internationally-recognized research programs, especially in terms of interdisciplinary research collaborations and professional development.
3. Be recognized as one of the top ME programs in terms of educational innovations, outstanding research activities, and promotion of diversity.

With respect to aerospace engineering, we have made significant strides in all three of these goals.

Regarding item 1, we have developed active recruiting strategies that include Research Experiences for Undergraduates supported by the National Science Foundation (NSF) and the Department of Energy (DOE). This has led to two female SMART Fellows within our department. One of these students was the first FAMU SMART Fellow within our department. We have also begun actively recruiting US students at major conferences such as the AIAA SciTech conference which is the largest aerospace conference in the US. Our College of Engineering has provided financial support for these recruiting efforts. The department has also supported travel for FAMU faculty and students to attend the Black Engineer of the Year (BEYA) STEM Conference which includes ~12,000 attendees with 45% of these attendees being college students. Faculty within the ME Department have also been more active on social media (i.e., LinkedIn) to highlight student achievements and research opportunities for graduate and undergraduate students. With respect to professional development, one key highlight is the Mechanical Engineering Graduate Student Association (MEGSA) which is an officially Recognized Student Organization (RSO) that gives graduate students excellent leadership experience by organizing seminars and participating in K-12 outreach programs. The Department Chair also created a podcast, Mechanically Incorrect, that highlights faculty research achievements and failures along the way toward success in academia. This has been done as one way for students to learn more about our faculty members' journeys in engineering.

In support of items 2 and 3, we have expanded research activities in the field of hypersonics that include cooperative agreements with Wright Patterson and Eglin Air Force Research Laboratories (AFRL/RW, RQ), invested in wind tunnel experimental facilities to reach Mach 5 in the Poly-Sonic Wind Tunnel (PSWT) (support from both FAMU and FSU), hired four faculty (assistant & associate level) working in the fields of hypersonics, advanced fluid flow diagnostic tools, extreme materials, and robotics (female hire). The junior faculty working on extreme materials is a joint hire between ME and IME (Industrial and Manufacturing Engineering). Our department is also actively recruiting

faculty affiliated with the new FSU Quantum Information and Science initiative to expand our computational and experimental research activities, which aligns with FSU research goals. Faculty hiring has aligned well with recommendations in our QER, which included: hypersonic flows, quantum computing, and robotics/autonomous control.

Our department was also awarded the first AFOSR Center of Excellence, AEROMORPH, to FSU to study next-generation high-speed morphing vehicles using intelligent structures. Regarding interdisciplinary research, these research activities have included computations, experimental methods, controls, information theory, energy systems, and materials science. AEROMORPH and the cooperative agreements with AFRL also include major efforts towards workforce development of students working in our, and Air Force, laboratories. Other workforce development activities have included NASA minority programs and Department of Energy materials research for hydrogen storage. In addition, the Mechanical Engineering graduate seminar has been expanded to include professional development speakers who discuss a variety of topics such as industry/academic/government laboratory professions, navigating graduate school, and leadership.

Whereas we have achieved several of the goals stated in the 2019 QER, there were also weaknesses and threats pointed out. Key weaknesses and *opportunities to overcome these weaknesses* through the creation of an aerospace degree program are given as follows:

- Specific research programs are fragile due to a lack of a critical mass of faculty or the departure of core faculty members (e.g., robotics). *We propose to increase the number of faculty members within our department by 6-10 to support aerospace graduate research and education. These faculty members may also support mechanical engineering and thus stabilize the critical mass of core mechanical and aerospace engineering faculty members.*
- Faculty lines are not always owned by the College of Engineering (e.g., Maglab lines, Materials & Energy cluster hiring), so it may be difficult to replace lost faculty. *It is expected that faculty lines associated with aerospace engineering would reside within the College of Engineering and Department of Mechanical Engineering. A subset of these lines may be joint hires within departments that have interest in this research field such as Mathematics, Materials Science & Engineering, Industrial & Manufacturing Engineering, and Electrical & Computer Engineering. This should provide stability to replace faculty.*
- Difficult to sustain collective core value for internal coherence to develop long-term strategic focus. *The addition of aerospace engineering will create a new strategic focus that will align with the overall strategic direction of mechanical engineering since aerospace engineering overlaps core areas of need within our department including controls, dynamical structures, and advanced materials.*
- Large class sizes due to an inadequate number of faculty. *Additional aerospace faculty will be able to teach many mechanical engineering undergraduate courses. Class size reduction has already been implemented in 2023 upon hiring four new mechanical and aerospace engineering faculty, and this model will continue with additional aerospace engineering faculty.*
- Inadequate representation of women faculty and inadequate representation of

minority and women students. *Mechanical Engineering recently hired one female roboticist, Dr. Taylor Higgins, and will continue to be committed to recruit and mentor female faculty through proper advertising of opportunities within this new program.*

- Inadequate recruitment of FAMU students, especially FAMU scholars. *This will be the first aerospace engineering graduate program at an HBCU which should provide excellent opportunities to attract top FAMU students and scholars.*
- C. For appropriate degree programs, discuss how employer-driven or industry-driven competencies were identified and incorporated into the curriculum. Additionally, indicate whether an industry or employer advisory council exists to provide input for curriculum development, student assessment, and academic-force alignment. If an advisory council is not already in place, describe any plans to develop one or other plans to ensure academic-workforce alignment.**

An advisory council currently exists for the Department of Mechanical Engineering which includes several aerospace industry engineers and Air Force Research Laboratory research scientists. Given the strong overlap of this advisory council, they will assist in providing input to our curriculum and other graduate student support such as internships and scholarships.

VI. Faculty Participation

- A. Use Appendix A – Table 2 to identify existing and anticipated full-time faculty who will participate in the proposed program through Year 5, excluding visiting or adjunct faculty. Include the following information for each faculty member or position in Appendix A – Table 2:**

- the faculty code associated with the source of funding for the position
- faculty member's name
- the highest degree held
- academic discipline or specialization
- anticipated participation start date in the proposed program
- contract status (e.g., tenure, tenure-earning, or multi-year annual [MYA])
- contract length in months
- percent of annual effort that will support the proposed program (e.g., instruction, advising, supervising)

This information should be summarized below in narrative form. Additionally, provide the curriculum vitae (CV) for each identified faculty member in Appendix E.

The source of funding for all faculty within this program is associated with the Mechanical Engineering Budget 218000110 budget. Faculty members involved in the program are listed below along with details describing their background and amount of participation. All existing faculty members will start supporting the program in year 1 and they are projected to continue supporting the program in year 5.

Alexandre Berger has a PhD in Aerospace Engineering. He specializes in experimental fluid dynamics at both low and high (hypersonic) speeds. He is a tenure-earning faculty

member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 4% for the first year and 13% for the fifth year.

Brandon Krick has a PhD in Mechanical Engineering. He specializes in experimental mechanics and tribology. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

Carl Moore has a PhD in Mechanical Engineering. He specializes in dynamics and haptic systems. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 10% for the fifth year.

Chiang Shih has a PhD in Mechanical Engineering. He specializes in experimental fluid dynamics. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 8% for the first year and is anticipated to retire by the fifth year.

Christian Hubicki has a PhD in Mechanical Engineering. He specializes in robotics and optimal control. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

David Larbalestier has a PhD in Physical Metallurgy. He specializes in experimental characterization of superconducting materials. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and is anticipated to retire by the fifth year.

Eric Hellstrom has a PhD in Materials Science & Engineering. He specializes in experimental characterization of ceramics and superconductors. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and is anticipated to retire by the fifth year.

Farrukh Alvi has a PhD in Mechanical Engineering. He specializes in experimental fluid dynamics. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 5% for the fifth year since he is on a reduced teaching load while working in the FSU Provost office.

Fumitake Kametani has a PhD in Materials Science & Engineering. He specializes in characterization and microscopy of advanced materials. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 5% for the fifth year.

Huixuan Wu has a PhD in Mechanical Engineering. He specializes in experimental fluid dynamics and instrumentation development. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 18% for the fifth year.

Jizhe Cai has a PhD in Aerospace Engineering. He specializes in experimental characterization of extreme materials. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 15% for the first year and 40% for the fifth year.

Juan Ordonez has a PhD in Mechanical Engineering. He specializes in modeling of advanced energy systems for naval and aerospace applications. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

Kourosh Shoele has a PhD in Mechanical Engineering. He specializes in modeling of fluid-structure interactions. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

Mohd Ali has a PhD in Mechanical Engineering. He specializes in experimental fluid dynamics. He is a teaching faculty member on a twelve-month appointment. His percentage of annual effort that will support the aerospace graduate program is 10% for the first year and 18% for the fifth year.

Neda Yaghoobian has a PhD in Mechanical Engineering. She specializes in modeling of fluid dynamic, atmospheric behavior, and fire dynamics. She is a tenured faculty member on a nine-month appointment. Her percentage of annual effort that will support the aerospace graduate program is 10% for the first year and 40% for the fifth year.

Rajan Kumar has a PhD in Aerospace Engineering. He specializes in experimental characterization of fluid dynamics. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 10% for the first year and 20% for the fifth year.

Unnikrishnan Sasidharan Nair has a PhD in Mechanical Engineering. He specializes in modeling of high speed fluids. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 15% for the fifth year.

Wei Guo has a PhD in Physics. He specializes in characterizing quantum turbulence and quantum computing hardware. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 5% for the first year and 12% for the fifth year.

William Oates has a PhD in Mechanical Engineering. He specializes in modeling and experimental characterization of smart materials and adaptive structures. He is a tenured faculty member on a nine-month appointment. His percentage of annual effort that will support the aerospace graduate program is 15% for the first year and 20% for the fifth year. The larger percentage listed here is in anticipation of administrative duties as Department Chair.

Additional faculty members are proposed to be hired over the five-year build-up period. This includes 2 faculty on existing lines that are unfilled. One of these is expected to be at the Assistant Professor level in the field of aerospace structures. This person must

have a PhD in aerospace, mechanical engineering or closely related field. They are expected to be hired into Mechanical Engineering in the fall of 2024 (as part of an ongoing search) and start in the fall of 2025 in the Aerospace Engineering graduate program. His/her percent effort will increase from 20% in year one to 30% in year 5. The second position is expected to be at the Associate Professor level. This person will also have a PhD in aerospace or mechanical engineering or a closely related field. This person is expected to start within the program in the fall of 2025. This existing line is associated with the departure of Prof. Lou Cattafesta from the Mechanical Engineering department in 2023. He/she is expected to commit 30% of their time to this program. Nine additional new faculty lines are proposed (4 tenure-earning Assistant Professors, 2 Associate Professors and 3 Research Faculty). These faculty members are also expected to have PhDs in aerospace or mechanical engineering or a closely related field. They are all expected to contribute 30% of their time to the program by year 5. The hiring will be distributed over years 1-5. In 2026, we plan to hire one Associate Professor and one Assistant Professor. In 2027, we expect to hire 2 Assistant Professors and 1 Research Faculty. In 2028, we expect to hire 2 Research Faculty.

B. Provide specific evidence demonstrating that the academic unit(s) associated with the proposed program has been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, and other qualitative indicators of excellence (e.g., thesis, dissertation, or research supervision).

All faculty members engaged in this program are active in teaching, research, and service. The most active researchers have on the order of \$1.2M-\$1.3M research expenditures per year while the average annual research expenditure is on the order of \$350,000. This includes basic research through Department of Defense programs (e.g., ARO, AFOSR, ONR, DARPA), the National Science Foundation (NSF), and the Department of Energy (DOE). One of our Assistant Professors, Prof. Unni Nair, received the ONR Young Faculty Award in 2023 which is a highly prestigious young faculty grant. He will be expanding research in computational fluid dynamics of high speed flows. Five other faculty within this cohort have been awarded the NSF CAREER and two have been awarded the DARPA Young Faculty Award (YFA). With respect to teaching, all tenured and tenure-track faculty teach a nominal 3 courses per year (2+1 or 1+2) excluding new faculty. We provide junior faculty with a reduced course load (1+1) so that they can spend more time building their research program, recruiting students, and learning new pedagogical methods. Other exclusions to this teaching load are applied to faculty members with high research activity or high service load (e.g., department chair, center director). However, some faculty continue to teach despite large service and research loads. For example, Prof. Rajan Kumar created a new course on hypersonic flows which was co-taught with Prof. Unni Nair in the spring of 2023. Prof. Kumar is the Director of FCAAP and also had over \$1M of research expenditures last year. Teaching instructors are expected to be on 12 month contracts and teach a full load of 3+3+2 courses. Exclusions to this rule are considered for courses that contain additional experimental laboratory elements or recitations. Additionally, the Mechanical Engineering Department created an online Aerospace Engineering Certificate through FSU which included the creation of seven new online courses that are currently offered asynchronously. Additionally, four of the seven new courses are Quality Matters (QM) certified. These

teaching activities are in addition to normal Mechanical Engineering course offerings. All faculty are required to participate in a variety of service activities including contributions to department, college, and university committees and contributions to the broader community which may include research communities and/or K-12 programs.

VII. Estimate of Investment

A. Use Appendix A – Table 3A or 3B to provide projected costs and associated funding sources for Year 1 and Year 5 of program operation. In narrative form, describe all projected costs and funding sources for the proposed program(s). Data for Year 1 and Year 5 should reflect snapshots in time rather than cumulative costs.

The base reallocation (E&G) for Year 1 is \$237,825 of faculty salaries and benefits. Additional programmatic expenses are \$10,000 for graduate student recruitment. The base reallocation (E&G) in Year 1 also includes \$10,000 for 0.3 FTE A&P or OPS for support staff plus \$50,000 OPS funds for assistantships and fellowships to help attract high-quality graduate students whose salary is primarily supported by C&G. The total E&G reallocated in Year 1 is \$307,825. The estimated amount of C&G in Year 1 is \$456,871. This estimate is based on five-year research expenditure averages of the faculty involved in the program times their percent effort to the new program. The C&G is assumed to be distributed across faculty summer salaries, student stipends, materials, and travel expenses.

In Year 5, the Continuing Base (E&G) includes \$588,375 in faculty salaries and benefits, \$15,000 for student recruiting events and other programmatic expenses, \$50,000 in A&P/OPS staff support, and \$50,000 OPS funds for assistantships and fellowships. The C&G in Year 5 is estimated to be \$1,158,849 based on estimated research grants and contracts of new faculty members.

B. See Appendix A for details. Use Appendix A – Table 4 to show how existing Education & General (E&G) funds will be reallocated to support the proposed program in Year 1. Describe each funding source identified in Appendix A – Table 4, and justify below the reallocation of resources. Describe the impact the reallocation of financial resources will have on existing programs, including any possible financial impact of a shift in faculty effort, reallocation of instructional resources, greater use of adjunct faculty and teaching assistants, and explain what steps will be taken to mitigate such impacts.

The Mechanical Engineering Budget 218000110 includes \$3,534,076 base before reallocation. The amount to be reallocated is \$307,825. A negligible impact on the Mechanical Engineering Department is anticipated given the shared mission of engineering research and education between mechanical and aerospace engineering. Furthermore, aerospace engineering research and education are well aligned with other programs at the College of Engineering including Industrial and Manufacturing Engineering, Electrical and Computer Engineering, and Materials Science and Engineering. We expect the alignment of aerospace engineering with existing engineering programs to minimize any unforeseen impacts on resource allocation.

C. If the institution intends to operate the program as self-supporting, market

tuition rate, or establish a differentiated graduate-level tuition, as described in [Board of Governors Regulation 8.002](#), provide a rationale and a timeline for seeking Board of Governors' approval.

☒ Not applicable to this program because the program will not operate as self-supporting, market tuition rate, or establish a differentiated graduate-level tuition.

D. Provide the expected resident and non-resident tuition rate for the proposed program for both resident and non-resident students. The tuition rates should be reported per credit hour unless the institution has received approval for a different tuition structure. If the proposed program will operate as a continuing education program per [Board of Governors Regulation 8.002](#), describe how the tuition amount was calculated and how it is reflected in Appendix A – Table 3B.

Registration and tuition fees are established by the Board of Education and the FSU and FAMU Board of trustees as required by the Florida Legislature. The program will apply the graduate tuition fees as outlined in the following schedule. The fees are subject to change without notice.

	In-State	Out-of-State
FSU*	\$479.32	\$1,110.72
FAMU**	\$405.67	\$1,022

*Per credit hour does not include the Student Facilities Use Fee assessed to Main Campus Students at the rate of \$20 per semester.

**Per credit hour does not include a required fees of \$70 for fall and spring semesters each and \$33 for summer semester.

E. Describe external financial and in-kind resources available to support the proposed program and explain how this amount is reflected in Appendix A – Table 3A or 3B.

VIII. Self-Supporting and Market Tuition Rate Programs

Note: Skip this section if the proposed program will not operate as a self-supporting or market tuition rate program.

Proposed Program Type

☐ Market Tuition Rate Program

☐ Online

☐ Continuing Education

☐ Self-Supporting Program

☒ N/A

A. Provide supporting documentation in a separate attachment that serves as evidence that the new program will not supplant any existing similar or equivalent E&G degree offering. Describe the evidence in narrative form below. ***Note that Board Regulation 8.002 considers a program similar if it is offered under the same CIP code as one funded under the E&G budget entity.***

The Department Chair, William Oates, contacted chairs in Florida who have aerospace graduate programs. This includes programs at the University of Florida and the University of Central Florida. Both chairs have given their support to starting a program at the FAMU-FSU College of Engineering. Email correspondences are included in Appendix B describing the details of these discussions.

In terms of the potential impact on the FAMU-FSU Department of Mechanical Engineering, there will be some level of impact on this department since there is a subset of graduate students within ME who conduct aerospace engineering research. However, the overall number of graduate students in aerospace and mechanical engineering is expected to grow by offering the additional choice of either a graduate degree in mechanical or aerospace engineering. This is primarily due to a broader range of course offerings and research opportunities in both mechanical and aerospace engineering.

B. If the proposed self-supporting or market tuition rate program will be a track under an existing E&G program or has a similar existing E&G program, provide a side-by-side tuition and fee comparison in the table below. Provide a link to the university's website that provides students with information about financial assistance and obligations for repayment of loans for these programs.

☒ **Not applicable because the program will not be a track under an existing E&G program or is not similar to an existing E&G program.**

Tuition and Fee Comparison	
E&G Track or Program	Proposed Program

C. Explain whether the program leads to initial licensing or certification in occupational areas identified as a state critical workforce need. If so, which licenses and certifications will graduates receive upon completion, and explain why implementing the program as self-supporting or market tuition rate is the best strategy to increase the number of graduates in the state.

Note: Questions D – M pertain only to market tuition rate programs. If the proposed program will be self-supporting, skip to Section IX.

D. Explain the process used to determine the proposed market tuition rate and provide the tuition of similar programs offered by other SUS institutions and private institutions as appropriate so that the tuition of at least five similar programs is provided. If the proposed tuition rates differ for resident and non-resident students, explain why.

- E. Explain how offering the proposed program at a market tuition rate is aligned with the university's mission. If the program qualifies as a Program of Strategic Emphasis, provide additional justification for charging higher tuition for the proposed program.**
- F. Provide a declaratory statement that offering the proposed program at the market tuition rate does not increase the state's fiscal liability or obligation.**
- G. Explain any proposed restrictions, limitations, or conditions to be placed on the program.**
- H. Explain how the university will ensure sufficient courses are available to meet student demand and facilitate program completion.**
- I. If applicable, provide a baseline of current enrollments, including a breakout of resident and non-resident enrollment in similar courses funded by the E&G budget entity.**
- J. Describe any outcome measures that will be used to determine the program's success.**
- K. List the campuses and/or sites at which the proposed program will be offered. If the program is only offered online, indicate that, and provide the location from which the program will be managed.**
- L. Provide an estimate of the total and net annual revenue the university anticipates collecting for Years 1 and 5 if the proposal is approved. This information should be consistent with the data provided in Appendix A – Table 3B, which is required as a part of this proposal.**
- M. Describe how revenues will be spent, including whether private vendors will be utilized and for what purpose. Additionally, identify all budget entities used for the program.**

IX. Non-Faculty Resources

- A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5 below, including but not limited to the following:**
 - **the total number of volumes and serials available in the discipline and related disciplines**
 - **all major journals that are available to the university's students****The Library Director must sign the additional signatures page to indicate they have reviewed Sections IX.A. and IX.B.**

The following library resources through FAMU are available to support aerospace engineering:

Electronic Databases

The databases contain full-text articles, abstracts, conference proceedings, book chapters, newsletters, online journals, e-book collections, and other research content in the fields of science, engineering, and technology.

1. Abstracts in New Technology and Engineering
2. Access Engineering
3. ACM Digital Library
4. ACS Journals
5. Applied Science & Technology Source
6. Ceramic Abstracts
7. Civil Engineering Abstracts (ProQuest)
8. Compendex
9. Computing (Advanced Technologies and Aerospace Database)
10. Engineering Collection
11. Engineered Materials Abstracts (ProQuest)
12. Engineering Village
13. Environmental Engineering Abstracts
14. IEEE Xplore
15. Inspec
16. IOP Electronic Journals
17. Mary Ann Liebertpub
18. Materials Business Files
19. Materials Research Database
20. Mechanical & Transportation Engineering Abstracts
21. Mechanical Engineering Abstracts
22. ProQuest Engineering Research Database
23. ScienceDirect
24. SpringerLink
25. Solid State & Superconductivity Abstracts
26. Sustainability Science Abstracts

Online Journals (Accessible Directly from the Online Catalog)

Additional journals and journal articles related to aerospace engineering are available in the online databases, which are also accessible from online. The list below is limited to the titles that are accessible directly from the online catalog. The full list of journals, that are accessible through the databases, is significantly more extensive.

1. *International Journal of Aerospace Engineering* (2007-). Hindawi Publishing Corporation.
2. *Journal of Aerospace Engineering* (1988). American Society of Civil Engineers. Aerospace Division.
3. *Advances in Aerospace Engineering* (2014). Hindawi Publishing Corporation.
4. *Transport and Aerospace Engineering* (2014).
5. *Aircraft Engineering and Aerospace Technology* (1986).
6. *Proceedings of the Institution of Mechanical Engineers*. Part G, Journal of Aerospace Engineering (1989-). Institution of Mechanical Engineers.
7. *Journal of the Institution of Engineers. Series C. Mechanical, Production, Aerospace and Marine Engineering* (2012). Institution of Engineers.
8. *IEEE transactions on Aerospace and Electronic Systems* (1965). IEEE Aerospace and Electronic Systems Society.

9. *SAE International Journal of Aerospace* (2009). Society of Automotive Engineers.
10. *International Journal of Aviation, Aeronautics, and Aerospace* (2014-). Embry-Riddle Aeronautical University.
11. *IEEE Aerospace and Electronic Systems Magazine* (1988). IEEE Aerospace and Electronic Systems Society.
12. *Mathematics in Engineering, Science and Aerospace: MESA* (2010-).
13. *Astrodynamics* (2017-).
14. *International Journal of Micro Air Vehicles* (2009-).
15. *International Journal of Aerospace Innovations* (2009-2013).
16. *International Journal of Aeronautical and Space Sciences*.
17. *Journal of KONBIN* (2006).
18. *Aviation* (2003).
19. *Aerospace* (2014).
20. *Annals of Solid and Structural Mechanics* (2010-)
21. *The International Journal of Aerospace Psychology* (2017-). Taylor and Francis: Association for Aviation Psychology.
22. *Visualization in Engineering* (2013). Curtin University.
23. *SAE International Journal of Passenger Cars* (2009-). Society of Automotive Engineers.
24. *SAE International Journal of Alternative Powertrains* (2012-2019). Society of Automotive Engineers.
25. *International Journal of Engine Research*. Society of Automotive Engineers (2000). Society of Automotive Engineers.
26. *International Journal of Heat and Fluid Flow* (1979-). Institution of Mechanical Engineers.
27. *SAE International Journal of Materials and Manufacturing* (2009). Society of Automotive Engineers.
28. *Stapp Car Crash Journal* (2000-). Stapp Car Crash Conference. SAE International Society. Society of Automotive Engineers.
29. *SAE International Journal of Fuels and Lubricants* (2009-). Society of Automotive Engineers.
30. *SAE International Journal of Commercial Vehicles* (2009-). Society of Automotive Engineers.
31. *SAE International Journal of Passenger Cars. Electronic and Electrical Systems* (2009-). Society of Automotive Engineers.
32. *SAE International Journal of Engines* (2009-). Society of Automotive Engineers.
33. *Applied Adhesion Science* (2013-). Brazilian Society of Adhesion and Adhesives.
34. *The Journal of Air Law and Commerce* (1939-). Southern Methodist University, School of Law. Northwestern University, School of Law. Northwestern University, School of Business. Northwestern University, Transportation Center.

Books (Electronic Books)

The books listed below are a sample of the books and conference proceedings that are available directly from the online catalog. There are over 1,100 books listed in the catalog that are related to aerospace engineering. The books listed below are some of the most recent publications, between the years of 2020 to 2024. Additional books and book chapters are available from the online databases.

1. [Post-Processing Techniques for Additive Manufacturing](#)
Alam, Zafar, editor.; Iqbal, Faiz, editor.; Ahmad Khan, Dilshad, editor. 2024
2. [Energy-efficient electrical systems for buildings](#)
Karti, Moncef, author. 2024
3. [Aircraft performance : an engineering approach](#)
Sadraey, Mohammad H., author. 2024
4. [Human factors in simulation and training : application and practice](#)
Vincenzi, Dennis A., editor. 2024
5. [Advanced Materials Processing and Manufacturing : Research, Technology, and Applications](#)
Bolokang, Amogelang Sylvester, author.; Mathabathe, Maria Ntsoaki, author. 2024
6. [Automation in Construction Toward Resilience : Robotics, Smart Materials and Intelligent Systems](#)
Farsangi, Ehsan Noroozinejad, editor. 2024
7. [Navigating the Complexity Across the Peace-Sustainability-Climate Security Nexus](#)
Amadei, Bernard, 1954- author. 2024
8. [Human factors in simulation and training : theory and methods](#)
Vincenzi, Dennis A., editor. 2024
9. [Laser-based technologies for sustainable manufacturing](#)
Kumar, Avinash, Dr., editor.; Ashwani Kumar, editor.; Kumar, Abhishek, editor. 2024
10. [Composite Materials : High Strain Rate Studies](#)
Velmurugan, R. (Professor of aerospace engineering), editor.; Ruan, Dong, editor.; Gurusideswar, S. (Professor of aerospace engineering), editor. 2024
11. [Data Driven Methods for Civil Structural Health Monitoring and Resilience : Latest Developments and Applications](#)
Noori, Mohammad, author. 2024
12. [Post-Processing Techniques for Additive Manufacturing](#)
Alam, Zafar, editor.; Iqbal, Faiz, editor.; Ahmad Khan, Dilshad, editor. 2024
13. [Energy-efficient electrical systems for buildings](#)
Karti, Moncef, author. 2024
14. [Aircraft performance : an engineering approach](#)
Sadraey, Mohammad H., author. 2024
15. [Human factors in simulation and training : application and practice](#)
Vincenzi, Dennis A., editor. 2024

Books

1. Advanced Materials Processing and Manufacturing: Research, Technology, and Applications Bolokang, Amogelang Sylvester, author.; Mathabathe, Maria Ntsoaki, author.2024.
2. Automation in Construction Toward Resilience : Robotics, Smart Materials and Intelligent Systems, Farsangi, Ehsan Noroozinejad, editor. 2024
3. Navigating the Complexity Across the Peace-Sustainability-Climate Security Nexus Amadei, Bernard, 1954- author. 2024
4. Human factors in simulation and training: theory and methods Vincenzi, Dennis A., editor. 2024
5. Laser-based technologies for sustainable manufacturing Kumar, Avinash, Dr., editor.;

Ashwani Kumar, editor.; Kumar, Abhishek, editor. 2024

6. Composite Materials : High Strain Rate Studies Velmurugan, R. (Professor of aerospace engineering), editor.; Ruan, Dong, editor.; Gurusideswar, S. (Professor of aerospace engineering), editor. 2024
7. Data Driven Methods for Civil Structural Health Monitoring and Resilience : Latest Developments and Applications Noori, Mohammad, author. 2024
8. Applications of unsaturated polyester resins : synthesis, modifications, and preparation methods, Thomas, Sabu, editor.; Chirayil, Cintil Jose, editor. 2023
9. Applications of multifunctional nanomaterials Thomas, Sabu, editor.; Kalarikkal, Nandakumar, editor.; Abraham, Ann Rose, editor. 2023
10. Elastic wave propagation in structures and materials Gopalakrishnan, S. (Srinivasan), author. 2023
11. Radar and radionavigation : pre-professional training for aviation radio specialists Kozlov, Anatoly Ivanovich, author.; Shatrakov, Yuri Grigoryevich, author.; Zatuchny, Dmitry Alexandrovich, author. 2023
12. Synthetic and Natural Nanofillers in Polymer Composites : Properties and Applications Nurazzi, N. M., editor. 2023
13. Sheet Metal 2023., Hagenah, H. 2023
14. Basic fracture mechanics and its applications Saxena, A. (Ashok), author. 2023
15. Reliability engineering : a life cycle approach Bradley, Edgar, author. 2023
16. Nanomaterials for sustainable tribology Raina, Ankush, editor. 2023
17. Space situational awareness : guiding the transition to a civil capability : hearing before the Subcommittee on Space and Aeronautics of the Committee on Science, Space and Technology, of the House of Representatives, One Hundred Seventeenth Congress, second session, May 12, 2022. United States. Congress. House. Committee on Science, Space, and Technology (2011-). Subcommittee on Space and Aeronautics, author. 2023
18. Engineering dynamics : fundamentals and applications Islam, M. Rashad, author.; Ahmed, Mahbub (Engineer), author.; Mazumder, A K M Monayem H, author. 2023
19. Design and analysis of functionally graded adhesively bonded joints of FRP composites Panigrahi, Sashi Kanta, author.; Nimje, Sunil V., author. 2023
20. Advanced manufacturing processes Singh, Yashvir, editor. 2023
21. Advances in combustion technology Mishra, Debi Prasad (Professor of aerospace engineering), editor. 2023
22. Fundamentals of thermal spraying S, Ariharan, editor. 2023
23. Additive manufacturing with medical applications Kumar Banga, Harish, editor. 2023
24. Ratio of momentum diffusivity to thermal diffusivity : introduction, meta-analysis, and scrutinization Animasaun, Isaac Lare, author. 2023
25. Rapid cure composites : materials, processing and manufacturing Hameed, Nishar, editor. 2023
26. Smart coatings : fundamentals, developments, and applications Kathavate, Vaibhav

Sanjay, author.; Deshpande, Pravin Pralhad, author. 2023

27. Materials for lightweight constructions Kumaran, S. Thirumalai, editor. 2023
28. Creep : fatigue models of composites and nanocomposites Razdolsky, Leo, author. 2023
29. Advances in structural adhesive bonding Dillard, David A., editor. 2023
30. Metaversed : see beyond the hype Martins, Luis Bravo, author.; Wolfe, Samantha G, author. 2023
31. Reliability and physics-of-healthy in mechatronics Delaux, David, editor.; El Hami, Abdelkhalak, editor.; Grzesowiak, Henri, editor. 2023
32. Polymer crystallization : methods, characterization, and applications Parameswaranpillai, Jyotishkumar, editor. 2023
33. Carbon nanotubes : functionalization and potential applications Abraham, Ann Rose, editor.; George, Soney C., editor.; Haghi, A. K., editor. 2023
34. Advanced Control of Flight Vehicle Maneuver and Operation. Liu, Chuang.; Dai, Honghua.; Yue, Xiaokui. 2023
35. Space missions of global importance : planetary defense, space weather protection, and space situational awareness : hearing before the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Sixteenth Congress, second session, February 12, 2020. United States. Congress. Senate. Committee on Commerce, Science, and Transportation, author. 2023
36. Aerospace and associated technology : proceedings of the joint conference of ICTACEM 2021, APCATS 2021, AJSAE 2021 and AeSI 2021 Ghosh, Anup, editor. 2023
37. Autonomous Trajectory Planning and Guidance Control for Launch Vehicles Song, Zhengyu. editor.; Zhao, Dangjun. editor.; Theil, Stephan. editor. 2023
38. Design for Electromagnetic Compatibility--In a Nutshell Theory and Practice Keller, Reto B. author. 2023
39. Building the space workforce of the future : STEM engagement for a 21st century education : hearing before the Subcommittee on Aviation and Space of the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Sixteenth Congress, first session, November 5, 2019. United States. Congress. Senate. Committee on Commerce, Science, and Transportation. Subcommittee on Aviation and Space, author. 2023
40. Polymer composite systems in pipeline repair : design, manufacture, application, and environmental impacts Mavinkere Rangappa, Sanjay, editor. 2023
41. Flexible Automation and Intelligent Manufacturing: The Human-Data-Technology Nexus Proceedings of FAIM 2022, June 19–23, 2022, Detroit, Michigan, USA Kim, Kyoung-Yun; Kim, Kyoung-Yun. editor.; Monplaisir, Leslie. editor.; Rickli, Jeremy. editor. 2023
42. Computational methods for nonlinear dynamical systems : theory and applications in aerospace engineering Wang, Xuechuan, 1956- author. 2023
43. 10th Manufacturing Engineering Society International Conference (MESIC 2023).

Morales-Palma, Domingo.; Martínez-Donaire, Andrés J.; Borrego Puche, Marcos.; Centeno Báez, Gabriel.; Vallellano, Carpofo. 2023

44. High-reliability autonomous management systems for spacecraft Zhang, Jianjun, 1942- author.; Li, Jing, author. 2023
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85. Polymeric nanocomposites with carbonaceous nanofillers for aerospace applications Kausar, Ayesha, Author. 2022
86. Computational fluid dynamics in aerospace engineering: recent advances Sekar, Manigandan, author.; Webb, Phil, author.; Sohret, Yasin, author. 2022
87. Trends in development of accelerated testing for automotive and aerospace engineering Klyatis, Lev M., author. 2020.

The following library resources through FSU are available to support aerospace engineering as of January 2024:

Databases

This is a selection of databases that contain research materials, including articles, conference proceedings, data sets, and more, related to the field of aerospace engineering and the wider field of engineering accessible through FSU Libraries.

1. AccessEngineering
2. ACM Digital Library
3. Aerospace Research Central or American Institute of Aeronautics and Astronautics (AIAA)
4. American Society of Civil Engineers (ASCE) Civil Engineering Database
5. American Society of Civil Engineers (ASCE) Journals
6. Applied Science & Technology Source
7. ASM Alloy Phase Diagram Database
8. ASTM Compass
9. BCC Research
10. Compendex (Engineering Village)
11. Derwent Innovations Index
12. Electronics & Communications Abstracts
13. Emerald Library E-Journals (Emerald Insight)
14. Engineering Village
15. Environmental Engineering Abstracts
16. Environmental Impact Statements: Digests
17. IEEE Xplore
18. INSPEC (Engineering Village)
19. INSPEC Archive (Engineering Village)
20. Journal of Visualized Experiments (JOVE)
21. Materials Business File
22. Materials Science & Engineering Database
23. Mechanical & Transportation Engineering Abstracts
24. METADEX
25. OSTI.GOV
26. PubMed (NLM)

27. Science (AAAS)
28. SciFinder-n
29. SciTech Premium Collection (ProQuest)
30. Scopus
31. Solid State and Superconductivity Abstracts
32. Tallahassee-Leon County Geographic Information Systems
33. TerraFly
34. Textile Technology Complete
35. Thieme MedOne Education (E-Books)
36. Toxicology Abstracts
37. TOXLINE
38. U.S. Department of the Interior Bureau of Land Management General Land Office Documents
39. UCentral
40. Virology and AIDS Abstracts

Serials

FSU has **246** current and historical aerospace related scholarly journals accessible through the library catalog. Additional research articles and information can be found through the previously listed databases.

1. *Advances in Aerospace Engineering* (2014) Hindawi Publishing Corporation.
2. *Aerospace* (2014) MDPI AG.
3. *Aerospace America* (1984) American Institute of Aeronautics and Astronautics.
4. *Aerospace power journal* (1999) AU Press.
5. *Aerospace science and technology* (1997) Gauthier-Villars.
6. *AIAA journal* (1963) American Institute of Aeronautics and Astronautics.
7. *Air and space lawyer* (1984) Forum Committee on Air and Space Law, American Bar Association.
8. *Air & space power journal* (2002) AU Press.
9. *Air power history* (2021) Air Force Historical Foundation.
10. *Aircraft engineering* (1986) Bunhill Publications.
11. *Aircraft engineering and aerospace technology* (1986) Emerald Group Pub.
12. *Airpower journal* (1987) AU Press.
13. *Annals of air and space law* (1976) Institute of Air and Space Law.
14. *Archives of environmental health* (2004) Heldref Publications.
15. *Armed forces and society* (1974) Transaction Publishers.
16. *Astrodynamics* (2017) Tsinghua University Press.
17. *Aviation* (2003) Taylor & Francis.
18. *Aviation space and environmental medicine* (2014) Aerospace Medical Association.
19. *CEAS space journal* (2011) Springer.
20. *Extreme life, biospeology & astrobiology* (2009) Bioflux Pub. House.
21. *Human performance in extreme environments* (1996) Society for Human Performance in Extreme Environments.
22. *IEEE transactions on aerospace and electronic systems* (1965) Institute of Electrical and Electronics Engineers.
23. *IEEE aerospace and electronic systems magazine* (1988) Institute of Electrical and Electronics Engineers.
24. *IEEE Transactions on Software Engineering* (n.d.) Institute of Electrical and

Electronics Engineers.

25. *International journal of aeronautical and space sciences* (n.d.) Korean Society for Aeronautical and Space Sciences.
26. *International journal of aerospace engineering* (2007) Hindawi Pub. Corp.
27. *International journal of aerospace innovations* (2009) Multi-Science Pub. Co Ltd.
28. *International journal of aviation, aeronautics, and aerospace* (2014) Embry-Riddle Aeronautical University.
29. *International journal of aviation psychology* (1991) Lawrence Erlbaum Associates.
30. *International journal of micro air vehicles* (2009) SAGE Publications.

Books

FSU has **871** books under the Library of Congress subject heading “aerospace engineering” and **2596** books in the wider field of aerospace studies. These volumes include books in our physical collection and books we have digital access to. Here is a selection of some of the recently published books in our collection.

1. Aswal, D. K., Sarkar, P. S., & Kashyap, Y. S. (2022). *Neutron Imaging: Basics, Techniques and Applications*. Springer Singapore. <https://doi.org/10.1007/978-981-16-6273-7>
2. Bennett, S. A. (2021). *Safety in Aviation and Astronautics: A Socio-technical Approach* (1st edition). Routledge. <https://doi.org/10.4324/9781003111283>
3. Cakaj, S. (2022). *Ground Station Design and Analysis for LEO Satellites: Analytical, Experimental and Simulation Approach* (1st ed.). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781119899280>
4. Cao, H. (2023). *Dual-Mass Linear Vibration Silicon-Based MEMS Gyroscope*. Springer Nature Singapore. <https://doi.org/10.1007/978-981-19-9247-6>
5. Catalina Popescu. (2022). *Filling the Center, Fighting the Power Void: Choosing Trajan as a Successor*. SAGE Publications: SAGE Business Cases Originals. <https://doi.org/10.4135/9781529772227>
6. Di Rito, G. (2023). *Electro-Mechanical Actuators for Safety-Critical Aerospace Applications*. MDPI - Multidisciplinary Digital Publishing Institute. <https://doi.org/10.3390/books978-3-0365-7932-0>
7. Dolgikh, G. I. (2022). *Sea Level Fluctuations*. MDPI - Multidisciplinary Digital Publishing Institute.
8. Doro-on, A. M. (2022). *Handbook of Systems Engineering and Risk Management in Control Systems, Communication, Space Technology, Missile, Security and Defense Operations* (1st ed.). Taylor & Francis. <https://doi.org/10.4324/9780429272233>
9. Furey, H. (2021). *Beyond the Code: A Philosophical Guide to Engineering Ethics*. Routledge. <https://doi.org/10.4324/9781315643816>
10. Graham, A., & Halpern, N. (2021). *Airport Marketing* (Second edition.). Taylor & Francis. <https://doi.org/10.4324/9780203117903>
11. Gynnild, A. (2022). *Droner i sivilsamfunnet: Aktører, teknologi og etiske utfordringer*. Cappelen Damm Akademisk/NOASP Nordic Open Access Scholarly Publishing. <https://doi.org/10.23865/noasp.161>
12. Jameson, A. (2022). *Computational Aerodynamics* (1st ed., Vol. 49). University Press. <https://doi.org/10.1017/9781108943345>
13. Keller, R. B. (2023a). *Design for Electromagnetic Compatibility—In a Nutshell Theory and Practice* (1st ed. 2023.). Springer Nature. <https://doi.org/10.1007/978-3-031-14186-7>

14. Keller, R. B. (2023b). *Design for Electromagnetic Compatibility--In a Nutshell: Theory and Practice* (1st Edition 2023). Springer International Publishing. <https://doi.org/10.1007/978-3-031-14186-7>
15. Koskinen, H. E. J., & Kilpua, E. K. J. (2022). *Physics of Earth's Radiation Belts: Theory and Observations* (1st Edition 2022). Springer International Publishing. <https://doi.org/10.1007/978-3-030-82167-8>
16. Liu, S., Li, L., Tang, J., Wu, S., & Gaudiot, J.-L. (2020). *Creating Autonomous Vehicle Systems* (1st ed., Vol. 9). Springer International Publishing. <https://doi.org/10.1007/978-3-031-01805-3>
17. McElroy Jr, M. W. (2022). *The Space Industry of the Future: Capitalism and Sustainability in Outer Space* (1st ed.). Routledge. <https://doi.org/10.4324/9781003268734>
18. Refait, P. (2022). *Corrosion and Protection of Steels in Marine Environments: State-of-the-Art and Emerging Research Trends*. MDPI - Multidisciplinary Digital Publishing Institute.
19. Salmi, M. (2022). *Design and Applications of Additive Manufacturing and 3D Printing*. MDPI - Multidisciplinary Digital Publishing Institute.
20. Schuurman, M. (2023). *Air Safety Investigation: The Journey*. TU Delft Open. <https://doi.org/10.5074/t.2023.004>
21. Song, Z., Zhao, D., & Theil, S. (2023a). *Autonomous Trajectory Planning and Guidance Control for Launch Vehicles* (1st ed. 2023.). Springer Nature Singapore. <https://doi.org/10.1007/978-981-99-0613-0>
22. Song, Z., Zhao, D., & Theil, S. (2023b). *Autonomous Trajectory Planning and Guidance Control for Launch Vehicles* (1st Edition 2023). Springer Nature Singapore. <https://doi.org/10.1007/978-981-99-0613-0>
23. Stoica, L., Riches, S., & Johnston, C. (2016). *High Temperature Electronics Design for Aero Engine Controls and Health Monitoring* (1st ed.). River Publishers. <https://doi.org/10.1201/9781003338420>
24. United States Congress House Committee on Science, S. (2022). *Examining R&D pathways to sustainable aviation: Hearing before the Subcommittee on Space and Aeronautics of the Committee on Science, Space, and Technology, House of Representatives, One Hundred Seventeenth Congress, first session, March 24, 2021*. U.S. Government Publishing Office.
25. United States Congress Senate Committee on Commerce, S. (2023). *Building the space workforce of the future: STEM engagement for a 21st century education : hearing before the Subcommittee on Aviation and Space of the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Sixteenth Congress, first session, November 5, 2019*. U.S. Government Publishing Office.
26. van Loon, J. J. A., & Beysens, D. A. (2015). *Generation and Applications of Extra-Terrestrial Environments on Earth* (1st ed.). Routledge. <https://doi.org/10.1201/9781003338277>
27. Weiß, S. (2022). *Contributions to on-board navigation on 1U CubeSats* (Vol. 11). Universitätsverlag der Technischen Universität Berlin. <https://doi.org/10.14279/depositonce-12416>
28. Wen, C.-Y., Jiang, Y., & Shi, L. (2023). *Space-Time Conservation Element and Solution Element Method: Advances and Applications in Engineering Sciences* (1st Edition 2023, Vol. 13). Springer Nature Singapore. <https://doi.org/10.1007/978-981-99-0876-9>
29. Wiedemann, M. (2024a). *System Lightweight Design for Aviation* (1st ed. 2024.).

Springer Nature Switzerland. <https://doi.org/10.1007/978-3-031-44165-3>
 30. Wiedemann, M. (2024b). *System Lightweight Design for Aviation*. Springer Nature Switzerland. <https://doi.org/10.1007/978-3-031-44165-3>

B. Discuss any additional library resources needed to implement and/or sustain the program through Year 5. Describe how those costs are reflected in Appendix A – Table 3A or 3B.

☒ **Not applicable to this program because no additional library resources are needed to implement or sustain the proposed program.**

C. Describe any specialized equipment and space currently available to implement and/or sustain the proposed program through Year 5.

The [Aero-propulsion, Mechatronics, and Energy \(AME\) center](#) at FAMU-FSU College of Engineering was established in 2011. This 60,000-square-foot state-of-the-art facility supports advanced research in aerospace and aviation, mechatronics, and sustainable energy engineering. The AME center houses research laboratories, faculty and student offices, classrooms, and other infrastructures, which will be used for both teaching and research training of aerospace degree-seeking students. A brief description of selected facilities is given as follows.

Aero-propulsion Centric Experimental Facilities:

The Polysonic wind tunnel (PSWT) at FAMU-FSU College of Engineering is capable of operating in the Mach number regime of 0.2 to 5, including transonic speeds, and produces a unit Reynolds number of 2 – 30 million/ft. The facility features two separate test sections: 1) 12-in x 12-in x 24-in test section with solid walls for sub/supersonic Mach number testing, and 2) 12-in x 12-in x 48-in with slotted walls for testing in the transonic speed regime. Test models will be supported by a sting balance (six degree of freedom load cell) capable of pitch (-10° to 50°) and roll ($\pm 180^{\circ}$) during the blowdown. The PSWT is designed to produce excellent flow quality, which is achieved through 10:1 inlet contraction ratio, 5 fine mesh flow conditioning screens, flow straightener and settling chamber acoustic treatment. The facility is designed to operate at various Reynolds numbers at a fixed Mach number with the help of varying stagnation pressure and an ejector system. The facility has been calibrated over the entire operational regime and exhibits excellent flow quality. The rms pressure fluctuations at supersonic speed are less than 0.2%, turbulence intensity less than 0.2% and flow angularity over the entire measurement section is less than 0.2° , respectively. The facility is equipped to carry out shadowgraph (fluid density fluctuations), surface oil flow visualizations, steady and unsteady pressures, aerodynamic forces and moments, and flow diagnostic measurements. The facility is connected to a high-pressure storage system of 110m^3 of dry air at 500psia pressure. Typical run times are 30 - 100 seconds depending upon the test conditions.

The low-speed wind tunnel at FAMU-FSU is an open circuit facility with a square test section measuring 30-in x 30-in that extends 60-in in the flow direction. The facility is driven by an axial fan powered by a 150HP, direct drive AC induction motor. The motor is controlled by a Toshiba variable frequency drive that outputs a constant frequency power signal between 2 and 50 Hz. The range of freestream velocity is 2 m/s to 80 m/s and a corresponding maximum Reynolds number of 2.4 million/ft. To achieve flow uniformity

and low-turbulence ($< 0.05\%$), the facility is designed and equipped with 9:1 contraction ratio, honeycomb inlet and three stainless steel meshes of appropriate porosity.

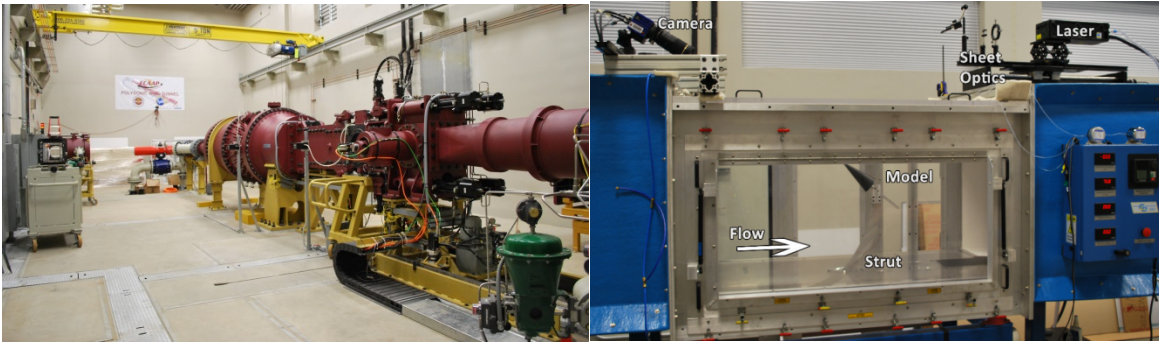


Figure - The FAMU-FSU Polysonic Wind Tunnel (left) and the PIV setup in the low speed wind tunnel with a cone model (right).

The wind tunnels are equipped with required instrumentation, including a six-component strain gauge balance to measure aerodynamic forces and moments, an electronic pressure scanner (ESP) for steady pressure distributions and Kulite pressure transducers for unsteady pressures. The facilities are designed for maximum optical access and with flow diagnostic capabilities such as Schlieren, shadowgraph and surface oil flow visualization measurement methods. The wind tunnels are also equipped for time-averaged and time-resolved PIV, including double pulsed Nd-YAG 400mJ/pulse laser, a 150W 30kHz photonics laser, CMOS / CCD cameras and necessary optics to measure off-body velocity field. We have also recently procured a fast-response Pressure Sensitive Paint (PSP) instrumentation to measure unsteady surface pressure fluctuations. Both of these facilities and advanced optical diagnostic techniques will be used in the proposed study.

In addition the center has a number of jet facilities to study jet noise and high-temperature material characterization, actuator development laboratory, a flow diagnostic development laboratory and a fully-equipped machine shop.

Computational Facilities:

The faculty has a number of well-validated, in-house, theoretical, and computational tools. These computational tools have two principal components: (a) the software that simulates the required physical fields of interest (denoted the “solver”), and (b) the software-suite that performs physical, statistical, and modal analyses on the simulated data (denoted the “post-processor”). A critical resource for the research includes the computational framework utilized by the solver and the post-processor. They are as follows:

Solver: The solver will be executed on the computational clusters at FAMU-FSU College of Engineering. Multi-core simulations thus obtained will be validated using complementary experiments and will serve as digital-twins for the flowfields studied. The common engineering-resource-pool nodes will be utilized for small-scale pilot simulations. For advanced simulations, the high-order capability of the solver facilitates superior resolution of the turbulent flowfields on reasonable grid-sizes of the order of 100-150 million. This will necessitate parallel computing on 600-800 cores, that will be provided by the RCC facility at FAMU and FSU. If needed, additional computing resources will be requested at the NSF-supported National Supercomputer Centers (see <http://www.xsede.org>) and the Department of Defense High-Performance Computing Centers.

Post-processor: This software-suite will be primarily executed on workstation computers utilized by the PIs and other personnel involved in this research. Three specialized workstations are available for this purpose, that can handle graphic-intensive data-interrogation, and memory-intensive long-time spectral and statistical signal analyses.

Mechatronics – Robotics, Control and Intelligence Facilities:

Mechatronics is the synergistic integration of mechanical, electrical, control, and computer systems to create functional products. The field of mechatronics generally covers topics such as robotics, Micro-Electro-Mechanical-Systems (MEMS), intelligent systems, automated guided vehicles, and smart materials. AME mechatronics group's research focuses on a variety of robot designs and control methodologies. A major challenge in this field pertains to exploitation of bio-inspired systems that can adapt to their surroundings while efficiently navigating cluttered and unpredictable terrains. This includes (1) legged robotics systems traversing up walls, across obstacles, swimming and diving underwater, etc.. (2) Human/Robotic Interactions and Biomechanics. (3) Bipedal robot locomotion and optimal control.

Detailed description of specialized instrumentation, manufacturing and diagnostics facilities of the mechatronics group can be found in the following web links: [Center for Intelligent Systems, Control, and Robotics](#), and [Optimal Robotics Laboratory](#).

Aerospace-centric Materials Research Facilities: In addition to the AME center, aerospace engineering faculty and students will have access to aerospace-related materials research facilities and collaborators from [High Performance Materials Institute \(HPMI\)](#) with expertise in high-performance composite and nanomaterials, structural health monitoring, multifunctional nanomaterials advanced manufacturing and process modeling. HPMI has world-class facilities in materials processing, synthesis, thermal and mechanical testing, imaging and microscopy as well as outstanding capability in computational modeling and simulation. Detailed description of HPMI's specialized equipment and resources can be found in this link: [Equipment | High-Performance Materials Institute](#).

Cryogenics Facilities: Cryogenics is used to cool aviation components, and to store rocket fuel at extremely low temperatures, with liquid hydrogen and liquid oxygen being the most widely used fuel and oxidizer. The advancement of cryogenic thermal and fluid management technology is considered an integral part of the development of deep space exploratory missions. The FSU Cryogenics Laboratory is a fully developed 3000 ft² facility for the conduct of low temperature experimental research in fluid dynamics, heat transfer and materials characterization. The laboratory is housed at the National High Magnetic Field Laboratory (NHMFL), which is adjacent to the FAMU-FSU College of Engineering in Tallahassee, FL. These facilities include: Cryogenic Helium Experimental Facility, Liquid Helium Flow Visualization Facility, Laser Induced Fluorescence Imaging Facility, Cryogenic Magnetic Levitation Facility, Multi-layer Thermal Conductivity Measurement Facility, etc.. More detailed description of these facilities can be found in [Cryogenics Lab](#).

- D. Describe any additional specialized equipment or space needed to implement and/or sustain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Appendix A – Table 3A or 3B. Costs for new construction should be provided in response to Section IX.E. below.**

☒ Not applicable to this program because no new I&R costs are needed to implement or sustain the program through Year 5

Although no new specialized equipment or space are requested, additional facilities and laboratory space are desired to sustain and grow the program beyond the first five years of the graduate program. These directions include additional graduate research thrusts (e.g., space applications, propulsion, combustion) and an undergraduate aerospace degree program. Critical research areas of national need that complement current expertise at the FAMU-FSU College of Engineering include aerospace structures, combustion technology, and liquid hydrogen research and test facilities. The latter aligns with a new hydrogen initiative. With respect to expansions to an undergraduate aerospace degree program, additional makerspace for aerospace structure design and development, and a cryogenics laboratory. The latter will take advantage of world-class resources and expertise (including mechanical engineering department professors) in the field of cryogenics. Moreover, this will offer opportunities to train undergraduates in the growing field of quantum information in science where superconductivity hardware is one of the main quantum computing hardware platforms. Furthermore, this is another strategic research thrust at FSU.

- E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Appendix A – Table 3A or 3B includes only I&R costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase due to the program, describe and estimate those expenses in narrative form below. High enrollment programs, in particular, are expected to necessitate increased costs in non-I&R activities.**

☒ Not applicable to this program because no new capital expenditures are needed to implement or sustain the program through Year 5.

Similarly, no capital expenditures are requested here; however, investments that may need consideration to sustain the program include faculty start-up funds and a future research building for space and propulsion applications. Whereas the start of a strong AE graduate program can be created with existing facilities at the Aero-Propulsion, Mechatronics, and Energy Building located near the FAMU-FSU College of Engineering, these facilities focus on subsonic, transonic, supersonic and hypersonic (Mach ~5-6) fluid dynamics and robotic applications. An additional research building should be considered in the long term to expand the program to space applications. This will be important for the growth of the graduate program and the future development of an undergraduate program.

- F. Describe any additional special categories of resources needed to operate the proposed program through Year 5, such as access to proprietary research facilities, specialized services, or extended travel. Explain how those projected costs of special resources are reflected in Appendix A – Table 3A or 3B.**

☒ Not applicable to this program because no additional special categories of resources are needed to implement or sustain the program through Year 5.

- G. Describe fellowships, scholarships, and graduate assistantships to be**

allocated to the proposed program through Year 5 and explain how those are reflected in Appendix A – Table 3A or 3B.

☐ **Not applicable to this program because no fellowships, scholarships, and/or graduate assistantships will be allocated to the proposed program through Year 5.**

Fellowships and/or scholarships are proposed for the first year \$50,000 and similarly \$50,000 in the fifth year, to attract highly qualified U.S. students into the aerospace field. These funds will be a small fraction of the expected C&G funds that will support graduate students as shown in Table 3A. These funds will provide additional salaries for highly qualified PhD students at competitive rates to top AE programs within the U.S. The students will be selected by the graduate committee in the Mechanical Engineering Department with input from a faculty member's recommendations who intends to mentor and support the student with a base salary.

X. Required Appendices

The appendices listed in tables 1 & 2 below are required for all proposed degree programs except where specifically noted. Institutions should check the appropriate box to indicate if a particular appendix is included to ensure all program-specific requirements are met. Institutions may provide additional appendices to supplement the information provided in the proposal and list them in Table 2 below.

Table 1. Required Appendices by Degree Level

Appendix	Appendix Title	Supplemental Instructions	Included Yes/No	Required for Degree Program Level		
				Bachelors	Masters/ Specialist	Doctoral/ Professional
A	Tables 1-4			X	X	X
B	Consultant's Report and Institutional Response					X
C	Academic Learning Compacts	Include a copy of the approved or proposed Academic Learning Compacts for the program		X		
D	Letters of Support or MOU from Other Academic Units	Required only for programs offered in collaboration with multiple academic units within the institution		X	X	X

E	Common Prerequisite Request Form	This form should also be emailed directly to the BOG Director of Articulation before submitting the program proposal to the Board office for review.		X		
F	Request for Exemption to the 120 Credit Hour Requirement	Required only for baccalaureate degree programs seeking approval to exceed the 120 credit hour requirement		X		
G	Request for Specialized Admissions Status	Required only for baccalaureate degree programs seeking approval for specialized admissions status		X		
H	Attestations for Self-Supporting and Market Tuition Rate Programs	Required only for self-supporting or market tuition rate programs			X	X
I	Faculty Curriculum Vitae			X	X	X

Table 2. Additional Appendices

Appendix	Appendix Title	Description
A	Faculty Participation	Faculty data
B	Program Collaborations	Email discussion with chairs

APPENDIX A
TABLE 1-B
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES
(MS+PhD Graduate Degree Programs)

Source of Students (Non-duplicated headcount in any given year)*	Year 1 HC	Year 1 FTE	Year 2 HC	Year 2 FTE	Year 3 HC	Year 3 FTE	Year 4 HC	Year 4 FTE	Year 5 HC	Year 5 FTE
Individuals drawn from agencies/industries in your service area (e.g., older returning students)	2	1	3	1	3	3	1	1	3	3
Students who transfer from other graduate programs within the university**	4	4	4	2	4	2	2	2	2	2
Individuals who have recently graduated from preceding degree programs at this university	6	4	12	10	4	12	10	19	12	10
Individuals who graduated from preceding degree programs at other Florida public universities	6	4	12	10	19	15	26	22	26	20
Individuals who graduated from preceding degree programs at non-public Florida institutions	7	5	14	12	21	16	28	23	32	26
Additional in-state residents***	0	0	0	0	0	0	0	0	0	0
Additional out-of-state residents***	0	0	0	0	0	0	0	0	0	0
Additional foreign residents***	0	0	0	0	0	0	0	0	0	0
Other (Explain)***	0	0	0	0	0	0	0	0	0	0
Totals	25	18	45	35	51	48	67	67	75	61

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.

** If numbers appear in this category, they should go DOWN in later years.

*** Do not include individuals counted in any PRIOR category in a given COLUMN.

APPENDIX A

Table 2
Anticipated Faculty Participation

Faculty Code	Faculty Name or "New Hire" Highest Degree Held Academic Discipline or Specialty	Rank	Contract Status	Initial Date for Participation in Program	Mos. Contract Year 1	FTE Year 1	% Effort for Prg. Year 1	PY Year 1	Mos. Contract Year 5	FTE Year 5	% Effort for Prg. Year 5	PY Year 5
A	Rajan Kumar, PhD Mechanical Engineering	Full Prof	Tenure	Fall 2025	9	0.75	0.10	0.08	9	0.75	0.20	0.15
A	Yousuf Ali, Ph.D. Mechanical Engineering	Instructor	MYA	Fall 2025	12	1.00	0.10	0.10	12	1.00	0.18	0.18
A	Chiang Shih, PhD Mechanical Engineering	Full Prof	Tenure	Fall 2025	9	0.75	0.10	0.08	9	0.75	0.00	0.00
A	William Oates, PhD Mechanical Engineering	Full Prof	Tenure	Fall 2025	9	0.75	0.15	0.11	9	0.75	0.20	0.15
A	Farrukh Alvi, PhD Mechanical Engineering	Full Prof	Tenure	Fall 2025	12	1.00	0.05	0.05	12	1.00	0.05	0.05
A	Huixuan Wu, PhD Mechanical Engineering	Associate Prof	Tenure	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.18	0.14
A	Alex Berger, PhD Aerospace Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.13	0.10
A	Kourosh Shoele, PhD Mechanical Engineering	Associate Prof	Tenure	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Neda Yaghoobian, PhD Mechanical Engineering	Associate Prof	Tenure	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.12	0.09
A	Jizhe Cai, PhD Aerospace Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Christian Hubicki, PhD Mechanical Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Unni Nair, PhD Mechanical Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Wei Guo, PhD Physics	Full Prof	Tenure	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.12	0.09
A	Juan Ordonez, PhD Mechanical Engineering	Full Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.10	0.08
A	Carl Moore, PhD Mechanical Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.10	0.08
A	David Larbalestier, PhD	Full Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.00	0.00

APPENDIX A

**Table 2
Anticipated Faculty Participation**

	Engineering											
A	Eric Hellstrom, PhD Engineering	Full Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.00	0.00
A	Brandon Krick, PhD Mechanical Engineering	Associate Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.15	0.11
A	Fumitake Kametani, PhD Engineering	Associate Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.05	0.04
B	New Hire, PhD Engineering	Assistant Prof	track	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.20	0.15
B	New Hire, PhD Engineering	Associate Prof	Tenured	Fall 2025	9	0.75	0.05	0.04	9	0.75	0.20	0.15
C	New Hire, PhD Engineering	Associate Prof	Tenured	Fall 2026	0	0.00	0.00	0.00	9	0.75	0.30	0.23
C	New Hire, PhD Engineering	Assistant Prof	track	Fall 2026	0	0.00	0.00	0.00	12	1.00	0.30	0.30
C	New Hire, PhD Engineering	Assistant Prof	track	Fall 2027	0	0.00	0.00	0.00	9	0.75	0.30	0.23
C	New Hire, PhD Engineering	Assistant Prof	track	Fall 2027	0	0.00	0.00	0.00	9	0.75	0.30	0.23
C	New Hire, PhD Engineering	Research Prof	MYA	Fall 2027	0	0.00	0.00	0.00	12	1.00	0.05	0.05
C	New Hire, PhD Engineering	Research Prof	MYA	Fall 2028	0	0.00	0.00	0.00	12	1.00	0.05	0.05
C	New Hire, PhD Engineering	Research Prof	MYA	Fall 2028	0	0.00	0.00	0.00	12	1.00	0.05	0.05
	Total Person-Years (PY)							1.01				3.12

Faculty Code	Code Description	Source of Funding	PY Workload by Budget Classification		
			Year 1		Year 5
A	Existing faculty on a regular line	Current Education & General Revenue	0.94		1.69
B	New faculty to be hired on a vacant line	Current Education & General Revenue	0.08		0.30
C	New faculty to be hired on a new line	New Education & General Revenue	0.00		1.13
D	Existing faculty hired on contracts/grants	Contracts/Grants	0.00		0.00
E	New faculty to be hired on contracts/grants	Contracts/Grants	0.00		0.00
F	Existing faculty on endowed lines	Philanthropy & Endowments	0.00		0.00
G	New faculty on endowed lines	Philanthropy & Endowments	0.00		0.00

APPENDIX A
Table 2
Anticipated Faculty Participation

H	Existing or new faculty teaching outside of regular/tenure-track line course load	Enterprise Auxiliary Funds	0.00		0.00
Overall Totals for			1.01		3.12

APPENDIX A
TABLE 3A
EROLLEMENT AND GROWTH
PROJECTED COSTS AND FUNDING SOURCES

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Institutions should not edit the categories or budget lines in the table below. This table is specific to state-funded (E&G) programs, and institutions are expected to explain all costs and funding sources in Section VII.A. of the proposal. Detailed definitions for each funding category are located at the bottom of the table.															
2	Budget Line Item	Reallocated Base* (E&G) Year 1	Enrollment Growth (E&G) Year 1	New Recurring (E&G) Year 1	New Non-Recurring (E&G) Year 1	Contracts & Grants (C&G) Year 1	Philanthropy/ Endowments Year 1	Other Funding Year 1 - Please Explain in Section VII.A. of the Proposal	Subtotal Year 1	Continuing Base** (E&G) Year 5	New Enrollment Growth (E&G) Year 5	Other*** (E&G) Year 5	Contracts & Grants (C&G) Year 5	Philanthropy/ Endowments Year 5	Other Funding Year 5 - Please Explain in Section VII.A. of the Proposal	Subtotal Year 5
3	Salaries and Benefits (Faculty)	237,825	0	0	0	91,374	0	0	\$329,199	588,375	0	0	231,770	0	0	\$820,144
4	Salaries and Benefits (A&P and USPS)	10,000	0	0	0	0	0	0	\$10,000	50,000	0	0	0	0	0	\$50,000
5	OPS (including assistantships & fellowships)	50,000	0	0	0	274,122	0	0	\$324,122	50,000	0	0	695,309	0	0	\$745,309
6	Programmatic Expenses****	10,000	0	0	0	91,374	0	0	\$101,374	15,000	0	0	231,770	0	0	\$246,770
7	Total Costs	\$307,825	\$0	\$0	\$0	\$456,871	\$0	\$0	\$764,696	\$703,375	\$0	\$0	\$1,158,849	\$0	\$0	\$1,862,223
8	*Identify reallocation sources in Table 4.															
9	**Includes recurring E&G funded costs ("reallocated base," "enrollment growth," and "new recurring") from Years 1-4 that continue into Year 5.															
10	***Identify if non-recurring.															
11	****include library costs, expenses, OCO, special categories, etc.															
12	Faculty and Staff Summary															
13	Total Positions	Year 1	Year 5													
14	Faculty (person-years)	1.01	3.12													
15	FTE (A&P and USPS)	0.3	1													
16																
17																
18	Table 3 Column Explanations															
19	Reallocated Base* (E&G)	1	E&G funds that are already available in the university's budget and will be reallocated to support the new program. Please include these funds in the Table 4 – Anticipated reallocation of E&G funds and indicate their source.													
20	Enrollment Growth (E&G)	2	Additional E&G funds allocated from the "Student and Other fees Trust Fund" contingent on enrollment increases.													
21	New Recurring (E&G)	3	Recurring funds appropriated by the Legislature to support implementation of the program.													
22	New Non-Recurring (E&G)	4	Non-recurring funds appropriated by the Legislature to support implementation of the program. Please provide an explanation of the source of these funds in the budget section (section VII.A.) of the proposal. These funds can include initial investments, such as infrastructure.													
23	Contracts & Grants (C&G)	5	Contracts and grants funding available for the program.													
24	Philanthropy Endowments	6	Funds provided through the foundation or other Direct Support Organizations (DSO) to support the program.													
25	Continuing Base** (E&G)	7	Includes the sum of columns 1, 2, and 3 over time.													
26	New Enrollment Growth (E&G)	8	See explanation provided for column 2.													
27	Other*** (E&G)	9	These are specific funds provided by the Legislature to support implementation of the program.													
28	Contracts & Grants (C&G)	10	See explanation provided for column 5.													
29	Philanthropy Endowments	11	See explanation provided for column 6.													
30	Other Funding	12	Any funding sources not already covered in any other column of the table. Please provide an explanation for any funds listed in these columns in the narrative for Section VII.A. of the proposal.													

Calculated Cost per Student FTE		
	Year 1	Year 5
Total E&G Funding	\$307,825	\$703,375
Annual Student FTE	18	61
E&G Cost per FTE	\$17,101	\$11,531

Calculated Cost per Student FTE

	Year 1	Year 5
Total E&G Funding	\$307,825	\$703,375
Annual Student FTE	18	61
E&G Cost per FTE	\$17,101	\$11,531

APPENDIX A
TABLE 4
ANTICIPATED REALLOCATION OF EDUCATION GENERAL FUNDS*

Program and/or E&G account from which current funds will be reallocated during Year 1	Base before reallocation	Amount to be reallocated	Base after reallocation
Mechanical Engineering Budget 218000110	\$3,534,076	\$307,825	\$3,226,251
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
Totals	\$3,534,076	\$307,825	\$3,226,251

* If not reallocating E&G funds, please submit a zeroed Table 4

External Review of a Proposal by Florida State University for the establishment of a graduate degree program in Aerospace Engineering

Mark Glauser
Professor Emeritus of Mechanical and Aerospace Engineering
Syracuse University
April 26, 2024

This is my review of the Florida A&M and Florida State Universities proposal to offer a graduate degree program in Aerospace Engineering (AE) beginning Spring 2025. The graduate program will offer master's and doctoral degrees. The proposed program will be offered jointly within the FAMU-FSU College of Engineering and operate within the FAMU-FSU Mechanical Engineering Department. This review was conducted to judge compliance with the Florida Board of Governors New Degree Criteria.

This is an excellent proposal that is timely and well written which addresses all the Board of Governors' criteria. Both qualitative and quantitative material is provided that demonstrates that the proposal meets all the criteria. The proposal to have this program housed in the Mechanical Engineering Department is the proper choice given the current extensive ongoing research in that department that is Aerospace related. This will significantly enhance FAMU-FSUs already well-respected reputation in the Aerospace sector. We at Syracuse University have recently hired 2 recent Ph.D. graduates from the FAMU-FSU Mechanical Engineering program as Assistant Professors in our Aerospace Engineering program (Professors Yiyang Sun and Fernando Zigunov) due to their outstanding research and education in the Aerospace area. Having these two colleagues graduate with Ph.D. degrees in Aerospace Engineering would have made their hiring to support our Aerospace Engineering program somewhat easier. This is due to the fact some of my colleagues were unsure if Professors Sun and Zigunov were sufficiently trained in Aerospace Engineering to be hired into our Aerospace Engineering program. Given my knowledge of the significant level of depth in the Aerospace discipline within the FAMU-FSU Mechanical Engineering Department, I was able to dispel the concerns of my colleagues and we moved forward hiring them as Assistant Professors in Aerospace Engineering. The proposed graduate degree program in Aerospace Engineering will make this a non-issue.


What the FAMU-FSU Mechanical Engineering faculty are asking for is the opportunity to have their graduate students whose main research focus is in the Aerospace area graduate with the degree that is more in line with their expertise. It could be argued that this is more a matter of marketing and packaging than establishing an entirely new program from scratch. Leveraging the already outstanding research and education in the Aerospace discipline within the FAMU-

FSU Mechanical Engineering program explains the relatively minor cost of the new proposed graduate degree program in Aerospace Engineering.

The Board of Governors is concerned about duplication in the state. This is not an issue in this case. As pointed out in the proposal, the AE program at FAMU and FSU will complement the other two programs in the state at UF and UCF (see Appendix B) and advance the State and Federal calls to increase competence in science, technology, engineering, and math (STEM) in upcoming generations and to promote advanced aerospace engineering to solve fundamental problems that have immediate technical applications. In Florida, the aerospace industry is an essential component of the State's economy. Furthermore, there are several federal research laboratories in the Panhandle region, including Eglin and Tyndall Air Force Bases, the Naval Surface Warfare Center—Panama City Division and the Naval Air Station in Pensacola, that need new, well-trained AE graduates in their workforce. In addition, many industries in Florida, like defense and aerospace contractors, need aerospace engineers at the master's and doctoral level. The need for the AE graduate degree program is clearly justified. Let me give some perspective from the State of New York. Our Aerospace sector in New York is significantly smaller than that of Florida and we don't even come close to having the federal facilities that engage in the Aerospace sector that Florida has. Note however, that within New York State we have several Aerospace graduate degree programs including Syracuse University, Cornell University, RPI, Clarkson and the University at Buffalo/SUNY. Given the level of activity in the State of Florida within the Aerospace sector, adding an additional graduate degree program in AE at FAMU-FSU is the proper and timely thing to do.

I believe this is an excellent proposal that the Board of Governors should feel highly confident in approving. Feel free to reach out to me at mglauser@sy.edu or 315 244 0882 (cell) if you would like additional input.

With Best Personal Regards,

A handwritten signature in black ink, reading "Mark Glauser", is centered on a light yellow rectangular background.

Mark Glauser
Emeritus and Research Professor of
Mechanical and Aerospace Engineering
College of Engineering and Computer Science
Fellow; AIAA, APS, ASME, Institute of Physics (UK)
Member, Army Science Board 2013 - 2021



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

ACTION ITEM III



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

ACTION ITEM III

June 20, 2024

SUBJECT: BOG Regulation 8.014: 120 Credit Hour Exception Revisions

PROPOSED COMMITTEE ACTION

Request to approve revisions to five bachelors degree programs holding Boards of Governors approval to exceed 120 credit hours:

- Reduce Biomedical Engineering from 131 credit hours to 128 credit hours (CIP Code 14.0501)
- Reduce Chemical Engineering from 131 credit hours to 128 credit hours (CIP Code 14.0701)
- Reduce Secondary Education and Teaching to 120 credit hours (CIP Code 13.1205) and remove from list
- Reduce Music Therapy to 120 credit hours (CIP Code 51.2305) and remove from list
- Reduce Nursing to 120 credit hours (CIP Code 51.3801) and remove from list

AUTHORITY FOR BOARD OF TRUSTEES ACTION

Board of Governors Regulation 8.014 requires each bachelors degree offered in excess of 120 credit hours be approved by the Board of Trustees and the Board of Governors. Recent revisions to the Regulation delegate authority to the University Board of Trustees to approve a reduction of credit hours for degree programs approved by the Board of Governors to exceed 120 credit hours.

BACKGROUND INFORMATION

Florida State University currently offers 14 bachelors degree programs with approval to exceed 120 credit hours. In February 2024, the BOG requested that each SUS institution review current offerings with an exception to the 120 credit hour requirement and, as necessary, update the number of credit hours offered. FSU has determined two reductions in credit hours was warranted and that three degree programs should be removed from the list. These actions will be reported to the Board of Governors following Board of Trustees approval. These revisions would reduce FSU approved exceptions to 11 bachelors degree programs.

ADDITIONAL COMMITTEE CONSIDERATIONS

Supporting Documentation Included: N/A

Submitted by: Office of Faculty Development and Advancement



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

ACTION ITEM IV



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

ACTION ITEM IV

June 20, 2024

SUBJECT: FSU Regulation 5.079 Revision

PROPOSED COMMITTEE ACTION

Request to approve revisions to FSU Regulation 5.079, including updated title and content. This is a substantial rewrite of the regulation, so it is presented as a new regulation without blackline of changes.

AUTHORITY FOR BOARD OF TRUSTEES ACTION

BOG Regulations 1.001(3) (j), (4), 6.001, 6.002, 6.003. Florida Board of Governors “Regulation Development Procedure for State University Boards of Trustees”

BACKGROUND INFORMATION

A substantial rewrite of FSU Regulation 5.079: Special Non-Degree Seeking Students is proposed due to outdate terminology no longer used by the institution. The proposed Regulation is titled “Non-Degree Seeking Students.”

This regulation is being updated to conform to current practices and operational needs regarding non-degree seeking students. Also, in recent years, units within Student Affairs and Academic Affairs have found themselves expending finite resources addressing non-degree student conduct violations and academic issues. The proposed Regulation includes new limitations on non-degree seeking student enrollment, including:

- Limiting non-degree seeking students to a maximum of 30 credit hours earned while a non-degree seeking student, as found in other SUS institutional policies, and
- Restricting the continued enrollment of non-degree seeking students who are found responsible for violating the institution’s Student Code of Conduct or Academic Honor Policy.

These limitations permit individuals with true academic needs to take classes as non-degree seeking students while allowing FSU to prioritize providing critical student support services and stellar academic experiences to our degree-seeking students.

ADDITIONAL COMMITTEE CONSIDERATIONS

Supporting Documentation Included: FSU Regulation 5.079 Non-Degree Seeking Students

Submitted by: Office of Faculty Development and Advancement

Substantial Rewrite

FSU-5.079 Non-Degree Seeking Students.

(1) Categories of Non-Degree Students. Non-degree designation is assigned to students who are not actively pursuing an academic degree, regardless of degree level or type. Non-degree student classification is inclusive of students enrolled in high school dual enrollment courses intended for transfer to a degree program, select certificate programs, transient student status with another institution, or audit of classes. Additional categories may be added and required by University operations or by the State of Florida.

(2) Admission Eligibility for Non-Degree Student Status. Individuals wishing to apply as non-degree students must complete a non-degree admission application. Admission as a non-degree student is open to any high school graduate to enroll in undergraduate courses and to any college graduate to enroll in undergraduate or graduate courses. Students without a high school degree may apply as non-degree status only through select structured programs or specifically for high school dual enrollment.

(a) Each application is subject to review and may not be approved. Individuals with a demonstrated pattern of conduct issues may not be eligible for admission or eligible for continued enrollment if already admitted.

(b) Evidence of prior education must be submitted to the Office of Admissions in keeping with the admission requirements and deadlines established by that office. Failure to present the appropriate materials by the specified deadline will result in a stop or service indicator placed to prevent future enrollment or cancellation of the admission application.

(3) Changing From a Non-Degree Student to a Regular Student. The change in status from a non-degree student to a regular student is processed through the Office of Admissions for undergraduate students or the Graduate Admissions Office for graduate students. An eligible non-degree student who desires to pursue a degree may submit the required application. Application review will include the requirement of fulfilling all admissions standards.

(4) Registration. Registration is on a space available basis during the non-degree registration windows and drop/add periods as published by the Office of the University Registrar. Non-degree students may register for 1 -16 hours in the Fall or Spring semesters, or 1 -15 hours in the summer term. Non-Degree students participating in the high school dual enrollment program are limited to fewer credit hours as specified by the signed articulation agreements established by the university with participating schools and districts.

(5) Limits on Non-Degree Coursework. The following limitations apply to all non-degree students. Students in structured programs may be allowed to exceed the maximum number of credit hour limits.:

(a) All non-degree students are limited to a maximum of 30 attempted hours. Students wishing to enroll beyond the 30 attempted hours may petition the Office of the University Registrar to continue.

(b) Non-degree students seeking to take courses for high school dual enrollment are limited to enrollment in only undergraduate courses and only those courses identified by the appropriate University offices as eligible for high school student enrollment.

(c) A non-degree student with a finding of responsibility for violating the Student Conduct Code or the Academic Honor Policy may not be eligible for continued enrollment as a non-degree student.

(d) A non-degree student may petition to apply up to a maximum of 15 hours of undergraduate non-degree coursework toward a specific bachelor's degree with approval of the academic dean once they have been admitted to the degree program. An eligible non-degree student who has participated in a structured program at The Collegiate High School may apply the full amount of credit earned toward the Associate of Arts degree upon completion of those degree requirements at the University and award of the high school diploma.

(e) A non-degree post-baccalaureate student may petition to apply up to a maximum of 12 semester hours of non-degree graduate coursework toward a specific degree with approval of the academic dean once they have been admitted to a degree program.

(6) Structured Programs. Non-degree students enrolled in structured programs such as The Collegiate High School, or Republic of Panama must adhere to the specific requirements established by the program.

(7) Undergraduate Students who do not Meet Regular Admission Standards. A non-degree student who wishes to be reclassified as a regular student but fails to meet the regular admissions standards may be eligible for admission as a degree-seeking student if they meet the requirements specified in Florida BOG Regulation 6.004(4)b. These requirements are considered the minimum requirements set by the State of Florida. Admission as a degree-seeking student under this provision is subject to a review for admission eligibility.

(a) The University reserves the right to change a degree-seeking student to a non-degree student in cases where the student fails to satisfy their conditions of admission.

(b) A degree-seeking undergraduate student who is considered active and eligible to enroll may not petition to change from a degree-seeking student to a non-degree student.

(b) A degree-seeking graduate student who is considered active and eligible to enroll may petition to change from a degree-seeking student to a non-degree student only with written permission of their faculty adviser, department chair, and academic dean.

(c) A former degree-seeking student who is considered inactive may apply to return as a non-degree student.

(8) Regular Degree Seeking Students on Academic Dismissal Who Wish to Enroll as a Non-Degree Seeking Students. In rare cases, the degree-seeking academic dean and the University Registrar, who serves as the non-degree student academic Dean, may approve a student on dismissal to enroll as a non-degree student for one term without approving a reinstatement for degree-progress. The following minimum stipulations would apply:

(a) Course work undertaken by a non-degree student who has been academically dismissed from the University as a degree-seeking student may not be used toward the minimum hours required for graduation or to satisfy degree requirements, including in cases where it might otherwise be allowed under section 4 for this regulation.

(b) The academic dean of the degree-seeking program may at their discretion permit quality points earned by a non-degree student on dismissal to be used to decrease the quality point deficiency achieved as a regular student only after the student has been readmitted on probation to degree seeking status.

(c) A course in which a grade of “D” or “F” is earned by a regular undergraduate student prior to their dismissal may not be repeated for credit by the student as a non-degree student on dismissal. A course in which a grade of “B-” or worse is earned by a graduate student may not be repeated for credit by the student as a non-degree student on dismissal. Course work earned by a dismissed student cannot be counted toward graduation. Thus, the repeated course cannot replace the former course.

(d) A former degree-seeking student who has changed to the non-degree student status may regain their regular student classification only through the formal admissions process.

(9) Administration and Academic Dean Designation. Non-degree students are monitored and administered by the Office of the University Registrar. A non-degree student is not assigned to a college, school, or department. A non-degree student is not required to have a faculty adviser unless enrolled in a structured program, but an adviser may be assigned in cases where a student is pursuing a certificate program or attempting to satisfy specific requirements for admissions consideration to a program as a degree-seeking student.

(10) Withdrawal from the University. All non-degree students who wish to withdraw (e.g. drop all classes for a term) should contact the Office of the University Registrar to begin the process. Refunds and fee adjustments will follow the University’s standard refund policy and timeline.

(11) Fees for Non-Degree Students. Tuition and registration fees for non-degree students are the same as for regular students.

Specific Authority BOG Regulation 1.001(3)(j) , Reg. Procedure July 21, 2005 Law Implemented 240.227(8), 240.233 FS., 6C-4.001(1), (5), 6C-6.003(4), F.A.C. Formerly 6C2-5.79.
History–New 9-30-75, Amended 4-19-78, _____



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

ACTION ITEM V



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

ACTION ITEM V

June 20, 2024

SUBJECT: BOG Regulation 8.005 Review of General Education Courses

PROPOSED COMMITTEE ACTION

Request to approve Florida State University Academic Year 2025-2026 General Education Courses

AUTHORITY FOR BOARD OF TRUSTEES ACTION

Florida Board of Governors Regulation 8.005: General Education Course Options

BACKGROUND INFORMATION

Amended Board of Governors Regulation 8.005: General Education Course Options requires each university's President and Board of Trustees to review and approve all general education offerings on an annual basis beginning in 2024 for the 2025-2026 academic year. The courses must be approved at a public meeting and be submitted to the Articulation Coordinating Committee by September 1st of each year.

General education courses must be reviewed and approved to be in compliance with Florida State Statutes 1007.24, 1007.25, and 1007.55. The applicable sections of each statute are as follows:

1007.25 General education courses; common prerequisites; other degree requirements.

(3)(c) General education core courses may not distort significant historical events or include curriculum that teaches identity politics, violates s. 1000.05 or is based on theories that systemic racism, sexism, oppression, and privilege are inherent in the institutions of the United States and were created to maintain social, political, and economic inequities.

(3)(d) General education core courses must meet the following standards:

1. **Communication** courses must afford students the ability to communicate effectively, including the ability to write clearly and engage in public speaking.

2. **Humanities** courses must afford students the ability to think critically through the mastering of subjects concerned with human culture, especially literature, history, art, music, and philosophy, and must include selections from the Western canon.
3. **Social science** courses must afford students an understanding of the basic social and behavioral science concepts and principles used in the analysis of behavior and past and present social, political, and economic issues.
4. **Natural science** courses must afford students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.
5. **Mathematics** courses must afford students a mastery of foundational mathematical and computation models and methods by applying such models and methods in problem solving.

1007.55 General education course principles, standards, and content.

(1) The Legislature finds it necessary to ensure that every undergraduate student of a Florida public postsecondary educational institution graduates as an informed citizen through participation in rigorous general education courses that promote and preserve the constitutional republic through traditional, historically accurate, and high-quality coursework. General education courses should provide broad foundational knowledge to help students develop intellectual skills and habits that enable them to become more effective and lifelong learners. Courses with a curriculum based on unproven, speculative, or exploratory content are best suited as elective or specific program prerequisite credit, not general education credit. General education courses must:

- (a) Meet the course standards as provided in s. 1007.25; and
- (b) Whenever applicable, provide instruction on the historical background and philosophical foundation of Western civilization and this nation's historical documents, such as the Declaration of Independence, the United States Constitution, the Bill of Rights and subsequent amendments, and the Federalist Papers.

The Florida Department of Education provided Florida State University with a spreadsheet of all general education course offerings in February 2024. The BOG requires institutions to review these courses and made one of three determinations for the 2025-26 academic year general education offerings: 1) Reviewed: No Updates, 2) Reviewed: Updated, and 3) Reviewed: Remove from General Education. The spreadsheet resulting from the FSU review is contained in Board materials. The list is organized as follows: courses that were reviewed and removed from the FSU general education curriculum, courses that were reviewed and modified to remain in the FSU general education curriculum, and courses that were reviewed and remain in the FSU general education curriculum with no modifications. For each course on the list, there is a course summary document that includes the course title, description, and objectives.

The initial annual review process involved 567 courses. College administration facilitated the review with each department offering general education courses, working closely with department chairs and faculty. The review concluded with 366 courses being approved for the 2025-2026 general education course offering. A summary of the results includes:

- 208 Courses Removed from General Education Offering
- 90 Courses Updated for General Education Offering
- 269 Courses with No Updates for General Education Offering

Four additional courses that were not part of the initial review were added to the general education offerings during the review, bringing the count of total courses reviewed to 571.

After Board review has concluded, the President and BOT Chair will certify that the institution has reviewed its general education course options for compliance by signing “Certification Form Academic Year 2025-26 General Education Courses,” which will be submitted to the Florida Department of Education.

ADDITIONAL COMMITTEE CONSIDERATIONS

Supporting Documentation Included: FSU Academic 2025-2026 General Education Course Offering Spreadsheet and [Link to Additional Materials](#).

Submitted by: Office of Faculty Development and Advancement

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	AFA	2	000		INTRO TO THE AFRO-AMER EXPERIENCE	03/03/1997	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable		6	Active
FLORIDA STATE UNIVERSITY	AFA	3	101		THEORIES OF AFRICAN AMERICAN STUDIES	05/10/2018	3.0		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	AMH	1	000		AMERICAN CIVILIZATION	08/08/1983	3.0		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	AMH	1	091		THE AFRICAN AMERICAN EXPERIENCE IN THE UNITED STAT	08/01/1997	3.0		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	19		Discontinued
FLORIDA STATE UNIVERSITY	AMH	2	096		BLACK WOMEN IN AMERICA	08/01/1996	3.0		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	AML	2	010		AMERICAN AUTHORS TO 1875	08/01/2005	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	29		Active
FLORIDA STATE UNIVERSITY	AML	2	011		AMERICAN AUTHORS TO 1875	01/01/1981	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	AML	2	600		INTRODUCTION TO AFRICAN-AMERICAN LITERATURE	08/01/1997	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	17		Active
FLORIDA STATE UNIVERSITY	AML	3	041		AMERICAN AUTHORS SINCE 1875	08/01/2005	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	AML	3	630		LATINO/A LITERATURE IN ENGLISH	01/03/1996	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	AML	3	682		AMERICAN MULTI-ETHNIC LITERATURE	01/01/2001	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	ARH	3	130		SURVEY OF GREEK ART AND ARCHAEOLOGY	01/01/1984	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	ARH	3	150		ART AND ARCHAEOLOGY OF ANCIENT ITALY	01/01/1984	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	ARH	3	530		THE ARTS OF ASIA	04/12/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	BSC	1	005	C	GENERAL BIOLOGY FOR NON-MAJORS	12/27/2001	4.0		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	7		Discontinued
FLORIDA STATE UNIVERSITY	BSC	1	100		NATURAL HISTORY, BIODIVERSITY, AND THE GROWTH OF EVOLUTIONARY THOUGHT	08/10/2023	3		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CHM	1	020		CHEMISTRY FOR LIBERAL STUDIES	08/01/2015	3	Natural Sciences	Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	27		Active
FLORIDA STATE UNIVERSITY	CHM	1	020	L	CHEMISTRY FOR LIBERAL STUDIES LABORATORY	09/01/1987	1.0		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	7		Active
FLORIDA STATE UNIVERSITY	CHM	1	030		SURVEY OF GENERAL CHEMISTRY	08/01/1996	3.0		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	5		Discontinued
FLORIDA STATE UNIVERSITY	CHM	1	032		SURVEY OF GENERAL CHEMISTRY	08/01/2006	3.0		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	12		Discontinued
FLORIDA STATE UNIVERSITY	CHM	1	045	C	GENERAL CHEMISTRY I	01/13/2007	3		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	10		Discontinued
FLORIDA STATE UNIVERSITY	CHM	1	046	C	GENERAL CHEMISTRY II	10/14/2005	5		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	9		Discontinued
FLORIDA STATE UNIVERSITY	CHM	2	047	L	ONE SEMESTER GENERAL CHEMISTRY LAB	08/10/2023	1		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	CHM	2	200		SURVEY OF ORGANIC CHEMISTRY	01/13/2007	3		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	CHM	2	200	C	SURVEY OF ORGANIC CHEMISTRY	08/01/1996	4.0		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	CHM	2	200	L	SURVEY OF ORGANIC CHEMISTRY LABORATORY	04/25/2008	1		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	CHS	1	460		CHEMISTRY IN ART: FROM POTTERY TO FORGERY	01/10/2022	3		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	CHT	3	123		PRE-MODERN CHINESE LITERATURE AND CULTURE	03/31/2011	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CHT	3	124		MODERN CHINESE LITERATURE	08/17/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	CHT	3	391		CHINESE CINEMA AND CULTURE	01/01/2001	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CHT	3	392		WRITING WOMEN IN PRE-MODERN CHINA	01/31/2012	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLA	3	012		HOMOSEXUALITY IN ANTIQUITY	08/02/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLA	3	501		GENDER AND SOCIETY IN ANCIENT GREECE	06/22/2021	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CLA	3	502		WOMEN, CHILDREN, AND SLAVES IN ANCIENT ROME: THE ROMAN FAMILY	08/01/2001	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLT	2	044		WORD BLDG GREEK & LAT ELEMNTS IN ENG VOCA	08/01/2008	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	2		Discontinued
FLORIDA STATE UNIVERSITY	COP	2	000		COMPUTER SCIENCE I	11/01/1995	4.0		Math	Reviewed: Removed from General Education	Not Applicable	Not Applicable	20		Discontinued
FLORIDA STATE UNIVERSITY	DAN	3	146		20TH CENTURY CONCERT DANCE HISTORY	08/01/2013	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	DAN	3	185		AFRICAN-AMERICAN DANCE IN AMERICAN CULTURE	08/02/2007	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ENC	1	102		FRESHMAN WRITING ABOUT LITERATURE	04/01/2016	3.0		Communications	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	38		Active
FLORIDA STATE UNIVERSITY	ENC	1	121		FRESHMAN COMPOSITION AND RHETORIC: HONORS	04/01/2016	3.0		Communications	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	ENC	1	122		FRESHMAN WRITING ABOUT LITERATURE: HONORS	04/01/2016	3.0		Communications	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	ENC	1	142		FRESHMAN IMAGINATIVE WRITING WORKSHOP	04/01/2016	3.0		Communications	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	ENC	1	144		FRESHMAN ARTICLE AND ESSAY WORKSHOP	04/01/2016	3.0		Communications	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	ENC	1	145		FRESHMAN SPECIAL TOPICS IN COMPOSITION	04/01/2016	3.0		Communications	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	ENG	3	310		FILM GENRES	08/01/2005	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	ENG	3	600		HOLLYWOOD CINEMA	10/25/2005	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ENL	2	012		BRITISH AUTHORS: BEGINNINGS TO 1790	08/01/1995	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	28		Discontinued
FLORIDA STATE UNIVERSITY	ENL	2	022		BRITISH AUTHORS: EARLY ROMANTICS TO THE PRESENT	08/01/1995	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	31		Active
FLORIDA STATE UNIVERSITY	ENL	3	334		INTRODUCTION TO SHAKESPEARE	08/01/1995	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	ESC	1	070		HOW TO BUILD A HABITABLE PLANET	08/01/2007	3.0		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	2		Discontinued
FLORIDA STATE UNIVERSITY	FRW	3	391		FRENCH CINEMA	08/01/1996	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	GEB	3	211		COMMUNICATIONS AND CRITICAL THINKING IN THE BUSINESS WORLD	01/23/2020	3		Communications	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	GET	3	005		INTERDISCIPLINARY EXPLORATIONS IN GERMAN CULTURE	12/20/2019	3.00		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	HIS	3	205		LGBTQ HISTORY	06/27/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HUM	2	937		HUMANITIES HONORS SEMINAR	04/12/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	HUM	3	800		HUMANITIES: PRINCIPLES OF CRITICISM AND APPRECIATION	01/01/1983	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDH	2	103		MUSEUMS: THREE PROMISES FOR HUMANITY	12/14/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDH	2	118		UTOPIAS/DYSTOPIAS: AN HOMAGE TO SOCIAL DREAMING	12/14/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDH	2	123		CHILD AND YOUTH MEDIA CULTURES IN THE U.S.	12/14/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	IDH	2	130		STAGING IDENTITY AND DIFFERENCE IN THE AMERICAN MUSICAL THEATRE	12/14/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	2	133		MUSICAL THEATRE IN THE WEIMAR REPUBLIC: IDENTITIES AND CREATIVE FREEDOM	12/14/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	2	351		AN APPLE A DAY	08/14/2023	3		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDH	2	402		YOUTH SUBCULTURES	05/27/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDH	2	602		US AND THEM: NAVIGATING DISAGREEMENTS IN A POLARIZED SOCIETY	08/15/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	108		RADICAL VISIONS OF FREEDOM	12/14/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	113		AMERICA ABROAD	06/27/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	114		APPROPRIATING THE PAST: THE USE AND ABUSE OF THE ANCIENT WORLD IN MODERN SOCIETIES	07/08/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	117		SOCIAL (IN)EQUALITIES: SOCIAL CONSTRUCTION OF DIFFERENCE AND INEQUALITIES	05/27/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	119		TRUTH, JUSTICE, AND THE AMERICAN WAY? ETHICS, RELIGION, AND SUPERHEROES	08/15/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	131		CITY IN CINEMA: VISUAL STORIES OF/THROUGH URBAN SPACE	01/05/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	140		FREEDOM AND RELIGION: MUSLIM AND LIBERAL PERSPECTIVES	08/15/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	401		EVERYDAY LIFE: TIME/SPACE/POWER	05/27/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	402		YOUTH SUBCULTURES	08/12/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	403		FEMINISM AND GLOBALIZATION	08/15/2022	3		Humanities, Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	404		ENVIRONMENTAL JUSTICE	05/27/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	420		ALIENATING HISTORY: ANCIENT ALIENS, PSEUDOARCHAEOLOGY, AND HISTORICAL INQUIRY	11/29/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	421		HISTORIC LANDSCAPES, IMAGINED WORLDS: ANCIENT HISTORY THROUGH GAMING	05/04/2023	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	430		GLOBAL INEQUALITIES: THE LOCAL AND THE GLOBAL IN THE MODERN WORLD-SYSTEM	06/08/2023	3		Humanities, Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	702		BECOMING AND BEING LEADERS: MOTIVATING SELF AND OTHERS	05/27/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1	We previously indicated that this course should not be retained.	Active
FLORIDA STATE UNIVERSITY	IDS	2	108		MAKING GOOD DECISIONS: HOW TO GET THE MOST OUT OF YOUR MONEY AND LIFE	06/07/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	113		KNOW THYSELF: A PHILOSOPHICAL INVESTIGATION OF SELF-KNOWLEDGE	08/15/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	129		WHEN CULTURE AND BUSINESS COLLIDE: COMMUNICATION IN AN INTERNATIONAL CONTEXT	08/15/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1	will remove as active course	Active
FLORIDA STATE UNIVERSITY	IDS	2	156		ENVIRONMENT & SOCIETY	07/07/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	160		THE TOURIST TRAP: THE GOOD, THE BAD, AND THE UGLY	12/14/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	165		INTERCULTURAL COMMUNICATION, BUSINESS, AND SUSTAINABILITY: WRITING FOR GREEN EVERYWHERE	08/17/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1	will remove as active course	Active
FLORIDA STATE UNIVERSITY	IDS	2	194		THE IMMIGRANT EXPERIENCE IN CONTEMPORARY AMERICA	12/14/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	274		GREEN CHEMISTRY IN A CHANGING WORLD	12/31/2019	3.00		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	292		COMMUNICATION AND DANCE	06/07/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	293		DANGEROUS LIAISONS: RAPE MYTHS AND VIOLENCE IN LITERATURE, THE ARTS AND MUSIC	08/17/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	316		WORLD WITHOUT GOD?	08/17/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	322		SEXUAL HEALTH IN THE MODERN WORLD	06/10/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	323		GENDERED BODIES OVER THE LIFE COURSE	06/10/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	339		EXPLORING THE BOUNDARIES BETWEEN US: EXPLORING RACIAL INEQUALITY IN THE U.S.G RACIAL INEQUALITY IN THE U.S.	06/10/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	372		ART MUSIC IN CONTEMPORARY SOCIETY	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	373		FROM BALLET TO BEYONCE: GENDER AND THE BODY IN DANCE AND POP CULTURE	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	374		THEORY AND PRACTICE OF THE ENCOUNTER	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	381		CHEMISTRY IN ART: FROM POTTERY TO FORGERY	08/15/2023	3		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	390		PUBLIC OPINION AND AMERICAN DEMOCRACY	06/13/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	381		WHY IS GOOD POLITICS NOT GOOD ECONOMICS?	06/14/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	394		MAKING BABIES, MAKING FAMILIES: ADOPTION AND SURROGACY IN LITERATURE, FILM, AND PUBLIC DEBATE	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	400		UNDERSTANDING UNCERTAINTY: GAMES OF SKILL AND CHANCE	01/10/2022	3		Math	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	401		PERSONALLY RELEVANT MATHEMATICS	01/12/2022	3		Math	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	402		MATHEMATICS FOR CIVIC ENGAGEMENT	05/12/2022	3		Math	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	403		CREATIVE INQUIRY	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	410		CITIZENSHIP AND DEBATE: MODELS FROM THE ANCIENT WORLD	07/07/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	412		(RE)IMAGINING FLORIDA: FROM SPANISH COLONIALISM TO TODAY	07/07/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	413		FIGHT THE POWER: PROTESTING WITH SONG IN AMERICA, 20TH CENTURY VS. 21ST CENTURY	07/07/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	414		MAKING CHIEF OSCEOLA	07/07/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	417		DEFINING MOMENTS & IDENTITIES: FROM THE PERSIAN WARS TO SEPTEMBER 11TH	07/07/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	IDS	2	418		EMPIRE AND REVOLUTION IN COLD WAR LATIN AMERICA	07/07/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	419		CULTURES OF MEDICINE	07/12/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	432		POLITICAL PARTICIPATION IN THE 21ST CENTURY: FROM INDIGENOUS COMMUNITIES TO ON-LINE DEMOCRACY	06/14/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	451		FROM PAGE TO SCREEN: THE ART AND POLITICS OF ADAPTATION	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	452		DOCUMENTARY FILM: HISTORY, THEORY AND PRACTICE	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	456		WHO IS HUMAN? CULTURE, GENDER, AND HUMAN RIGHTS	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	462		HUMAN NATURE: MODERN AND CONTEMPORARY PERSPECTIVES	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	463		WRITING/S ABOUT MUSIC	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	472		FRESHMAN SEMINAR	06/14/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	490		SOCIAL RESPONSIBILITY (RHETORICALLY SPEAKING)	08/19/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDS	2	510		QUESTIONING WHAT WE KNOW: TEACHING AND LEARNING MATHEMATICS AND SCIENCE IN THE 21ST CENTURY	08/19/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	511		21ST CENTURY LITERACIES	06/15/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	611		CLASSICAL PHILOSOPHY OF INDIA	08/19/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	634		INFORMATION LITERACY AND SOCIETY	06/15/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	660		SEEING SOUND, HEARING PICTURES, THE INTERACTION OF MUSIC AND PHOTOGRAPHY	01/10/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	676		UNDERSTANDING AMERICA: HEMINGWAY IN A WORLD OF DISCREDITED VALUES AND TRADITIONS	01/10/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	681		DIGITAL MICROHISTORY LAB	05/03/2023	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	683		LIFE WITH GOOGLE: THE UNINTENDED CONSEQUENCES OF INFORMATION TECHNOLOGY	06/15/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	137		POLITICS OF REPRODUCTION	06/15/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	140		TECHNOLOGIES OF MEMORY FROM ANCIENT GREECE TO TODAY	01/10/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	168		WALT DISNEY'S AMERICA	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	193		ANCIENT SEXUALITIES AND MODERN SEXUAL POLITICS	07/12/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	3	232		LIVING GREEN. THEORY TO ACTION	08/14/2023	3		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	IDS	3	305		MUSIC AND LITERATURE	01/10/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	IDS	3	317		DEMONS, THE ANTICHRIST AND SATAN	04/13/2023	3		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	3	320		HUMAN NATURE: THE WAR WITHIN	01/10/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	365		GLOBAL CONFLICTS: ANALYSIS AND RESOLUTION	06/15/2022	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	3	392		JUST TORTURE	08/23/2022	3		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	IDS	3	434		HOW HOUSES BUILD PEOPLE: ANCIENT AND MODERN DOMESTIC LIFE	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	458		LIONS AND TIGERS AND BEARS, OH MY! MULTICULTURAL DIMENSIONS OF AMERICAN CINEMA	01/10/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	466		INDIA THROUGH BOLLYWOOD FILM	01/10/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	648		BEEHOVEN IN AMERICA	12/15/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	685		PROMOTING ART ETHICALLY IN SOCIAL MEDIA: SEPARATING TRUTH FROM FICTION	08/07/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	INS	2	912		DEVELOPING GLOBAL CITIZENS: GLOBAL ISSUES IN THEORY AND PRACTICE	08/07/2023	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ISC	2	003		GLOBAL CHANGE, ITS SCIENTIFIC AND HUMAN DIMENSIONS	01/01/1992	3.0		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	ISC	2	937		NATURAL SCIENCE HONORS SEMINAR	04/01/2016	3.0		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	ISC	3	063	L	SCIENTIFIC UNDERWATER INVESTIGATION LABORATORY	01/26/2022	1		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ISS	2	937		SOCIAL SCIENCE HONORS SEMINAR	04/01/2016	3.0		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	JPT	3	391		JAPANESE FILM AND CULTURE	12/06/2004	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	LIT	2	010		INTRODUCTION TO FICTION	02/01/2007	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	LIT	2	020		INTRODUCTION TO THE SHORT STORY	01/01/1981	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	5		Discontinued
FLORIDA STATE UNIVERSITY	LIT	2	030		INTRODUCTION TO POETRY	02/01/2007	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	LIT	2	081		CONTEMPORARY LITERATURE	01/01/1981	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	LIT	2	230		INTRODUCTION TO GLOBAL LITERATURE IN ENGLISH	08/01/2005	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	MAC	1	147		PRECALCULUS ALGEBRA/TRIGONOMETRY	05/26/2022	5.0	Math	Math	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	29		Active
FLORIDA STATE UNIVERSITY	MET	1	010	L	INTRODUCTORY METEOROLOGY LABORATORY	08/01/1996	1.0		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	MET	2	101		PHYSICAL CLIMATOLOGY	08/13/2003	3.0		Natural Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	MET	2	700		GENERAL METEOROLOGY	05/01/2000	3.0		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	MET	3	101		PHYSICAL CLIMATOLOGY	12/03/2021	3.0		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	MGF	1	214		ENVIRONMENTAL MATHEMATICS	08/01/1996	3.0	Math	Math	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	MUH	2	011		INTRODUCTION TO MUS HIST/MUSIC APPREC	04/12/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	4		Discontinued
FLORIDA STATE UNIVERSITY	MUH	2	012		MUS IN WESTERN CULTURE. 19TH & 20TH CENT	05/01/1981	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	MUH	2	052		RITUAL & ART MUSIC OF NONWEST WLD	08/01/1987	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	MUT	1	001		FUNDAMENTALS OF MUSIC THEORY	08/01/1999	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	26		Active
FLORIDA STATE UNIVERSITY	MUT	1	011		MUSIC THEORY FOR NON MAJORS I	04/06/1998	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	PAD	3	223		SOCIAL ENTREPRENEURSHIP AND INNOVATION	04/30/2020	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	8		Discontinued
FLORIDA STATE UNIVERSITY	PHH	3	130		PLATO AND HIS PREDECESSORS	12/19/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	PHH	3	140		ARISTOTLE TO AUGUSTINE	12/19/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	PHH	3	400		MODERN PHILOSOPHY	12/19/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	PHI	3	130		INTRODUCTION TO SYMBOLIC LOGIC	08/01/2001	3.0		Math	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	PHI	3	162		LOGIC AND THE LAW	01/31/2012	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	PHI	3	400		HISTORY AND PHILOSOPHY OF SCIENCE	04/01/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	PHI	3	800		PHILOSOPHY OF THE ARTS	04/01/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	8		Active
FLORIDA STATE UNIVERSITY	PHI	3	882		PHILOSOPHY IN LITERATURE	04/01/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	PHM	2	121		PHILOSOPHY OF RACE, CLASS, AND GENDER	08/24/2022	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	PHM	3	020		PHILOSOPHY OF SEX	03/27/2013	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	PHM	3	123		PHILOSOPHY OF FEMINISM	04/01/2016	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	PHM	3	351		PHILOSOPHY OF HUMAN RIGHTS	03/27/2013	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	PHY	1	075	C	PHYSICS OF LIGHT AND SOUND	01/01/2003	4.0		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	PHY	2	054	C	COLLEGE PHYSICS B	08/30/1997	4.0		Natural Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	17		Active
FLORIDA STATE UNIVERSITY	PJP	3	002		INTRODUCTION TO PUBLIC POLICY	08/01/1986	3.0		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	REL	2	243		INTRO TO NEW TESTAMENT	08/01/1990	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	REL	3	054		CRITICS OF RELIGION	04/25/2008	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	REL	3	128		TOPICS IN RELIGION IN THE AMERICAS	07/12/2022	3.0		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	3	155		PSYCHOLOGY IN AMERICAN RELIGIOUS HISTORY	09/22/2014	3		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	0		Discontinued
FLORIDA STATE UNIVERSITY	REL	3	293		TOPICS IN BIBLICAL STUDIES	01/19/2024	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	REL	3	493		RELIGION AND SCIENCE	05/19/2005	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	REL	3	493		RELIGION, PRISONS & ABOLITION	10/10/2023	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	3	600		THE JEWISH TRADITION	08/01/1986	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	2		Discontinued
FLORIDA STATE UNIVERSITY	REL	3	935		TOPICS IN BUDDHISM	01/19/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	REL	3	936		RELIGION: SPECIAL TOPICS	01/19/2024	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	7		Active
FLORIDA STATE UNIVERSITY	REL	4	366		SEMINAR ON SHITTE ISLAM	01/19/2024	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	REL	4	393		ISLAM IN NORTH AMERICA	01/19/2024	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	SLL	3	500		SLAVIC CULTURE AND CIVILIZATION	08/01/2003	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SOP	3	004		SOCIAL PSYCHOLOGY	08/01/1996	3.0		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	10		Active
FLORIDA STATE UNIVERSITY	SOW	3	933		SEMINAR IN GLOBAL SOCIAL WORK ETHICS	08/24/2022	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SPW	3	391		HISPANIC CINEMA	08/01/2002	3.0		Humanities	Reviewed: Removed from General Education	Not Applicable	Not Applicable	2		Discontinued
FLORIDA STATE UNIVERSITY	STA	1	220		IN MY OPINION: INTRODUCTION TO DESIGNING, CONDUCTING AND ANALYZING SURVEYS	05/13/2022	3		Math	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SYD	2	740		SOCIOLOGY OF LAW AND HISPANICS	06/15/2022	3		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SYD	3	020		POPULATION AND SOCIETY	08/01/1993	3.0		Social Sciences	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	TUT	3	003		TURKISH CULTURE AND CIVILIZATION	10/26/2012	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	TUT	3	063		TURKISH CINEMA	10/26/2012	3		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	WOH	1	023		THE MODERN WORLD TO 1815	08/10/1983	3.0		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	3		Discontinued
FLORIDA STATE UNIVERSITY	WOH	1	030		THE MODERN WORLD SINCE 1815	08/10/1983	3.0		Social Sciences	Reviewed: Removed from General Education	Not Applicable	Not Applicable	5		Discontinued
FLORIDA STATE UNIVERSITY	WST	3	251		WOMEN IN WESTERN CULTURE/IMAGES & REAL.	01/01/1987	3.0		Humanities	Reviewed: Removed from General Education	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	AMH	2	010		A HISTORY OF THE UNITED STATES	08/01/1993	3.0	Social Sciences	Social Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	39	SCNS	Active
FLORIDA STATE UNIVERSITY	AMH	2	020		A HISTORY OF THE UNITED STATES SINCE 1877	10/07/2022	3	Social Sciences	Social Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	40	SCNS	Active
FLORIDA STATE UNIVERSITY	ANT	2	000		INTRODUCTION TO ANTHROPOLOGY	06/20/2023	3	Social Sciences	Social Sciences	Reviewed: Updated	General Education (Core)	Course Description	30	SCNS	Active
FLORIDA STATE UNIVERSITY	ARH	2	000		ART, ARCHITECTURE, AND ARTISTIC VISION	02/15/2022	3	Humanities	Humanities	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	38	description and objectives changed to match SUS requirements	Active
FLORIDA STATE UNIVERSITY	ARH	3	572		HISTORY OF ISLAMIC ART	08/17/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ASN	3	822		TRADITIONS OF EAST ASIAN HUMANITIES	09/16/2019	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	AST	1	002		PLANETS, STARS, AND GALAXIES	08/26/2022	3	Natural Sciences	Natural Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	35	SCNS	Active
FLORIDA STATE UNIVERSITY	BSC	1	005		GENERAL BIOLOGY FOR NON-MAJORS	09/07/2018	3	Natural Sciences	Natural Sciences	Reviewed: Updated	General Education (Core)	Course Description	32	SCNS	Active
FLORIDA STATE UNIVERSITY	BSC	2	010		BIOLOGICAL SCIENCE I	08/26/2022	3	Natural Sciences	Natural Sciences	Reviewed: Updated	General Education (Core)	Course Description	26	SCNS	Active
FLORIDA STATE UNIVERSITY	BSC	2	085		ANATOMY AND PHYSIOLOGY I	08/26/2022	3	Natural Sciences	Natural Sciences	Reviewed: Updated	General Education (Core)	Course Description	24	SCNS	Active
FLORIDA STATE UNIVERSITY	CCJ	3	484		ETHICS IN POLICING AND INTELLIGENCE	07/13/2022	3		Humanities	Reviewed: Updated	Both General Education (Core/Institution)	Other Changes	1	Please update the Gen Ed requirement to Social Sciences	Active
FLORIDA STATE UNIVERSITY	CHM	1	020	C	CHEMISTRY FOR LIBERAL STUDIES	05/03/2023	4	Natural Sciences	Natural Sciences	Reviewed: Updated	General Education (Core)	Course Description	6	SCNS	Active
FLORIDA STATE UNIVERSITY	CHM	1	045		GENERAL CHEMISTRY I	08/26/2022	3	Natural Sciences	Natural Sciences	Reviewed: Updated	General Education (Core)	Course Description	30	SCNS	Active
FLORIDA STATE UNIVERSITY	CHM	1	045		GENERAL CHEMISTRY I	09/01/1987	3.0		Natural Sciences	Reviewed: Updated	General Education (Core)	Course Description	30	SCNS	Discontinued
FLORIDA STATE UNIVERSITY	CJE	3	648		CRIME SCENE PROFESSIONALISM	08/08/2022	3		Humanities	Reviewed: Updated	Both General Education (Core/Institution)	Other Changes	2	Please update the Gen Ed requirement to Social Sciences	Active

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	CLA	2	010		PEOPLES OF THE ROMAN WORLD	06/20/2022	3.0		Social Sciences	Reviewed: Updated	General Education (Institution)	Course Description	1		Active
FLORIDA STATE UNIVERSITY	DAN	2	100		INTRODUCTION TO HISTORY AND APPRECIATION OF DANCE	08/01/1986	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	13	Name change	Active
FLORIDA STATE UNIVERSITY	DAN	3	144		CULTURAL PERSPECTIVE ON DANCE	02/01/2016	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1	Name change	Active
FLORIDA STATE UNIVERSITY	DAN	3	145		BALLET HISTORY	08/01/2013	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1	Name change	Active
FLORIDA STATE UNIVERSITY	ECO	2	013		PRINCIPLES OF MACROECONOMICS	10/07/2022	3	Social Sciences	Social Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	39	SCNS	Active
FLORIDA STATE UNIVERSITY	ENG	1	101		FRESHMAN COMPOSITION AND RHETORIC	04/27/2022	3	Communications	Communications	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	39	SCNS	Active
FLORIDA STATE UNIVERSITY	ENG	3	116		THE DOCUMENTARY FILM	08/17/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ESC	1	000		INTRODUCTORY EARTH SCIENCE	10/05/2022	3	Natural Sciences	Natural Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	25	SCNS	Active
FLORIDA STATE UNIVERSITY	EVR	1	001		INTRODUCTION TO ENVIRONMENTAL SCIENCE	10/07/2022	3	Natural Sciences	Natural Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	28	SCNS	Active
FLORIDA STATE UNIVERSITY	FIL	3	363		DOCUMENTARY FILMMAKING	08/01/2006	3-6		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	2	Completed in SCNS	Active
FLORIDA STATE UNIVERSITY	FOW	2	100		LITERATURE AND THE WORLD: AN INVITATION TO READING ACROSS MODERN LANGUAGES	08/03/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	FOW	3	240		LITERATURE AND SEXUALITY	08/01/1992	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	FRT	3	140		MASTERWORKS OF FRENCH LITERATURE IN TRANSLATION	08/08/2022	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	4		Active
FLORIDA STATE UNIVERSITY	FRT	3	561		FRENCH WOMEN WRITERS	08/01/2000	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	2		Active
FLORIDA STATE UNIVERSITY	GET	3	524		GERMAN CINEMA	08/02/2016	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	GLY	2	010	C	PHYSICAL GEOLOGY	10/10/2023	4.0		Natural Sciences	Reviewed: Updated	General Education (Institution)	Course Level	13	SCNS	Active
FLORIDA STATE UNIVERSITY	HUM	2	020		THE ART OF BEING HUMAN: EXAMINING THE HUMAN CONDITION THROUGH LITERATURE, ART AND FILM	10/07/2022	3	Humanities	Humanities	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	36	SCNS	Active
FLORIDA STATE UNIVERSITY	HUM	3	321		MULTICULTURAL DIMENSIONS OF FILM AND 20TH-CENTURY CULTURE	08/01/1995	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	450		IN THE FOOTSTEPS OF THE ANCIENTS: ROMAN BRITAIN				Social Sciences	Reviewed: Updated	General Education (Institution)	Not Applicable		New course in SCNS	Active
FLORIDA STATE UNIVERSITY	IDH	3	603		VIRTUE, FILM, AND THE GOOD LIFE TODAY		3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1	New course in SCNS	New
FLORIDA STATE UNIVERSITY	IDS	2	170		MUSIC IN THE WORLD	12/14/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	173		A SOCIAL HISTORY OF AMERICA'S POPULAR MUSIC	12/14/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	371		MUSIC AND CULTURE IN LONDON	12/15/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	375		THIRD WORLD CINEMA	08/19/2022	3		Humanities	Reviewed: Updated	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	461		MUSIC AND INTERNATIONAL HUMAN RIGHTS	08/19/2022	3		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	492		SPORT: PLACE, COMPETITION, AND FAIRNESS	08/07/2023	3		Social Sciences	Reviewed: Updated	General Education (Institution)	Discipline/Subject Area	1	Move to Social Sciences	Active
FLORIDA STATE UNIVERSITY	IDS	2	672		MUSIC AND FILM	12/15/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	415		GUNS, DRUGS, AND SLAVES: THE HISTORY OF TRAFFICKING IN THE MODERN WORLD	07/12/2022	3		Social Sciences	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	430		SOCIOLOGY OF HIP HOP CULTURE	06/15/2022	3		Social Sciences	Reviewed: Updated	General Education (Institution)	Course Description	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	450		THROUGH AN ARABIC LENS: THE INTERSECTION OF FILM AND CULTURE	01/10/2024	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	ITT	3	430		MASTERPIECES OF ITALIAN LITERATURE IN TRANSLATION	09/01/1983	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	ITT	3	523		ITALIAN CINEMA	08/01/2008	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	LAH	1	093		LATIN AMERICA: A CROSS-CULTURAL HISTORY	01/01/1992	3.0		Social Sciences	Reviewed: Updated	General Education (Institution)	Other Changes	2		Active
FLORIDA STATE UNIVERSITY	LIT	2	000		INTRODUCTION TO LITERATURE	10/07/2022	3	Humanities	Humanities	Reviewed: Updated	Both General Education (Core/Institution)	Not Applicable	34	SCNS	Active
FLORIDA STATE UNIVERSITY	LIT	3	622		ECO-LIT/ECO-CRIT	12/15/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	MAC	1	105		COLLEGE ALGEBRA	10/07/2022	3	Math	Math	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	37	SCNS	Active
FLORIDA STATE UNIVERSITY	MAC	2	311		CALCULUS WITH ANALYTIC GEOMETRY I	10/07/2022	4	Math	Math	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	38	SCNS	Active
FLORIDA STATE UNIVERSITY	MUH	2	019		MODERN POPULAR MUSIC	08/01/1997	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	6		Active
FLORIDA STATE UNIVERSITY	MUH	2	051		MUSIC OF TRIBAL & FOLK CULTURES	04/12/2016	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	4		Active
FLORIDA STATE UNIVERSITY	MUH	2	512		MUSIC IN WORLD CULTURES (MUSIC MAJORS)	12/15/2023	2.0		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	2		Active
FLORIDA STATE UNIVERSITY	MUH	3	053		AMERICAN ROOTS MUSIC	01/01/2005	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	2		Active
FLORIDA STATE UNIVERSITY	MUH	3	211		SURVEY OF MUSIC HISTORY: ANTIQUITY TO 1750	07/12/2022	3.0		Social Sciences	Reviewed: Updated	General Education (Institution)	Course Description	9		Active
FLORIDA STATE UNIVERSITY	MUH	3	212		SURVEY OF MUSIC HISTORY: 1750 TO PRESENT	07/12/2022	3.0		Social Sciences	Reviewed: Updated	General Education (Institution)	Course Description	9		Active
FLORIDA STATE UNIVERSITY	MUL	2	010		MUSIC LITERATURE, LISTENING AND UNDERSTANDING	10/07/2022	3	Humanities	Humanities	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	37		Active
FLORIDA STATE UNIVERSITY	MUT	1	005		THE ART OF SONGWRITING	12/15/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1	Description and Objectives	Active
FLORIDA STATE UNIVERSITY	MUT	2	116		MUSIC THEORY III	12/15/2023	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	26		Active
FLORIDA STATE UNIVERSITY	MUT	2	117		MUSIC THEORY IV	12/15/2023	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Course Description	26		Active
FLORIDA STATE UNIVERSITY	OCE	1	001		ELEMENTARY OCEANOGRAPHY	12/01/2000	3.0		Natural Sciences	Reviewed: Updated	General Education (Institution)	Course Description	24	SCNS	Active
FLORIDA STATE UNIVERSITY	PHI	2	010		INTRODUCTION TO PHILOSOPHY	12/10/2019	3	Humanities	Humanities	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	38	SCNS	Active
FLORIDA STATE UNIVERSITY	PHI	2	635		BIOETHICS	06/15/2020	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	7		Active

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	PHY	1	020		PHYSICS AND TECHNOLOGY FOR FUTURE PRESIDENTS	10/07/2022	3	Natural Sciences	Natural Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	23	SCNS	Active
FLORIDA STATE UNIVERSITY	PHY	2	048	C	GENERAL PHYSICS A	05/11/2022	5	Natural Sciences	Natural Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	18	SCNS	Active
FLORIDA STATE UNIVERSITY	PHY	2	053	C	COLLEGE PHYSICS A	10/07/2022	4	Natural Sciences	Natural Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	17	SCNS	Active
FLORIDA STATE UNIVERSITY	POS	1	041		AMERICAN NATIONAL GOVERNMENT	10/07/2022	3	Social Sciences	Social Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	40	SCNS	Active
FLORIDA STATE UNIVERSITY	PSY	2	012		GENERAL PSYCHOLOGY	10/07/2022	3	Social Sciences	Social Sciences	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	39	SCNS	Active
FLORIDA STATE UNIVERSITY	REL	2	122		CULTURE WARS	12/01/2023	3		Social Sciences	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	REL	2	315		RELIGIONS OF SOUTH ASIA	01/01/1999	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	4		Active
FLORIDA STATE UNIVERSITY	REL	2	350		RELIGIONS OF EAST ASIA	12/15/2023	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	REL	3	152		RELIGION, RACE, AND ETHNICITY	03/21/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	2		Active
FLORIDA STATE UNIVERSITY	REL	3	322		RELIGIONS OF THE GREEK AND ROMAN WORLD	02/09/2023	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	REL	3	333		RAMAYANA IN INDIAN CULTURE AND BEYOND	01/19/2024	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	3		Active
FLORIDA STATE UNIVERSITY	REL	3	337		GODDESSES, WOMEN, AND POWER IN HINDUISM	01/19/2024	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	2		Active
FLORIDA STATE UNIVERSITY	REL	3	340		THE BUDDHIST TRADITION	01/19/2024	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	4		Active
FLORIDA STATE UNIVERSITY	REL	3	345		CHAN ZEN BUDDHISM	01/19/2024	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	3		Active
FLORIDA STATE UNIVERSITY	REL	3	346		BUDDHIST ETHICS	11/03/2022	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	REL	3	348		BUDDHISM AND THE MYTHOLOGY OF EVIL	12/20/2022	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	REL	3	351		JAPANESE RELIGIONS	01/19/2024	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	2		Active
FLORIDA STATE UNIVERSITY	REL	3	358		TIBETAN AND HIMALAYAN RELIGIONS	01/19/2024	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	REL	3	363		ISLAMIC TRADITIONS	01/19/2024	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	3		Active
FLORIDA STATE UNIVERSITY	REL	3	367		ISLAMIC TRADITIONS II: ISLAM UP TO THE MODERN WORLD	01/19/2024	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	4		Active
FLORIDA STATE UNIVERSITY	REL	3	370		RELIGION IN AFRICA	01/19/2024	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	4		Active
FLORIDA STATE UNIVERSITY	REL	3	484		NEW RELIGIOUS MOVEMENTS	11/11/2019	3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	1		Active
FLORIDA STATE UNIVERSITY	REL	3	607		THE JEWISH TRADITION	01/19/2024	3.0		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	2		Active
FLORIDA STATE UNIVERSITY	REL		3	623	JEWISH ETHICS		3		Humanities	Reviewed: Updated	General Education (Institution)	Other Changes	2	New course in SCNS	New
FLORIDA STATE UNIVERSITY	STA	2	023		FUNDAMENTAL BUSINESS STATISTICS	08/24/2022	3	Math	Math	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	39	SCNS	Active
FLORIDA STATE UNIVERSITY	SYD	3	800		SOCIOLOGY OF SEX AND GENDER	06/15/2022	3.0		Social Sciences	Reviewed: Updated	General Education (Institution)	Course Description	9		Active
FLORIDA STATE UNIVERSITY	SYG	1	000		INTRODUCTORY SOCIOLOGY	10/07/2022	3	Social Sciences	Social Sciences	Reviewed: Updated	General Education (Institution)	Course Description	38		Active
FLORIDA STATE UNIVERSITY	THE	2	000		INTRODUCTION TO THEATRE	10/07/2022	3	Humanities	Humanities	Reviewed: Updated	Both General Education (Core/Institution)	Course Description	36	description and objectives changed to match SUS requirements	Active
FLORIDA STATE UNIVERSITY	AMH	2	091		THE AFRICAN AMERICAN EXPERIENCE IN THE UNITED STAT	08/01/2014	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	19		Active
FLORIDA STATE UNIVERSITY	AMH	2	095		THE AMERICAN INDIANS AND THE UNITED STATES	08/01/1996	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	AMH	2	097		THE HISTORY OF IMMIGRATION TO THE UNITED STATES	07/11/2023	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	AMH	2	583		THE SEMINOLES AND THE SOUTHEASTERN INDIANS	06/20/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	AMH	3	632		ENVIRONMENTAL POLICY: TWENTIETH CENTURY AND BEYOND	05/23/2023	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	AML	3	311		MAJOR FIGURES IN AMERICAN LITERATURE	01/01/1981	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	ANT	2	100		INTRODUCTION TO ARCHAEOLOGY	04/25/2008	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	10		Active
FLORIDA STATE UNIVERSITY	ANT	2	100	L	INTRODUCTION TO ARCHAEOLOGY LABORATORY	04/25/2008	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ANT	2	301		EVOLUTION OF HUMAN SEXUALITY	06/19/2007	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	ANT	2	410		INTRODUCTION TO CULTURAL ANTHROPOLOGY	05/13/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	22		Active
FLORIDA STATE UNIVERSITY	ANT	2	416		CHILDHOOD AROUND THE WORLD	04/25/2008	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ANT	2	511		INTRODUCTION TO PHYSICAL ANTHROPOLOGY AND PREHISTORY	08/01/1996	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	16		Active
FLORIDA STATE UNIVERSITY	ANT	2	511	L	INTRODUCTION TO PHYSICAL ANTHROPOLOGY & PREHISTORY LABORATORY	09/01/2016	1.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	ANT	3	133		INTRODUCTION TO UNDERWATER ARCHAEOLOGY	06/20/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ANT	3	141		WORLD PREHISTORY	06/20/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	ANT	3	212		PEOPLES OF THE WORLD	08/01/1990	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	7		Active
FLORIDA STATE UNIVERSITY	ANT	3	405		ANTHROPOLOGY OF SPORT	05/11/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	ANT	4	241		ANTHROPOLOGY OF RELIGION	05/27/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	10		Active
FLORIDA STATE UNIVERSITY	ANT	4	468		BONES, BODIES, AND DISEASE	08/10/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	ARH	2	050		HISTORY AND CRITICISM OF ART I	08/01/2005	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	34		Active
FLORIDA STATE UNIVERSITY	ARH	2	051		HISTORY AND CRITICISM OF ART II	08/01/2005	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	33		Active
FLORIDA STATE UNIVERSITY	ARH	2	090		GREAT DISCOVERIES IN WORLD ARCHAEOLOGY	08/01/1996	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	ART	2	003	C	SURVEY OF STUDIO ART PRACTICES	08/01/1996	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ASH	1	044		MIDDLE EASTERN HISTORY AND CIVILIZATION	06/20/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	ASH	3	100		HISTORY OF ASIA	06/20/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ASH	3	230		MIDDLE EAST RESEARCH: AN INTERDISCIPLINARY SEMINAR	06/20/2022	3-6		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ASH	3	282		FROM KIMCHI TO K-POP: CELEBRATING THE HISTORY OF KOREA FROM PREHISTORIC TIMES TO THE PRESENT	06/20/2023	3		Humanities, Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ASH	3	402		CHINA BEFORE 1898	05/23/2023	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	AST	1	002	L	INTRODUCTORY ASTRONOMY LABORATORY	01/01/1988	1.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	14		Active
FLORIDA STATE UNIVERSITY	BSC	1	005	L	GENERAL BIOLOGY LABORATORY FOR NONMAJORS	08/01/1993	1.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	24		Active
FLORIDA STATE UNIVERSITY	BSC	2	010	L	BIOLOGICAL SCIENCE I LABORATORY	08/01/1997	1.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	26		Active
FLORIDA STATE UNIVERSITY	BSC	2	011		BIOLOGICAL SCIENCE II	11/04/2022	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	24		Active
FLORIDA STATE UNIVERSITY	BSC	2	011	L	BIOLOGICAL SCIENCE II LAB	11/29/2022	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	25		Active
FLORIDA STATE UNIVERSITY	BSC	2	085	L	ANATOMY & PHYSIOLOGY LAB I	08/15/2023	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	23		Active
FLORIDA STATE UNIVERSITY	CCJ	2	020		INTRODUCTION TO CRIMINAL JUSTICE	08/16/2021	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	30		Active
FLORIDA STATE UNIVERSITY	CCJ	3	011		CRIMINOLOGY	08/16/2021	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CHM	1	045	L	GENERAL CHEMISTRY I LABORATORY	05/03/2023	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	32		Active
FLORIDA STATE UNIVERSITY	CHM	1	046		GENERAL CHEMISTRY 11	09/01/1987	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	30		Discontinued
FLORIDA STATE UNIVERSITY	CHM	1	046		GENERAL CHEMISTRY II	08/01/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	30		Active
FLORIDA STATE UNIVERSITY	CHM	1	046	L	GENERAL CHEMISTRY II LABORATORY	11/03/2003	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	31		Active
FLORIDA STATE UNIVERSITY	CHM	1	050		HONORS GENERAL CHEMISTRY I	11/04/2022	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CHM	1	050	L	HONORS GENERAL CHEMISTRY I LABORATORY	09/01/1987	1.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CHM	1	051		HONORS GENERAL CHEMISTRY II	11/04/2022	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CHM	1	051	L	HONORS GENERAL CHEMISTRY II LABORATORY	09/01/1987	2.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CHM	1	082		KITCHEN CHEMISTRY	08/10/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CHM	1	582		CHEMISTRY IN ART: FROM POTTERY TO FORGERY	01/12/2022	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CHM	2	047		ONE-SEMESTER GENERAL CHEMISTRY	08/10/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CHM	3	217	L	ONE SEMESTER ORGANIC CHEMISTRY LABORATORY	08/10/2023	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CIS	3	250		ETHICS AND COMPUTER SCIENCE	08/08/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	CJE	3	652		FORENSIC SCIENCE IN THE CRIME LAB	08/10/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1	the natural sciences requirements work with the course as it is written	Active
FLORIDA STATE UNIVERSITY	CJE	3	652	L	FORENSIC SCIENCE IN THE CRIME LAB LABORATORY	03/24/2022	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1	the natural sciences requirements work with the course as it is written	Active
FLORIDA STATE UNIVERSITY	CJE	3	762		FORENSIC SCIENCE IN INVESTIGATION	03/24/2022	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1	the natural sciences requirements work with the course as it is written	Active
FLORIDA STATE UNIVERSITY	CJE	3	762	L	FORENSIC SCIENCE IN INVESTIGATION LABORATORY	08/10/2023	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1	the natural sciences requirements work with the course as it is written	Active
FLORIDA STATE UNIVERSITY	CLA	2	110		DEBATES ABOUT THE PAST: GREEK CIVILIZATION, HISTORY AND CULTURE	02/09/2023	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLA	2	123		DEBATES ABOUT THE PAST: ROMAN CIVILIZATION, HISTORY AND CULTURE	02/09/2023	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLA	2	810		ANCIENT SCIENCE FOR NON-SCIENCE MAJORS	01/19/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLA	3	430		HISTORY OF ANCIENT GREECE	06/27/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLA	3	440		HISTORY OF ANCIENT ROME	02/16/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLA	3	500		SPORTS IN ANTIQUITY: OLYMPIANS, GLADIATORS AND SUPERSTARS	08/17/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CLT	2	049		MEDICAL TERMINOLOGY	06/27/2022	3		Humanities, Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	CLT	3	370		CLASSICAL MYTHOLOGY	08/01/1984	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	CLT	3	378		ANCIENT MYTHOLOGY: EAST AND WEST	08/01/1991	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CLT	3	510		THE ANCIENT WORLD IN FILM	08/02/2016	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	CPO	2	002		INTRODUCTION TO COMPARATIVE GOVERNMENT AND POLITICS	01/22/2021	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	14		Active
FLORIDA STATE UNIVERSITY	CPO	3	303		POLITICS OF LATIN AMERICA	09/24/2004	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	7		Active
FLORIDA STATE UNIVERSITY	ECO	2	000		INTRODUCTION TO ECONOMICS	08/01/2000	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	9		Active
FLORIDA STATE UNIVERSITY	ECO	2	023		PRINCIPLES OF MICROECONOMICS	08/28/2000	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	39		Active
FLORIDA STATE UNIVERSITY	EGS	3	045		INTERDISCIPLINARY PERSPECTIVES ON THE GLOBAL GRAND CHALLENGES OF ENGINEERING	08/07/2023	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ENC	2	135		RESEARCH, GENRE, AND CONTEXT	04/28/2022	3		Communications	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	ENG	2	610		GRAPHIC NOVEL	02/04/2020	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ENG	3	803		HISTORY OF TEXT TECHNOLOGIES	03/15/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	ESC	1	000	L	EARTH SCIENCE LABORATORY	08/10/2023	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	11		Active
FLORIDA STATE UNIVERSITY	EUH	2	000		ANCIENT AND MEDIEVAL CIVILIZATIONS	07/06/2020	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	20		Active
FLORIDA STATE UNIVERSITY	EUH	2	314		SPAIN: PREHISTORY TO THE PRESENT	05/09/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	EUH	3	205		19TH-CENTURY EUROPE	06/27/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	EUH	3	206		20TH-CENTURY EUROPE: A SURVEY	06/27/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	EUH	3	295		WARS IN 20TH CENTURY EUROPE: FILM, EXPERIENCE, MEMORY	08/17/2023	3		Humanities, Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	EUH	3	316		THE SPANISH CIVIL WAR	01/20/2023	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	EUH	3	436		ITALY DURING WORLD WAR II	02/25/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	EUH	3	530		ENGLAND, THE EMPIRE AND THE COMMONWEALTH	06/27/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	EVR	1	001	L	INTRODUCTION TO ENVIRONMENTAL SCIENCE LABORATORY	05/18/2023	1		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	11		Active
FLORIDA STATE UNIVERSITY	FAD	2	230		FAMILY RELATIONSHIPS: A LIFE SPAN DEVELOPMENT APPROACH	08/01/1996	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	FIL	2	001		INTRO TO CINEMA STUDIES: ANALYSIS AND PRACTICE	11/06/2020	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	FIL	3	833		FILM STYLES	07/31/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	FRT	3	520		FRENCH CINEMA	08/01/2008	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	FRW	3	100		SURVEY OF FRENCH LITERATURE: ORIGINS THROUGH 18TH CENTURY	08/17/2023	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	FRW	3	101		SURVEY OF FRENCH LITERATURE: 19TH CENTURY THROUGH THE PRESENT	08/17/2023	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	GEA	1	000		WORLD GEOGRAPHY	08/01/1988	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	20		Active
FLORIDA STATE UNIVERSITY	GEA	4	405		LATIN AMERICA	05/27/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	GEO	1	330		ENVIRONMENTAL SCIENCE	08/01/2006	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	GEO	1	400		HUMAN GEOGRAPHY	08/01/1996	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	GEO	4	421		CULTURAL GEOGRAPHY	05/27/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	GET	3	130		MASTERPIECES OF GERMAN LIT IN TRANSL: 19&20TH CENT	04/27/1990	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	GLY	1	000		THE DYNAMIC EARTH	09/01/1980	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	GLY	1	000	L	THE DYNAMIC EARTH LABORATORY	09/01/1980	1.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	GLY	1	030		ENVIRONMENTAL ISSUES IN GEOLOGY	04/04/2016	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	GLY	1	102		DINOSAURS AND DISASTERS ON AN EVOLVING EARTH	08/01/1999	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	HIS	2	050		THE HISTORIAN'S CRAFT	10/07/2021	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Discontinued
FLORIDA STATE UNIVERSITY	HIS	2	370		INTERPRETING NATIVE AMERICA	06/27/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HIS	2	496		PANDEMICS AND PEOPLE	06/27/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HIS	3	051		THE HISTORIAN'S CRAFT	45292	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HIS	3	263		PIRATES AND PATRIOTS IN THE ATLANTIC WORLD	06/27/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HIS	3	464		HISTORY OF SCIENCE	06/27/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	HIS	3	491		MEDICINE AND SOCIETY	06/27/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	HIS	3	505		PERSPECTIVES ON SCIENCE AND MATHEMATICS	06/27/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HPS	3	320		SCREENING THE SCIENTIFIC LIFE: CINEMA AND CULTURAL IMAGE OF SCIENCE	08/08/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HUM	2	210		HUMANITIES: HOMER TO GOTHIC	08/01/2006	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	14		Active
FLORIDA STATE UNIVERSITY	HUM	2	235		HUMANITIES: FROM THE RENAISSANCE TO THE ENLIGHTENMENT	08/01/2002	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	HUM	2	250		HUMANITIES: 18TH-CENTURY ROMANTICISM TO POSTMODERNISM	04/30/1993	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	12		Active
FLORIDA STATE UNIVERSITY	HUM	2	742		WALKING IN LONDON	08/17/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HUM	3	123		IRISH CULTURE: AN INTRODUCTION	08/17/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	HUN	1	201		THE SCIENCE OF NUTRITION	08/01/1996	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	35		Active
FLORIDA STATE UNIVERSITY	IDH	3	118		UTOPIAS/DYSTOPIAS: AN HOMAGE TO SOCIAL DREAMING	10/07/2021	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDH	3	407		GLOBAL URBANIZATION: URBAN DIVERSITY AND CULTURE IN THE AGE OF GLOBALIZATION	05/11/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	132		BUSTING COMMON BIOLOGY MYTHS	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	133		TRILOBITES TO T. REX: HISTORY OF LIFE ON EARTH	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	134		EVOLUTION, MEDICINE AND EVIDENCE	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	135		GENETICS IN SOCIETY	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	136		BIOTECHNOLOGY: IMPACT OF LIFE SCIENCES ON SOCIETY	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	144		INFORMATION ETHICS FOR THE 21ST CENTURY	04/27/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	IDS	2	166		ART AS PROPAGANDA: THE IMPACT OF VISUAL AND PERFORMING ARTS ON WESTERN SOCIETY	12/14/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active

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FLORIDA STATE UNIVERSITY	IDS	2	180		DEAD CITIES	06/07/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	196		HISTORY OF AMERICAN POPULAR CULTURE, 1850-PRESENT	07/07/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	199		THE AMERICAN GI IN WAR AND PEACE IN WORLD WAR II	07/07/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	227		SUSTAINABLE SOCIETY	06/07/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	240		SUSTAINABLE FOOD & WATER: SOIL, ANIMALS, VEGETABLES & GRAIN	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	278		OCEAN SUSTAINABILITY	11/03/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	291		LANGUAGE BIRTH, LANGUAGE DEATH	12/14/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	335		CENTRAL AMERICAN CINEMA	12/14/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	341		RELATIONSHIP STATUS: IT'S COMPLICATED. UNDERSTANDING AND INFLUENCING INTIMATE RELATIONSHIPS	06/13/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1	Course content and objectives need updating	Active
FLORIDA STATE UNIVERSITY	IDS	2	342		NOAH'S FLOOD THROUGH THE AGES	12/14/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	370		FESTIVALS: ARTISANSHIP, SATIRE, AND FIRE	12/14/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	376		WHO DO THE BRITISH THINK THEY ARE?	07/07/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	393		THE HUNGER GAMES TRILOGY: COLLECTIVE ACTION AND SOCIAL MOVEMENTS	06/14/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	411		THE ITALIAN MAFIA FROM CORLEONE TO THE GLOBALIZED WORLD	07/07/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	420		HERETICS, REBELS AND MILITANTS IN THE ISLAMIC WORLD	07/12/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	431		THINKING BEYOND OURSELVES: GLOBAL PERSPECTIVES	06/14/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	436		CONTEMPORARY BEHAVIORAL AND SUBSTANCE ADDICTIONS	08/07/2023	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	453		REALITY AND ILLUSION IN WORLD CINEMA	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	454		FANTASY GIRLS: PHILOSOPHICAL EXAMINATIONS OF WOMEN AND GIRLS IN FANTASY AND SCIENCE FICTION	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	455		THE ROLE OF THE PUBLIC INTELLECTUAL	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	460		GLOBAL & INTERCULTURAL COMMUNICATION	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	464		CROSSING THE ATLANTIC: LORCA IN AMERICA. HEMINGWAY IN SPAIN	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	465		TO WORK, LEARN, OR PLAY? THE ROLE OF THE CHILD IN BRITISH FICTION 1830-1914	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	467		INTERDISCIPLINARY EXPLORATIONS IN GERMAN CULTURE	05/27/2020	3.00		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	470		THE ECOLOGY OF FOOD	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	471		GLACIERS, GEYSERS AND GLADES: EXPLORING US NATIONAL PARKS	06/14/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	473		PUTTING SCIENCE INTO ACTION: FIELD METHODS IN PLANT ECOLOGY	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	491		COMMUNICATION MATTERS - PERSONAL RESPONSIBILITY IN PUBLIC SPEAKING	08/19/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	650		THINKING ABOUT LANGUAGE: HOW COGNITION AND LANGUAGE INTERACT	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	651		LANAGUAGE: BODY, MIND, AND WORLD	06/15/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	673		POPULAR MUSIC IN LITERATURE	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	674		ANIMATION AND IDENTITY	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	675		PHILOSOPHY AND FILM	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	677		FEMALE FRIENDSHIP ALLIANCES IN SHAKESPEARE	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1	the new humanities requirements will work for the course as it is written	Active
FLORIDA STATE UNIVERSITY	IDS	2	679		NEED AND GREED (IS MONEY THE ROOT OF ALL EVIL?)	08/19/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	680		READING, WRITING AND SPEAKING IN THE DIGITAL AGE	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	164		MEDIA, CULTURE AND THE ENVIRONMENT	08/19/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	167		CONTEMPORARY ART AS A MIRROR	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	169		ART AND THE ENVIRONMENT	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	179		ETHICS THROUGH ART	08/19/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	188		GERMAN SOCIETY THROUGH FILM: THE LEGACY OF NAZI CRIMES AGAINST HUMANITY	08/19/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	195		VISTAS ON FLORENCE: FROM DANTE TO THE BIG FLOOD OF 1966	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	197		RESPONSES TO THE HOLOCAUST	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	IDS	3	198		TERRORISM IN HISTORICAL PERSPECTIVE	07/12/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	303		THE ANIMAL IN ANCIENT AND MODERN THOUGHT	08/19/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	312		ROBOTS, MONSTERS, AVATARS: TECHNOLOGY AND THE (POST-)HUMAN CONDITION	08/19/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	326		UNDERSTANDING RELIGION: UNDERSTANDING PEOPLE	08/19/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	330		THE CULTURE IS IN THE CUISINE: THE FOOD OF ITALY	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	IDS	3	336		GREAT BRITAIN? GEOGRAPHY, IMPERIALISM, INDUSTRY AND CULTURE	06/15/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	IDS	3	340		WHO OWNS THE PAST: PERSPECTIVES ON ETHICS IN ANTHROPOLOGY	08/23/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	343		BOOMERS AND MILLENNIALS: CHANGING GENERATIONS	06/15/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	358		MAKING THE ARGUMENT: SYMBOLIC LOGIC AND THE FORMS OF GOOD REASONING	05/12/2022	3		Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	364		YESSES AND NOES: THE ETHICS OF CONSENT	08/23/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	416		ETHICS AND EMPIRE IN THE ROMAN WORLD	07/12/2022	3		Humanities, Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	433		MODERN DEATH	06/16/2022	3		Humanities, Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	435		'PLEASE PLEASE ME': ANGLO-AMERICAN YOUTH CULTURE FROM THE 1950S TO THE PRESENT	06/15/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	457		THE REEL MIDDLE AGES: MEDIEVAL LITERATURE AND FILM	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	459		CINEMA GONE GLOBAL	01/10/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	495		SPORT: CONSCIENCE MEETS COMMERCE	08/23/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	512		EXAMINING THE EDUCATIONAL ACHIEVEMENT GAP: SCIENCE FICTION, DYSTOPIA, FATE, AND THE PROBLEM OF EVIL	06/15/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	671			12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	678		APOCALYPSE: THE END OF THE WORLD IN THE ARTS	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	683		LIFE WITH GOOGLE: THE UNINTENDED CONSEQUENCES OF INFORMATION TECHNOLOGY	12/06/2021	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	3	700		BROKEN CLOCKS AND DISRUPTED SLEEP: IMPACTS OF TECHNOLOGY	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IHS	3	126		COMICS AND MEDICINE	10/10/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IND	2	219		DESIGN AND THE HUMAN EXPERIENCE	12/15/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	INR	2	002		INTRODUCTION TO INTERNATIONAL RELATIONS	04/05/2021	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	28		Active
FLORIDA STATE UNIVERSITY	ISC	1	057		COMPUTATIONAL THINKING	05/12/2022	3		Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ISC	3	063		SCIENTIFIC UNDERWATER INVESTIGATION	08/03/2019	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1	the natural sciences requirements work with the course as it is written	Active
FLORIDA STATE UNIVERSITY	ISC	3	523	C	RESEARCH METHODS	10/05/2022	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	ITT	3	114		DANTE'S INFERNO	08/07/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ITT	3	500		ITALIAN CULTURE AND CIVILIZATION:ORIGIN TO ROMANCE	08/01/2003	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ITT	3	501		MODERN ITALIAN CULTURE: FROM THE UNIFICATION TO THE PRESENT	01/01/2004	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	ITT	3	520		THE ITALIAN-AMERICAN EXPERIENCE IN LITERATURE AND FILM	08/01/2003	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	LDR	3	200		LEADERSHIP AND ETHICS	08/23/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	LEI	2	318		EVENTS: LOVE THEM, THEN LEAVE THEM. WHATS MY FOOTPRINT?	09/22/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	LIN	2	004		WORLD LANGUAGES	05/23/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	LIN	3	053		INVENTED LANGUAGES	12/21/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	LIS	3	103		INFORMATION AND SOCIETY	06/15/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	LIT	3	024		PERSPECTIVES ON THE SHORT STORY	12/15/2023	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	LIT	3	383		WOMEN IN LITERATURE	01/01/1981	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	LIT	3	438		LITERATURE AND MEDICINE	08/07/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	MAC	1	114		ANALYTIC TRIGONOMETRY	05/26/2022	3	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	33		Active
FLORIDA STATE UNIVERSITY	MAC	1	140		PRECALCULUS ALGEBRA	05/26/2022	3.0	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	31		Active
FLORIDA STATE UNIVERSITY	MAC	2	233		CALCULUS FOR BUSINESS	01/19/2023	3.0	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	37		Active
FLORIDA STATE UNIVERSITY	MAC	2	312		CALCULUS WITH ANALYTIC GEOMETRY II	05/26/2022	4.0	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	38		Active
FLORIDA STATE UNIVERSITY	MAC	2	313		CALCULUS WITH ANALYTIC GEOMETRY III	05/26/2022	5.0	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	38		Active
FLORIDA STATE UNIVERSITY	MET	1	010		INTRODUCTION TO THE ATMOSPHERE	08/01/1996	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	18		Active
FLORIDA STATE UNIVERSITY	MET	1	050		NATURAL HAZARDS AND DISASTERS: FROM HURRICANES TO METEORITES	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	MGF	1	106		MATHEMATICS FOR LIBERAL ARTS I	08/24/2022	3	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	38		Active
FLORIDA STATE UNIVERSITY	MGF	1	107		TOPICS IN PRACTICAL FINITE MATHEMATICS	08/24/2022	3	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	37		Active
FLORIDA STATE UNIVERSITY	MGF	1	130		MATHEMATICAL THINKING	12/14/2023	3	Math	Math	Reviewed: No Updates	Both General Education (Core)/Institution	Not Applicable	9		Active
FLORIDA STATE UNIVERSITY	MUL	2	110		SURVEY OF MUSIC LITERATURE	08/01/1986	2.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	PAD	3	003		PUBLIC ADMINISTRAT. IN AMERICAN SOCIETY	08/23/2022	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	13		Active
FLORIDA STATE UNIVERSITY	PAD	3	017		SOCIAL ENTREPRENEURSHIP AND INNOVATION	11/05/2021	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	PHI	2	100		REASONING AND CRITICAL THINKING	05/13/2022	3.0		Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	22		Active
FLORIDA STATE UNIVERSITY	PHI	2	620		ENVIRONMENTAL ETHICS	08/24/2022	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	4		Active
FLORIDA STATE UNIVERSITY	PHI	2	630		ETHICAL ISSUES AND LIFE CHOICES	08/24/2022	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	10		Active

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	PHM	2	300		INTRODUCTION TO POLITICAL PHILOSOPHY	08/24/2022	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	PHY	1	020	L	FUNDAMENTALS OF PHYSICS LABORATORY	08/01/1987	1.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	PHY	1	102		APPLICATIONS OF MODERN PHYSICS RESEARCH	08/14/2023	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	PHY	2	049	C	GENERAL PHYSICS B	11/04/2022	5.0	Natural Sciences	Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	16		Active
FLORIDA STATE UNIVERSITY	PSB	2	000		INTRODUCTION TO BRAIN AND BEHAVIOR	08/01/1996	3.0		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	1	300		INTRODUCTION TO WORLD RELIGIONS	01/01/1999	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	33		Active
FLORIDA STATE UNIVERSITY	REL	2	121		RELIGION IN THE UNITED STATES	07/12/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	7		Active
FLORIDA STATE UNIVERSITY	REL	2	210		INTRO TO OLD TESTAMENT	03/03/1997	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	13		Active
FLORIDA STATE UNIVERSITY	REL	2	211		THE LOST BOOKS OF THE BIBLE	05/03/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	2	240		INTRO TO NEW TESTAMENT	08/01/2003	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	13		Active
FLORIDA STATE UNIVERSITY	REL	2	292		APOCALYPSE NOW AND THEN	05/11/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	2	462		DEMONS, THE ANTICHRIST AND SATAN	04/27/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	3	112		RELIGION AND 20TH-CENTURE FANTASY LITERATURE	10/30/2009	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Discontinued
FLORIDA STATE UNIVERSITY	REL	3	112		RELIGION AND 20TH CENTURY FANTASY LITERATURE	08/25/2017	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	3	138		RELIGIOUS INTOLERANCE IN AMERICA	08/24/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	3	142		RELIGION, SELF AND SOCIETY	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	REL	3	145		GENDER AND RELIGION	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	REL	3	160		RELIGION AND SCIENCE	07/12/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	REL	3	170		RELIGIOUS ETHICS AND MORAL PROBLEMS	08/24/2022	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	REL	3	171		TOPICS IN ETHICS	08/24/2022	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	REL	3	178		RELIGION AND LAW	04/28/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	REL	3	180		RELIGION AND BIOETHICS	08/24/2022	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	REL	3	209		THE DEAD SEA SCROLLS	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	REL	3	224		THE HEBREW PROPHETS	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	REL	3	431		CRITICS OF RELIGION	08/24/2022	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	3	505		THE CHRISTIAN TRADITION	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	REL	3	513		CHRISTIANS THROUGH ROMAN EYES	05/23/2023	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	REL	3	541		AMERICAN PROTESTANT THOUGHT IN HISTORICAL CONTEXT	01/19/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	RUT	3	110		RUSSIAN LITERATURE IN ENGLISH TRANSLATION	12/19/2016	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	RUT	3	514		RUSSIAN FOLKLORE AND FAIRY TALES	01/19/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	RUT	3	523		RUSSIAN CINEMA	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SLI	3	510		THE SLAVIC VAMPIRE	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SPA	2	001		COMMUNICATION SCIENCES AND DISORDERS	11/09/2005	3		Natural Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	SPT	3	130		LATIN AMERICAN LITERATURE IN TRANSLATION	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	2		Active
FLORIDA STATE UNIVERSITY	SPT	3	391		HISPANIC CINEMA	01/19/2024	3.0		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SPT	3	503		INTRODUCTION TO HISPANIC CULTURAL ANALYSIS	01/19/2024	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SPT	3	531		PAST AND PRESENT IN VALENCIA, SPAIN	04/28/2022	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	STA	1	013		STATISTICS THROUGH EXAMPLES	05/13/2022	3.0		Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	STA	2	122		INTRODUCTION TO APPLIED STATISTICS	05/26/2022	3	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	6		Active
FLORIDA STATE UNIVERSITY	STA	2	171		STATISTICS FOR BIOLOGY	05/26/2022	4.0	Math	Math	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SYG	2	010		SOCIAL PROBLEMS	06/15/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	32		Active
FLORIDA STATE UNIVERSITY	SYG	3	245		SOCIOLOGY OF FOOD	08/24/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	SYO	3	100		FAMILIES AND SOCIAL CHANGE	06/15/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active
FLORIDA STATE UNIVERSITY	SYO	3	200		SOCIOLOGY OF RELIGION	06/15/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	8		Active
FLORIDA STATE UNIVERSITY	SYP	3	730		AGING AND THE LIFE COURSE	06/15/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	7		Active
FLORIDA STATE UNIVERSITY	THE	3	214		WORLD THEATRE HISTORY II	12/23/2003	3		Humanities	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	URP	3	527		GREEN GLOBAL HEALTH	06/15/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	URS	1	006		WORLD CITIES: QUALITY OF LIFE	06/15/2022	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	WOH	2	023		THE MODERN WORLD TO 1815	05/27/2020	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	3		Active
FLORIDA STATE UNIVERSITY	WOH	2	030		THE MODERN WORLD SINCE 1815	05/27/2020	3.0		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	5		Active

Institution	Prefix	Level	Course Number	Lab	Course Title	Date of Last Update	Credit	General Ed Core	General Ed Requirements	Course Review Status	General Education Updates	Additional Updates	Total # Institutions Offering Course	Additional Updates Brief Notes	SCNS Course Status
FLORIDA STATE UNIVERSITY	WOH	2	202		MORTAL COMBAT: EURASIAN WORLDS OF WAR SINCE 1200	07/12/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	WOH	3	212		MONSOON EMPIRES: THE INDIAN OCEAN, 800-1800	07/08/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	WOH	3	403		HISTORY OF SPACE: MODERN AND CONTEMPORARY EXPLORATIONS	08/09/2023	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	WOH	3	440		HISTORY OF REFUGEES, 0-2000	07/12/2022	3		Social Sciences	Reviewed: No Updates	General Education (Institution)	Not Applicable	1		Active
FLORIDA STATE UNIVERSITY	IDS	2	661		MADE IN ITALY: CULTURAL CAPITAL AND GLOBAL EXCHANGES	08/19/2022	3		Humanities				1		Active



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

ACTION ITEM VI



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

ACTION ITEM VI

June 20, 2024

SUBJECT: Tenure Report

PROPOSED COMMITTEE ACTION

The Academic Affairs Committee is asked to approve the awarding of tenure to faculty as recommended by the President, contingent on full Board of Trustees approval via the Action Item (Non-Consent) Agenda.

AUTHORITY FOR BOARD OF TRUSTEES ACTION

Board of Governors Regulation 5.940 Tenure and Permanent Status

BACKGROUND INFORMATION

President McCullough has recommended the award of tenure to certain faculty meeting the requirements of the University's rigorous promotion and tenure procedures.

ADDITIONAL COMMITTEE CONSIDERATIONS

Board of Governors approval is not required.

Supporting Documentation Included: Additional information and highlights of accomplishments for each faculty member recommended for tenure are attached.

Submitted by: Office of Faculty Development and Advancement

2024 Tenure Report

The President and Provost recommend awarding tenure to 52 faculty reviewed during the annual Promotion and Tenure Process and to 11 faculty members reviewed for Tenure on Appointment. One tenure candidate was not recommended for tenure, and one withdrew from the Tenure Upon Appointment review process.

University Tenure Criteria:

- National recognition as a scholar or creative artist
- Excellence in teaching and mentoring students
- Positive contributions in service to the university and academic discipline

Evidence Used to Evaluate Tenure Candidates

- External letters from leading experts in the candidates' fields
- Publications in top-tier scientific and professional journals
- Books published by prestigious publishing houses
- Invited addresses and presentations at professional meetings
- Performances in highly rated venues (for faculty in the arts)
- Products of scholarship such as patents, software, films, and artwork
- Honorific awards for research, teaching, and service
- Engagement and success mentoring students
- Contributions to the curriculum
- Observations of teaching
- Student evaluations of teaching
- Service to the academic discipline (e.g., journal and grant reviews)
- Service to the university, which may include serving on, or chairing, department, college, and university committees

Tenure Review Process

- The process for reviewing and recommending candidates for tenure includes reviews by tenured faculty in the academic unit, the department chair, the dean of the college, the provost, and the president. Candidates who are recommended for tenure by the president are presented to the FSU Board of Trustees for approval.
- Faculty hired in tenure-earning positions, typically as Assistant Professors, must earn tenure by the end of their 7th year of tenure-earning service or their employment is terminated.
- When hiring faculty at the rank of Associate or Full Professor, tenure may be recommended at the time of initial appointment, referred to as Tenure Upon Appointment (TUA).

Tenure Candidates
2024

TENURE UPON APPOINTMENT (TUA)					
Name	College	Department	Hire Date	Degree and Institution	Bio
Billo, Emily	SS&PP	Geography	Fall 2023	Ph.D. in Geography Syracuse University	An impactful geographic scholar whose research focuses on understanding socioeconomic processes across spatial and social contexts. She is dedicated to teaching and mentoring and will make important contributions to FSU's Geography curriculum.
Horsburgh, Ann	A&S	Anthropology	Fall 2023	Ph.D. in Anthropology Stanford University	A biological anthropologist who who views traditional questions of broad anthropological concern through a molecular lens. She analyzes ancient DNA and genomic sequencing to answer questions about our ancestors and address modern questoins of culture, stress, and genetics affect our well-being. She is a productive scholar and mentor with an active grant-funded research and training program.
Kwasnica, Anthony	SS&PP	Economics	Fall 2023	Ph.D. in Social Science, California Institute of Technology	Currently a Professor of Business Economics at Penn State University, Dr. Kwasnica is a rising star in the field of behavioral and experimental economics. He will be an excellent addition to our strong Department of Economics, reinforcing and expanding its strength as one of the preeminent experimental economics programs in the nation.
Liguori, Eric	Entrepreneurship		Fall 2023	Ph.D., LSU Business	Expert in entrepreneurial ecosystems, decision-making, and education. Was the Founding head of the Rowan School of Innovation and Entrepreneurship and the Willisam G. Rohrer Endowed Chair of Entrepreneurship, Rowan University Business.
McCoy, Mark	A&S	Anthropology	Fall 2023	Ph.D. in Anthropology University of California, Berkley	An archaeologist who studies the history and evolution of Pacific island communities whose research accomplishments in these areas have positioned him as a leading voice. Further, his mastery of geospatial technologies places him at the cutting edge of modern archaeology. His publication record is outstanding and is complemented by a robust list of external funding of his research.
Prichard, Franz	A&S	Modern Languages and Linguistics	Fall 2023	Ph.D. in Asian Languages and Cultures University of California, Los Angeles	A scholar of Japanese cultural studies who makes use of literary and visual media. His publications have received the praise of experts in the field. He will make valuable contributions to the curriculum of his program through undergraduate and graduate courses. He was viewed as a highly effective teacher and mentor at his prior institution.

Name	College	Department	Hire Date	Degree and Institution	Bio
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Tenure Candidates
2024

Santos, Susana	Entrepreneurship		Fall 2023	Ph.D. Human Resources Management and Organizational Behavior, Universitario de Lisboa	Has achieved stellar research productivity in the area of interdisciplinary entrepreneurship. She is an excellent teacher who focuses on developing students' entrepreneurial mindset, and enhancing their entrepreneurial competencies to be successful in their current educational program, personal life, and future work roles.
Slocum, Brian	Law		Fall 2023	Ph.D. in Linguistics University of California, Davis	A Distinguished Professor of Law at the University of the Pacific, McGeorge School of Law, whose work established him as a leader in the field of statutory interpretation. He is an excellent teacher who will make valuable contributions to the Law School curriculum.
Springer, David	Social Work		Fall 2023	Ph.D., FSU Social Work	Hired away from University of Texas to be the Dean of FSU's College of Social Work. He is a highly accomplished researcher and teacher of youth development and mental health as they relate to delinquency.
Wu, Huixuan	Engineering	Mechanical Engineering	Fall 2023	Ph.D. in Mechanical Engineering John Hopkins University	His expertise in propulsion will significantly contribute to the mechanical engineering department and FCAAP. He is a highly accomplished researcher with substantial grant funding and prestigious awards.
Yi, Hongtao	SS&PP	Public Administration	Fall 2023	Ph.D. in Public Administration Florida State University	One of the most accomplished mid-career scholars in the field of public administration, joining FSU after a distinguished decade-long career at Ohio State University. He is a prolific scholar and serves as Editor of Public Administration Review, the leading journal in the field.

Annual Tenure Review Candidates

Name	College	Department	Hire Date	Degree and Institution	Bio
Anubi, Olugbenga Moses	Engineering	Electrical & Computer Engineering	Fall 2018	Ph.D. in Mechanical Engineering University of Florida	Earned national and international recognition in advanced controls, autonomous systems, and cyber-physical systems, practical applications include power systems, wind turbines, road vehicle suspension systems & electric ships; successfully secured substantial external funding, enriched the course portfolio for FAMU-FSU Engineering students, and exhibited exemplary professional service.
Arespachoga, Rosario Lourdes Rodriguez	Fine Arts	School of Theatre	Fall 2018	MFA in Theatre, Directing University of Victoria	Accomplished theatre director with a strong record of publications and juried and invited presentations; excellent teaching evaluations, serves as director of the BA in Acting, a program that is highly selective and produces successful alumni along with its curricular partner, the BA in Music Theatre.
Atwood, Alyssa Regine	A&S	Earth, Ocean & Atmospheric Science	Spring 2019	Ph.D. in Oceanography University of Washington	Climate scientist whose work links historical climate-related data to current observations, leading expert on recovering data from coral reefs; excellent record of publications, awards and external funding including the prestigious NSF Career Award and 5 five additional NSF grants funded during her assistant professorship. Outstanding outside letters from experts in her field.

Tenure Candidates
2024

Name	College	Department	Hire Date	Degree and Institution	Bio
Bahorski, Jessica	Nursing		Fall 2018	Ph.D. in Nursing University of Alabama at Birmingham	Productive research and scholarship agenda (12 publications and 10 funded grants) in maternal health and infant feeding; very active in teaching and service to the college, university, community, and professional organizations as evidenced by her extensive teaching activities in both undergraduate and DNP programs, and service activities; serves as the President of the Tallahassee Area Council of Advanced Practice Nurses.
Bick, Tenley C	Fine Arts	Art History	Fall 2018	Ph.D. in Art History University of California, Los Angeles	Noted scholar of late 20th and early 21st century Italian art and its colonial impacts in Africa and beyond with an impressive record of publications and outstanding letters from experts in her field of study. She has been a major contributor in curriculum development and developed into an effective teacher and successful mentor (one of her Ph.D. students received a Fulbright award and another was offered a faculty position).
Braithwaite, David William	A&S	Psychology	Fall 2018	Ph.D. in Psychology and Cognitive Science Indiana University, Bloomington	Developmental psychologist whose research focuses on learning mathematical and reasoning skills; excels in experimental design and data analysis; has an impressive publication and funding record (NSF); Outside letters are excellent. He is a highly regarded teacher and mentor and his service to the university and discipline meets or exceeds expectations.
Buggs, Shantel Gabrieal	SS&PP	Sociology	Fall 2017	Ph.D. in Sociology The University of Texas at Austin	Strong national reputation for her research on race, gender, and intimate relationships; 11 peer-reviewed articles, an edited book, several edited journal special issues, and multiple book chapters and presentations at professional meetings. Excellent letters from experts in her field. Award-winning teacher who actively engages students in research; she is a core faculty member in the African American Studies program.
Changlani, Hitesh Jaiprakash	A&S	Physics	Fall 2018	Ph.D. in Physics Cornell University	A condensed matter theorist working on the dynamics of quantum spin phenomena in materials; outside letters are uniformly excellent and place his work at the very center of efforts to understand “strongly correlated quantum systems” and “geometrically frustrated magnets,” important components of modern condensed matter physics. Strong publication record (17 peer-reviewed articles); NSF CAREER awardee. Excellent teaching record that includes delivering both entry-level and advanced courses.

Tenure Candidates
2024

Name	College	Department	Hire Date	Degree and Institution	Bio
Choi, Juyeong	Engineering	Civil & Environmental Engineering	Fall 2018	Ph.D in Construction Engineering and Management Purdue University	Research focuses on enhancing community resilience and reducing the environmental impacts of disaster events; developed advanced composite index frameworks to aid intricate infrastructure planning, and simulation-based models to enhance disaster debris planning. Strong record of external funding of his research, along with sustainable demolition/reconstruction planning tools. 4 research grants. valued at approximately \$2.5M, with \$1.9M serving as the Principal Investigator, including a highly prestigious CAREER Award from the National Science Foundation. Excellent teacher and mentor.
Coggeshall, Elizabeth	A&S	Modern Languages & Linguistics	Spring 2017	Ph.D. in Italian Stanford University	Medieval literature and Italian studies scholar whose book on Dante received very positive reviews. She's taken a leadership role in digital humanities through her work on a dynamic web archive which she co-directs with a colleague at Johns Hopkins. Excellent outside letters attesting to her national recognition in the field. She is an award-winning teacher who has excelled in the classroom and as a mentor.
Dale, Katherine Raines	CCI	School of Communication	Fall 2018	Ph.D. in Communication The Ohio State University	High productivity, quality, and impact in her research in positive media psychology. approximately 800 citations to her work since 2018, very impressive for a scholar at this stage. Very highly rated for her teaching and has a solid record of course development and re-design, having taught five unique courses, re-designed two of them, and developed a new course in positive media psychology.
Detweiler, David Earl	Music		Fall 2017	DMA in Music, Jazz Studies; Eastman School of Music, University of Rochester	Jazz saxophonist with an impressive record of achievement; dedicated and devoted teacher who serves as an outstanding model for his students. Internal and external evaluators noted his rare combination of performance and scholarship is at the highest levels.
Du, Wenjie James	EHHS	Sport Management	Fall 2017	Ph.D. in Business Administration, Sport Management; Temple University	Focuses on interdisciplinary studies between sport management and public health, with a focus on the positive role of sports health and well-being; strong record of publications; excellent teacher and mentor.
Farhat, Aseel	A&S	Mathematics	Fall 2018	Ph.D. in Mathematics; University of California, Irvine	Applied mathematician with expertise in analysis of partial differential equations (PDEs); her NSF-funded research focuses on understanding fluid dynamics with applications to atmospheric science and aerospace engineering. Teaches undergraduate and graduate courses with very positive results and is highly active in the doctoral program, supervising three Ph.D. students while serving on the committees of 15 more.

Tenure Candidates
2024

Name	College	Department	Hire Date	Degree and Institution	Bio
Ferchaud, Arienne Marie	CCI	School of Communication	Fall 2018	Ph.D. in Mass Communications; Pennsylvania State University	A media psychologist devoted to exploring the ways individuals select, interact with, and process entertainment media; her work has been recognized in several impressive ways including through a McKnight Junior Faculty fellowship and two national top paper awards from the National Communication Association. Excellent and highly sought-after teacher.
Gazelle, Heidi	EHHS	Human Development & Family Science	Fall 2018	Ph.D in Developmental and Socialization Processes; University of Illinois at Urbana-Champaign	A child development expert who publishes well-cited articles in high impact journals and, in the process, has made a meaningful contribution to developmental science. Her research is funded by NICHD. She receives positive evaluations of teaching from both undergraduate and graduate students.
Goldmark, Matthew Aaron	A&S	Modern Languages & Linguistics	Fall 2017	Ph.D. in Hispanic Studies; University of Pennsylvania	Latin American literature and culture scholar whose research focuses on 16 th /17 th century Spanish colonies. His recently published book received very positive reviews, also published six journal articles and several book chapters. Receives very positive student evaluations of teaching and makes important contributions to curriculum development (created 7 new courses, remarkable for an Assistant Professor).
Hall-Mills, Shannon Sara Jean	CCI	School of Communication Disorders	Fall 2018	Ph.D. In Communication Science & Disorders, Florida State University	Expert in the development of written language assessment and intervention protocols for school-age children and adolescents who are experiencing language and learning difficulties. Her research is rigorous, clearly presented, and highly practical. Excellent teacher who incorporates research-based practices into her courses highly relevant to the field of speech-language pathology.
Herdova, Marcela	A&S	Philosophy	Fall 2018	Ph.D. in Philosophy, King's College in London	Studies moral psychology and the philosophy of action; highly productive with 6 journal articles, several book chapters, and a book. Excellent teacher who is highly rated by students.
Hubicki, Christian M	Engineering	Mechanical Engineering	Fall 2018	Ph.D. in Mechanical Engineering, Oregon State University	An experimental roboticist who excels in marrying theory with real-world application. Has secured external funding for his research and is presenting and publishing in top-tier outlets. Outside letters attest to his status as a rising star in the field whose work has resulted in early career awards. He is a highly regarded teacher and mentor and has a strong record of service.
Ibourk, Amal	EHHS	School of Teacher Education	Fall 2017	Ph.D. in Curriculum, Instruction and Educational Policy, Michigan State University	Expert in the area of science teaching; well published and garnered external funding (NSF CAREER) for her work. Strong contributions in teaching and mentoring.

Tenure Candidates
2024

Name	College	Department	Hire Date	Degree and Institution	Bio
Jones, Gregory Roy	Music		Fall 2020	DMA in Music Performance and Literature, Trumpet Performance Eastman School of Music, University of Rochester	Hired as Associate Dean and Professor , with outstanding letters of recommendations from experts in his field attesting to his attainment of national recognition for his creative works and scholarship. Since joining the FSU faculty, he has made strong contributions to teaching, research, and service.
Kim, Youngan	Criminology		Fall 2018	Ph.D. in Criminology University of California, Irvine	An expert in the study of crime, places, and communities. His research publications demonstrate his excellent analytical and statistical skills. Very positive outside letters. Strong record of teaching and service.
Kim, Yunjung	CCI	School of Communication Disorders	Fall 2020	Ph.D. in Communicative Disorders University of Wisconsin-Madison	Studies speech intelligibility among those with neurogenic conditions. Important translational research that includes basic lab studies and clinical trials. Has a strong international reputation and external funding. Positive contributions to teaching and service.
Large, Karen McLaughlin	Music		Fall 2018	DM in Flute Performance Florida State University	Flutist who has demonstrated excellence as a performer and and as a highly effective and teacher and mentor. Received excellent letters from experts in her field; highly engaged with service to the college and profession.
Marks, Laura Michelle Reid	EHHS	Educational Psychology & Learning Systems	Fall 2019	Ph.D. in Counseling Psychology Purdue University	Highly successful behavioral health researcher with NIH R21 and K23 awards. Received outstanding letters from experts in her field. Demonstrated effectiveness in teaching and mentoring and has a solid record of service to the FSU and her profession.
Martinez Hyde, Yolany	Medicine	Behavioral Science and Social Medicine	Fall 2018	Ph.D. in Hispanic Literature, Language and Culture University of Oklahoma	Leads the Medical Spanish curriculum in the Medicine. She excels in teaching medical Spanish and is highly effective in meeting the needs of students with varying levels of fluency. She received strong letters from outside reviews; Currently sServes as president of the SW Council of Latin American Studies.
McLane, Yelena	Fine Arts	Interior Architecture & Design	Fall 2018	Ph.D. in Art Education Florida State University	Highly productive scholar with an award-winning book (2022 Interior Design Educators Council Book Award); important work on the role of design in addressing homelessness. Excellent teacher who recently received an Honors in the Major Teaching Award; high level of excellent service to the department and profession.
McTighe, Laura	A&S	Religion	Fall 2019	Ph.D. in Religion Columbia University	Community-engaged scholar and ethnographer of race, religion, gender, and social movements; book published by top-tier press; successful in securing external funding from the Luce Foundation. Popular, award-winning teacher and highly sought after dissertation supervisor.

Tenure Candidates
2024

Name	College	Department	Hire Date	Degree and Institution	Bio
Mehta, Jayur M	A&S	Anthropology	Fall 2018	Ph.D. in Anthropology Tulane University	Archaeologist of the southeastern US, projects include studies of the Mississippi River valley and Delta regions and of gulf coast communities. Experts in his discipline praised his productivity and breadth of work. Excels as a teacher, invigorated Anthropology's degree offerings. Strong contributor in service to FSU.
Mewhinney, Matthew Stanhope	A&S	Modern Languages & Linguistics	Fall 2019	Ph.D. in Japanese Language University of California, Berkley	Japanese literature, East Asian studies, and comparative literature scholar; recently published book has been positively reviewed, also has multiple journal articles; Positive letters from experts in his field. Fills a central role in expanding curricular offerings in the Japanese program, high quality classroom teacher.
Nienhaus, Lea	A&S	Chemistry & Biochemistry	Fall 2018	Ph.D. in Chemistry University of Illinois at Urbana-Champaign	Researcher at the intersection of chemistry and physics focused on understanding energy conversion of the type found in solar energy technology and the building of efficient semi-conductors. Recognized as a rising star, high praise from outside reviewers, very successful record of funding including NSF CAREER award & Camille Dreyfus Teacher-Scholar Award. Strong contributions in teaching and service.
Ou, Kai	SS&PP	Political Science	Fall 2016	Ph.D. in Politics New York University	His research is at the nexus of behavioral political economics, hired as part of an experimental and behavioral political economics cluster in the college. Outside letters were very positive. Evidence of excellence in classroom teaching and mentoring graduate students (won a College Teaching Award).
Parfitt, Rhys	A&S	Earth, Ocean & Atmospheric Science	Spring 2019	Ph.D. in Physics Imperial College London	A climate scientist whose work bridges meteorology and oceanography; Excellent record of publications in top journals; Well-funded from multiple agencies (NOAA, NASA, NSF). Popular teacher, developed several new courses and serves on many student committees.
Philip Gentry, Anne Elissa	Law		Fall 2019	Ph.D in Law and Economics Vanderbilt University	Experts in her field note that she is well-known in the empirical health law field for being a careful, insightful, and thorough empiricist. Her main areas of study are health law and law & economics. Evidence of excellence in teaching and service.
Rieger, Eric	Music		Fall 2020	D.M.A. in Voice Performance and Literature Eastman School of Music of University of Rochester	Started at FSU in 2020 with a wealth of teaching experience (had earned promotion and tenure at another prestigious music program). He is in the voice area, has extensive performance experience, nationally and internationally. Excellent in teaching and mentoring as evidenced by the success of his students.
Rodgers, Luke P	SS&PP	Economics	Fall 2017	Ph.D. in Economics The University of Texas at Austin	Publishes in top-tier journals in the discipline (something noted by most of the outside referees). Unlike many economists, fully half of his published work is solo authored, which establishes with clarity his authorship credit and demonstrates his intellectual independence. He is an outstanding teacher, excellent colleague, sought out mentor and advisor.

Tenure Candidates
2024

Name	College	Department	Hire Date	Degree and Institution	Bio
Romney, Miles A	Business	Accounting	Fall 2016	Ph.D. in Accounting Michigan State University	Outside reviewers praised his scholarship highlighting his ability to conduct high quality research on topics that are important to the profession, including practice and academia. He is an excellent teacher, supported by positive student evaluations and makes valuable contributions to service to the College and his profession.
Singh, Sourabh	SS&PP	Sociology	Fall 2018	Ph.D. in Sociology Rutgers, The State University of New Jersey	Studies relationships between social environments and government policies with a focus on India. He published 15 peer-reviewed articles, 7 since joining FSU; all are solo-authored, a rather remarkable achievement for a scholar at his career stage. He is an outstanding teacher (won the Department Teaching Award) and is a valued mentor/advisor for graduate students. Highly engaged in service in the department and discipline.
Sleeper, Clinton	Fine Arts	Art Department	Fall 2017	MFA in Art and Technology Simon Fraser University	Contemporary artist known for using cutting-edge technologies in the production, exhibition, and ongoing dissemination of his art. He shows his work in prestigious venues and has received numerous awards and competitive artist residencies. His teaching includes a breadth of courses that enrich the curriculum and student evaluations of his teaching are very positive.
Speed Jr, George Maurice	Music		Fall 2019	M.M. in Bass Performance Boston University	Positive impact on the quantity and quality of FSU's Bass Studio; in high demand as a performer as an orchestral and chamber musician; performs at prestigious venues that bring national visibility. Excellent teacher and highly engaged in service to the College and profession.
Springer, Douglas Gregory	Music		Fall 2018	Ph.D. in Music Education University of Kentucky	Expertise in music education and music therapy. As noted by external reviewers, he is a prolific author, recognized nationally for the quality and quantity of his research publications. He is well regarded as a teacher, with consistently high course student ratings, and is highly engaged with service to the college and the profession.
Springer, Jeffrey A	Music		Fall 2018	D.M.A. in Voice The Catholic University of America	His area of expertise is Voice and Opera. He joined FSU after years of extensive performing experience and, upon receiving his doctorate, has transitioned to an academic career. He is an award-winning teacher (FSU Teaching Award in 2022-23). External reviewers noted his impressive list of international and national performances.
Steiner, Jennifer	EHHS	Health, Nutrition, and Food Sciences	Fall 2018	Ph.D. in Physiology-Exercise Science University of South Carolina	Expert on the role of nutrition and exercise in prevention/treatment of disease. External reviewers noted the high quality and quantity of research publications and impressive record of external funding. She is an excellent teacher as supported by very positive evaluations of her teaching by students and is an popular and effective mentor of graduate students.

Tenure Candidates
2024

Name	College	Department	Hire Date	Degree and Institution	Bio
Sullivan, Margaret Ann	CCI	School of Information	Fall 2020	Ph.D. in Library and Information Science University of South Carolina	External reviewers noted her extremely high productivity and impact in research focused on health, including evidence of having received international recognition and substantial external funding of her work. She is a highly effective teacher who has been active in developing new courses and has been a positive contributor in service to the college and her profession.
Sun, Yanshuo	Engineering	Industrial & Manufacturing Engineering	Fall 2018	Ph.D. in Civil Engineering University of Maryland	Expert in applications of mathematical programming in transportation, logistics, and supply chains. External reviewers note his high productivity in terms of publications and success in securing research funding from multiple agencies including NSF, EPA, and FDOT. Evaluations of his teaching are very positive as are his contributions in service to the college and his profession.
Thomas, Aaron Christopher	Fine Arts	School of Theatre	Fall 2018	Ph.D. in Theatre Florida State University	Directs the BA in Theatre program and is a popular and effective teacher. He's published two books along with multiple journal articles, including some invited ones, in top outlets. He serves as associate editor of a leading journal in his field. External letter writers note that he has an enviable record as an assistant professor.
Tobioka, Kohsaku	A&S	Physics	Fall 2018	Ph.D. in Physics University of Tokyo, Kavli Institute for the Physics and Mathematics of the Universe	He is a theorist working in the general area of high-energy physics; his research, supported by the Dept. of Energy, focuses on the search for new particles and evidence of supersymmetry by making use of data generated at the Large Hydron Collider CERN). External reviewers attest to his having established national visibility. He is an effective teacher and mentor of graduate students and contributes in service to the department and discipline.
Wu, Qiong	EHHS	Human Development & Family Science	Fall 2018	Ph.D. in Human Development and Family Science The Ohio State University	Her research focuses on understanding emotional processes in families and the intergenerational transmission of psychopathology. External reviewers described her research as cutting-edge, interdisciplinary, and prodigious (46 articles, 22 1 st -authored). She is an effective teacher and mentor who provide clinical supervision for the Marriage and Family Therapy program. She has a positive record of service to the department and discipline.
Yang, Fan	SS&PP	Economics	Fall 2018	Ph.D. in Economics University of Southern California	High quality of publications in top tier econometrics journals. She is an award-winning teacher and an engaged departmental citizen.
Zhang, Xiaobing	A&S	Psychology	Fall 2018	Ph.D. in Neurobiology University of Science and Technology of China	Neuroscientist focused on neurocircuitry that governs feeding and eating. External reviewers noted high quality, high impact publications and very successful record of grant support (PI on 2 RO1's). He is a strong teacher who plays a vital role in the growing undergraduate NS degree program and is a good mentor of doctoral students.

Tenure Candidates
2024

Name	College	Department	Hire Date	Degree and Institution	Bio
Zimmerman, Aleksandra	Business	Accounting	Fall 2019	Ph.D. in Management Case Western Reserve University	Expert in the subfield of auditing. External reviewers noted that she has been very successful in publishing and well on her way to having a national reputation. She is an excellent teacher who receives positive student ratings. Her service to the college and profession are strong.



FLORIDA STATE UNIVERSITY
BOARD OF TRUSTEES
Academic Affairs Committee

ACTION ITEM VII



FLORIDA STATE UNIVERSITY

BOARD OF TRUSTEES

Academic Affairs Committee

ACTION ITEM VII

June 20, 2024

SUBJECT: Approval of Nursing LINE (Linking Industry to Nursing Education)

PROPOSED COMMITTEE ACTION

Authorize the submittal of the 2024-2025 Linking Industry to Nursing Education (LINE) Fund Proposal to the SUS BOG in the amount of \$447,537.

AUTHORITY FOR BOARD OF TRUSTEES ACTION

Board of Governors [Regulation 8.008 - Nursing Education](#)

BACKGROUND INFORMATION

The LINE (Linking Industry to Nursing Education) Fund is intended to incentivize collaboration between nursing education programs and healthcare partners and to meet local, regional, and state workforce demand by recruiting faculty and clinical preceptors, increase the capacity of high-quality nursing education programs, and increase the number of nursing education program graduates who are prepared to enter the workforce. Subject to available funds, for every dollar contributed to an institution by a healthcare partner, the fund shall provide a dollar-for-dollar match to the participating institution for approved proposals.

ADDITIONAL COMMITTEE CONSIDERATIONS

Florida State University College of Nursing (CON) will collaborate with Tallahassee Memorial HealthCare (TMH), Mayo Clinic in Florida, and Cleveland Clinic Florida to support faculty salary, purchase equipment for simulation, and provide tuition waivers, graduate assistantships, and scholarships to students to increase enrollment and program completion.

Supporting Documentation Included: State University System 2024-2025 Linking Industry to Nursing Education (LINE) Fund Proposal Form

Submitted by: Jing Wang, PhD, MPH, RN, FAAN - Dean, FSU College of Nursing



**State University System
2024-2025 Linking Industry to Nursing Education (LINE) Fund
Proposal Form**

University:	Florida State University
Healthcare Partner:	Tallahassee Memorial HealthCare Mayo Clinic in Florida Cleveland Clinic Florida
Date Proposal Approved by University Board of Trustees:	x/xx/xxxx
Amount Requested:	\$447,537
University Contact (name, title, phone, & email):	Jing Wang, PhD, MPH, RN, FAAN Dean, FSU College of Nursing jingwang@nursing.fsu.edu (850) 644-6844
Please check the boxes below as appropriate:	<i>All boxes must be checked in order to be eligible to participate.</i>
Healthcare partner making contribution is located in and licensed to operate in Florida?	<input checked="" type="checkbox"/> Yes
Healthcare partner making contribution is a healthcare provider as defined in Section 768.38(2), Florida Statutes?	<input checked="" type="checkbox"/> Yes
Nursing programs met or exceeded a first-time NCLEX passage rate of 75% for the prior year based on the 2024 Accountability Plan?	<input checked="" type="checkbox"/> Yes
The funds will be used for an eligible purpose per section 1009.8962, Florida Statutes?	<input checked="" type="checkbox"/> Yes

Background

The LINE Fund is intended to incentivize collaboration between nursing education programs and healthcare partners and to meet local, regional, and state workforce demand by recruiting faculty and clinical preceptors, increasing the capacity of high-quality nursing education programs, and increasing the number of nursing education program

graduates who are prepared to enter the workforce. Subject to available funds, for every dollar contributed to an institution by a healthcare partner, the fund shall provide a dollar-for-dollar match to the participating institution for approved proposals.

Funds may be used for student scholarships, recruitment of additional faculty, equipment, and simulation centers to advance high-quality nursing education programs throughout the state. Funds may not be used for the construction of new buildings. To participate, an institution must submit a timely and complete proposal to the Board of Governors for consideration. For more details, see Board of Governors [Regulation 8.008 - Nursing Education](#).

Proposals must be submitted with a total of no more than three pages of narrative for the following sections. Proposals with more than three pages of narrative will be rejected.

Proposal Details

Provide a detailed narrative for each section below.

- I. Use of Funds** - *Describe in detail and with specificity how the institution plans to use the funds, including how the funds will be utilized to increase student enrollment and program completion.*

Florida State University College of Nursing (CON) will collaborate with Tallahassee Memorial HealthCare (TMH), Mayo Clinic in Florida, and Cleveland Clinic Florida to support faculty salaries; purchase equipment for simulation; and provide tuition waivers, graduate assistantships, and scholarships to students to increase enrollment and program completion. The faculty, in collaboration with the Office of Research, will enhance the CON's evidence-based practice infrastructure for students, allowing students to explore this important area and receive a well-rounded educational experience before entering or advancing in the workforce.

- II. Onboarding & Retention of Graduates** - *Describe in detail and with specificity how the health care partner will onboard and retain graduates.*

FSU CON will collaborate with TMH, Mayo Clinic in Florida and Cleveland Clinic Florida to support a faculty member and simulation equipment that can facilitate a robust evidence-based practice infrastructure within the college to ensure constant student learning and high satisfaction levels for that learning experience. Additionally, these healthcare partners and the FSU CON will provide tuition waivers, student assistantships, and scholarships designed to prepare students to practice at the highest level of their licenses. By partnering with these Florida organizations throughout the student learning experience, there is a higher chance that healthcare partners will retain these students post-graduation.

Program Expansion - *Describe in detail and with specificity how the funds will expand the institution's nursing education programs to meet local, regional, or state workforce demands. If applicable, include advanced education nursing programs and how the funds will increase the number of faculty and clinical preceptors and planned efforts to utilize the clinical placement process established in Section 14.36, Florida Statutes.*

Specifically, we will use the funds to support faculty salaries to ensure we educate more highly skilled nursing students who have the knowledge and training needed to contribute positively to better healthcare in the state of Florida. Broadening exposure to research and evidence-based practice furthers the students' ability to understand the full breadth of the research evidence in improving the health and well-being of individuals and communities in our state.

The funds will also be used to purchase simulation equipment related to program expansion and support students through student assistantships, tuition waivers, and scholarships to ensure they are prepared with the education and skills to translate evidence into practice, lead patient care teams, evaluate patient outcomes, and promote system change at various health entities throughout the state, thereby improving the health of Floridians.