



Educational Plant Survey

FAMU-FSU College of Engineering

Effective

July 1, 2023-June 30, 2028

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Introduction

Pursuant to Florida Statutes (F.S.), an Educational Plant Survey (EPS or Survey) is required by all public educational entities; school districts, colleges, and state universities, at least once every five (5) years.

An EPS is statutorily defined (s. 1013.31, F.S.) as a systematic study of present Educational Plants and Ancillary Plants (i.e., education and general (E&G) facilities, sites, and site improvements) and the determination of future needs to provide an appropriate educational program and services for each student based on projected capital outlay full-time equivalents (FTE's).

An EPS must use "uniform data sources and criteria" and provide the following:

- An inventory of existing educational and ancillary plants.
- Recommendations for existing educational and ancillary plants.
- Recommendations for new educational and ancillary plants.

Furthermore, with regard to the State University System (SUS), the EPS must:

- Reflect the capacity of existing facilities as specified in the inventory maintained and validated.
- Project facility space needs consistent with standards for determining space needs specified by Board of Governors (Board) regulation.
- Utilize projected FTEs consistent with the 5-year planned enrollment cycle for the SUS approved by the Board.

An EPS is undertaken collaboratively by a Survey Team consisting of staff of the university being surveyed, Board staff, and volunteer staff from other universities. The final EPS report must be approved by the university board of trustees and the Board.

Surveys may be amended, if conditions warrant, at the request of the university board of trustees. Each amended EPS and each new EPS supersedes previous surveys.

The EPS is a safeguard mechanism to ensure that State resources (namely PECO dollars) and the assets constructed with these resources are being directed appropriately toward needed educational buildings and space.

Exceptions: Defined and Procedures

Generally speaking, exceptions occur when proposed space exceeds projected space needs. Educational (E&G) facilities are predominantly built with State funds, and there is an inherent responsibility to be good stewards of such resources. As such, when assessing a university's proposals for educational facilities, the projected space inventory should not exceed the projected need. On infrequent occasions, however, unique circumstances or extraordinary factors may support an exception to this rule. For example, there may be an unusual requirement for a particular type of teaching or research laboratory that specifically supports a university's unique mission; there may be a Board mandate or Legislative initiative that supports the space overage, or perhaps there is a need to build minimal facilities for a new program where its early enrollment projections are not supportive. Regardless, such instances are typically infrequent, and any related exceptions more so. Again, the projected space should not exceed the projected need.

Thoughtful pre-planning by the university in terms of its proposed capital projects, particularly as it relates to proactively addressing and correcting any projected space overages, is important to ensure an efficient, effective Educational Plant Survey process. If a university feels that unique circumstances make an overage a necessity or unavoidable, the Survey Team may elect to consider a university's supporting rationale, which may include, but is not limited to, university-prepared written explanations along with quantitative displays, justifying exceptional needs.

Justifications include relevant information such as requirements for specific programs, schedules of current classes, reports of space utilization, indications of effective space management, evidence of sound planning, and feasibility studies for remodeling uses of space. The purpose is to present convincing evidence demonstrating genuine facility needs supported by the standard methodology.

The Survey Team is under no obligation to support an exception to the SUS space needs methodology. Should the Survey Team ultimately incorporate an exception in its Recommendations, it will be clearly memorialized in the EPS Report and, ultimately, is subject to approval by the university board of trustees and the Board of Governors.

Summary of the Campus Master Plan

While university campuses provide research and educational benefits statewide and further provide substantial educational, economic, and cultural benefits to their host local governments, they may also impact the host's public facilities, services, and natural resources. In recognition of this unique relationship, each university board of trustees prepares and adopts a campus master plan (CMP) identifying general land uses and plans for related infrastructure for the coming 10-20 years. The plan must be updated at least every five years. It contains, but is not limited to, elements relating to future land use, intergovernmental coordination, capital improvements, recreation and open space, general infrastructure, site design and standards, densities, conservation, and preservation of historical/archaeological resources.

The CMP is intended to act as a "road map" for administration and is developed in conformance with s. 1013.30, F.S. Per Florida Statute, a copy is maintained on the each university's website:

[FAMU Campus Master Plan](#)

[FSU Tallahassee Campus Master Plan - Southwest Site](#)

Data analyses supporting CMP elements must include student enrollment projections, student housing needs, and the need for academic and support facilities. The latter, namely educational (E&G) facilities, should represent the university's proposed facilities/space needs in the EPS process.

The FAMU-FSU College of Engineering, established by the Florida Legislature in 1982, is the joint engineering school for Florida Agricultural and Mechanical University and Florida State University, the only shared college of engineering in the nation. We are located less than three miles from each campus. Our students enroll (and graduate) as Seminoles or Rattlers and start their college experience on the home campus. Once prerequisites are complete, they learn together at our engineering building. We are surrounded by eight partner research centers and a national laboratory. This unique collaboration between a top Historically Black University and a Research-1 institution makes us a great place to learn cutting-edge engineering skills in a diverse environment offering a real-world experience that employers value. The college is a leading academic institution with excellent records of achievement in research and public service. We offer Bachelor of Science (B.S.) programs in chemical, civil, computer, electrical, industrial, biomedical, and mechanical engineering, as well as M.S. and Ph.D. programs. We have attracted an outstanding faculty from all over the world. Our graduates are a diverse group of engineers from many races, ethnicities, and nationalities. The FAMU-FSU College of Engineering earned a Bronze award and Exemplar status from the American Society of Engineering Education (ASEE) in the inaugural year of the ASEE Diversity Recognition Program. The college is one of only two engineering programs in Florida to earn the distinctions. The FAMU-FSU College of Engineering has been widely hailed for taking the initiative to create programs to align academic curriculum with industry needs. We ensure that the students learn what they need to learn through quality teaching and research.

College Overview

Dean: Suvranu De, Ph.D.

Department Chairs: Bruce Locke, Ph.D – Chemical & Biomedical Engineering
Lisa Spainhour, Ph.D, P.E. – Civil & Environmental Engineering
Sastry Pamidi, Ph.D., M.B.A. – Electrical & Computer Engineering
Changchun “Chad” Zeng, Ph.D. – Industrial & Manufacturing Engineering
William Oates, Ph.D., P.E. – Mechanical Engineering

Accreditation: Southern Association of Colleges and Schools Commission on Colleges

Number of Degree Programs:

- Undergrad Degree Programs: 8
- Master's Degree Programs: 15
- Doctorate Degree Programs: 7
- Graduate Certificate Programs: 3

Areas of Study:

- Biomedical Engineering
- Chemical Engineering
- Chemical-Materials Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Mechanical Engineering
- Materials Science & Engineering

Student Data

- Student population: More than 2,900 in Fall 2022, including 2,449 undergraduates and 470 graduate students.
- 29% of Students are female versus the 24.6% national average
- 40% of PhD graduates in 2022 were female
- 20% students are black compared to the national average of 5.4%
- Graduate enrollment increased by 75% since 2013, 44% since 2019
- Degrees awarded in 21-22: 415 BS, 90 MS, 35 PhD

Faculty Data

- Faculty: 132 total faculty, including tenured, teaching, and research engineers

Research Data

- Research centers & labs: 16

- Research areas by type: 32% Defense, 23% Transportation and Energy, 25% Fundamental Science, and 20% other areas

Additional Information

- Alumni: More than 9,800

Survey Team Recommendations for Future Projects

FAMU-FSU College of Engineering Needs Assessments February 15, 2023 and April 18, 2023

The survey team included the following individuals:

| <u>Name</u> | <u>Title</u> | <u>Institution</u> |
|---------------------|------------------------------------|-------------------------------|
| Itza Frisco | Interim AVP, Facilities Management | New College of Florida |
| Ashley Orr Grassano | Space & GIS Manager | University of Florida |
| Christy Miranda | Director of Space Administration | University of Central Florida |
| Jordan Richardson | Space Utilization Planner | University of South Florida |
| Kristine Azzato | Assistant Director, Facilities | Board of Governors |
| Kyndra Freeman | Facilities Planner | Board of Governors |

Based on the assessment of space needs, the fixed capital outlay projects listed below are recommended pursuant to section 1013.31, F.S. All projects recommended have been represented by the university to implement the detail of the campus master plan (CMP), pursuant to section 1013.03(10)(a)2, F.S. Amended surveys may be conducted at a later date should the project scope change in the future.

Remodeling:

As per s. 1013.01(17) F.S., "remodeling" means the changing of existing facilities by rearrangement of spaces and their use and includes, but is not limited to, the conversion of two classrooms to a science laboratory or the conversion of a closed plan arrangement to an open plan configuration.

1.1 No projects presented.

Renovation:

As per s. 1013.01(18) F.S., "renovation" means the rejuvenating or upgrading of existing facilities by installation or replacement of materials and equipment and includes, but is not limited to, interior or exterior reconditioning of facilities and spaces; air-conditioning, heating, or ventilating equipment; fire alarm systems; emergency lighting; electrical systems; and complete roofing or roof replacement, including replacement of membrane or structure. As used in this subsection, the term "materials" does not include instructional materials.

2.1 No projects presented.

New Construction:

As per s. 1013.01(14) F.S., "new construction" means any construction of a building or unit of a building in which the entire work is new or an entirely new addition connected to an existing building or which adds additional square footage to the space inventory.

- 3.1 The survey team felt that under the current space needs methodology, an exception was not warranted due to the resulting overages in a majority of the space categories once the proposed project(s) were added to the inventory.**

Demolition:

As per regulation 9.004 Razing of Buildings (1), *Each University Board of Trustees shall have the authority to raze buildings. Prior to the demolition of any educational or educational support facility with a replacement cost exceeding \$1,000,000, the university shall obtain an Educational Plant Survey recommendation for demolition. The University Board of Trustees shall review and approve the Educational Plant Survey recommendation and transmit.*

- 4.1 No projects were presented.**

Site Improvements and Campus-Wide Utility Infrastructure: (All Sites)

- 5.1 Land Acquisition:** This is a general recommendation allowing the university to continue purchasing properties surrounding the campus as identified in the adopted Campus Master Plan.
- 5.2 Landscaping/Site Improvements:** This general recommendation is to continue landscaping, road, and site improvements consistent with the adopted Campus Master Plans.
- 5.3 Utility Infrastructure Improvements:** This is a general recommendation to include improvements consisting of items in the categories of chilled water and controls, electrical distributions, storm sewer, sanitary sewer, telecommunications, fiber, energy management control systems, irrigation, water distribution, steam equipment and distribution. The projects consist of improvements, extensions, modifications, and additions to the major utility systems consistent with the adopted Campus Master Plan.

Standard University-Wide Recommendations:

- SR1:** All spaces necessary for custodial and sanitation services in new facilities are recommended.
- SR2:** All projects for safety corrections are recommended.
- SR3:** All projects for corrections or modifications necessary to comply with the

Americans with Disabilities Act are recommended.

SR4: Any project required to repair or replace a building's components is recommended provided that the total cost of the project does not exceed 25% of the replacement cost of the building.

SR5: Remodeling projects up to \$10 million completed pursuant to s. 1011.45(3)(c), F.S. are hereby recommended provided the resulting percentage of Space Needs Met does not exceed 100%.

**Basis for Survey Team
Recommendations**

Determining Space Needs

The basic method used to determine the facility space required by a university to accommodate its educational programs, student enrollment, academic personnel, and supporting services is a data-driven, calculative approach historically known as the Fixed Capital Outlay Space Needs Generation Formula (the "Formula Method"). Statutorily, it must determine the space needs for educational facilities to be funded in whole or in part by the state, including public broadcasting stations but excluding postsecondary special purpose laboratory space.

To that extent, space supporting the educational mission of a university is reflected in three (3) Classifications; see the chart below. Within each Classification, there are nine (9) space-type Categories assignable to Education & General ("E&G") activities, as follows:

| <u>Classifications</u> | <u>E&G Space Categories</u> | <u>Space Standard</u> |
|--|---------------------------------|-----------------------|
| Instructional | Classroom | 9 |
| | Teaching Laboratories | 11.25 |
| | Research Laboratories | 18.75 |
| Academic Support | Study | 13.5 |
| | Instructional Media | 3 |
| | Auditorium/Exhibition | 2.25 |
| | Teaching Gymnasium | 4.5 |
| Institutional Support | Office | 22.5 |
| | Campus Support Services | 4.2375 |
| Total Net Assignable Square Feet ("NASF")¹ per FTE | | 88.9875 |

The Formula Method uses three types of information to determine unmet space needs for educational facilities²: Projected Full-Time Equivalent ("FTE") enrollment from the Accountability Plan Space Standards, establishing the minimum NASF per FTE per category of educational space. Existing facilities inventory in NASF by standardized category Enrollment is based on student credit hours, with 30 credit hours equal to one (1) undergraduate FTE and 24 credit hours equal to one (1) graduate FTE. There is also an adjustment to account for online FTEs. The Formula Method recognizes space requirements based on academic program offerings, method of instruction, and student level. The basic concept for calculating space needs is as follows:

$$(\text{FTE} \times 88.9875) - \text{Inventory} = \text{Unmet Space Need in NASF}$$

¹ State University System Space is measured in Net Assignable Square Feet ("NASF")

² Educational facilities are those that support the Education and General mission of the university; examples of non-E&G functions would include Housing, Parking, Athletics, as well as Contracts and Grants Research Space. The State University System does not use PECO funds for non-E&G functions.

SPACE NEEDS ANALYSIS

FAMU-FSU College of Engineering

| E&G Space Categories [Shown as Net Assignable Square Feet (NASF)] | | | | | | | TOTAL | |
|--|-----------------|---------------|--------------|----------------|---------------------------|------------------------|--------------|-------------------------------|
| Classroom | Teaching Lab | Study | Research Lab | Office | Auditorium/ Exhibition | Instructional Media | Gymnasium | Campus Support Services |
| 15,008 | 18,759 | 23,355 | 32,438 | 38,925 | 3,752 | 5,190 | 7,503 | 7,331 |
| (21,583) | (34,386) | (8,259) | (28,024) | (40,149) | (10,715) | (2,207) | 0 | (5,932) |
| (6,575) | (15,627) | 15,096 | 4,414 | (1,224) | (6,963) | 2,983 | 7,503 | 1,399 |
| 144% | 183% | 35% | 86% | 103% | 286% | 43% | 0% | 81% |

Preliminary Assessment of Projected Needs

Calculated Space Needs based on 5-yr
Projected FTE's

Less: Current Inventory

Net Projected Space Needs

% of Space Needs Met (Preliminary)

Adjustments to Projected Needs

Ineligible Space

Unsatisfactory Space to be Demolished

Leased Space to be Terminated

New Construction

Space to be Remodeled

Other Adjustments to Space

Total Adjustments

| | | | | | | | | | | | |
|------------|--------------|------------|----------|----------|--------------|---------------|----------|----------|----------|----------|---------------|
| Appx. C | 4,867 | 814 | 0 | 0 | 3,095 | 10,715 | 0 | 0 | 0 | 0 | 19,491 |
| Appx. D | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Appx. E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Appx. F | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Appx. G | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Appx. H | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| [b] | 4,867 | 814 | 0 | 0 | 3,095 | 10,715 | 0 | 0 | 0 | 0 | 19,491 |

Final Assessment of Projected Needs

Adjusted Net Projected Space Needs

% of Space Needs Met (Final)

| | | | | | | | | | | | |
|--------------|----------------|-----------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|----------|---------------|
| [a+b] | (1,708) | (14,813) | 15,096 | 4,414 | 1,871 | 3,752 | 2,983 | 7,503 | 1,399 | 0 | 20,497 |
| | 111% | 179% | 35% | 86% | 95% | 0% | 43% | 0% | 81% | | 87% |

For Information Only

Reported space with no adjustments to NASF

Leased Space in Current Inventory

Space to be Renovated

| Classroom | Teaching Lab | Study | Research Lab | Office | Auditorium/ Exhibition | Instructional Media | Gymnasium | Campus Support Services | TOTAL |
|-----------|--------------|-------|--------------|--------|---------------------------|------------------------|-----------|-------------------------------|-------|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | |

A. Student Enrollment/FTE

Student enrollment is the single most important measure used to develop facility requirements for a university. Enrollment is measured using full-time equivalent (FTE) enrollment. Each FTE is equivalent to 30 credit hours per academic year for undergraduates and 24 credit hours for graduates. First, FTE enrollment is reported by site, and then all enrollment not requiring facilities is deducted to determine the Capital Outlay FTE (COFTE). The level of enrollment used for survey purposes is the level for the fifth year beyond the year the survey is conducted. For this survey, the projected enrollment used is for the academic year 2027-28.

FAMU-FSU COLLEGE OF ENGINEERING USFTE BY LEVEL

| CRS_LEVEL | ACTUAL | | | | | 2022-23 HYBRID* | 5Y AVG YOY CHG | ESTIMATED | | | | | 2027-28 ONLINE |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------------|----------------------|--------------|--------------|--------------|--------------|--------------|-------------------|
| | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | | | 2023-24 | 2024-25 | 2025-26 | 2026-27 | 2027-28 | |
| LOWER | 47 | 50 | 40 | 45 | 47 | 0 | 47 | 47 | 47 | 47 | 47 | 47 | 0% |
| UPPER | 930 | 933 | 968 | 1,030 | 1,033 | 26 | 1,059 | 1,085 | 1,111 | 1,136 | 1,162 | 1,162 | 0% |
| GRAD1 | 74 | 77 | 97 | 148 | 144 | 17 | 162 | 179 | 197 | 214 | 231 | 231 | 15% |
| GRAD2 | 164 | 169 | 180 | 196 | 220 | 14 | 234 | 248 | 262 | 276 | 290 | 290 | 0% |
| TOTAL | 1,215 | 1,229 | 1,284 | 1,419 | 1,444 | 57 | 1,501 | 1,559 | 1,616 | 1,674 | 1,731 | 1,731 | 0.1% |

Source: Board ODA analysis of SUDS data.

Methodology Summary:

1. ODA used credit hours in engineering courses (regardless of site number) based on SIF.COUR.CIP_CRS between 140000 and 149999.
2. Note*: ODA estimated the Spring 2023 amount based on historic Spring to Fall ratios – this is why 2022-23 column is hybrid (based on actual summer and fall, but estimated spring data).
3. ODA calculated annual year-over-year change based on last five years of data by level. The average annual change is based on: $\frac{(2022-23 \text{ minus } 2018-19)}{4}$.
4. ODA applied that average rate of growth (based on N not %) to the subsequent years.
5. The estimated online rate is based on ODA review of actual online rates and agrees with both FAMU and FSU's projections as reported in DRS responses.

B. Current Inventory

This report includes the sum of the room areas rolled up at the building level.

| Site ID | Building ID | Building Name | Classroom | Teaching Lab | Study | Research Lab | Office | Auditorium/Exhibition | Instructional Media | Gymnasium | Campus Support Services |
|---------|-------------|----------------------------|-----------|--------------|-------|--------------|--------|-----------------------|---------------------|-----------|-------------------------|
| 17 | 577 | Engineering Building A | 6,316 | 21,846 | 4,243 | 14,955 | 20,305 | 0 | 2,400 | 0 | 5,125 |
| 17 | 527 | Engineering Building B | 10,400 | 11,726 | 4,016 | 12,896 | 16,749 | 0 | 203 | 0 | 174 |
| 17 | 5417 | Engineering Portable 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 |
| 17 | 5418 | Engineering Portable 2 | 0 | 0 | 0 | 173 | 0 | 0 | 0 | 0 | 0 |
| 17 | 5045 | Engineering Shed 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 383 |
| 21 | 2000 | Challenger Learning Center | 4,867 | 814 | 0 | 0 | 3,095 | 10,715 | 0 | 0 | 0 |

C. Ineligible Space for Space Needs Calculation

This report includes the sum of the room areas rolled up at the building level.

| Site ID | Building ID | Building Name | Classroom | Teaching Lab | Study | Research Lab | Office | Auditorium/Exhibition | Instructional Media | Gymnasium | Campus Support Services | Comments |
|---------|-------------|----------------------------|-----------|--------------|-------|--------------|--------|-----------------------|---------------------|-----------|-------------------------|---|
| 21 | 2000 | Challenger Learning Center | 4,867 | 814 | 0 | 0 | 9,095 | 10,715 | 0 | 0 | 0 | The Center is a non-profit organization headquartered in Washington, D.C. It is an outreach program to inspire students in STEM, for grades K-12. |

D. Space to be Demolished

NO DATA TO REPORT

E. Leased Space to be Terminated

NO DATA TO REPORT

F. New Construction

NO DATA TO REPORT

G. Space to be Remodeled

NO DATA TO REPORT

H. Other Adjustments to Space

NO DATA TO REPORT

I. Leased Space in Current Inventory

NO DATA TO REPORT

J. Space to be Renovated

NO DATA TO REPORT
