FLIGHT TEST ENGINEERING
MASTER’S DEGREE, GRADUATE CERTIFICATE AND SHORT COURSES

ABOUT FLORIDA INSTITUTE OF TECHNOLOGY
Florida Institute of Technology is an accredited, coeducational, independently controlled and supported university committed to the pursuit of excellence in teaching and research.
- Only independent, technological university in the Southeast.
- Tier One Best National University (U.S. News & World Report)
- One of U.S. top technological institutions (Fiske Guide to Colleges)
- Among top Southeastern colleges (Princeton Review)
- One of America’s Best Colleges (Forbes)

WHAT OUR STUDENTS ARE SAYING
“Flight Test Engineering at Florida Tech is a fast-paced, hands-on program that gave me an opportunity to explore both fixed-wing and rotorcraft flight testing under the guidance of professors with years of industry experience.”
—Christopher Kennedy, 2017

“What an awesome program! I flew 20 flights in five different aircraft. I traveled to Munich and Vienna for my thesis, where I flew a fly-by-wire Diamond DA42 as an evaluation pilot. Florida Tech set up my internship at Piper Aircraft, where I’m flying actual test missions as a flight test engineer. The highly experienced instructors really get you ready for the job.”
—Jennifer Geehan, 2017

FOR MORE INFORMATION AND TO APPLY
WWW.FIT.EDU

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A unique graduate program designed to expand the student's knowledge, skills and abilities in the field of aircraft flight testing

COLLEGE OF ENGINEERING AND SCIENCE
FLIGHT TEST ENGINEERING PROGRAM OVERVIEW

The Flight Test Engineering Program seeks to expand the student’s knowledge, skills and abilities in the field of Aircraft Flight Testing. Flight test engineering involves performance evaluation of existing aircraft, rather than designing aircraft to meet performance specifications. Core courses teach engineers how to test an aircraft safely, measure aircraft performance and determine aircraft flying qualities. Students learn the necessary measurement techniques, instrumentation and data analysis methods required to collect and reduce flight test data to standard atmospheric conditions and then expand those results for publication in pilots operating handbooks. Flight test results are also used for improving the design of future aircraft. Additionally, students learn how to test and evaluate various aircraft mechanical and electrical subsystems including propulsion, structure and avionics.

Master’s Degree
The M.S. in Flight Test Engineering program consists of 30 semester credit hours in three main components:
- A 12-hour core component: Flight test courses in Performance, Stability and Control, and Avionics as well as Project Engineering.
- A 12-hour electives component: Students select four courses from a list of 16 courses. Students have the option to substitute a thesis for two of the four electives courses.
- A 6-hour math component: Students select two courses from a list of seven courses.

Graduate Certificate Option
Students wishing to take the 12-hour core component without completing the rest of the master’s program will be awarded a Graduate Certificate in Flight Test Engineering. This option may appeal to students who wish to receive their master’s degree in a different discipline but still seek to expand their knowledge, skills and abilities in aircraft flight testing. This option may also appeal to professionals who may not have the time or resources to complete the full master’s program. Students must still meet the standard admission requirements. Tuition is the same.

Short Course Option
All flight test courses (Performance, Stability & Control, Avionics, Helicopter, and Weapon Systems) are offered in two-week, short-course versions. For a given course, the same content covered in 48 contact hours of a 16-week semester is condensed into two weeks. Short courses may be taught at Florida Tech or off site. Classes run 8 hours a day for the duration. If the student is in the graduate program, the short course will result in a letter grade and count toward the master’s degree or graduate certificate. Students who are not admitted to the graduate program but simply wish to expand their knowledge, skills and abilities in aircraft flight testing can earn continuous learning points. Tuition and lab fees for a short course are the same as a 3-hour, semester-long course.

Tuition
$1,241 per credit hour (2018–2019).

Scholarship Information
- UNIVERSITY GRADUATE SCHOLARS AWARD: New, full-time graduate students receive tuition remission for 3 or 6 semester credit hours for a maximum of 3 consecutive semesters. Limited and available on competitive basis.
- GRADUATE STUDENT ASSISTANTSHIPS: Pays for course work and/or provides a stipend. Limited and available on competitive basis.
- ADJUNCT TEACHING: Part-time adjuncts receive tuition remission for each course taught on a one-to-one basis.

Administration Requirements
An accredited bachelor’s degree in a field related to aerospace engineering. Applicants whose bachelor’s degrees are in other fields may require additional undergraduate course work. In evaluating an international application, due consideration is given to academic standards in the country where the undergraduate studies have been performed.

Core Course Descriptions

FTE 5701 Performance Flight Testing (3-hour)
Examines flight test engineering techniques to determine airplane performance. Includes flight labs for data collections. Presents data analysis and interpretation methods, and uses airplane performance theory to develop the equations necessary to reduce flight test data taken at altitude to sea-level. Covers both propeller and jet aircraft. $450 lab fee.

FTE 5702 Stability and Control Flight Testing (3-hour)
Examines techniques to evaluate airplane stability and control by flight testing. Includes flight labs for flight test data collection. Presents methods for stick fixed and stick free extrapolation of stability neutral points and control characteristics. Also includes effects of high speed and transonic flight due to aircraft configuration. $450 lab fee.

FTE 5703 Avionics Flight Testing (3-hour)
Reviews current avionics systems for testing in flight. Includes flight labs to demonstrate testing methods and data collection. Also includes communications and navigation systems, sensor systems, avionics systems integration, human factors and radar for severe weather avoidance systems and tests to determine stability. $450 lab fee.

ENM 5200 Project Engineering (3-hour)
Principles of project management to design and develop products and services within budget, on time and to specification. Includes work planning, organization design, requirements analysis, project control and PERT/CPM. (ENM: Engineering Management)

Elective Course Choices (four are required with no thesis)
AVS 5120 Aerodynamics of Wing Bodies (3-hour)
MEE 5318 Instrumentation and Measurement Systems (3-hour)
MEE 5320 Internal Combustion Engines (3-hour)
MEE 5350 Gas Turbines (3-hour)

AE 5480 Structural Dynamics (3-hour)
AE 5486 Crash Worthiness (3-hour)
FTE 5704 Helicopter Flight Testing (3-hour) $450 lab fee
FTE 5705 Weapon Systems Flight Testing (3-hour)
AAE 5801 Advanced Flight Dynamics and Control (3-hour)
AAE 5802 Multivariable Feedback Control Systems (3-hour)
AAE 5803 Nonlinear Control Systems (3-hour)

AAE 5804 Guidance and Navigation of Aerospace Vehicles (3-hour)
ECE 5245 Digital Signal Processing 1 (3-hour)
ECE 5251 Radar Systems (3-hour)
ECE 5350 Optical Electronics (3-hour)
SYS 5360 Electro-optic/Infrared Systems Engineering (3-hour)

Thesis Option
Students can substitute a thesis for two of the four electives. A thesis involves individual work under the direction of a member of the graduate faculty on a selected topic. Topics will involve some aspect of aircraft flight testing or simulation. Opportunities exist to conduct research off site at military flight test centers or commercial companies. The student will publish the thesis upon completion.

Math Course Choices (two are required)
MTH 5102 Linear Algebra (3-hour)
MTH 5130 Theory of Complex Variables (3-hour)
MTH 5201 Mathematical Methods in Science & Engineering 1 (3-hour)
MTH 5202 Mathematical Methods in Science & Engineering 2 (3-hour)
MTH 5401 Applied Statistical Analysis (3-hour)
MTH 5411 Mathematical Statistics 1 (3-hour)
MTH 5412 Mathematical Statistics 2 (3-hour)