

Florida Institute of Technology

Oak Ridge Associated Universities (ORAU)

Web Site Link: <http://www.ornl.gov/>

Contact Information

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Description

Since 1989, students and faculty of Florida Tech have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 98 colleges and universities, and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship and research appointments; and to organize research alliances among its members. Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates and postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry and mathematics.

Appointment and program length range from one month to four years. A comprehensive listing of these programs and other opportunities, their disciplines and details on locations and benefits, can be found in the ORISE Catalog of Education and Training Programs, which is available at www.ornl.gov/orise/educ.htm or by calling either of the contacts below. ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry and major federal facilities. Activities include faculty development programs such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs and services to chief research officers.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Institute for Materials Science and Nanotechnology (IMSN)

Director: Gordon L. Nelson, Ph.D., Vice President for Academic Affairs and Professor, Chemistry, Interim Director.

Contact Information

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Phone: (321)674-8480

Description

The IMSN mission is to enhance and expand materials research and outreach at Florida Tech and advance nanotechnology research and outreach by promoting joint multi-investigator research, encouraging interdisciplinary and trans-disciplinary research, coordinating shared faculty infrastructure, recruiting scholars and students, coordinating presentation of materials- and nanotechnology related activities to external governmental and non-governmental agencies, foundations and industry, and promoting collegiality and cohesiveness within the university in the area of materials and nanotechnology. The 21-institute faculty come from diverse engineering and science disciplines. Current research funding of participating faculty is approximately \$4 million, including research, instrumentation and participation in multi-investigator projects.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Institute for Energy Systems (IES)

Director: Y.I. Sharaf-Eldeen, Ph.D., P.E., Associate Professor, Mechanical and Aerospace Engineering, and Stephane Bucaille, Ph.D., Assistant Professor, Electrical Engineering, Co-Directors.

Contact Information

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Phone: (321)674-8124 or (321)674-8425

Description

The mission of the IES is to provide an intellectually stimulating environment for faculty and students to conduct funded research in areas of national need. National energy policy identifies these needs to be: (1) increasing domestic energy supplies; (2) increasing America's use of renewable and alternative energy; (3) increasing energy conservation and efficiency; (4) developing a comprehensive delivery system; (5) enhancing national energy security and international relationships; and (6) sustaining the nation's health and environment.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Harris Institute for Assured Information (HIAI)

Director: Richard A. Ford, Ph.D., Harris Professor for Computer Science in Assured Information, Director.

Contact Information

Email: rford@cs.fit.edu

Phone: (321)674-8590

Description

The mission of the Harris Institute for Assured Information is to promote interdisciplinary approaches to computer security and trustworthy computing through education, research and outreach by providing a single point of contact for students, faculty, funding agencies and businesses, and by crossing traditional academic disciplines to promote innovation. Information assurance is the discipline dedicated to providing users with trustworthy data. As such, the institute focuses on new technologies for protecting people and organizations from vulnerabilities that can lead to theft of information, malicious code infection or data destruction.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Institute for Research on Global Climate Change

Director: Robert Van Woesik, Ph.D., Professor, Biological Sciences

Contact Information

Email: rvw@fit.edu

Phone: (321)674-7475

Description

Over the next century, the Earth's average surface temperature is predicted to rise above temperatures that have not been experienced for over 400,000 years. Such a change in climate will consequently increase the risk of drought, erratic weather, sea-level rise, ocean warming and wildlife diseases. The mission of the institute is to: (1) foster climate-change research that will lead to improved decision-making, from local to international levels; (2) provide world-class research opportunities for undergraduate and graduate researchers; and (3) promote interdisciplinary collaborations leading to new understandings of climate change and adaptation. Since the end of 2009 when the institute was initiated, researchers have published over 60 scholarly articles on climate change in international journals.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Center for Remote Sensing (CRS)

Director: Charles R. Bostater Jr., Ph.D., Associate Professor, Environmental Sciences and Physical Oceanography

Contact Information

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Phone: (321)674-7113 or (321)674-7278

Description

The center's purpose is to encourage excellence in the development and application of remote sensing science and technology. It is organized as a collaborative center among and between faculty within the College of Engineering, College of Science and College of Aeronautics. Under the authority of the Space Grant Act of 1988, Florida Tech is a member of the Southeastern Space Consortium and the Florida Space Grant Colleges Consortium. The center has consulted and provided services to defense contractors, NASA centers and contractors, the Department of Energy and its subcontractors, state of Florida water management agencies, the Department of State and U.S. Department of Education, and is affiliated with foreign institutions and organizations. Facilities for remote sensing teaching and research include the ERDAS Image Analysis System, Evans Library, the Geographical Information Systems Laboratory, the Marine and Environmental Optics Laboratory and the Synoptic Meteorological Laboratory. Various laboratories and facilities in academic and research computing; computer science; aerospace, computer, electrical and mechanical engineering; physics and space sciences; and space systems are also available. Field studies can be conducted through the College of Aeronautics' fleet of aircraft. The university operates several small boats and charters a well-equipped vessel for offshore, estuarine and river work. Center faculty offer a wide variety of courses at the graduate and undergraduate level, including environmental satellite systems and data, hydroacoustics, digital image processing, and environmental optics for remote sensing.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

National Center for Hydrogen Research (NCHR)

Web Site Link: <http://research.fit.edu/nhc/>

Director: *Mary H. McCay, Ph.D., Research Professor, Mechanical and Aerospace Engineering*

Contact Information

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Description

The NCHR was established with funding from NASA to perform research and development concerning the application of hydrogen as a fuel for airborne platforms. It is currently pursuing the development of an interdisciplinary hydrogen and fuel cell technology academic program under the sponsorship of Department of Energy (DOE). The objectives of this program are to develop undergraduate modules, enquiry-based laboratory experiments and a graduate area of specialization academic program that will enable the growth of research and development in the arena of hydrogen and fuel cell technology. Faculty associated with the center are currently conducting research in computational modeling of fuel cells, fiber-optic sensors suitable for safety applications and systems monitoring, hydrogen storage mediums, the interaction of hydrogen with materials and hydrogen purification techniques.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Collaborative International Research Centre for Universal Access (CIRCUA)

Web Site Link: <http://circua.fit.edu/>

Director: *Gisela Susanne Bahr, Ph.D., Associate Professor, Industrial/ Organizational Psychology, Executive Head*

Contact Information

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Description

The Collaborative International Research Centre for Universal Access (CIRCUA) is an international research center with worldwide membership that promotes universal access and e-inclusion. CIRCUA's motto calls for removing barriers to modern technology in the information society. CIRCUA's objectives are: (1) advancing research and development for an inclusive information society; (2) leading the systematic growth of interaction science by drawing on expertise in cognitive and computer sciences; (3) creating global partnerships that result in international collaborations and products; and (4) networking and fusing multidisciplinary expertise globally. CIRCUA's international center head is Florida Tech's Dr. Bahr. CIRCUA's European center head is Dr. Ray Adams, University of Middlesex, London, and Churchill College, Cambridge, both in England.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Center for High Resolution Microscopy and Imaging (CHRMI)

Director: *Michael Grace, Ph.D., Associate Dean, College of Science and Associate Professor, Biological Sciences, Director.*

Contact Information

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Phone: (321)674-8194

Description

The Center for High Resolution Microscopy and Imaging is a multidisciplinary laboratory providing state-of-the art light and fluorescence microscopy, transmission electron microscopy, scanning electron microscopy, scanning probe microscopy and x-ray microanalysis of natural and artificial materials. The CHRMI contains necessary equipment and expertise to prepare almost any kind of sample for microscopic evaluation, to image sample surfaces and cross-sections at very high resolutions and to analyze elemental compositions of materials. Support staff maintains instrumentation and trains users in sample preparation and analyses of microstructure and microchemistry. Image collection is both film-based and digital. Support platforms provide detailed image analysis capabilities.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Center for Ferrate Excellence (COFE)

Web Site Link: <http://research.fit.edu/cofe/>

Director: *Virender K. Sharma, Ph.D., Professor, Chemistry*

Contact Information

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Description

In recent years, the higher oxidation states of iron (ferrates) have become of interest because they can safely and efficiently clean polluted water without harmful byproducts. The ferrate compound may be used as an oxidant, disinfectant, coagulant and for industrial green purposes. Ferrate has thus become advantageous over other commonly used chemicals in the wastewater industry. Applications of ferrate include treatment of common pollutants and emerging contaminants such as arsenic, estrogens and pharmaceuticals. The ferrate compound has also attracted interest for applications in green chemistry because the byproducts of its use, iron oxides, are environmentally friendly. Recently, the technology developed at Florida Tech has made a breakthrough in synthesizing liquid ferrate, which, unlike competing products, is stable for at least two weeks. This liquid product will open new opportunities for novel applications of ferrate. The intellectual property on the ferrate technology is being developed for licensing to bring it to the marketplace. This center offers technology, production and application as well as on-site engineering, testing and analysis.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Center for Corrosion and Biofouling Control (CCBC)

Web Site Link: <http://research.fit.edu/ccbc/>

Director: Geoffrey W.J. Swain, Ph.D., Professor, Oceanography and Ocean Engineering

Contact Information

Email: swain@fit.edu

Phone: (321)674-7129

Description

The mission of the center is to understand the processes of biofouling and corrosion, and to develop and apply innovative solutions for control and prevention. Its objectives are to advance the state-of-the-art in corrosion and biofouling control; to establish mutually beneficial collaborative relationships with local, national and international university, government and industrial partners; and to provide graduate and undergraduate students a world-class research and educational experience that prepares them for both academic and industrial professional opportunities. Current research activities include testing and evaluation of antifouling systems; investigation of hydrodynamic performance of ship hull coatings; the development of autonomous underwater hull cleaning systems; investigating the mechanisms of adhesion and release of fouling to novel biocide-free coating systems; and monitoring the performance of antifouling coatings through dry dock inspections.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Federal Aviation Administration Center of Excellence for Commercial Space Transportation

Director: Samuel T. Durrance, Ph.D. Professor, Physics and Space Sciences, and Daniel R. Kirk, Ph.D., Associate Professor, Mechanical and Aerospace Engineering, Co-Directors

Contact Information

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Phone: (321)674-7313

Description

The center is a partnership of academia, government and private industry addressing the current and future challenges for commercial space transportation. The center encompasses four primary research areas: (1) space traffic management and operations; (2) space transportation operations, technologies and payloads; (3) human spaceflight; and (4) space transportation industry promotion.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Center for Entrepreneurship and New Business Development (CENBD)

Director: S. Ann Becker, Ph.D., Dean, Nathan M. Bisk College of Business

Contact Information

Email: abecker@fit.edu

Phone: (321)674-7327

Description

The Center for Entrepreneurship and New Business Development integrates entrepreneurial education, training and research in pursuit of enterprise creation, sustainability and growth. The center fosters

partnerships among students, faculty, community members and entrepreneurs. These partnerships support an educational environment bridging theory and practice in pursuit of early-stage innovation, business leadership and new business ventures. The center encompasses the Women's Business Center (WBC) and the Entrepreneurial Training Services (ETS) program. The WBC is funded by a cooperative agreement with the U.S. Small Business Administration, offering technical assistance for nascent entrepreneurs and small businesses. The ETS program offers entrepreneurs intensive training on business development, supported by business faculty, community leaders and business area experts.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Wireless Center of Excellence (WICE)

Web Site Link: <http://research.fit.edu/wice/>

Director: Ivica Kostanic, Ph.D., Associate Professor, Electrical and Computer Engineering

Contact Information

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Phone: (321)674-7189

Description

WICE is devoted to creating a new generation of wireless engineering professionals through education and research. Driven by its academic program, WICE considers wireless to be any system or device that relies on electromagnetic-wave propagation to perform one or more of its functions. This context includes such diverse applications as radar, global positioning, location and sensing, as well as the broader class of communications systems such as satellites, point-to-point/multipoint, WLAN and wireless WAN. In partnership with industry, WICE offers the opportunity for faculty, and undergraduate and graduate students to engage in research and to study wireless concepts in a variety of courses. Research areas include propagation modeling, wireless systems engineering, personal communications systems, wireless sensors and multimedia communications, while also supporting simulation, fabrication and measurement of wireless communications and other systems and components. Laboratory test equipment includes Grayson's Spectrum Tracker, and spectrum and vector network analyzers, oscilloscopes, microwave amplifiers, oscillators and mixers, signal generators and associated active and passive RF devices. The laboratory performs experimental investigation using the anechoic chamber and screen room facilities. WICE is supported by significant laboratory facilities as described under "Electrical Engineering" in the Degree Programs section.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Florida Center for Automotive Research (FCAR)

Director: Pei-feng Hsu, Ph.D. Professor and Head, Mechanical and Aerospace Engineering, Interim Director

Contact Information

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Phone: (321)674-8092

Description

The mission of the Florida Center for Automotive Research is to develop an automotive engineering program with both research and educational components in order to leverage its engineering research

capability in the development of highly fuel-efficient hybrid or conventional vehicles. The center will provide the academic research capability to support hybrid vehicle production. The center will also provide solutions to challenging technical problems encountered in design and manufacturing, enhance Florida's reputation for automotive research and attract automotive supplier/original equipment manufacturer (OEM) operations to Florida.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

College of Engineering Center for Space Commercialization

Director: Daniel R. Kirk, Ph.D., Associate Professor, Mechanical and Aerospace Engineering, Interim Director

Contact Information

Email: dkirk@fit.edu

Phone: (321)674-7622

Description

The mission of the College of Engineering Center for Space Commercialization is to identify, promote and support the use of space to provide goods or services of commercial value, and to support U.S. aerospace industries and NASA needs toward a profitable commercialization of space. The center seeks to foster multidisciplinary collaboration among researchers from highly diversified scientific, engineering and business communities including universities, businesses and government entities.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Vero Beach Marine Laboratory (VBML)

Web Site Link: <http://research.fit.edu/vbml/>

Director: Junda Lin, Ph.D., Professor, Biological Sciences

Contact Information

Email: jlin@fit.edu

Phone: (321)674-7587

Description

VBML is located on four acres of oceanfront property in nearby Vero Beach. This facility serves as a field station for the university in support of research and teaching in the marine sciences. The beachfront location of VBML provides ready access to field study sites for work on the biology of coastal organisms and for studies of physical and geological processes of the coastal zone. Major research efforts at the laboratory are related to mariculture and marine biology/ecology. A two-story building, equipped with seawater tables and a flow-through system, supports research on mariculture and ecology of marine organisms. Several greenhouses and large tank systems are available for studying aquaculture, behavior and ecology of marine animals. Classrooms, offices and dry laboratory facilities are provided in the main laboratory building.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Microelectronics Laboratory

Director: Susan K. Earles, Associate Professor, Electrical and Computer Engineering

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Phone: (321)394-2171

Description

This microelectronics facility is designed to be a teaching laboratory as well as an advanced research laboratory. A microelectronics fabrication course is taught to graduate and undergraduate students. In this course, students complete, fabricate and test a variety of electronic devices such as photovoltaic devices and hydrogen sensors. Research conducted in the facility includes polymer-based and silicon-based electronic and optoelectronic devices. The 3,800-sq.-ft. facility has all support services needed for modern semiconductor research including a 3,000-sq.-ft. clean room and areas dedicated to circuit testing and equipment maintenance. Equipment in the laboratory includes ultraviolet photolithography, diffusion furnaces, a thin-film evaporator, wet chemistry benches, and measurement and inspection equipment. The advanced research laboratory presently features a scanning probe microscope, plasma enhanced deposition and lasers for teaching and research.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Laser, Optics and Instrumentation Laboratory (LOIL)

Web Site Link: <http://research.fit.edu/loil/>

Director: Kunal Mitra, Ph.D., Professor, Mechanical Engineering and Chelakara Subramanian, Ph.D., P.Eng (UK), Professor, Aerospace Engineering, Co-Directors.

Contact Information

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Phone: (321)674-7131

Description

LOIL exploits current technologies in continuous wave and short-pulse lasers and optics to develop new techniques for measuring and characterizing material properties. Faculty and graduate students are involved in analyzing the interaction of these lasers with different materials for various applications. Biomedical applications focus on detecting and irradiating cancer/tumors and in homogeneities in tissues. Material characterization/processing applications involve detection of defects in materials such as debonding of thermal protection tile systems and thermal response of materials subjected to high-energy radiation. Remote sensing applications focus on lightning detection in cloud media and landmines in shallow waters. The challenge of integrating laser sources, system optics, instrumentation, measurement schemes and data acquisition provides students with new learning experiences in these areas. Major equipment currently in use includes mode-locked short-pulse laser, Q-switched pulsed laser, short pulse diode laser, high-power continuous wave lasers, ultrafast photodetectors, sampling head oscilloscope, streak camera, miscellaneous optics and optical accessories, thermal camera and an image processing system.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Wind and Hurricane Impacts Research Laboratory (WHIRL)

Web Site Link: <http://research.fit.edu/whirl/>

Director: Jean-Paul Pinelli, Ph.D., P.E., Professor, Civil Engineering

Contact Information

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Phone: (321)674-8085

Description

WHIRL is dedicated to the study of the effects and impacts of windstorms including hurricanes, tornadoes and thunderstorms, and other related meteorological hazards (e.g., flooding and tidal surges) on the natural environment and manmade structures. The laboratory involves a multidisciplinary team of engineers, scientists and business experts. It takes advantage of a geographic location in the heart of Florida's Space Coast to serve the needs of industry, government and the public in wind hazard mitigation. The laboratory's activities include research on mitigation of losses of life, property and the environment; education of the public through dissemination of information; and the development of a multidisciplinary program of study focused on wind engineering and wind-related socioeconomic studies and analyses. Research topics in the laboratory include action of strong winds and storm surges on structures; evaluation of codes, standards and retrofitting techniques for buildings and infrastructure systems; risk assessment for existing structures, coastal erosion, sediment transport and environmental damage due to storm surges and floods; development of remote sensing tools for assessing and monitoring hurricane damage, wind speed and flood levels; fundamental wind and meteorological research; wind tunnel modeling and testing; and statistical studies, analysis of economic impacts and development of potential damage maps for hurricane hazards in Florida.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Dynamic Systems and Controls Laboratory (DSCL)

Web Site Link: <http://coe.fit.edu/mae/labs/sys.php>

Director: Hector Gutierrez, Ph.D., P.E., Associate Professor, Mechanical Engineering and Y.I. Sharaf-Eldeen, Ph.D., P.E., Associate Professor, Mechanical Engineering, Co-Directors

Contact Information

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Description

DSCL supports a variety of research activities in dynamic systems for mechanical and aerospace applications: (1) real-time monitoring and control of the flexible dynamics in launch vehicles including design, characterization and system integration of distributed actuators such as cold gas thrusters; (2) use of Fiber Bragg grating arrays to monitor and control in real-time multi-modal vibrations in aerospace structures; (3) in electrical machinery, the design, analysis, characterization and testing of novel machine topologies such as dual armature generators; (4) characterization of the liquid slosh dynamics in upper stage propellant tanks; and (5) magnetic suspension technology, computer-based instrumentation and mechatronics. Current and past research activities include: (1) realtime control of structural vibrations based on magneto-rheological (MR) dampers; (2) magnetic suspension systems for high-precision positioning applications; (3) characterization of surface tension and contact angle in novel propellants; (4) rotating machinery monitoring and fault diagnosis, online vibration and angular motion measurements;

(5) analyses to develop condition monitoring; (6) maintenance information systems for power generation, transmission systems and components in rotating machinery.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Robotics and Spatial Systems Laboratory (RASSL)

Web Site Link: <http://research.fit.edu/rassl/>

Director: Pierre M. Larochelle, Ph.D., Assistant Dean, College of Engineering and Professor, Mechanical Engineering

Contact Information

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Phone: (321)674-7274

Description

RASSL is dedicated to the development of robotic mechanical systems that generate spatial (i.e., 3-dimensional) motion and force transmission. RASSL seeks to advance the design methodologies for these challenging systems as well as techniques for their use in industrial and consumer applications. Equipment includes a Motoman SV3 XRC robot, an Adept/Mobile Robotics PowerBOT and several systems developed by RASSL.

Fee Schedule

Facility use is negotiated on a per-proposal basis.

Ralph S. Evinrude Marine Operations Center

Director: Captain Timothy Fletcher, Manager

Contact Information

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Phone: (321)727-7930

Description

The center houses small outboard-powered craft and medium-sized workboats. These vessels are available to graduate students and faculty for teaching and research use in the tributaries and the Indian River Lagoon (IRL). The facility has a variety of other resources available and is located on Crane Creek in Melbourne, approx. 1.5 mile from the main campus. The IRL is a national estuary and is the most biodiverse estuary system in North America. The Florida Tech national champion crew team, champion concrete canoe team, Sailing Club and scientific diving program safety office are also housed at the center.

Fee Schedule

Facility use is negotiated on a per-proposal basis.