The program responds to high NSF expectations.

In the mornings of the first two summer months (June and July in the GSU class schedule), the students will attend two hours of lectures, seminars, and workshops.

This will be followed by a two-hour, team brainstorming and interactions, draft reporting, project planning and management and self-evaluation progress in laboratory environment.

Experiments pertaining to their research project in the laboratory in the afternoon.

They will make research-related field visits to industrial and government laboratories and participate in organized extracurricular activities.

They will write and deliver bi-monthly progress reports on their research topic, final reports related to the course of study, and a final report on their contribution to the research in technical-journal format.

The program culminates with preparation of a report and a PowerPoint presentation to their colleagues and faculty, and a technical poster that will be displayed in the department and online.

About Georgia Southern University

Georgia Southern University is located in Statesboro, Georgia, and with over 20,000 students, it is the largest university in southeast Georgia and the third largest in the state university system. Its eight colleges offer more than 100 Bachelor's and Master's degrees. NSF classifies GSU as a non-PhD-granting institution.

GSU’s undergraduate population in 2011 was 25.0% black, 33.5% total minority, and 51.9% female. In fall 2012, the College of Engineering and Information Technology’s (CEIT) student population is 24.6% black, 34.5% total minority, and 10.3% female.

GSU is proud of its student-centered learning environment. With 2,600 students, CEIT emphasizes hands-on research experiences for undergraduate and Master’s-level students.

Georgia Southern University
PO Box 8046, Statesboro, GA 30460
Tel: 912-478-5103, for More Information, visit:
http://www.georgiasouthern.edu/
http://ceit.georgiasouthern.edu/
http://www.georgiasouthern.edu/ME
http://ceit.georgiasouthern.edu/engine
The Allen E. Paulson Research Laboratory for Renewable Energy and Engines at Georgia Southern University will offer summer-term interdisciplinary research experiences for engineering undergraduate students in the field of Renewable Energy and Biofuels Combustion in Internal Combustion Engines (ICE). REU students will be trained to use the AEP Laboratory’s state-of-the-art equipment. A ~$1.5M investment in applied equipment (high-speed data acquisition and gas analysis systems, engines, dynamometers) secured with NSF, DOE, EPA, and ORNL research grants.

Features of the program: The research problem requires multidisciplinary strategies contributed by 8 faculty from 5 departments & 3 colleges of the university. The program will provide stipends to 10 students from various universities, for 10 weeks each summer from 2014 to 2016. In consultation with a faculty mentor, they will develop an individual research project, delineating their expected contribution to their assigned team. Participants will attend lectures, seminars, workshops, and labs to develop their knowledge in, renewable energy, engines, research methods, and technical writing.

National Science Foundation: Research Experience for Undergraduates
“Undergraduate Research in Green Engineered New Transportation Technologies (URGENTT)”

Research Projects

1. Investigate the thermo-physical and chemical properties of biofuels and their neat fatty acids. REU students will conduct calorimeter tests to obtain the lower heating values for bio-oids; Thermo Gravity Analysis and Differential Thermo Analysis to investigate vaporization and combustion properties over a large temperature range.

2. Analyze combustion characteristics of biofuels. This project will yield information on: 1. Biodiesel properties, density & bulk modulus influence on injection timing, as compared to diesel fuel. 2. Influence of fuel properties on ignition delay and premixed and diffusion combustion phases. 3. Heat fluxes and heat transfer from convection and flame radiation.

3. Investigate biofuels emissions. Will determine the precise conditions of the heat release and combustion phases, investigate emissions for biofuels How vaporization ignition delay affect NOx emissions, and if oxygenation and decreased aromatic content of biodiesel lower soot formation.

4. Investigate advanced combustion modes in a True Omnivorous Multifuel Engine. REU students will investigate FAME combustion behavior for various fueling strategies in this novel engine configuration and compare with diesel operation.

5. Instrumentation of an Extended Range Hybrid Electric Vehicle (ERHEV) with a green engine fueled by butanol. REU students will work on converting a Briggs and Stratton gasoline engine to butanol PFI.

Supporting Lectures

1. Dr. V. Soloiu: 10 Contact Hours (Renewable Energy)
2. Dr. G. Molina: 10 Contact Hours. (Tribology)
3. Dr. A. Desai: 10 Contact Hours (Logistics)
4. Dr. V Soloiu : 10 Contact Hours (Engines)
5. Dr. Alba Flores: 10 Contact Hours (Sensors)
6. Dr. D Williams: 10 Contact Hours (Safety)

Selection process:

if you are a ME student in GSU please contact: Dr. Soloiu- vsoloiu@georgiasouthern.edu

the NSF-REU PI

1. Applicants must meet the US citizenship or permanent resident and undergraduate student status criteria set forth in the NSF-09-598 solicitation
2. Minimum GPA: 3.5 in major; 3.0 overall
3. Students will receive stipend of $400/week and $200 /week subsistence allowance
4. All students may receive up to $1000 for round trip economy air ticket from their university to GSU if no driving possible
5. Application deadline January 15
6. June 1st: Program start for 10 weeks