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# Southeastern Louisiana University

## Integrated Science and Technology

*Director: Associate Professor Bonnette*

### INTEGRATED SCIENCE AND TECHNOLOGY (ISAT)

**592. Research and Development in Industrial Technology.** Credit 3 hours. Prerequisites: An overall “B” average or recommendation by the faculty and approval of the Department Head. A course devoted to research and development through laboratory experimentation of selected problems of specific interest. Course may be repeated for a total of six hours with no more than three hours in any one semester.

**600. Applied Science Seminar I.** Credit 3 hours. Students in the program will be expected to take the two three-credit hour applied science seminars during their first two semesters in the program. The purpose of these seminars is to develop the student’s research skills in an applied setting and to show students how interdisciplinary study will benefit their career aspirations, Students will be expected to examine the effects and applications of emerging technology in industry. Problem solving models and techniques will be illustrated and applied. Sharing of professional knowledge and expertise is expected in the flow of classroom interaction. Guest speakers from regional businesses and industries will be an integral part of these seminars.

**601. Applied Science Seminar II.** Credit 3 hours. Prerequisite: Completion of ISAT 600. This seminar is a continuation of ISAT 600. The course is intended to further develop the students research skills through projects involving current technology. The course will continue to present students with a broad range of current industrial practices. It will also assist students in selecting their team-based project.

**615. Technology in Industry and Society.** Credit 3 hours. Prerequisite: ISAT 600 or concurrent enrollment. This course investigates the historical evolution of technology for use in developing models appropriate for predicting future technological trends. The course provides technical understanding and

communication skills needed across the disciplines of mathematics, chemistry and physics, industrial technology, and computer science. The course provides and understanding of the impact of technology on individuals, the global community and the environment.

**625. Applications of Computing in Science and Technology.** Credit 3 hours. Prerequisite ISAT 600 or concurrent enrollment. Applications of computing in applied research labs, business, and industry settings. Topics include inter and intro-networking; information acquisition, storage and retrieval; process control systems; mathematical models; and chemical process control models.

**635. Industrial Chemistry. Credit 3 hours.** Prerequisites: ISAT 600 or concurrent enrollment. This course will be of a survey nature. It will introduce the student to the importance of the chemical industry to our economy as a whole and inform the student about the role of the chemist in typical plant operations such as quality control and assurance, safety compliance, and research and development. In addition, the student will become acquainted with some important industrial processes in the chemical industry.

**645. Mathematical Modeling for Science and Technology.** Credit 3 hours. Prerequisite: ISAT 600 or Concurrent enrollment. A study of typical operation research problems representative of various business and industrial organizations. These problems include production planning, distribution and scheduling, inventory control, project planning and control, simulation and forecasts of sales.

**770. Thesis Project.** Credit 3 hours. Prerequisites: ISAT 600, 601 and approval of Program Coordinator. Students are required to complete 6 hours of thesis (ISAT 770) or a research project (ISAT 771). ISAT 770 is the thesis option. Thesis projects will investigate a significant interdisciplinary topic centered in the area of the student's concentration. The thesis is graded Pass/Fail. The student must enroll in the thesis course each semester that the thesis is in progress.

**771. Research Project.** Credit 3 hours. Prerequisite: ISAT 600, 601 and approval of Program Coordinator. Students are required to complete 6 hours of thesis (ISAT 770) or a research project (ISAT 771). ISAT 771 is the option to design and implement a research project. Research projects will investigate a significant interdisciplinary, applications-oriented topic centered in the area of the student's concentration. The research project is graded Pass/Fail. The student must enroll in the research project course each semester that the research is in progress.