ENGINEERING (M.S.) COMPUTATIONAL ENGINEERING EMPHASIS

It is essential for engineers to be skillful in computational technologies. Emergence of high performance computing has created a third mode of scientific investigation. Computational simulation now joins theoretical analysis and physical experimentation as tools for discovering new knowledge.

Program Objectives

1. Develop computational systems for the solution of physical problems in engineering and science.
2. Develop algorithms and software required for the mathematical models of physical processes.
3. Visualize, analyze, and interpret computed results and other physical data.

Degree Requirements

Thirty(30), or thirty-six (36), semester hours are required for the Master of Science Degree in Engineering depending upon which of the following three options the student selects with approval of his or her department chairperson and/or advisor:

Option 1 Twenty-four (24) semester hours of coursework plus a six-hour thesis
Option 2 Twenty-seven (27) semester hours of coursework plus a three-hour project
Option 3 Thirty-six (36) semester hours of coursework

Option 1 Requires a formal written thesis, formal presentation and oral exam.
Option 2 Requires a written project report, formal presentation and oral exam.
Option 3 Requires an oral exam.

To remain in "good standing," students must maintain a minimum cumulative grade point average (GPA) of 3.0 ("B average).

Core Courses

Each emphasis area has either three or four core courses (9 to12 semester hours). Electives are selected with approval of the student's graduate committee and/or graduate advisor

Code	Title	Hours
CPE 503	COMPUTATIONAL METHODS	3
CPE 520	ADVANCED ENGINEERING ANALYSIS	3
CPE 521	ADVD ENGINEERING ANALYSIS II	3
CPE 618	HIGH PERFORMANCE COMPUTING	3

Elective Courses

Code	Title	Hours
CPE 500	SOFTWARE ENGINEERING	3
CPE 505	ANALYSIS OF ALGORITHMS	3
CPE 508	OPERATING SYSTEMS	3
CPE 512	COMPUTER ARCHITECTURE	3
CPE 515	ADVANCED LOGIC DESIGN	3
CPE 530	VLSI DESIGN	3
CPE 532	DIGITAL INTEGRATED CIRCUITS	3
CPE 541	COMPUTER NETWORK	3
CPE 552	COMPUTER VISION	3
CPE 555	CONTROL SYSTEMS	3
CPE 557	ROBOTICS	3
CPE 560	EMBEDDED DESIGN W/MICHROPROCES	3
CPE 610	PARALLEL COMPUTING AND PROGRAM	3
CPE 693	ADVANCED TOPICS-IC DESIGN	3
CPE 697	INTERNSHIP	1-3
CPE 698	INDEPENDENT STUDY	1-4
CPE 699	THESIS	1-6