

Computer Systems Engineering Degree Program

DRAFT Pending Final Approval

Year One

| Fall Semester | | Spring Semester | |
|---|--------------|--------------------------------|--------------|
| Course | Credit Hours | Course | Credit Hours |
| MATH 2250 Calculus 1 | 4 | MATH 2260 Calculus 2 | 4 |
| CSCI 1301 Intro Computing & Programming | 4 | CSCI 1302 Software Development | 4 |
| ENGL 1101 English Comp. 1 | 3 | CSCI 2610 Discrete Mathematics | 4 |
| ENGR 1120 Engineering Graphics | 3 | PHYS 1211 & L Physics 1 | 4 |
| CSEE 2220 Logic Design | 3 | | |
| Total Credit Hours | 17 | Total Credit Hours | 16 |

Year Two:

| Fall Semester | | Spring Semester | |
|----------------------------------|--------------|------------------------------------|--------------|
| Course | Credit Hours | Course | Credit Hours |
| MATH 2500 Calculus 3 | 3 | CSCI 2720 Data Structures | 4 |
| MATH 2700 Differential Equations | 3 | ENGR 2170 Electrical Circuits | 3 |
| PHYS 1212 & L Physics 2 | 4 | ENGR 2120 Statics | 3 |
| CSCI 1730 Systems Programming | 4 | World Language and Culture | 3 |
| ENGL 1102 English Comp. 2 | 3 | ENVE 3510 Modeling, Stat. Analysis | 3 |
| Total Credit Hours | 17 | Total Credit Hours | 16 |

Year Three:

| Fall Semester | | Spring Semester | |
|-------------------------------------|--------------|--------------------------------------|--------------|
| Course | Credit Hours | Course | Credit Hours |
| HIST 2111/2112 American History | 3 | ENGINEERING SCIENCE Elective | 3 |
| CSCI 4720 Comp. Architecture & Org. | 4 | BIOL 1103 Biology 1 | 3 |
| ENGR 4210 Linear Systems | 3 | ENGR 2110 Engr Decision Making | 3 |
| ENGR 4230 Sensors & Transducers | 3 | ENGR 4220 Feedback Controls | 3 |
| World Language and Culture | 3 | ENGR 3270 Electronics 1 | 3 |
| | | ENGR 2920 Engineering Design Project | 2 |
| Total Credit Hours | 16 | Total Credit Hours | 17 |

- Engineering Science Elective: Select from ENGR 2130 Dynamics, ENGR 2140 Strength of Materials or ENGR 3160 Fluid Mechanics

Year Four:

| Fall Semester | | Spring Semester | |
|-----------------------------|--------------|----------------------------|--------------|
| Course | Credit Hours | Course | Credit Hours |
| CSCI Elective | 4 | Social Science Elective | 3 |
| ENGR 4270 Electronics 2 | 3 | ENGR 4922 Senior Design | 3 |
| Humanities and the Arts | 3 | World Language and Culture | 3 |
| POLS 1101 Political Science | 3 | CSEE Elective | 3 |
| CSEE Elective | 3 | CSEE Elective | 3 |
| Total Credit Hours | 16 | Total Credit Hours | 15 |

- CSCI Elective: Select either CSCI 4760 Computer Networks or CSCI 4730 Operating Systems

CSEE Electives:

Computer Hardware Systems:

CSCI 4740 Real Time Systems
CSCI 4750/6750 Design of Very Large Scale Integrated Systems
CSEE 4210 Digital Signal Processing
CSEE 4230 Embedded Systems
CSEE 4240 Sensor Networks
CSEE 4270 Design of Digital Systems Design
* Network Optimization

Mechatronics

CSCI 4530/6530 Introduction to Robotics
CSEE 4320 Mechatronics Systems Engineering
ENGR 3300 Mechanisms & Machine Kinematics
ENGR 4300 Mechanical Systems
ENGR 4540/6540 Applied Machine Vision
*Optomechatronics: Fusion of Optical and Mechatronic Engineering
*Principles of Automating & Programming
*Systems Optimization

Telecommunications & Wireless Systems:

CSCI 4750/6750 Design of Very Large Scale Integrated Systems
CSEE 4210 Digital Signal Processing
CSEE 4270 Design of Digital Systems Design
* Design of Wireless Communication Systems
* Interface Design of Wireless Systems
* Network Optimization

Software Engineering:

CSCI 4050 Software Engineering
CSCI 4370/6370 Database Management
CSCI 4570/6570 Compilers
* Theory & Design of Interactive Systems
* Methods of Software Quality Assurance
* Concept of Embedded & Real Time Systems

Biological Systems:

CSCI 4490 Algorithms for Computational Biology
CSEE 4620 Biomedical Imaging
CSEE 4630 Bioinstrumentation
MATH 4780 Mathematical Biology
* Signal Processing of Organisms
* Interfacing for Biological Systems & Computers

Graphics & Visualization:

CSCI 4810/6810 Computer Graphics
CSCI 4800/6800 Human-Computer Interaction
CSCI 4830/6830 Virtual Reality
CSCI 4070 Introduction to Game Programming
CSCI 4080 Intermediate Game Programming

* Astericks indicate new courses which will be developed.

Entrance Requirements:

Grade of "C"(2.0) or better in each of the following courses and a 2.5 GPA for this pool of courses: MATH 2250, MATH 2260; MATH 2500; MATH 2700; PHYS 1211-1211L; PHYS 1212-1212L; STAT 2000; CSCI 1301-1301L; CSCI 1302 and ENGR 2120. Overall GPA 2.7 for Transfer Students.

*All students must earn a grade of "C" (2.0) or better in the following engineering courses; ENGR 1120, ENGR 2110, ENGR 2120, and ENGR 2170; AND the Engineering Science Elective (ENGR 2130 or ENGR 2140 or ENGR 3160). Except for those ENGR courses requiring a grade of "C" (2.0) or better, a maximum of two ENGR or CSEE prefix courses with grades of "D" (1.0) may be used to satisfy graduation requirements. Competency in a computer programming language is expected and may be satisfied with CSCI 1301.