

ENGINEERING SYSTEMS AND COMPUTING PROGRAM (ESC)

School of Engineering, College of Engineering and Physical Sciences

In the last quarter century, the computer has grown so rapidly in importance that engineering, science, business and industry could not function without it. With this growth, a need has evolved for specialists who can incorporate computers and information into complex industrial processes. The Engineering Systems and Computing program has been conceived to satisfy this need. Graduates from this program will have, in addition to the basic engineering skills, the ability to identify application areas where computer technology represents the optimum solution, specify appropriate software for process control, data reduction and/or expert system implementation and integrate the computer into the overall system application.

Major (Honours Program)

Code	Title	Credits
Semester 1		
CHEM*1040	General Chemistry I	0.50
ENGG*1100	Engineering and Design I	0.75
ENGG*1410	Introductory Programming for Engineers	0.50
MATH*1200	Calculus I	0.50
PHYS*1130	Physics with Applications	0.50
Semester 2		
ENGG*1210	Engineering Mechanics I	0.50
ENGG*1420	Object-Oriented Programming for Engineers	0.50
ENGG*1500	Engineering Analysis	0.50
MATH*1210	Calculus II	0.50
PHYS*1010	Introductory Electricity and Magnetism	0.50
Semester 3		
CIS*2520	Data Structures	0.50
ENGG*2230	Fluid Mechanics	0.50
ENGG*2400	Engineering Systems Analysis	0.50
ENGG*2410	Digital Systems Design Using Descriptive Languages	0.50
MATH*2270	Applied Differential Equations	0.50
0.50 restricted electives		0.50
Semester 4		
ENGG*2100	Engineering and Design II	0.75
ENGG*2120	Material Science	0.50
ENGG*2450	Electric Circuits	0.50
MATH*2130	Numerical Methods	0.50
STAT*2120	Probability and Statistics for Engineers	0.50
0.50 restricted electives		0.50
Semester 5		
ENGG*3260	Thermodynamics	0.50
ENGG*3390	Signal Processing	0.50
ENGG*3450	Electronic Devices	0.50
ENGG*3640	Microcomputer Interfacing	0.50
ENGG*4450	Large-Scale Software Architecture Engineering	0.50

0.50 restricted electives 0.50

Semester 6		
ENGG*3100	Engineering and Design III	0.75
ENGG*3130	Modelling Complex Systems	0.50
ENGG*3410	Systems and Control Theory	0.50
ENGG*3430	Heat and Mass Transfer	0.50
HIST*1250	Science and Technology in a Global Context	0.50

0.50 restricted electives 0.50

Semester 7		
ENGG*3240	Engineering Economics	0.50
ENGG*4000	Proposal for Engineering Design IV	0.00
ENGG*4420	Real-time Systems Design	0.75

1.50 or 1.75 restricted electives 1.50-1.75

Semester 8		
ENGG*4120	Engineering Systems and Computing Design IV	1.00
ENGG*4490	Sampled Data Control Design	0.75

1.00 or 1.25 electives 1.00-1.25

Restricted Electives

(see Program Guide for more information)

The Engineering Program requires Engineering Systems and Computing students to complete the following combination of elective credits to complete their program:

- 2.75 credits from the ESC Engineering Systems and Computing electives
- 2.00 credits from Complementary Studies electives

Consult the Program Guide for further information on the prerequisite requirements specific to each elective. Students can take a maximum of 1.50 credits at the 1000 level from the above list of electives.