

COMPUTER ENGINEERING PROGRAM (CENG)

School of Engineering, College of Engineering and Physical Sciences

Computer Engineering is a field of engineering that focuses on the design and organization of computer systems. Graduates in Computer Engineering are able to apply mathematical, scientific and engineering principles to design and integrate computer systems suitable for applications in a wide range of fields. The program provides students with a common base of knowledge essential to computer engineering and then allows them to select from a menu of electives to attain a degree of specialization in one of four areas or to choose electives to broaden their knowledge base. Elective concentrations are available in areas of Electronic Design automation, Software Design, Artificial Intelligence and Robotics, and Microsystems.

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*2400	Engineering Systems Analysis	0.50
ENGG*2410	Digital Systems Design Using Descriptive Languages	0.50
MATH*2270	Applied Differential Equations	0.50
STAT*2120	Probability and Statistics for Engineers	0.50
0.50 restricted elective		0.50
Semester 4		
CIS*2910	Discrete Structures in Computing II	0.50
ENGG*2100	Engineering and Design II	0.75
ENGG*2450	Electric Circuits	0.50
ENGG*3380	Computer Organization and Design	0.50
MATH*2130	Numerical Methods	0.50
0.50 restricted electives ¹		0.50
Semester 5		
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
HIST*1250	Science and Technology in a Global Context	0.50

0.50 restricted electives		0.50
Semester 6		
CIS*3110	Operating Systems I	0.50
CIS*3490	The Analysis and Design of Computer Algorithms	0.50
ENGG*3100	Engineering and Design III	0.75
ENGG*3210	Communication Systems	0.50
ENGG*3410	Systems and Control Theory	0.50
0.50 restricted electives		0.50
Semester 7		
ENGG*3050	Embedded Reconfigurable Computing Systems	0.50
ENGG*3240	Engineering Economics	0.50
ENGG*4000	Proposal for Engineering Design IV	0.00
ENGG*4420	Real-time Systems Design	0.75
1.00 restricted electives		1.00
Semester 8		
ENGG*4170	Computer Engineering Design IV	1.00
ENGG*4540	Advanced Computer Architecture	0.50
ENGG*4550	VLSI Digital Design	0.50
1.00 electives		1.00

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CIS*2750 Software Systems Development and Integration recommended for students interested in the software area of interest.

Restricted Electives

(see Program Guide for more information)

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

- 2.00 credits from the CENG-1 Computer Engineering 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.