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)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Semester 1</td>
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<tr>
<td>CHEM*1040</td>
<td>General Chemistry I</td>
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<tr>
<td>ENGG*1110</td>
<td>Engineering and Design I</td>
<td>0.75</td>
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<tr>
<td>ENGG*1410</td>
<td>Introductory Programming for Engineers</td>
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<td>MATH*1200</td>
<td>Calculus I</td>
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<td>PHYS*1130</td>
<td>Physics with Applications</td>
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<tr>
<td>ENGG*1210</td>
<td>Engineering Mechanics I</td>
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<td>ENGG*1420</td>
<td>Object-Oriented Programming for Engineers</td>
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<td>ENGG*1500</td>
<td>Engineering Analysis</td>
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<td>Calculus II</td>
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<tr>
<td>CIS*2520</td>
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<td>ENGG*2400</td>
<td>Engineering Systems Analysis</td>
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<td>ENGG*2410</td>
<td>Digital Systems Design Using Descriptive Languages</td>
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<td>MATH*2270</td>
<td>Applied Differential Equations</td>
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<td>STAT*2120</td>
<td>Probability and Statistics for Engineers</td>
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<td>CIS*2910</td>
<td>Discrete Structures in Computing II</td>
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<td>ENGG*2100</td>
<td>Engineering and Design II</td>
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<td>ENGG*2450</td>
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<td>ENGG*3380</td>
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<td>MATH*2130</td>
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<td>ENGG*3390</td>
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<td>ENGG*3450</td>
<td>Electronic Devices</td>
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<td>ENGG*3640</td>
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<td>ENGG*4450</td>
<td>Large-Scale Software Architecture Engineering</td>
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<td>HIST*1250</td>
<td>Science and Technology in a Global Context</td>
<td>0.50</td>
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</table>

0.50 restricted electives

| Semester 6  | 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  | Embedded Reconfigurable Computing Systems           | 0.50    |
| ENGG*3050   | Engineering Economics                                | 0.50    |
| ENGG*3240   | Proposal for Engineering Design IV                   | 0.00    |
| ENGG*4420   | Real-time Systems Design                             | 0.75    |
| 1.00 restricted electives |                          | 1.00    |
| Semester 8  | Computer Engineering Design IV                       | 1.00    |
| ENGG*4170   | Advanced Computer Architecture                      | 0.50    |
| ENGG*4550   | VLSI Digital Design                                  | 0.50    |
| 1.00 electives |                                | 1.00    |

1.00 restricted electives

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.