# COMPUTER SCIENCE MINOR

## Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC/CPE 101</td>
<td>Fundamentals of Computer Science</td>
<td>4</td>
</tr>
<tr>
<td>CSC/CPE 202</td>
<td>Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>CSC/CPE 203</td>
<td>Project-Based Object-Oriented Programming and Design</td>
<td>4</td>
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<tr>
<td>CSC 225</td>
<td>Introduction to Computer Organization</td>
<td>4</td>
</tr>
<tr>
<td>CSC/CPE 357</td>
<td>Systems Programming</td>
<td>4</td>
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</tbody>
</table>

## Approved Electives

1. Choose from the following:

   - CPE 315  Computer Architecture
   - CPE 416  Autonomous Mobile Robotics
   - CPE/EE 428 Computer Vision
   - CPE/EE 442 Real Time Embedded Systems
   - CPE 464  Introduction to Computer Networks
   - CPE 465  Advanced Computer Networks
   - CSC 300  Professional Responsibilities
   - CSC 305  Individual Software Design and Development
   - CSC 313  Teaching Computing
   - CSC/CPE 321 Introduction to Computer Security
   - CSC 323  Cryptography Engineering
   - CSC 325  Introduction to Privacy: Policy and Technology
   - CSC 349  Design and Analysis of Algorithms
   - CSC 365  Introduction to Database Systems
   - CSC 366  Database Modeling, Design and Implementation
   - CSC 369  Introduction to Distributed Computing
   - CSC 371  Game Design
   - CSC 377  Introduction to Mixed Reality
   - CSC 378  Interactive Entertainment Engineering
   - CSC 400  Special Problems
   - CSC/CPE 422 Network Security
   - CSC/CPE 425 Wireless Security
   - CSC 429  Current Topics in Computer Security
   - CSC 430  Programming Languages
   - CSC/CPE 431 Compiler Construction
   - CSC 435  Mobile Application Development
   - CSC 437  Dynamic Web Development
   - CSC 448  Bioinformatics Algorithms
   - CSC/CPE 453 Introduction to Operating Systems
   - CSC/CPE 454 Implementation of Operating Systems
   - CSC/CPE 458 Current Topics in Computer Systems
   - CSC 466  Knowledge Discovery from Data
   - CSC 468  Database Management Systems Implementation
   - CSC/CPE 469 Distributed Systems
   - CSC/CPE 471 Introduction to Computer Graphics
   - CSC 473  Advanced Rendering Techniques
   - CSC 474  Computer Animation
   - CSC/CPE 476 Real-Time 3D Computer Graphics Software
   - CSC 477  Scientific and Information Visualization
   - CSC 478  Current Topics in Computer Graphics
   - CSC 480  Artificial Intelligence
   - CSC 481  Knowledge Based Systems
   - CSC 482  Speech and Language Processing
   - CSC 487  Deep Learning
   - CSC 490  Selected Advanced Topics
   - CSC/CPE 515 Computer Architecture
   - CSC 521  Computer Security
   - CSC 524  System Security
   - CSC 530  Languages and Translators
   - CSC 550  Operating Systems
   - CSC 560  Database Systems
   - CSC/CPE 564 Computer Networks: Research Topics
   - CSC 566  Topics in Advanced Data Mining
   - CSC 570  Current Topics in Computer Science
   - CSC 572  Computer Graphics
   - CSC 580  Artificial Intelligence
   - CSC 581  Computer Support for Knowledge Management
   - CSC 582  Computational Linguistics
   - DATA 301 Introduction to Data Science

## Total units

32

1. Choose from CSC/CPE upper-division courses open to CSC majors. Must be approved via the CSC minor form upon acceptance to the minor.
2. Must be approved via the CSC minor form, signed by the minor advisor.