DEVICE SOFTWARE ENGINEERING
SPECIALIZED STUDIES PROGRAM • ONLINE

Programming embedded devices in the electronics and computer engineering industry requires a different skill set than computer software programming. The coding must be precise and succinct to meet memory constraints and specialized needs of the product that the embedded system resides in, whether it be medical, automotive or consumer oriented.

This program addresses best practices in managing the embedded software engineering process, including design engineering, and co-development of hardware and software. The purpose is to provide a core competency in software engineering practices in embedded systems software development, with focus on device drivers.

WHO SHOULD ENROLL
This program is designed for individuals who want to write device drivers for embedded systems. It is also valuable to those who evaluate software development requirements, determine criteria for embedded development applications, establish programming methodologies to address embedded applications, and support hardware and embedded software development activities.

PROGRAM BENEFITS
• Develop concise and effective code for embedded systems applications
• Improve the hardware and software co-development process
• Organize your company’s device software engineering strategies
• Further your career as an embedded systems engineer

SPECIALIZED STUDIES AWARD REQUIREMENTS
Candidates must possess a fundamental understanding of C programming for embedded systems; or possess equivalent experience or education. A Specialized Studies certificate is awarded upon completion of 3 required courses (9 credit units total) with a grade of “C” or better in each course. Students not pursuing a specialized studies award are welcome to take as many individual courses as they wish.

PROGRAM FEES
The total cost of the program varies depending on the courses chosen. Actual fees may differ from the estimate below. Fees are subject to change without prior notice.

<table>
<thead>
<tr>
<th>Course Fees</th>
<th>$2,625</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidacy Fee</td>
<td>$35</td>
</tr>
<tr>
<td>Textbooks and Materials</td>
<td>$570</td>
</tr>
<tr>
<td><strong>Total Estimated Cost</strong></td>
<td><strong>$3,230</strong></td>
</tr>
</tbody>
</table>

IEEE Members receive 15% off of one course per quarter.

FOR MORE INFORMATION:
Jennifer Mortensen • j.mortensen@uci.edu • (949) 824-9722

University of California, Irvine ce.uci.edu/dse
DSP SYSTEMS ENGINEERING
SPECIALIZED STUDIES PROGRAM • ONLINE

Digital Signal Processing (DSP), has emerged as an important technology for modern electronic systems. It is a form of embedded design that is one of the newest and hottest fields, and is considered to be the workhorse of choice for many computational-intensive applications. Modern applications include biomedical, communications, imaging, speech, video signal, and multimedia signal processing.

WHO SHOULD ENROLL
This program is designed for individuals involved in the evaluation, design or development of systems employing digital signal processing, or as an introduction to DSP technology.

PROGRAM BENEFITS
• Understand the essential mathematics & algorithms in DSP
• Gain hands-on experience in designing and implementing DSP algorithms
• Learn about DSP processors and architectures
• Discover how to program DSP code
• Create practical applications

SPECIALIZED STUDIES AWARD REQUIREMENTS
Candidates should have a bachelor’s degree in computer science or electrical engineering or equivalent knowledge acquired through training and experience in hardware design and development. A Specialized Studies certificate is awarded upon completion of 3 required courses (9 credit units total) with a grade of “C” or better in each course. Students not pursuing a specialized studies award are welcome to take as many individual courses as they wish.

PROGRAM FEES
The total cost of the program varies depending on the courses chosen. Actual fees may differ from the estimate below. Fees are subject to change without prior notice.

Course Fees
(4.5 prerequisite and 9 required units) $3,350
Candidacy Fee $35
Textbooks and Materials $487
Total Estimated Cost $3,872

IEEE Members receive
15% off
of one course per quarter.

FOR MORE INFORMATION:
Jennifer Mortensen • j.mortensen@uci.edu • (949) 824-9722

DSP SYSTEMS ENGINEERING SPECIALIZED STUDIES PROGRAM

<table>
<thead>
<tr>
<th>COURSE#</th>
<th>PREREQUISITE COURSES</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EECS 805</td>
<td>C Programming for Embedded Systems</td>
<td>1.5 CEU</td>
</tr>
<tr>
<td>EECS X494.19</td>
<td>MATLAB for Engineers*</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE#</th>
<th>REQUIRED COURSES (Minimum 9 units)</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EECS X495</td>
<td>DSP Fundamentals, Modeling and Analysis***</td>
<td>3</td>
</tr>
<tr>
<td>EECS X495.1</td>
<td>C Programming for DSP**</td>
<td>3</td>
</tr>
<tr>
<td>EECS X495.2</td>
<td>DSP for Communications Systems#</td>
<td>3</td>
</tr>
<tr>
<td>EECS X498.61</td>
<td>Real-Time Embedded Digital Signal Processing*</td>
<td>3</td>
</tr>
<tr>
<td>EECS X498.6</td>
<td>Digital Signal Processing with FPGAs*</td>
<td>3</td>
</tr>
<tr>
<td>EECS X497.3</td>
<td>Motor Control Algorithms and Applications – Part 1*</td>
<td>3</td>
</tr>
<tr>
<td>EECS X497.33</td>
<td>Motor Control Algorithms and Applications – Part 2*</td>
<td>3</td>
</tr>
<tr>
<td>EECS X498.11</td>
<td>High Efficiency Video Compression Techniques*</td>
<td>3</td>
</tr>
</tbody>
</table>

*Prerequisite: EECS 805, C Programming for Embedded Systems, or equivalent experience.
**Prerequisite: EECS X494.19, MATLAB for Engineers, or equivalent experience.
***Prerequisite: EECS X495, or equivalent experience.