

# MASTER OF SCIENCE IN COMPUTER & ENGINEERING SCIENCE (MS-CES)



**SSU is Located in California's premier wine country, SSU offers a friendly, safe, and fun atmosphere to its students**

**Internship Opportunities with the top notch companies are facilitated for students**

**MS-CES is one of the most affordable programs offered in North California taught by experts from the leading industries**

**MS-CES is recognized as a PSM degree!**

**Still Undecided?**

**Contact**

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**Scan & See What Our Students Say about the Program**



**Visit: [goo.gl/LSPV1V](https://goo.gl/LSPV1V)**

MS-CES is a graduate program focused on interconnection between electrical engineering hardware and computer science software. The 32-unit curriculum blends relevant academic coursework with practical engineering experience, thereby addressing the evolving demands upon engineering in our progressively technology-driven world.

**Who is it for?** The MS-CES program is designed for professionals holding bachelor degrees in diverse areas of engineering and sciences who desire to further their career paths by adding new knowledge, tools and skills from a cross-disciplinary perspective. It provides value to both practicing engineers and engineering educators. The program is designed to accommodate both full-time and part-time students who work during the day.

**How long does it take?** The duration of studies will depend on the relevance of their undergraduate degrees to electrical engineering. Students with a background in electrical engineering will be able to complete the program in less than two years.

**What if I don't have an electrical engineering degree?** Interested students with undergraduate degrees in computer science, physics, materials science, and other science and engineering fields are highly encouraged to apply. Admitted students will set up a meeting with their designated adviser to design the most efficient plan of studies for the graduate courses as well as the appropriate prerequisites.

**Where can I find a job after I graduate?** Our main goal is to prepare the MS-CES students for employment in high-tech industries. The curriculum includes internships and opportunities for collaboration with local industries. The North Bay industries that provide internships and employ our graduates include, PG&E, Broadcom, Ciena, Cyan, Keysight Technologies, Parker Hannifin Corporation, Pocket Radar, and more.

**What if I am an International Student?** Our students come from a diverse background. Many are international students from China, India, the Middle East, Europe and Latin America. Due to the diverse academic backgrounds of our incoming students, we do not require a GRE at the time of admission. Teaching assistantships and other forms of financial assistance are offered to qualified students.

CEs	Course Title	Catalog Description
400	Linear Systems Theory (3)	Lecture, 3 hours. Analysis of linear time-invariant systems, correlation, convolution, impulse response, complex variables, Fourier series and transform, and more.
544	Wireless Communications (3)	Lecture, 3 hours. Introduction to mobile/wireless communication systems, cellular communication, data transmission and signaling, noise and intelligence, analog and digital techniques.
514	Data Mining (3)	Lecture, 3 hours. Introduction to data models, data warehousing, association-rule mining, searching the Web, Web Mining: Clustering. AI techniques (neural networks, decision trees), applications and case studies.
543	Optical Fiber Communications (3)	Lecture, 3 hours. Lightwave fundamentals, optical fiber as transmission media, losses and bandwidth, fiber cables. Optical sources, detectors. Optical components such as switches, access couplers, wavelength multiplexers and demultiplexers.
440	Advanced Networking and Network Management (3)	Lecture, 2 hours; laboratory, 3 hours. The ISO reference model, theoretical basis for data communications, data transmission theory and practice, telephone systems, protocols, networks, internetworks, with examples. (Crosslisted with ES 465)
520	Embedded Systems (3)	Lecture, 3 hours. Three major topics covered in this course are: controlling specialized I/O devices with particular attention to bit patterns and priority interrupts.
522	VLSI Design (3)	Lecture, 3 hours. IC technology review; hardware description languages and describing hardware using one of the languages, modern VLSI design flow; circuit partitioning; clustering.
xxx	Digital Signal Processing	Lecture, 3 hours. It also covers digital filter design and the fast Fourier transform algorithm for computation of the discrete Fourier transform.
xxx	Advanced Computer Architecture	Lecture, 3 hours. The course will be based on advanced topics regarding multi-core hardware: memory systems, cache coherence protocols.
xxx	Advanced Software Engineering	Lecture, 3 hours. This course focuses on the methodologies and technologies that address the challenges that companies are facing for competing in the volatile markets of today.
591	Internship (1)	Internship will be done at an industry, R&D laboratory, government organization, or a laboratory or center at an academic institution to gain professional training, teamwork experience, communication skills and project opportunities.
597	Grad. Seminar (1)	Series of lectures presented by experts from academia and industries.

**Sample program for new students with limited pre-requisites**  
- Students willing to take more unites per semester, can complete the degree requirements sooner!

	<b>Fall 1</b>	
<b>Pre-Requisites</b>	<b>6 Undergraduate Courses</b>	
<b>CEs 400</b>	<b>3 Advanced Linear Systems Theory</b>	
<b>CEs 440</b>	<b>3 Networking</b>	
	<b>Spring 1</b>	
<b>CEs 544</b>	<b>3 Wireless Communications</b>	
<b>CEs xxx</b>	<b>3 Digital Signal Processing</b>	
<b>CEs xxx</b>	<b>3 Elective</b>	
	<b>Fall 2</b>	
<b>CEs 524</b>	<b>3 Advanced Computer Architecture</b>	
<b>CEs 520</b>	<b>3 Embedded System or Advanced Software Eng.</b>	
<b>CEs 543</b>	<b>3 Optical Communications</b>	
	<b>Spring 2</b>	
<b>CEs 591</b>	<b>1 Internship</b>	
<b>CEs 599</b>	<b>1 Thesis</b>	
	<b>Fall 2</b>	
<b>CEs 522</b>	<b>3 Artificial Intelligence or Data Mining</b>	
<b>CEs 599</b>	<b>2 Thesis</b>	
<b>CEs 597</b>	<b>1 Graduate Seminar</b>	

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<http://>

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