

Embedded Controllers and DSP

Certificate Program



Enrollment in the Embedded Controllers and DSP Certificate program offers and proactively creates career opportunities for individuals interested in increasing their potential and value in the market place.

Embedded Controllers and DSP Certificate program prepares you for opportunities in, but not limited to, the areas of telecommunications, semiconductor equipment, optical networking, electro-mechanical and software.

This certificate program requires successful completion of five courses. Registration for the certificate program courses can be done through SJSU Open University or as a regularly admitted student to SJSU.

Certificate Program Course Requirements

ME	106	Fundamentals of Mechatronics Engineering
ME	187	Automatic Control Systems Design
EE	118	Digital Design I
EE	120	Digital Design II
EE	153	Introduction to Digital Signal Processing

To apply for the Certificate program, you need to contact the Professional Development and Certificates Program Director to plan your course schedule and discuss course registration and fees. Complete the "Certificate Program Application" and mail along with the required application fee to the Mechanical & Aerospace Engineering Department (<http://www.engr.sjsu.edu/mae/certificate.htm>). Individuals who are not a student on campus and are interested in taking the Certificate Program courses need to enroll in these courses through SJSU Open University Enrollment (<http://slisweb.sjsu.edu/admissions/open.htm>). To receive a Certificate signifying your program completion, you must apply for the Certificate after completing your third course in the program. This requires filing for Advancement to Candidacy and submission of an Advancement fee.

Lifelong Learning tax credit is available to students at all educational and enrollment levels who are enrolled at an eligible educational institution. Current tax law permits deduction for tuition, books, supplies and similar items, as well as certain travel and transportation costs incurred to maintain and improve professional skills.

For further information and registration, you may contact:

Professional Development and Certificates Program
Mechanical & Aerospace Engineering Department
San Jose State University
One Washington Square
San Jose CA 95192-0087
Telephone: (408) 924-3850
Fax: (408) 924-3995
Email: mecheng@email.sjsu.edu

Course Descriptions

ME 106 - Fundamentals of Mechatronics Engineering - Foundational concepts in Mechatronics including analog and digital electronics, sensors, actuators, microprocessors, and microprocessor interfacing to electromechanical systems. Hands-on laboratory experiments with components and measurement equipment used in the design of Mechatronic products.

ME 187 - Automatic Control Systems Design - Formulation of dynamic systems. Analysis of the behavior of analogous electrical, mechanical, thermal, hydraulic, and pneumatic systems in Laplace, Fourier, and time domain. Establishment of design criteria. Design of feedback control systems.

EE 118 – Digital Design I – Boolean algebra and number systems. Combinational and sequential circuits. Realization of logic blocks with standard integrated circuit packages. Design of counters, dividers, registers, arithmetic logic units and algorithmic state machines.

EE 120 - Digital Design II – Advanced algorithmic processes using MSI and SSI integrated circuits. Organization and interface requirements for a micro-computer. Hardware-software tradeoffs in digital systems.

EE 153 – Introduction to Digital Signal Processing – Discrete system theory, convolution, spectral analysis; FIR and IIR filter design; quantization effects. Applications to music and speech analysis.