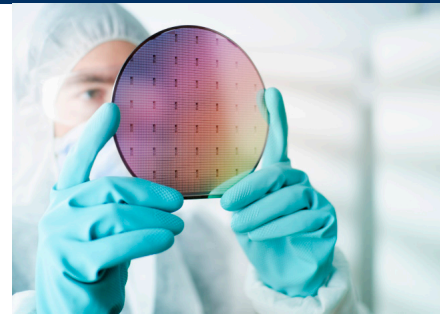


# UC Berkeley Extension



PROFESSIONAL SEQUENCE IN

## Semiconductor Technology Fundamentals

Learn the fundamentals of semiconductors and integrated circuits (ICs). Designed for technical professionals new to the field, this program teaches microelectronics and microelectronic circuit theory, as well as IC design, semiconductor devices and computer-circuit simulation tools. The curriculum was approved by an advisory board consisting of UC Berkeley College of Engineering faculty, as well as industry leaders of major semiconductor companies, to ensure that this program is academically strong and professionally relevant to today's semiconductor and IC markets. The program is provided in a convenient, self-paced, online format, and course slides are accompanied by both an English and Mandarin soundtrack. Upon completion of the Professional Sequence in Semiconductor IC Fundamentals, you should be able to define microelectronic circuit theory, recognize semiconductor device structures, and use computer circuit simulation tools to analyze basic electronic circuits.

**4 Required Courses, 1 Elective**  
**6 Semester Units, 90 Hours of Instruction**

### Required Courses

**Introduction to Microelectronics** EL ENG X480 (1 semester unit)

Get an overview of analog and digital integrated circuits through an application-oriented approach.

**Introduction to Microelectronic Circuits** EL ENG X481 (1 semester unit)

Examine the underlying concepts and industry-standard simulation tools for IC design, with particular emphasis on the operational amplifier characteristics.

**Introduction to Semiconductor Devices** EL ENG X481.1 (1 semester unit)

Learn basic semiconductor vocabulary and concepts; then, pursue a more targeted investigation into the behaviors of semiconductor devices.

**Semiconductor Devices for IC Design** EL ENG X488 (2 semester units)

Study bipolar junction transistors and metal-oxide semiconductors, with an emphasis on physical concepts, operation principles, second-order effects, and modeling and simulation.

### Electives

For a list of electives, visit [extension.berkeley.edu/spos/semiconductor\\_fundamentals.html](https://extension.berkeley.edu/spos/semiconductor_fundamentals.html)

Course availability is subject to change.

## Prerequisites for Admission

There are no formal prerequisites for the Professional Sequence in Semiconductor Technology Fundamentals, but it is strongly recommended that you are familiar with English terminology in math, science and electronics, and have a working knowledge of algebra II, precalculus, physics and an understanding of basic circuit theories such as Ohm's Law, Kirchhoff's Voltage Law and Kirchhoff's Current Law.

## Curriculum Requirements

The curriculum comprises 4 required courses (5 semester units) and 1 elective (1 semester unit) for a total of 6 semester units (90 hours of instruction). Candidates must pay a nonrefundable program registration fee.

You must take all courses for a letter grade. To receive the Award of Completion, you must maintain an overall minimum 2.5 grade point average, with a grade of C or better in each course.

You must complete all coursework within three years of registering for the program. However, requirements may be updated based on new developments in the field of study; we recommend completing the curriculum in a timely fashion.

## How to Register for This Specialized Program of Study

Register for the Professional Sequence in Semiconductor Technology Fundamentals at [extension.berkeley.edu/cert/register.html](http://extension.berkeley.edu/cert/register.html). Click on the More Information button next to the program title to begin the registration process. Complete your student account profile if you are a new student, and pay the nonrefundable program registration fee. You should register for the program before you complete your second course in the curriculum.

You may enroll in individual courses without registering for the Professional Sequence in Semiconductor Technology Fundamentals.

## Value of a UC Berkeley Extension Specialized Program of Study

As the continuing education arm of the University of California, Berkeley, UC Berkeley Extension is a respected provider of adult and professional education. Fulfilling the requirements for a UC Berkeley Extension specialized program of study reflects the successful completion of a high-caliber, in-depth sequence of courses.

## Related Programs

Certificate Program in Semiconductor IC Design  
[extension.berkeley.edu/cert/icdesign.html](http://extension.berkeley.edu/cert/icdesign.html)

Professional Sequence in Innovation Leadership for Technology Professionals  
[extension.berkeley.edu/spos/technology\\_leadership.html](http://extension.berkeley.edu/spos/technology_leadership.html)

## Learn More

For more information about the Professional Sequence in Semiconductor Technology Fundamentals, visit [extension.berkeley.edu/spos/semiconductor\\_fundamentals.html](http://extension.berkeley.edu/spos/semiconductor_fundamentals.html), email [extension-techeng@berkeley.edu](mailto:extension-techeng@berkeley.edu) or call (510) 642-4151.



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Visit [extension.berkeley.edu/spos/semiconductor\\_fundamentals.html](http://extension.berkeley.edu/spos/semiconductor_fundamentals.html)