

Certificate

Silicon Chip Design and Semiconductor Engineering

This program cultivates your expertise in IC design and semiconductor technology, preparing you for roles in top Silicon Valley companies through hands-on training with advanced tools and techniques. The Silicon Chip Design and Semiconductor Engineering program consists of three core courses and two elective courses.

Total Units: 15
Completion Time: 9-12 months (full-time)
Modality: Online, in person, or choose a mix of both.
Special Programs: F-1 Compliant and WIOA/TAA Funding Approved.



Courses may have prerequisites; review the course page before enrolling. A checkmark indicates the course is typically offered during that term. *

Core Courses

9 Units | Choose 3 Courses

COURSE NAME & NUMBER	UNITS	FALL	WINTER	SPRING	SUMMER
SystemVerilog Assertions and Formal Verification VLSI.X411	3.0		✓		✓
Advanced Verification with SystemVerilog OOP Testbench VLSI.X400	3.0	✓	✓	✓	✓
System and Functional Verification Using UVM (Universal Verification Methodology) VLSI.X410	3.0	✓	✓	✓	✓
AI for Autonomous Driving Systems: Concepts to FPGA VLSI.X416	3.0		✓		✓
Practical DFT Concepts for ASICs, SoC and SiP VLSI.X409	3.0	✓		✓	

Elective Courses

6 Units | Choose 2 Courses

Front-End

COURSE NAME & NUMBER	UNITS	FALL	WINTER	SPRING	SUMMER
Digital Logic Design Using Verilog VLSI.X404	3.0	✓		✓	
IO Concepts and Protocols: PCI Express and Ethernet EMBD.X406	3.0	✓		✓	
Embedded System Hardware Architectures, Introduction EMBD.X415	3.0	✓		✓	
Analog IC Design, Introduction VLSI.X401	3.0	✓	✓	✓	
High Speed Interface Techniques VLSI.X405	3.0	✓		✓	
High-Performance Computer Architecture VLSI.X415	3.0		✓		✓
Wireless Infrastructure: from Antenna Design to 5G, Fundamentals EMBD.X419	3.0		✓		✓

Back-End

COURSE NAME & NUMBER	UNITS	FALL	WINTER	SPRING	SUMMER
Introduction to VLSI and ASIC Design VLSI.X403	3.0	✓		✓	
Practical Design with Xilinx FPGAs EMBD.X408	3.0		✓		✓
Physical Design Flow from Netlist to GDSII VLSI.X408	3.0		✓		✓

ASIC Physical Design, Advanced VLSI.X402	3.0			✓
Timing Closure in Silicon IC Design VLSI.X414	3.0	✓		✓
Comprehensive Signal and Power Integrity for High-Speed Digital Systems EMBD.X400	3.0		✓	✓
High Speed Interface Techniques VLSI.X405	3.0	✓		✓
Practical Design and Implementation of VLSI Memory Devices VLSI.X417	3.0	✓		
3D IC Packaging and Physical Verification VLSI.X418	3.0		✓	✓

Completion Review

Once all certificate requirements have been met and your final grades are posted, please access your Student Portal to enroll in the [“Certificate Completion Fee”](#) to begin the review process. Please allow 4-6 weeks to receive your certificate.

Note: You need a degree in a technical field or equivalent knowledge acquired through training and experience in hardware design and development.