

Guidelines for Course Selection for M.S. Students in the Computer Engineering (CompE) Degree Program

Area of Specialization	Core Course(s)	Suggested Depth Area Courses	Preferred Undergrad Preparatory Course(s)
Computer Networks	COMPE 560: Computer Networks or EE 602: Stochastic Systems or EE 603: Engineering Optimization	COMPE 561: Database and Web Programming COMPE 565: Multimedia Comm COMPE 510: Machine Learning for Engineering COMPE 660: High Speed Nets COMPE 662: Wireless Sensor Nets COMPE 665: Multimedia Networks	EE 410: Signals and Systems
Embedded Systems	COMPE 571: Embedded Operating Systems	COMPE 561: Database & Web Programming COMPE 570: VLSI System Design COMPE 510: Machine Learning for Engineering COMPE 525: Cyber Physical Systems EE 503: Biomedical Instrumentation EE 522: Digital Control Systems EE 533: Neuromorphic Computing COMPE 662: Wireless Sensor Nets	COMPE 475: Microprocessor EE 410: Signals and Systems
Machine Learning and Scientific Computing	COMPE 510: Machine Learning for Engineering	COMPE 560: Computer Networks COMPE 596: Accelerated Computing COMPE 525: Cyber-physical Systems EE 533: Neuromorphic Computing EE 602: Stochastic Systems COMPE 696: AI for Unmanned Systems COMPE 696: ML for Signal Processing	COMPE 260: Data Structures Math 254: Discrete Math
VLSI Systems	COMPE 572: VLSI Circuit Design	COMPE 570: VLSI System Design EE 503: Biomedical Instrumentation EE 530: Analog Integrated Circuit Design EE 533: Neuromorphic Computing EE 634: RF Circuit Design COMPE 671: VLSI Testing EE 674: Signal and Power Integrity	COMPE 470: Digital Circuits

Guidelines for Course Selection for M.S. Students in the Electrical Engineering (EE) Degree Program

Area of Specialization	Core Course(s)	Suggested Depth Area Courses	Preferred Undergrad Preparatory Course(s)
Communications	EE 602: Stochastic Systems	EE 558: Digital Communication EE 641: RF Wireless Systems EE 650: Modern Comm Theory EE 652: Prin & Apps of Info Theory EE 653: Coding Theory EE 655: Modem Design	EE 458: Analog Communication
Electromagnetic Systems	EE 602: Stochastic Systems or EE 603: Engineering Optimization	EE 540: Microwave Design EE 631: RF Electronic Circuits EE 634: RF Circuit Design EE 641: RF Wireless Systems EE 645: Antennas & Propagation EE 674: Sig. and Power Integrity	EE 440: Electromagnetic Waves
Energy Systems and Control	EE 584: Power Electronics or EE 601: Linear System Theory or EE 603: Engineering Optimization	EE 522: Digital Control Systems EE 581: Power Systems Dynamics EE 584: Power Electronics EE 586: Distr. Energy Resources & Smart Grid Technologies EE 603: Engineering Optimization EE 684: Advanced Power Electronics EE 596: Electrified Transportation Sys. EE 596: Energy Management Systems	EE 480: Power Systems EE 420: Feedback Control Systems
Signal Processing	EE 602: Stochastic Systems	COMPE 565: Multimedia Comm EE 601: Linear System Theory EE 603: Engineering Optimization EE 654: Adaptive Algorithms EE 658: Advanced DSP COMPE 696: ML for Signal Processing	EE 410: Signals and Systems

Instructions

These guidelines provide a roadmap for students in either Plan A or Plan B. Before meeting with the Graduate Advisor, a student should prepare a Program of Study (POS) using the guidelines given below in selecting the courses to be declared for the degree program:

General Comments

- You are encouraged to take the core course in the first semester of the program.
- Four 500-level courses are accepted for the MSEE graduate program and five are allowed for the MSCOMPE program. Talk to the Graduate Advisor if you are having issues finding relevant 600-level courses.
- Plan A students will mutually select a faculty member to serve as the Thesis Advisor. Students must take 6 units of 799 and 3 units of 799A under the supervision of their Thesis Advisor. Rules, guidelines and required paperwork are described on our website (<https://electrical.sdsu.edu/graduate/thesis-project-proc>). Please read it thoroughly. Also, check with the College of Graduate Studies (<https://grad.sdsu.edu/>) for deadlines to submit your master's thesis. Please make sure that your POS is on file.
- Plan B students must take 798 (Project) under the supervision of a faculty member who will serve as the Project Advisor. Rules, guidelines and required paperwork are described on our website (<https://electrical.sdsu.edu/graduate/thesis-project-proc>). Please read it thoroughly. Also, check with the College of Graduate Studies (<https://grad.sdsu.edu/>) for deadlines to submit your Project report. Please make sure that your POS is on file.
- Students are allowed to take two courses from outside the ECE Department, with the approval of their Thesis or Project Advisor, and the Graduate Advisor. If students change their Thesis or Project Advisor, these non-ECE courses may not be used as part of their Program of Study (POS).
- Plan A students are encouraged to enroll in the thesis (797) after completing 9 units (as early as the second semester). Please engage with professors during your first semester to identify your Thesis Advisor.
- Plan B students are encouraged to enroll in the project (798) after completing 21 units (as early as the third semester) but no later than after completing 27 units.
- If a student switches from Plan A to Plan B, he/she needs to remove 797 and 799A & B from their POS and take 6 units of regular courses and 3 units of 798, with the approval of the Project Advisor and the Graduate Advisor.
- Please refer to our website (<https://electrical.sdsu.edu/graduate/thesis-project-proc>) for detailed instructions on graduation requirements for both Plan A and Plan B. Pay special attention to the section that describes how to enroll in and obtain the class number for 799A.
- International students may exercise their CPT after completing 18 units. Students need to maintain a GPA of 3.0 or better to qualify for the CPT. They cannot work for more than 20 hours per week in a semester in which they have classes. For more details on CPT, go to our website <https://electrical.sdsu.edu/graduate/cpt>.

Plan A Students: Total of 30 units

- Declare a depth area.
- Take four (4) courses in the depth area including the core course. **(12 units)**.
- Take two breadth courses. **(6 units)**.
- Take one course either from the depth area or as a breadth course. **(3 units)**.
- Register for 6 units of 797 (research) and 3 units of 799A (thesis). **(9 units)**.
- Credit is not given for 798 for Plan A students.
- The student must be Advanced to Candidacy before submitting the POS to the department, signed by the Thesis Advisor, and before you defend your thesis.
- The department allows flexibility in choosing your breadth/depth courses – please talk to your Thesis Advisor and/or Graduate Advisor if in doubt.

Plan B Students: Total of 30 units

- Declare a depth area.
- Take six (6) courses in the depth area including the core course. **(18 units)**.
- Take three breadth courses. **(9 units)**.
- Take 798 (Project) advised by the Project Advisor. **(3 units)**.
- The student must be Advanced to Candidacy before submitting the POS to the department, signed by the Project Advisor, and before you defend your project.
- The department allows flexibility in choosing your breadth/depth courses – please talk to your Project Advisor and/or Graduate Advisor if in doubt.

All courses and depth areas listed are subject to the State of California and university funding and therefore may not always be available. Please check the Class Schedule for courses offered per semester. For the Class Schedule go to the link below.

[\(https://cmsweb.cms.sdsu.edu/psc/CSDPRD/EMPLOYEE/SA/c/SSR_STUDENT_FL.SSR_CLSRCH_MAIN_FL.GBL?&\)](https://cmsweb.cms.sdsu.edu/psc/CSDPRD/EMPLOYEE/SA/c/SSR_STUDENT_FL.SSR_CLSRCH_MAIN_FL.GBL?&)

List of the Professors in Each Area of Specialization

Communication Systems: Dr. Santosh Nagaraj, Dr. Duy Nguyen, Dr. Tharm Ratnarajah

Computer Networks: Dr. Sunil Kumar, Dr. Yusuf Ozturk, Dr. Christopher Paolini, Dr. Mahasweta Sarkar, Dr. Junfei Xie

Electromagnetic Systems: Dr. Ege Engin, Dr. Satish Sharma

Embedded Systems: Dr. Baris Aksanli, Dr. Yusuf Ozturk, Dr. Hakan Toreyin, Dr. Junfei Xie, Dr. Flavio Ponzina

Energy Systems and Control: Dr. Tong Huang, Dr. Saeed Manshadi, Dr. Chris Mi, Dr. Reza Sabzehgar, Dr. Sridhar Seshagiri

Machine Learning and Scientific Computing: Dr. Baris Aksanli, Dr. Christopher Paolini, Dr. Junfei Xie

Signal Processing: Dr. Ashkan Ashrafi, Dr. Sunil Kumar

VLSI Systems: Dr. Amir Alimohammad, Dr. Ege Engin, Dr. Ke Huang

Graduate Courses Tentatively Offered in Fall and Spring Semesters

IMPORTANT NOTE: This is just a tentative schedule and is intended to help students plan their Program of Study ahead of time. The courses and the semesters are subject to change without prior notice.

Fall Semesters		Spring Semesters	
COMPE560	Computer and Data Networks	COMPE565	Multimedia Communication Systems
COMPE561	Database and Web Programming	COMPE572	VLSI Circuit Design
COMPE565	Multimedia Communication Systems	COMPE525	Cyber Physical Systems
COMPE570	VLSI System Design	EE502	Electronic Devices for Rehabilitation
COMPE571	Embedded Operating System	EE522	Digital Control Systems
COMPE572	VLSI Circuit Design	EE530	Analog Integrated Circuit Design
COMPE510	Machine Learning for Engineering	EE540	Microwave Devices and Systems
EE503	Biomedical Instrumentation	EE558	Digital Communications
EE540	Microwave Devices and Systems	EE581	Power System Dynamics
EE558	Digital Communications	EE586	Distr. Energy Resources & Smart Grid Tech
EE584	Power Electronics	EE533	Neuromorphic Computing
EE586	Distr. Energy Resources & Smart Grid Tech	EE603	Engineering Optimization
EE601	Linear Sys Theory & Design	EE634	RF Circuit Design
EE602	Stochastic Signals & Systems		
EE645	Antennas and Propagation	EE652	Principles & App of Information Theory
EE650	Modern Communication Theory	EE653	Coding Theory
EE654	Adaptive Filter Design	EE658	Advanced Digital Signal Processing
EE655	Modem Design	COMPE660	High Speed Networks: Des. Princ & Rec Advances
COMPE662	Wireless Sensor Networks	COMPE665	Multimedia Wireless Networks
COMPE671	VLSI Testing		
EE674	Signal and Power Integrity	EE740	Advanced topics in physical electronics