Curriculum for B.S Degree in Engineering Technology (120 Units)

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

Program Education Objectives (PEOs)—Graduates of the Cal State LA B.S. in Engineering Technology program who are three to four years out will:

1. Be employed in Industry utilizing design, manufacturing, sustainable energy, research, and management skills.
2. Have secured or pursued leadership positions and/or entrepreneurial pathways.
3. Demonstrate a commitment to lifelong learning to further their professional practice.

Student Outcomes (SOs)--Graduates of the Cal State LA B.S. in Engineering Technology program, at the time of graduation, have

1. An ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems.
2. An ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline.
3. An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
5. An ability to function effectively as a member as well as a leader on technical terms.

EFFECTIVE FALL 2026

General Education (27 out of 39 Units)

Lower Division General Education Requirements (39 Units)

Area 1 English Communication		
1A English Composition	ENGL 1010	3
1B Critical Thinking	One Course	3
1C Oral Communication	COMM 1100	3
Area 2 Math. Concepts & Quant. Reason.	Met in Major (MATH 2110)	4
Area 3 Arts and Humanities		
3A Arts	One Course	3
3B Humanities	One Course	3
Area 4 Social and Behavioral Sciences		
Social & Behavioral Sci.	POLS	3
One Additional Course	Met in Major (CE/EE/ME 3000)	3
Area 5 Physical and Biological Sciences		
5A Physical Sciences	Met in Major (PHYS 1560+1570)	3
5B Biological Sciences	One Course (BIOL 1000 or MICRO 1010)	3
5C Laboratory	Met in Major (CHEM 1000+1001)	1
Area 6 Ethnic Studies	One Course	3

University Requirements (5 units)

American Institutions	US History	3
Introduction to Higher Education (IHE)	Met in Major (ENGR 1500)	2

General Education Upper Division Theme (6 units)

UD GE B—Nat. Sci. & Quant. Reasoning	Met in Major (ECON 3060)	3
UD GE C— Arts and Humanities	One Course	3
UD GE D—Social Sciences	One Course	3

Lower Division Core Courses (38 units)

ACCT 2100	Principles of Financial Accounting	*Prerequisite(s): None*	3
Complete 1 or 2 courses from the following (4-5 units):			
CHEM 1000	Molecules Matter	*Prerequisite(s): None*	3
CHEM 1001	Molecules Matter Lab	*Pre/Co-requisite(s): CHEM 1000*	1
CHEM 1040	General Chemistry for Engineers	*Prerequisite(s): Engineering major; Completion of GE Area 2 or on Math Placement Category I or II*	4
CHEM 1100	General Chemistry I	*Prerequisite(s): Completion of GE B4 or on Math Placement Cat. 1-2*	5

ENGR 1500	Introduction to Engineering and Technology	*Prerequisite(s): Freshman Standing in Engineering*	2
ETEC 1150	Computer Applications in Engineering Technology	*Prerequisite(s): None*	2
ETEC 1000	Introduction to Automotive Systems (formerly TECH 1000)	*Prerequisite(s): None*	3
ETEC 1020	Industrial Safety (formerly TECH 1010)	*Prerequisite(s): None*	3
ETEC 1100	Introduction to Engineering Design	*Prerequisite(s): None*	3
ETEC 2200	Introduction to Practical Electronics	*Prerequisite(s): PHYS 1560+1570 with min. C-*	2
ETEC 2210	Introduction to Practical Electronics Lab	*Pre/Co-requisite(s): ETEC 2200*	1
ETEC 1600	Introduction to Metalworking	*Pre/Co-requisite(s): None*	3
ETEC 2070	Engineering Technology Materials	*Prerequisite(s): CHEM 1000+1001 with min. C-*	3
MATH 2110	Calculus I	*Prerequisite(s): MATH 1040 or [(MATH 1081 or 1082) and MATH 1083] with min. C*	3

Complete 1 or 2 courses from the following (4 units):

PHYS 1100	Physics for the Life Sciences I	*Prerequisite(s): MATH 1040, 1083, or 1085*	4
PHYS 1560	Physics for the 21st Century	*Prerequisite(s): None*	3
PHYS 1570	Physics for the 21st Century Lab	*Pre/Co-requisite(s): PHYS 1560*	1
PHYS 2100	General Physics I: Mechanics	*Prerequisite(s): MATH 2110 with min. C* *Corequisite(s): PHYS 2101 if MATH 2110 below B-*	4
ETEC 2600	Manufacturing Technology and Process Optimization	*Prerequisite(s): MATH (1040 or 1083) with min. C or MATH 2110 with min. C-; or* *Pre/Co-requisite(s): ETEC 1600*	3

Upper Division Core Courses (32 Units)

ECON 3060	Statistics for Business Analysis and Decision Making	*Prerequisite(s): None*	3
ETEC 3600	Lean Manufacturing	*Prerequisite(s): PHYS 1560+1570 and MATH 2110 with min C-;* *Pre/Co-requisite(s): ETEC 1020 + 1600 with min C-*	3
ETEC 3700	Sustainable Energy and Transportation	*Prerequisite(s): MATH 2110 and PHYS 1560+1570 with min. C-*	3
ETEC 4610	Computer-Aided Simulation in Engineering Technology	*Prerequisite(s): ETEC 1100 + 2070 + 2600 and MATH 2110 with min. C-;* *Pre/Co-requisite(s): ETEC 3700*	3
ETEC 4880	Fluid Power	*Prerequisite(s): MATH 2110 and PHYS 1560+1570 with min. C-*	3
ETEC 4890	Industrial Training Methods	*Prerequisite(s): ETEC 3600 + 3700*	2
ETEC 4950	Engineering Technology Senior Project I	*Prerequisite(s): ETEC 3600 + 3700 and Senior Standing*	3
ETEC 4951	Engineering Technology Senior Project II	*Prerequisite(s): ETEC 4950 with min. C*	3
ME 3000	Economics for Engineers (Also listed as CE/EE 3000)	*Prerequisite(s): Junior or Senior Standing in Engineering*	3
ETEC 4070	Advanced Engineering Technology Materials	*Prerequisite(s): ECON 3060 + ETEC 2070 + MATH 2110 with C-* Pre/Co-requisite(s): TECH 4000	3
TECH 4000	Written Communication Skills for Technology	*Prerequisite(s): Completion of GE A2*	3

Elective Courses (15 units): ***Select 5 courses from Categories 1-3, any combination.***

Category 1: Elective Courses in Manufacturing System & Processes

ETEC 3130	Product Design and Development	*Prerequisite(s): ETEC 1100*	3
ETEC 4150	Product and Product Documentation (formerly ETEC 3150)	*Prerequisite(s): ETEC 3130;* *Pre/Co-requisite(s): ECON 3060*	3
ETEC 3820	Metrology and Statistical Process Control	*Prerequisite(s): MATH 2110 + ETEC 1600*	3
ETEC 4600	Advanced Manufacturing Processes	*Prerequisite(s): MATH 2110 + ETEC 3600*	3
ETEC 4620	Digital Manufacturing	*Prerequisite(s): ETEC 1100 + 3600*	3
ETEC 4660	Additive Manufacturing	*Prerequisite(s): ETEC 1100;* *Co-requisite(s): ETEC 3600*	3
ETEC 4670	Emerging Manufacturing Technologies	*Prerequisite(s): ETEC 1600;* *Co-requisite(s): ETEC 3600*	3

Category 2: Sustainable Energy and Transportation Technologies

ETEC 4700	Zero-Emissions Vehicles Technology	*Prerequisite(s): ETEC 3700 or ME 3260*	3
ETEC 4710	Engine Design and Performance	*Prerequisite(s): ETEC 3700 or ME 3260*	3
ETEC 4720	Photovoltaic Applications	*Prerequisite(s): ETEC 3700 or ME 3260*	3
ETEC 4740	Fuel Cell Applications and Hydrogen Infrastructure	*Prerequisite(s): ETEC 3700 or ME 3260*	3
ETEC 4760	Measurement, Instrumentation, and Control	*Prerequisite(s): ETEC 3700 or ME 3260*	3
ETEC 4780	Emerging Sustainable Technologies	*Prerequisite(s): ETEC 3700 or ME 3260*	3

Category 3: Management

MGMT 3060	Operations Management	*Prerequisite(s): None*	3
MGMT 4505	Project Management	*Prerequisite(s): None*	3