Curriculum for B.S. Degree in Industrial Technology (120 units)

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

(Effective Fall 2016)

Lower Division General Education Requirements (39 units)

BLOCK A – Basic Subjects (9 units)	**1 course each A1, A2, A3**
A1: COMM 1100 or HNRS 1100	**Oral Communication (3)**
A2: ENGL 1005B or ENGL 1010	**Written Communication (3)**
A3: COMM1200/ENGL 1050/PHIL 1600/POLS 1555	**Critical Thinking and Composition (3)**
American Institutions (6 units)	
U.S. History	**1 course (3)**
U.S. Constitution	**1 course (3)**
BLOCK B – Natural Sciences & Mathematics/ Quantitative Reasoning (9 units)	**1 course each B1, B2, B4** **NOTE: B3 (course can be taken in place of either B1 or B2, but not both)**
B1 – PHYS 1560 and 1570	**1 course (3)**
B2 – Biological	**1 course (3)**
B3 – Interdisciplinary Physical /Biological	
B4 – MATH 1081	**1 course (3)**
BLOCK C – Arts and Humanities (6 units)	**1 course each C1, C2 (6)**
BLOCK D – Social Sciences (6 units)	**2 courses (6)**
BLOCK E – Lifelong Understanding and Self-Development (3 units)	**ENGR 1500 (3)**

Foundation Program (21 units): *Required Courses for **first-time freshmen***

ACCT 2100	Principles of Financial Accounting (3) *Prerequisites: None*
TECH 1000	Introduction to Automotive Mechanisms (3) *Prerequisites: None*
TECH 1100	Introduction to Design Application and 3D Modeling (3) *Prerequisites: None*
TECH 1200	Practical Electronics (3) *Prerequisites: None*
TECH 1300	Introduction to Graphic Communications (3) *Prerequisites: None*
TECH 1600	Introduction to Metalworking (3) *Prerequisites: None*
TECH 2000	History of Technology (3) *Prerequisites: None*

Prerequisites (6 – 7 units)

* MATH 1081 or 1020	Mathematical Analysis I (3) *Prerequisites: Score of 50 or more on (or exemption from) ELM or Math 930 with a minimum C grade or satisfactory score on placement examination*
* PHYS 1560	Physics for the Twenty-first Century (2) *Co-requisites: PHYS 1570*
* PHYS 1570	Physics for the Twenty-first Century Laboratory (1) *Co-requisites: PHYS 1560*

Note: *These required courses or their equivalents must be taken as part of the General Education Program and are not counted in the units to take for the major.

Required Core (36 units)

TECH 1010	Industrial Safety (3) *Prerequisites: None*
ECON 2090	Applied Business and Economic Statistics I (3) *Prerequisites: Score of 50 or more on (or exemption from) ELM or Math 930 with a minimum C grade or satisfactory score on placement examination*
ECON 3090	Applied Business and Economic Statistics II (3) *Prerequisites: ECON 2090 or ECON/MATH 1090*
TECH 3300	Graphic Communications Processes and Materials (3) *Prerequisites: Junior standing*
TECH 3600	Lean Manufacturing (3) *Prerequisites: None*
TECH 3700	Power, Energy and Transportation (3) *Prerequisites: None*
TECH 4000	Written Communication Skills for Industrial Technology (3) *Prerequisites: Writing Proficiency Exam (WPE)*
TECH 4210	Internetworking Technology (3) *Prerequisites: None*
TECH 4880	Fluid Power (3) *Prerequisites: PHYS 1560 and PHYS 1570*
TECH 4890	Industrial Training Methods (3) *Prerequisites: TECH 3700*
TECH 4950	Industrial Technology Senior Project I (3) *Prerequisites: Completion of an area of concentration, senior standing, and/or instructor consent; must be taken in sequence starting with TECH 4950*

TECH 4951 Industrial Technology Senior Project II (3) *Prerequisites: TECH 4950*

Required Concentration Courses (15 units): *Students must choose one concentration area listed below.*

Manufacturing Systems and Processes: *Required Courses (9 units)*

TECH 3130 Product Design and Development (3) *Prerequisites: None*
TECH 3820 Metrology and Statistical Process Control (3) *Prerequisites: None*
TECH 4660 Additive Manufacturing (3) *Prerequisites: TECH 1100*

Electives (6 units) *Students can select 2 courses from the following course list*:

TECH 3150 Project Design and Document Control (3) *Prerequisites: TECH 3130*
TECH 4600 Advanced Manufacturing Processes (3) *Prerequisites: None*
TECH 4620 Digital Manufacturing (3) *Prerequisites: None*
TECH 4670 Emerging Manufacturing Technologies (3) *Prerequisites: TECH 3600*

Sustainable Power and Transportation Technologies: *Required Courses (9 units)*

TECH 4700 Electric and Hybrid Vehicles (3) *Prerequisites: TECH 3700*
TECH 4720 Photovoltaic Applications (3) *Prerequisites: TECH 3700*
TECH 4740 Fuel Cell Applications and Hydrogen Infrastructure (3) *Prerequisites: TECH 3700*

Elective Courses (6 units) *Students can select 2 courses from the following course list*

TECH 3130 Product Design and Development (3) *Prerequisites: None*
TECH 4710 Engine Design and Performance (3) *Prerequisites: TECH 3700*
TECH 4760 Measurement, Instrumentation and Control (3) *Prerequisites: TECH 3700*
TECH 4780 Emerging Technologies in Power, Energy, and Transportation (3) *Prerequisites: None*
MGMT 3060 Operations Management (3) *Prerequisites: None*
MGMT 4505 Project Management (3) *Prerequisites: None*

Operations and Supply Chain Management: *Required Courses (9 units)*

MGMT 3060 Operations Management (3) *Prerequisites: None*
MGMT 4500 Case Studies in Operations Management (3) *Prerequisites: MGMT 3060*
MGMT 4501 Process Design and Improvement (3) *Prerequisites: MGMT 3060*

Elective Courses (6 units): *Students can select 2 courses from the following course list*

MGMT 4502 Production and Inventory Management (3) *Prerequisites: MGMT 3060*
MGMT 4503 Total Quality Management (3) *Prerequisites: MGMT 3060*
MGMT 4504 Supply Chain Management (3) *Prerequisites: MGMT 3060*
MGMT 4505 Project Management (3) *Prerequisites: None*
MGMT 4506 Service Management (3) *Prerequisites: MGMT 3060 and MGMT 3070*
MGMT 4105 Managerial Leadership and Motivation (3) *Prerequisites: MGMT 3070*

General Education Upper Division Theme (9 units)

UPPER DIVISION GE THEME 3 Courses (9 units)

Notes:

- GE requirements must add up to at least 48 semester units. (39 Lower Division, 9 Upper Division units).
- An Introduction to Higher Education course (IHE) is required of all first-time freshman.
- A minimum C- grade in A1, A2, A3, and B4 classes is required. This does not apply to meeting prerequisite for courses that require these courses to be completed with a grade of C or better.
- A minimum C grade average in general education is required of all students following the Fall 2016 or later catalog.
- Civic Learning/Community Engagement Requirement (6 semester units). Three semester units will be fulfilled by completing the IHE course. One (cl) course must be completed at the upper division general education level. These courses are designated as (cl) after the course listing.
- Diversity Requirement (6 semester units). Students must complete one race/ethnicity (re) course and one diversity(d) course or another race/ethnicity (re) course. These courses are designated as (re) and (d) after the course listing.
- Writing Intensive Requirement (3 semester units). Students must complete one writing intensive (wi) course in their major. These courses are designated as (wi) after the course listing.