

# ENGINEERING TECHNOLOGY

## Curriculum Guide for Academic Year 2021-2022

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Students planning to **transfer** to a four-year college or university should refer to the ASSIST web site at [www.assist.org](http://www.assist.org) and **consult a counselor** before beginning a program of study. Please call (562) 938-4561 for the LAC, or (562) 938-3920 for PCC to schedule a meeting with a counselor. Students may also wish to visit the Transfer Center on either campus.

### Program of study leading to: Associate in Science (A.S.) Degree

REQUIRED COURSES		UNITS	In Progress	Completed Grade
ADMT 50	Advanced Manufacturing, Introduction	3		
CAD 51	Mechanical Drafting, Intermediate	2		
CAD 60	Geometric Dimensioning and Tolerancing	3		
ELECT 230A	Robotics Technology – Design	2		
ELECT 230B	Robotics Technology – Integration	2		
† ELECT 231	Electro-Hydraulic and Pneumatic Systems	2		
ETEC 10	Introduction to Engineering Technology	1		
ETEC 20	Introduction to Engineering and design	2.5		
ETEC 30	Principles of Engineering Technology	2.5		
ETEC 40	Electronics for Engineering Technology	2.5		
ETEC 60	Material Science for Engineering Tech	3		
MTFAB 280	Introduction to Robotic Welding	2.5		
<b>TOTAL UNITS</b>		<b>28</b>		

For graduation with an **Associate in Science (A.S.) Degree with a major in Engineering Technology**:

- Minimum Unit Requirements:** §Any course that appears on a curriculum guide and the General Education Pattern (Plan A) may fulfill both major and general education requirements (Approved by College Curriculum Committee Spring 2012). For this degree, complete a minimum of 60 units in courses numbered 1-599. Please note that additional elective units may be required to meet this minimum based upon courses selected to fulfill General Education for the Associate Degree.

<b>Engineering Major</b>	28 units
<b>General Education/A.S. §</b>	19 units

- Scholarship:** Maintain an **overall grade point average (GPA) of 2.0** ("C" average) based on all accredited college work applied to the degree, no matter where completed. For this **field of concentration, complete each course above with a grade of "C" or better**, or "P" if course is graded on a P/NP basis.
- Residence for the Degree:** Complete at least 12 semester units of the required 60 semester units in residence at Long Beach City College in order for the college to grant an Associate of Arts and/or an Associate of Science Degree.
- Residence for the Field of Concentration:** Complete fifty percent (50%) or more of the unit requirements for this field of concentration in residence; this means at **least 14 units** of the required 28 must be **completed at Long Beach City College**. Credit earned by exam, where applicable, may be included.
- General Education and Proficiency Requirements:** Complete the required A.A./A.S. General Education and Proficiency requirements\*, otherwise known as "Plan A". For Plan A requirements, refer to the general catalog or view it online at <http://osca.lbcc.edu>.
- Complete and submit the degree application form to the Admissions and Records office during your final semester of course work. These forms are available in the Admissions and Records office, or online at <http://admissions.lbcc.edu>. Refer to the Schedule of Classes (<http://schedule.lbcc.edu>) and click the "Important Dates" link to view the actual deadline for each semester.

\*The requirements for general education/proficiency and the field of concentration (major) need to be from the same catalog year. This catalog year may be any year between the years of initial enrollment to the present, provided continuous enrollment is maintained throughout. See the catalog for definition of "continuous enrollment".

Program of study leading to:  
**Certificate of Achievement**

**REQUIRED COURSES**—Complete the 28 units of required courses as listed in the Associate Degree requirements box on the preceding pages.

<u>REQUIRED COURSES</u>	TOTAL UNITS	28	In Progress	Completed

For graduation with an **Engineering Technology Certificate of Achievement**:

1. Complete each of the **REQUIRED COURSES** listed above with a **minimum grade of “C”** or better, or P if the course is grade on a P/NP basis.
2. Complete fifty percent (50%) or more of the unit requirements for this field of concentration in residence; this means at **least 14 units** of the required 28 must be **completed at Long Beach City College**. Credit earned by exam, where applicable, may be included.
3. Complete and submit the certificate application form to the Admissions and Records office during your final semester of course work. These forms are available in the Admissions and Records office, or online at <http://admissions.lbcc.edu/> . Refer to the Schedule of Classes (<http://schedule.lbcc.edu>) and click the “Important Dates” link to view the actual deadline for each semester

Program of study leading to:  
**Certificate of Achievement 3522**

<u>REQUIRED COURSES</u>		UNITS	In Progress	Completed Grade
ADMT 50	Advanced Manufacturing, Introduction	3		
CAD 51	Mechanical Drafting, Intermediate	2		
ELECT 230A	Robotics Technology – Design	2		
ELECT 230B	Robotics Technology – Integration	2		
† ELECT 231	Electro-Hydraulic and Pneumatic Systems	2		
ETEC 60	Material Science for Engineering Tech	3		
MTFAB 280	Introduction to Robotic Welding	2.5		
	<b>TOTAL UNITS</b>	<b>16.5</b>		

For graduation with an **Engineering Automation Technology Certificate of Achievement**:

1. Complete each of the **REQUIRED COURSES** listed above with a **minimum grade of “C”** or better, or P if the course is grade on a P/NP basis.
2. Complete fifty percent (50%) or more of the unit requirements for this field of concentration in residence; this means at **least 8.25 units** of the required 16.5 must be **completed at Long Beach City College**. Credit earned by exam, where applicable, may be included.

Complete and submit the certificate application form to the Admissions and Records office during your final semester of course work. These forms are available in the Admissions and Records office, or online at <http://admissions.lbcc.edu/> . Refer to the Schedule of Classes (<http://schedule.lbcc.edu>) and click the “Important Dates” link to view the actual deadline for each semester

**Career Opportunities**

This field of concentration is designed to recognize partial fulfillment of the requirements for transfer with junior standing for students seeking a baccalaureate degree in engineering.

This **Associate Degree** will facilitate transfer for a four-year engineering degree. Students who wish to transfer may need to meet additional requirements.

## **Program Mission and Outcomes**

The Associate in Science in Engineering Technology Degree provides students with a fundamental knowledge of the, engineering technology field, engineering design, principles of engineering technology, digital electronics technology and computer integrated manufacturing. This degree program develops students' critical thinking skills through applying the principles of engineering to solve design, manufacturing and automation problems in the field. Students will be able to create and innovate on products and manufacturing processes by, recognizing, analyzing real world processes in order to improve process to eliminate waste in lean manufacturing settings. The Associate in Science in Engineering Technology degree prepares students for transfer to a California State University.

Student Learning Outcomes:

- Demonstrate the ability to attain the Institutional Student Learning Outcomes (ISLOs).
- Apply principles of engineering technology to design problems and constraints.
- Create and design robotic tools using automated equipment.

## **Legend**

† This course has a prerequisite. Prerequisite courses must be complete with at least a "C" or "P" grade. Refer to the General Catalog (<http://www.lbcc.edu/cat/index.html>), the Schedule of Classes (<http://schedule.lbcc.edu/>), or the online Credit Course Outline (<http://wdb-asir.lbcc.edu/coursecurriculum/coursedetails/>) for specific prerequisite information.