

APPLIED INDUSTRIAL TECHNOLOGY (OPERATING ENGINEERS), ASSOCIATE OF APPLIED SCIENCE



Students must be currently working in a registered apprenticeship program in conjunction with the U.S. Department of Labor, Bureau of Apprenticeship and Training. The apprenticeship program prepares the student to earn a journey-level status in Operating Engineers, as well as earn an Associate of Applied Science degree. A four-year apprenticeship emphasizes the skill set required to be a highly skilled craftsman and equipment mechanic. Operating engineers operate and maintain hoisting, grading, excavating and paving equipment, consisting of cranes, bulldozers, scrapers, graders, endloaders, concrete and asphalt plants, rollers and pumps. The Operating Engineer is generally employed in the building of highways, airports, buildings, waterways, stadiums and sewers.

Program contact: Learn more

This degree program contains one or more embedded certificates which will be automatically awarded when the certificate requirements are completed. If you do not want to receive the embedded certificate(s), please notify the Office of the Registrar at RegistrarOffice@tri-c.edu.

Learn more about how certificate credits apply to the related degree.

Program Admission Requirements

- Aptitude Test
- High School Diploma/GED
- Intent-to-hire agreement with participating contractor

Other Information

- Participant must be working in an apprenticeship in conjunction with the U.S. Department of Labor, Bureau of Apprenticeship and Training.

Program Learning Outcomes

This program is designed to prepare students to demonstrate the following learning outcomes:

- Recognize hazardous conditions, wear appropriate safety equipment and take preventative measures following company, federal, and state procedures.
- Operate and maintain a variety of construction equipment in a safe and productive manner.

- Recognize and apply underlying engineering principles of the operating engineers trade, including machine characteristics, blueprint reading, problem solving and technology skills.
- Plan and manage personal and professional life to accommodate all job requirements, including providing reliable transportation, meeting contractor needs, balancing family obligations, adapting to a flexible work schedule, complying with a drug-free environment, and taking opportunities to upgrade skills.
- Commit to and understand the nature of working in the construction trade, especially, planning for seasonal work.
- Communicate verbally, nonverbally, and in writing with the construction team, which includes members of all other trades, contractors, and government agencies.
- Be prepared to sit for the CDL License exam, Forklift Operating Certification exam, and other optional specialty certifications such as the National Crane Certification Organization exam.

Suggested Semester Sequence

| First Semester | | Credit Hours |
|--|-------------------------------------|--------------|
| ATOE-1100 | Operating Engineering Concepts | 4 |
| ATOE-1200 | Basic Mechanical Concepts | 3 |
| ATOE-1650 | Graders and Plans | 2 |
| MATH-1xxx | 1000-level MATH course or higher | 3 |
| Select one of the following: | | 3 |
| BADM-xxxx | Business Elective | |
| CNST-xxxx | CNST Elective | |
| Select one of the following: | | 3 |
| ENG-1010 | College Composition I | |
| ENG-101H | Honors College Composition I | |
| Credit Hours | | 18 |
| Second Semester | | Credit Hours |
| ATOE-1700 | Paving, Tractor, Backhoe Operations | 3 |
| ATOE-2100 | Mobile Crane | 2 |
| ATOE-2600 | Bulldozer Practice | 3 |
| Communication requirement ¹ | | 3 |
| Select one of the following: | | 3 |
| BADM-xxxx | Business Elective | |
| CNST-xxxx | CNST Elective | |
| Select one of the following: | | 3 |
| IT-1090 | Computer Applications | |
| IT-109H | Honors Computer Applications | |
| Credit Hours | | 17 |
| Third Semester | | Credit Hours |
| ATOE-2200 | Mechanical Repair | 3 |
| ATOE-2620 | Backhoe Practice | 3 |
| ATOE-xxxx | ATOE Elective course | 1-3 |
| Natural Sciences requirement | | 3 |
| Select one of the following: | | 3 |
| BADM-xxxx | Business Elective | |
| CNST-1731 | Construction Print Reading | |
| FIN-1061 | Personal Finance | |
| Credit Hours | | 13-15 |

Fourth Semester

| | | |
|---|------------------------------------|--------------|
| AIT-2990 | Contracting in a Diverse World | 3 |
| ATOE-2640 | Advanced Grader Practice | 3 |
| ATOE-2660 | Grader Safety | 2 |
| Social & Behavioral Sciences requirement ² | | 3 |
| Select one of the following: | | 3 |
| BADM-xxxx | Business Elective | |
| CNST-2131 | Construction Methods and Materials | |
| Credit Hours | | 14 |
| Total Credit Hours | | 62-64 |

¹ ENG-2151 Technical Writing or COMM-1000 Fundamentals of Interpersonal Communication highly recommended.

² Recommend PSY-1050 Introduction to Industrial/Organizational Psychology.

Technical Electives

| Code | Title | Credit Hours |
|-----------|--|--------------|
| ATOE-2650 | Safety Training Passport | 1 |
| ATOE-2670 | Rough Terrain Forklift Operation | 2 |
| ATOE-2680 | Hazardous Material Handling and Field Safety | 2 |

Business Electives

Recommended electives in Business

| Code | Title | Credit Hours |
|-----------|--|--------------|
| BADM-1020 | Introduction to Business | 3 |
| BADM-1210 | Labor-Management Relations | 3 |
| BADM-1122 | Principles of Management and Organizational Behavior | 3 |
| BADM-1301 | Small Business Management | 3 |
| BADM-2151 | Business Law | 3 |
| BADM-2450 | New Business Development | 5 |

Construction Management Electives

Recommended electives in Construction Management

| Code | Title | Credit Hours |
|-----------|--------------------------------------|--------------|
| CNST-1281 | Construction Engineering Orientation | 3 |
| CNST-1510 | Green Building & Sustainability I | 3 |
| CNST-1731 | Construction Print Reading | 3 |
| CNST-2131 | Construction Methods and Materials | 3 |

MATH-1140, MATH-1141, MATH-1200, MATH-1270, and MATH-1280 can no longer count towards fulfilling the college-level mathematics requirement. These courses were re-classified as developmental mathematics by the state of Ohio in 2016. Tri-C established a 5-year transitioning window for students who had completed these courses prior to 2016 to apply them towards meeting graduation requirements, which expired in Summer 2021. It is highly recommended to see a counselor to determine the appropriate math required for your current major.