

ENGINEERING 15.0000.00

Program Description, Industry Credential, Coherent Sequence, and Teacher Certification

PROGRAM DESCRIPTION

The **Engineering** instructional program prepares students to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. Includes instruction in various engineering support functions for research, production, and operations, and applications to specific engineering specialties. Students who successfully complete the **Engineering** program's coherent sequence of instruction learn to apply Science Technology Engineering Math (STEM) concepts to current technologies and tools as they learn about the different disciplines and opportunities within the fields of engineering.

Throughout the **Engineering** instructional program, students learn and develop problem-solving skills by tackling real-world engineering problems. Through theory and practical hands-on experiences, students address the emerging social and political consequences of technological change.

The **Engineering** Career and Technical Education program is delivered as a coherent sequence of courses designed to offer students knowledge and skills that meet the needs of the workplace. The Professional Skills developed by business and industry leaders across Arizona are integrated throughout the program. **Engineering** students develop leadership, social, civic, and career skills through participation in the state-recognized Career and Technical Student Organizations, SkillsUSA.

The **Engineering** instructional program prepares students for entry-level employment, further training, and/or post-secondary education for these and other occupations: Engineering technician, Manufacturing Equipment Technician, Field technician, manufacturing technician, data center technician, and CAD technician

INDUSTRY CREDENTIALS

The following credentials have been approved for the A-F CCR and are CTED eligible for the **Engineering** instructional program:

- Autodesk Certified User (ACU) - 3Ds Max
- Autodesk Certified User (ACU) - AutoCAD
- Autodesk Certified User (ACU) - Fusion 360 CAD
- Autodesk Certified User (ACU) - Inventor - Imperial
- Autodesk Certified User (ACU) - Inventor – Metric
- Autodesk Certified User (ACU) - Maya
- Autodesk Certified User (ACU) - Revit Architecture – Imperial
- Autodesk Certified User (ACU) - Revit Architecture – Metric
- Certified SolidWorks Associate (CSWA)
- Certified SolidWorks Professional (CSWP)
- Machining Manufacturing Skill Standards Council (MSSC) - Certified Production Technician (CPT)
- Machining Manufacturing Skill Standards Council (MSSC) - Green Production Certification
- Mastercam Associate
- Mechatronics

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- Microsoft Office Specialist (MOS) – Associate for 2016
- Microsoft Office Specialist (MOS) – Associate for 2019
- Microsoft Office Specialist (MOS) – Associate for Office 365
- Microsoft Office Specialist (MOS) – Expert for 2016
- Microsoft Office Specialist (MOS) – Expert for 2019
- Microsoft Office Specialist (MOS) – Expert for Office 365
- National Coalition of Certification Centers (NC3) - Level 1 – Industrial Fundamentals
- National Coalition of Certification Centers (NC3) - Multimeter
- National Coalition of Certification Centers (NC3) - Precision Measuring
- National Institute for Metalworking Skills (NIMS) – CNC Lathe entry level
- National Institute for Metalworking Skills (NIMS) – CNC Lathe Programming and set up entry level
- National Institute for Metalworking Skills (NIMS) – CNC Mill Entry level
- National Institute for Metalworking Skills (NIMS) – CNC Mill Programming and set up entry level
- National Institute for Metalworking Skills (NIMS) – Job Planning, Benchwork and Layout
- National Institute for Metalworking Skills (NIMS) – Measurement, Materials and Safety
- National Institute for Metalworking Skills (NIMS) – Turning I

The following credentials have been approved to meet CTED eligibility for the **Engineering** instructional program:

- ASQ scale score 550
- Certified Logistics Technician (CLT)
- Geographic Information Systems Technician
- International Society of Automation (ISA) – Certified Control Systems Technician
- International Society of Certified Technicians Certification (ISCET)
- Robotics Engineering Curriculum (REC) – ROBOTC

COHERENT SEQUENCE

15.0000.10 – Engineering I, **and**

15.0000.20 – Engineering II, **and**

15.0000.30 – Engineering III, **and program may elect to add:**

15.0000.40 – Engineering IV, **or**

15.0000.70 – Engineering – DCE (Diversified Cooperative Education) **or**

15.0000.75 – Engineering – Internship, **or**

15.0000.80 – Engineering – Cooperative Education

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TEACHER CERTIFICATION REQUIREMENTS

The instructor must be ADE/CTE certified in one of the following Certificates:

SCTIET	Standard Career and Technical Education Industrial and Emerging Technologies
SSCTEiet	Standard Specialized Career and Technical Education Industrial and Emerging Technologies

- Note:**
- Engineering 15.0000.70 (DCE) requires a CTE Teacher to have the Cooperative Education Endorsement (CEN).
 - Engineering 15.0000.75 (Internship) **does not** require a CTE Teacher to have a Cooperative Education Endorsement (CEN).
 - Engineering 15.0000.80 (Cooperative Ed.) requires CTE Teacher to be appropriately certified for the program and to have a Cooperative Education Endorsement (CEN).