

# 1. 기계공업교육 체계

## 1.1 교육과정

한국교육과정평가원 [www.kice.re.kr](http://www.kice.re.kr)

국가교육과정정보센터 NCIC

-> 우리나라교육과정

2015 개정 교육과정 안내 브로슈어(고등학교).pdf

**교육과정 자료실**  
교육과정 원문 및 연구자료,  
법령, 정책자료 등 제공

<http://ncic.re.kr/> -> 교육과정 자료실

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## 1.2 NCS기반 교육과정

NCS National Competency Standards

[https://www.ncs.go.kr/th06/bbs\\_lib\\_view.do?libDstinCd=01&libSeq=20151008144418181&searchCondition=&searchKeyword=&pageIndex=1](https://www.ncs.go.kr/th06/bbs_lib_view.do?libDstinCd=01&libSeq=20151008144418181&searchCondition=&searchKeyword=&pageIndex=1)

20180531(최종)국가직무능력표준(NCS)+일부개정+고시(안).hwp

209쪽 15.기계

내용은 NCS 홈페이지에서 “NCS 및 학습모듈검색“

### 1.3 공업계고등학교 기계분야 개설학과

- \* 청주공업고등학교
  - 컴퓨터응용설계과
  - 항공기계과
  - 정밀가공기계과
  - 산업에너지설비과
  
- \* 충북공업고등학교
  - 생산자동화과
  - 정밀기계과
  - 금형디자인과
  - 전기전자과
  
- \* 청주하이텍고등학교 (충북전산기계고등학교)
  - 정밀기계과
  - 자동화시스템과
  
- \* 서울공업고등학교
  - 정밀기계과
  - 자동차과
  - 산업설비과
  - 시스템자동화과
  - 신소재금형과
  
- \* 성동공업고등학교
  - 컴퓨터응용기계과
  - 산업설비과
  - 전자기계과

## 1.4 기계기능사의 교육 및 역할

<https://collegegrad.com/careers/mechanical-engineering-technicians>

### What Mechanical Engineering Technicians Do

Mechanical engineering technicians help [mechanical engineers](#) design, develop, test, and manufacture mechanical devices, including tools, engines, and machines. They may make sketches and rough layouts, record and analyze data, make calculations and estimates, and report their findings.

### Duties of Mechanical Engineering Technicians

Mechanical engineering technicians typically do the following:

- Evaluate design drawings for new or changed tools by measuring dimensions on the drawings and comparing them with the original specifications
- Prepare layouts and drawings of parts to be made and of the process for putting the parts together, often using three-dimensional design software
- Discuss changes with coworkers—for example, in the design of a part and in the way it will be made and assembled
- Review instructions and blueprints for projects in order to ensure that test specifications and procedures are followed and objectives are met
- Plan, produce, and assemble new or changed mechanical parts for products, such as industrial machinery or equipment
- Set up and conduct tests of complete units and their components, and record results
- Compare test results with design specifications and with test objectives and make recommendations for changes in products or in test methods
- Estimate labor costs, equipment life, and plant space

Some mechanical engineering technicians test and inspect machines and equipment or work with engineers to eliminate production problems. For example, they may assist in testing products by setting up instrumentation for vehicle crash tests.

### Work Environment for Mechanical Engineering Technicians

Mechanical engineering technicians hold about 46,100 jobs. The largest employers of mechanical engineering technicians are as follows:

Architectural, engineering, and related services	23
	%
Machinery manufacturing	13
Transportation equipment manufacturing	13
Computer and electronic product	9

manufacturing  
Scientific research and development 7  
services

Some mechanical engineering technicians may be exposed to hazards from equipment, chemicals, or toxic materials, but injuries are rare as long as proper procedures are followed.

### Mechanical Engineering Technician Work Schedules

Most mechanical engineering technicians work full time.

### How to Become a Mechanical Engineering Technician

#### **Get the education you need:**

Most employers prefer to hire candidates with associate's degrees or other postsecondary training in mechanical engineering technology. Prospective engineering technicians should take as many science and math courses as possible while in high school.

### Mechanical Engineering Technician Education

Mechanical engineering technicians typically need an associate's degree or a certificate from a community college or vocational-technical school. Community colleges offer programs similar to those in technical institutes but include more theory-based and liberal arts coursework and programs. Community colleges typically award an associate's degree. Vocational-technical schools include post secondary public institutions that emphasize training needed by local employers. Students who complete these programs typically receive a diploma or certificate.

ABET accredits associate's degree programs in relevant fields of study, such as mechanical engineering technology.

Completing an associate's degree in mechanical engineering technology is good preparation for studying for a bachelor's degree.

High school students interested in becoming mechanical engineering technicians should take classes in math, science, and computer skills. Courses that help students develop skills working with their hands also are valuable because these technicians build what mechanical engineers design.

### Important Qualities for Mechanical Engineering Technicians

**Communication skills.** Mechanical engineering technicians must be able to clearly understand and follow instructions or ask their supervisors for clarification if they do not understand. They must be able to clearly explain, both orally and in writing, the need for changes in designs or test procedures.

**Creativity.** Mechanical engineering technicians help mechanical engineers bring

their plans and designs to life. This often requires helping the engineer to overcome problems that might not have been anticipated.

**Detail oriented.** Mechanical engineering technicians must make precise measurements and keep accurate records for mechanical engineers.

**Math skills.** Mechanical engineering technicians use mathematics for analysis, design, and troubleshooting in their work.

**Mechanical skills.** Mechanical engineering technicians must apply theory and instructions from engineers by making new components for industrial machinery or equipment. They may need to be able to operate machinery such as drill presses, grinders, and engine lathes.

\* References

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Richard M. Felder and Rebecca Brent, *Understanding Student Differences*, Journal of Engineering Education, 94(1), 57-72 (2005).

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