

STRANDS AND STANDARDS

MEDICAL TECHNOLOGY



Course Description

An introductory course focused on the world of medical technology. Students will gain an understanding of how medical technologies impacts health care, the environment, society, politics, and the economy. Students will develop a foundation in essential abilities and attitudes that will in turn expand their occupational opportunities in the biomedical world.

Core Code	38.03.00.00.080
Concurrent Enrollment Core Code	None
Units of Credit	0.5
Intended Grade Level	9
Prerequisite	None
Skill Certification Test Number	None
Test Weight	None
License Type	Secondary Education 6-12
Required Endorsement(s)	Technology & Engineering, or
	Technology

STRAND 1

Students will follow safety practices.

Standard 1

Identify potential safety hazards and follow general laboratory safety practices.

- Assess workplace conditions regarding safety and health.
- Identify potential safety issues and align with relevant safety standards to ensure a safe workplace/jobsite.
- Locate and understand the use of shop safety equipment.
- Select appropriate personal protective equipment.

Standard 2

Use safe work practices.

- Use personal protective equipment according to manufacturer rules and regulations.
- Follow correct procedures when using any hand or power tools.
 - Ref: <https://schools.utah.gov/cte/engineering/resources> under the Safety Program and Management tab.

Standard 3

Complete a basic safety test without errors (100%) before using any tools or shop equipment.

STRAND 2

Students will investigate the educational pathways and career opportunities in the medical device and laboratory testing industries.

Standard 1

Identify occupations related to both the medical device and medical laboratory industries.

Standard 2

Identify different types of occupational training.

Standard 3

Investigate medical innovations which have occurred locally and evaluate their influence on the medical industry.

STRAND 3

Students will develop an understanding of the cultural, social, economic, and political effects of medical device and laboratory testing technologies, the effects of those technologies on the environment, the role of society in the development and use of those technologies, and the influence of medical technology on history.

Standard 1

In order to be aware of the history of medical technology, students should learn that:

- Many inventions and innovations have evolved by using slow and methodical processes of tests and refinements.

- The specialization of function has been at the heart of many technological improvements.

Standard 2

Evaluate innovations in medical technologies using principles of science versus “quackery”.

- In the past, an invention or innovation were often developed outside of the realm of science.

Standard 3

In order to realize the impact of society on medical technologies, students should learn that:

- Throughout history, new technologies have resulted from the demands, values, and interests of patients, healthcare professionals, and other elements of the healthcare system.
- The use of inventions and innovations has led to changes in society and the creation of new needs and wants.
- Social and cultural priorities and values are reflected in technological devices.
- Meeting societal expectations is the driving force behind the acceptance and use of products and systems.

Standard 4

In order to understand the effects of technology on the environment, students should learn that:

- The management of waste produced by technological systems is an important societal issue.
- Technologies can be used to repair damage caused by natural causes and to break down waste from the use of various products and systems.
- Decisions to develop and use technologies often put environmental and economic interests in direct competition with one another.

Standard 5

Students should understand the contribution that medical technology makes to society in terms of saving lives, improving quality of life and increased life expectancy.

Standard 6

Students should learn how different aspects of our health care system impact medical technology and innovation.

- Government policies, including legislation, regulation and reimbursement, can positively or negatively impact medical technology, including innovation, quality, safety, cost and patient access.
- Private insurers and health plans typically have processes in place to assess coverage for new technologies.
- Hospital systems/administrations are key stakeholders in the purchase and use of medical technology.

STRAND 4

Students will develop an understanding of and be able to identify approved uses of available technology.

Standard 1

In order to better understand medical technologies, students should learn that:

- Advances and innovations in medical technologies are used to improve healthcare.
- Medical technologies include prevention and rehabilitation, vaccines and pharmaceuticals, medical and surgical procedures, genetic engineering, and the systems within which healthcare is protected and maintained.

Standard 2

In order to identify approved uses of available technology, students should learn that:

- Proper cleanroom procedures, strict adherence to Standard Operating Procedures, and the sterility of devices manufactured for human use are of critical importance.
- The vaccines developed for use in immunization require specialized technologies to support environments in which a sufficient amount of vaccines is produced.
- Sanitation processes used in the disposal of medical products help to protect people from harmful organisms and disease, and shape the ethics of medical safety.
- Genetic engineering utilizes the sciences of biochemistry and molecular biology to modify the structure of DNA to produce novel genetic make-ups.