

Production Technology 11 and 12

Unifying Concepts

Students will be expected to demonstrate

- A. an understanding of the function of production technology in historical contexts and modern society
- B. the ability to analyze, critique, and evaluate the application and outputs of a variety of production technology methods
- C. an understanding of the major resources used for production
- D. an understanding of the impact of production technology on individuals, society, and the environment
- E. consideration of others during independent and collaborative activities
- F. an understanding of workplace health and safety requirements

Specific Curriculum Outcomes

Students will be expected to

Unit 1: Production and Humans

- 1.1 describe the role and value of production and identify basic and advanced human needs
- 1.2 compare and judge the advantages and disadvantages of hand and mass production techniques
- 1.3 explain the highlights of the industrial revolution and their impact on production and society
- 1.4 recount and interpret contemporary developments in the field of production
- 1.5 describe and demonstrate the general principles of the organization of production
- 1.6 define, demonstrate, and apply the basic technology system used in production
- 1.7 specify and communicate the major impacts of production on society, economy, culture, and the environment
- 1.8 identify the needs and preferences of users reflected in contemporary products
- 1.9 recognize potential conflicts between the needs of individuals and of society

Unit 2: Resources for Production

- 2.1 define the major categories of resources used for production
- 2.2 explain the general structure of materials and describe major material properties
- 2.3 specify and communicate the personnel involved in the production technology team
- 2.4 list and explain the basic tools and machines used in production
- 2.5 select production tools, machines, and equipment appropriate to the task at hand and use them safely, accurately, and economically
- 2.6 describe the general organization of business involved with production, including capital and financing, management, and research development
- 2.7 explain how people are an important resource who need to be trained, organized, and motivated for roles in production
- 2.8 demonstrate that in production the control of stock is important

Unit 3: Manufacturing

- 3.1 explain how designs for the production of an item can be granted a patent
- 3.2 demonstrate awareness of the competition that surrounds the development of inventions and the control of patents
- 3.3 define the major types of manufacturing
- 3.4 plan a total sequence for the production of a product
- 3.5 demonstrate basic manufacturing processes during the production of a quality product
- 3.6 explain and demonstrate various ways of packaging/promoting and selling a product
- 3.7 define acceptable tolerances for manufacturing
- 3.8 resolve conflicting demands to produce an optimum solution
- 3.9 develop and implement plans for the packaging, promotion, and sale of at least one product
- 3.10 explain that goods may be designed to be produced singly or in quantity and that this affects what each item costs
- 3.11 devise methods of production that show a comprehensive understanding of tools, materials, equipment, and processes

Unit 4: Product Analysis

- 4.1 analyze and evaluate products produced by different methods of manufacturing such as handcrafted, custom, mass, CIM, etc.
- 4.2 apply critical thinking skills for developing and evaluating ideas
- 4.3 define the conceptual framework associated with the design problem-solving process
- 4.4 demonstrate the application of the design problem-solving process during the production of numerous products
- 4.5 control quality effectively during the production of a product
- 4.6 perform regular tasks on a manufactured product
- 4.7 be aware that the appearances of products and their relationship to their environment is important to the consumer
- 4.8 use techniques, processes, and resources creatively to achieve a high-quality product that matches the specifications

Unit 5: Construction Production

- 5.1 identify the features relevant to small- and large-scale construction production projects
- 5.2 design, plan, and complete a custom production project
- 5.3 identify and use the materials, tools, machines, and techniques used in construction production
- 5.4 overcome obstacles when making by applying knowledge of materials components, tools, equipment, and processes to change working practice

Unit 6: Computers and Manufacturing

- 6.1 describe and demonstrate the basic operation of a computer
- 6.2 demonstrate and use a computer to support production manufacturing in a variety of ways as follows:
 - for the management of production
 - for research and development
 - to assist the promotion and sale of a product
 - for planning production
 - for the control of manufacturing/production
- 6.3 save, restore, and print products of computer applications listed above

Unit 7: Future Production and Careers

- 7.1 identify and distinguish the advantages and disadvantages of new materials for use in production technology
- 7.2 describe and discuss the impact of production on resources available, the environment, and human beings
- 7.3 display and develop the personal qualities and attitudes beneficial to careers in the production and job applications
- 7.4 identify the careers available in the area of production technology
- 7.5 work as a member of a team in a production enterprise