eDynamicLearning
CAREER & ELECTIVE COURSES

Course Title: Concepts of Engineering & Technology

State: TX
State Course Title: Principles of Applied Engineering
State Course Code: 130402
State Standards: Principles of Applied Engineering
Date of Standards: 2015

TEKS	Unit Name(s)	Lesson(s) Numbers
(1) The student demonstrates professional standards/ employability skills as required by business and industry		
(A) demonstrate knowledge of how to dress, speak, and conduct oneself in a manner appropriate for the profession	Unit 4: Civil Engineering	Lessons 3, 4
(B) show the ability to cooperate, contribute, and collaborate as a member of a group in an effort to achieve a positive collective outcome	Unit 4: Civil Engineering	Lessons 3, 4
(C) present written and oral communication in a clear, concise, and effective manner	All Units Associated	All Lessons Associated
(D) demonstrate time-management skills in prioritizing tasks, following schedules, and performing goal-relevant activities in a way that produces efficient results	All Units Associated	All Lessons Associated
(E) demonstrate punctuality, dependability, reliability, and responsibility in performing assigned tasks as directed	All Units Associated	All Lessons Associated
(2) The student investigates the components of engineering and technology systems		
(A) investigate and report on the history of engineering science	Unit 1: Development and Understanding of Engineering	Unit 1: All Lessons Associated
(B) identify the inputs, processes, and outputs associated with technological systems	Unit 2: Making Problems into Ideas	Lesson 3
(C) describe the difference between open and closed systems	Unit 2: Making Problems into Ideas	Lesson 2
(D) describe how technological systems interact to achieve common goals	Unit 2: Making Problems into Ideas	Lesson 3
(E) compare and contrast engineering, science, and technology careers	Unit 3: From Sketches to Products	Lesson 4
(F) conduct and present research on emerging and innovative technology	Unit 2: Making Problems into Ideas	Lesson 4

(G) demonstrate proficiency of the engineering design process	Unit 3: From Sketches to Products	Lesson 3
(3) The student presents conclusions, research findings, and designs using a variety of media throughout the course		
(A) use clear and concise written, verbal, and visual communication techniques	Unit 3: From Sketches to Products	Lesson 3
(B) maintain a design and computation engineering notebook	Unit 2: Making Problems into Ideas	Lesson 5
(C) use sketching and computer-aided drafting and design (CADD) to develop and present ideas	Unit 3: From Sketches to Products	Unit 3: All Lessons Associated
(D) use industry standard visualization techniques and media	Unit 3: From Sketches to Products	Lessons 1, 2
(E) use the engineering documentation process to maintain a paper or digital portfolio	Unit 2: Making Problems into Ideas	Lesson 5
(4) The student uses appropriate tools and demonstrates safe work habits		
(A) master relevant safety tests	Unit 6: Chemical Engineering	Lesson 4
(B) follow lab safety guidelines as prescribed by instructor in compliance with local, state, and federal regulations	Unit 6: Chemical Engineering	Lesson 4
(C) recognize the classification of hazardous materials and wastes	Unit 6: Chemical Engineering	Lesson 4
(D) dispose of hazardous materials and wastes appropriately	Unit 6: Chemical Engineering	Lesson 4
(E) maintain, safely handle, and properly store laboratory equipment	Unit 6: Chemical Engineering	Lesson 4
(F) describe the implications of negligent or improper maintenance	Unit 6: Chemical Engineering	Lesson 4
(G) demonstrate the use of precision measuring instruments	Unit 6: Chemical Engineering	Lesson 4
(5) The student describes the factors that affect the progression of technology and the potential intended and unintended consequences of technological advances		
(A) describe how technology has affected individuals, societies, cultures, economies, and environments	Unit 1: Development and Understanding of Engineering	Lesson 2
(B) describe how the development and use of technology influenced past events	Unit 1: Development and Understanding of Engineering	Lessons 3, 4
(C) describe how and why technology progresses	Unit 1: Development and Understanding of Engineering	Lessons 3, 4
(D) predict possible changes caused by the advances of technology	Unit 1: Development and Understanding of Engineering	Lesson 5

(6) The student thinks critically and applies fundamental principles of system modeling and design to multiple design projects		
(A) identify and describe the fundamental processes needed for a project, including the design process and prototype development and initiating, planning, executing, monitoring and controlling, and closing a project	All Units Associated	All Lessons Associated
(B) identify the chemical, mechanical, and physical properties of engineering materials	Unit 4: Unit 5: Unit 6	All Lessons Associated
(C) use problem-solving techniques to develop technological solutions	All Units Associated	All Lessons Associated
(D) use consistent units for all measurements and computations	Unit 6: Chemical Engineering	Lesson 2
(E) assess the risks and benefits of a design solution	All Units Associated	All Lessons Associated
(7) The student understands the opportunities and careers in fields related to robotics, process control, and automation systems		
(A) describe applications of robotics, process control, and automation systems	Unit 6: Chemical Engineering	Lesson 4
(B) apply design concepts to problems in robotics, process control, and automation systems	Unit 6: Chemical Engineering	Lesson 4
(C) identify fields and career opportunities related to robotics, process control, and automation systems	Unit 6: Chemical Engineering	Lesson 5
(D) identify emerging trends in robotics, process control, and automation systems	Unit 6: Chemical Engineering	Lesson 4
(8) The student understands the opportunities and careers in fields related to electrical and mechanical systems		
(A) describe the applications of electrical and mechanical systems	Unit 5: Mechanical Engineering	Lessons 2-4
(B) describe career opportunities in electrical and mechanical systems	Unit 5: Mechanical Engineering	Lesson 4
(C) identify emerging trends in electrical and mechanical systems	Unit 5: Mechanical Engineering	Lesson 5
(9) The student demonstrates the ability to function as a team member while completing a comprehensive project		
(A) apply the design process as a team participant	Unit 4: Civil Engineering	Lessons 3, 4
(B) assume different roles as a team member within the project	Unit 4: Civil Engineering	Lesson 4
(C) maintain an engineering notebook for the project	Unit 2: Making Problems into Ideas	Lesson 5
(D) develop and test the model for the project	Unit 4: Civil Engineering	Unit 4: All Lessons Associated

(E) demonstrate communication skills by preparing and presenting the project	Unit 4: Civil Engineering	Unit 4: All Lessons Associated
(10) The student demonstrates a knowledge of drafting by completing a series of drawings that can be published by various media		
(A) set up, create, and modify drawings	Unit 3: From Sketches to Products	Lesson 1