

Technological Systems (2022)

Demonstrating Personal Qualities and Abilities

- 1 Demonstrate creativity and innovation. 1
- 2 Demonstrate critical thinking and problem solving. 2
- 3 Demonstrate initiative and self-direction. 3
- 4 Demonstrate integrity. 4
- 5 Demonstrate work ethic. 5

Demonstrating Interpersonal Skills

- 6 Demonstrate conflict-resolution skills. 6
- 7 Demonstrate listening and speaking skills. 7
- 8 Demonstrate respect for diversity. 8
- 9 Demonstrate customer service skills. 9
- 10 Collaborate with team members. 10

Demonstrating Professional Competencies

- 11 Demonstrate big-picture thinking. 11
- 12 Demonstrate career- and life-management skills. 12
- 13 Demonstrate continuous learning and adaptability. 13
- 14 Manage time and resources. 14
- 15 Demonstrate information-literacy skills. 15
- 16 Demonstrate an understanding of information security. 16
- 17 Maintain working knowledge of current information-technology (IT) systems. 17
- 18 Demonstrate proficiency with technologies, tools, and machines common to a specific occupation. 18
- 19 Apply mathematical skills to job-specific tasks. 19
- 20 Demonstrate professionalism. 20

	21 Demonstrate reading and writing skills. 21
	22 Demonstrate workplace safety. 22
Addressing Elements of Student Life	23 Identify the purposes and goals of the student organization. 23
	24 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult. 24
	25 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects. 25
	26 Identify Internet safety issues and procedures for complying with acceptable use standards. 26
Exploring Work-Based Learning	27 Identify the types of work-based learning (WBL) opportunities. 27
	28 Reflect on lessons learned during the WBL experience. 28
	29 Explore career opportunities related to the WBL experience. 29
	30 Participate in a WBL experience, when appropriate. 30
Exploring Technological Systems	31 Explain technology. 31
	32 Define technology. 32
	33 Analyze the core concepts of technology. 33
	34 Analyze existing products or solutions. 34
	35 Describe the steps of the Virginia Department of Education (VDOE) engineering design process. 35
	36 Define system. 36
	37 Explore the Universal Systems Model. 37
	38 Analyze a product, process, or system, using the Universal Systems Model. 38
	39 Differentiate the subsystems within a given system. 39
	40 Explain the potential technological effects of products and systems. 40
	41 Analyze ethics related to technological systems. 41
	42 Explain the influences of technology on history. 42

Designing Technological Systems

- 43 Distinguish the characteristics/properties of materials and families of materials.** 43
- 44 Demonstrate various types of measuring.** 44
- 45 Design a model of a product or process, using computer-aided design (CAD) systems.** 45
- 46 Create an open-loop system.** 46
- 47 Create a closed-loop system.** 47
- 48 Design systems for a given context.** 48
- 49 Maintain a design portfolio/engineer's notebook.** 49

Creating Systems

- 50 Plan a solution to an engineering design problem, as part of a team.** 50
- 51 Demonstrate the safe use of a minimum of seven tools and/or pieces of equipment.** 51
- 52 Construct a model or prototype of the proposed solution, as part of a team.** 52
- 53 Communicate the process and results of the solution, as part of a team.** 53
- 54 Model electronic systems.** 54
- 55 Demonstrate the process for changing inputs to outputs in a system (using the Universal Systems Model).** 55
- 56 Program (code) a system that uses microcontrollers.** 56
- 57 Model given systems.** 57

Evaluating Technological Systems

- 58 Analyze the cause of a failure or a problem in a technological system.** 58
- 59 Assess the effect of technological systems on individuals, resources, society, and the environment.** 59
- 60 Research careers related to technological systems.** 60