

Tasks

Engineering Analysis and Applications II (8451/36 weeks) Tasks/Competencies - August 2015

- 1 Demonstrate positive work ethic.
- 2 Demonstrate integrity.
- 3 Demonstrate teamwork skills.
- 4 Demonstrate self-representation skills.
- 5 Demonstrate diversity awareness.
- 6 Demonstrate conflict-resolution skills.
- 7 Demonstrate creativity and resourcefulness.
- 8 Demonstrate effective speaking and listening skills.
- 9 Demonstrate effective reading and writing skills.
- 10 Demonstrate critical-thinking and problem-solving skills.
- 11 Demonstrate healthy behaviors and safety skills.
- 12 Demonstrate an understanding of workplace organizations, systems, and climates.
- 13 Demonstrate lifelong-learning skills.
- 14 Demonstrate job-acquisition and advancement skills.
- 15 Demonstrate time-, task-, and resource-management skills.
- 16 Demonstrate job-specific mathematics skills.
- 17 Demonstrate customer-service skills.
- 18 Demonstrate proficiency with technologies common to a specific occupation.
- 19 Demonstrate information technology skills.
- 20 Demonstrate an understanding of Internet use and security issues.
- 21 Demonstrate telecommunications skills.
- 22 Examine aspects of planning within an industry/organization.
- 23 Examine aspects of management within an industry/organization.
- 24 Examine aspects of financial responsibility within an industry/organization.
- 25 Examine technical and production skills required of workers within an industry/organization.
- 26 Examine principles of technology that underlie an industry/organization.
- 27 Examine labor issues related to an industry/organization.
- 28 Examine community issues related to an industry/organization.
- 29 Examine health, safety, and environmental issues related to an industry/organization.
- 30 Identify the purposes and goals of the student organization.
Explain the benefits and responsibilities of membership in the student organization as a student and in
- 31 professional/civic organizations as an adult.

- Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.
- 32 programs, and projects.
 - 33 Identify Internet safety issues and procedures for complying with acceptable use standards.
 - 34 Identify real-world problems related to the areas of the designed world.
 - 35 Design an engineering solution to a real-world problem for each of the areas in the designed world.
 - 36 Define <i>risk</i> and <i>safety</i>.
 - 37 Describe the three types of accidents (i.e., procedural, engineered, systemic).
 - 38 Identify major precursors of accidents.
 - 39 Evaluate the safety of designs.
 - 40 Compare professional and personal ethics.
 - 41 Identify ethical theories (i.e., utilitarianism, duty, rights, virtue).
 - 42 Research a real-world case study.
 - 43 Apply the core concepts of technology and engineering.
 - 44 Maintain documentation (e.g., sketches, notes, reports).
 - 45 Apply the steps of the design process to solve an engineering problem.
 - 46 Identify the impact of a design solution on industry, economy, society, and environment.
 - 47 Describe the factors that affect structures.
 - 48 Apply the engineering design process to a real-world civil engineering problem(s).
 - 49 Analyze solutions to a real-world civil engineering problem(s) using a model or simulation.
 - 50 Describe the factors that affect mechanical systems.
 - 51 Apply the engineering design process to a real-world mechanical engineering problem(s).
 - 52 Analyze solutions to a real-world mechanical engineering problem(s) using a model or simulation.
 - 53 Describe the factors that affect electrical systems.
 - 54 Apply the engineering design process to a real-world electrical engineering problem(s).
 - 55 Analyze solutions to a real-world electrical engineering problem(s) using a model or simulation.
 - 56 Describe the factors that affect chemical systems.
 - 57 Apply the engineering design process to a real-world chemical engineering problem(s).
 - 58 Analyze solutions to a real-world chemical engineering problem(s) using a model or simulation.

Week(s)

Duty/Concept Area

- Demonstrating Workplace Readiness Skills: Personal Qualities and People Skills
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	Examining Ethics in the Technological World Examining Ethics in the Technological World Examining Ethics in the Technological World
Weeks 7-10	Examining Systems Examining Systems Examining Systems Examining Systems
Weeks 10-14	Introducing Civil Engineering Introducing Civil Engineering Introducing Civil Engineering Introducing Mechanical Engineering Introducing Mechanical Engineering Introducing Mechanical Engineering
Weeks 14-18	Introducing Electrical Engineering Introducing Electrical Engineering Introducing Electrical Engineering Introducing Chemical Engineering Introducing Chemical Engineering Introducing Chemical Engineering