

Industrial Technology Program Competencies

CORE COMPETENCIES

The core competencies apply to all graduates of the Industrial Technology program regardless of program option.

1. COMMUNICATION

A graduate should possess a level of understanding, skill, and attitude necessary to be able to effectively communicate verbally, in writing, and graphically. This includes competence with regard to the hardware and systems of modern day communication, as well as an understanding of information collection, resource identification, documentation, and related ethical and legal issues (copyright law, privacy, liability, etc.).

- 1.1. Be skilled in written communications, including basic writing skills, and the design and preparation of a variety of document types.
- 1.2. Be skilled in verbal communication, including interpersonal communications, presentation preparation, and presentation delivery.
- 1.3. Understand and have skill in the use of electronic-based communications, including e-mail, management information systems, and digital media generation and presentation.
- 1.4. Understand and have skill in group communications, including conference planning and team processes.

2. QUANTITATIVE METHODS

A graduate should possess a level of understanding and skill necessary to use and apply principles of mathematics and statistics.

- 2.1. Understand and be able to apply mathematics at an algebra, pre-calculus, and applied calculus level.
- 2.2. Understand and be able to use statistics related to the industrial applications.
- 2.3. Have skill in the use of computer applications that support quantitative analysis and data presentation.

3. SCIENTIFIC PRINCIPLES AND METHODOLOGY

A graduate should possess a level of understanding and skill necessary to use and apply scientific methodology and analytic techniques.

- 3.1. Understand the nature of science and scientific inquiry.
- 3.2. Understand and be able to use principles of the physical sciences, such as physics and/or chemistry.

4. BUSINESS AND ECONOMICS

A graduate should possess a level of understanding, skill, and attitude of the business and economic principles that apply to operating an industry in today's global economy.

- 4.1. Understand how economies operate at the macro and/or micro levels.
- 4.2. Understand how economic policy impacts industrial operations.
- 4.3. Understand how financial resources are tracked, monitored, and controlled via appropriate accounting systems and how the allocation of financial resources impacts industrial operations.
- 4.4. Be able to analyze and control costs associated with industrial operations.

5. MANAGEMENT & SUPERVISION

A graduate should possess a level of understanding, skill, and attitude of modern day management and supervisory principles and practices.

- 5.1. Understand and effectively work in cross-functional teams.

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- 5.2. Understand and use appropriate leadership/supervision styles and techniques in various forms of industrial organization.
- 5.3. Analyze contemporary industrial systems and use appropriate strategies to improve the quality of the working environment.
- 5.4. Understand the strategies and tools to effectively layout/organize facilities, and manage the flow/handling of materials.
- 5.5. Understand and be able to apply contemporary techniques and tools of project management.
- 5.6. Understand the structure and use of management information systems as applied to industrial operations.
- 5.7. Understand and be able to apply human resource management functions integral to management within an organization.

6. SAFETY AND HEALTH

A graduate should possess a level of understanding, skill, and attitude relating to the ethical, legal and technical aspects of creating and maintaining a healthy and safe environment.

- 6.1. Understand the safety, health, and ergonomic factors that constitute a safe worker and a healthy and productive workplace.
- 6.2. Understand laws and regulations which govern safety and health of employers and the workplace.

7. PROFESSIONAL AND PERSONAL DEVELOPMENT AND RESPONSIBILITY

A graduate should possess a strong educational foundation that prepares the individual to be a world-minded, intentional, life-long learner and practitioner. It should prepare the graduate with the knowledge and skills essential for their role as citizen, family member, consumer, producer and colleague.

- 7.1. A graduate should possess a liberal arts foundation anchored in the humanities, arts, and sciences consistent with the educational mission and purpose of the University.
 - 7.1.1. Be intelligent readers of their own culture, and be able to use analysis and historical context to interpret information in various media.
 - 7.1.2. Able to appreciate alternate ways of knowing such as those that arise from the arts, humanities, and social sciences.
 - 7.1.3. Have the critical and creative abilities to solve complex, open-ended problems having social and political constraints.
 - 7.1.4. Know how to learn and be a self-directed learner.
- 7.2. A graduate should possess a level of understanding, skill, and attitude relating to the role, function, and responsibility of individuals and organizations within the context of a global community.
 - 7.2.1. Possess an understanding of international trade and be able to identify the leading trading partners of the United States and the primary products that they exchange.
 - 7.2.2. Have an understanding of multinational corporations and international management strategies.
 - 7.2.3. Understand how cultural differences and their impact on work environments and the production, marketing, and distribution of products and services.
 - 7.2.4. Be aware of the world's complexities beyond their own set of experiences and assumptions.
- 7.3. A graduate should possess a level of understanding and attitude regarding the ethical, social, and legal responsibilities of organizations and individuals.

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- 7.3.1. Have an appreciation for other people's values and customs.
- 7.3.2. Think effectively about ethical and social issues.
- 7.3.3. Chose to act ethically in their personal, interpersonal, and professional roles.
- 7.4. A graduate should perform at a professional level while completing their responsibilities.
 - 7.4.1. Accept responsibility for their actions.
 - 7.4.2. Prepare adequately and complete tasks on time.
 - 7.4.3. Does high quality work.
 - 7.4.4. Present themselves and their work in a professional manner.
 - 7.4.5. Be aware of and adhere to organizational policies.
 - 7.4.6. Communicate and cooperate effectively with others.
 - 7.4.7. Demonstrate appropriate interpersonal relations.

8. TECHNOLOGICAL PRINCIPLES AND SYSTEMS

A graduate should possess a level of understanding, skill, and attitude relating to the technology and operation of technical systems. This includes concepts related to product/project life cycle, planning and development, service and production/construction processes, materials, and related information/computing systems.

- 8.1. Understand aspects of product, project, or service life cycles, including design, testing, development, production/construction, distribution, operation, maintenance, recycling and disposal. This competence includes an understanding of the relationship and interdependence of the components.
- 8.2. Understand technical systems that are part of contemporary production, construction, or service operations.
 - 8.2.1. Understand the processes, resources, and methods related to the development, production/construction, and distribution of products and services.
 - 8.2.2. Understand and have skill in the application and use of equipment and materials related to the development, production/construction, and distribution of products and services.
 - 8.2.3. Understand contemporary strategies used to improve and maintain efficient, effective, and accurate design, planning, production/construction, distribution, maintenance, and service systems.
- 8.3. Understand and possess skills relating to the application and use of computer systems and components.
 - 8.3.1. Have skill in the use computer hardware, software, and related systems used by contemporary production, construction, and/or service organizations.
 - 8.3.2. Be familiar with current information and computer technologies as they apply to design, planning, management, communications, control, maintenance, production, construction, and/or service activities.