Student Learning Outcomes Library

Office of Assessment & Accreditation

Indiana State University

BS Automation and Control Engineering Technology

Spring 2020

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Outcome	Related Foundational Studies or Graduate Goal
Mastery of Knowledge and Tools—An appropriate mastery of the knowledge, techniques, skills, and modern tools	
1.1 Use CAD, programming languages, HMI and IT	
1.2 Use electronics design and analysis tools	
1.3 Apply science and engineering tools	
1.4 Apply PLCs, DCSs, and control system equipment	
1.5 Use manufacturing processes: Students will use fluid power, engineering materials, and manufacturing processes	
1.6 Manage automated systems	
Apply Technical Knowledge—An ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology	
2.1 Use mathematics in design	
2.2 Model electrical, mechanical, and process systems for design and analysis	
2.3 System design: Design electrical, mechanical, and IT systems	
Experiment and Apply Results—An ability to conduct, analyze, and interpret experiments, and apply experimental results to improve processes	

3.1 Experimental validation: Develop and execute experiments to validate designs	
3.2 Lab exercises: Use electrical lab experiences as learning tools	
3.3 Test plans: Design and execute test plans as part of system commissioning	
Creativity in Design and Application—An ability to apply creativity in the design of systems, components, or processes appropriate to the MET program educational objectives	
4.1 Mechanical design—Develop mechanical designs using CAD and analysis tools	
4.2 Circuit design—Design circuits and electrical interfacing	
4.3 Software and program development—Develop machine control logic, HMI applications, and data handling software	
Function in Team Environment—An ability to function effectively on teams	
5.1 Effective team member	
5.2 Understands the purpose of teams: Assumes responsibility as a team member, respects chain of command and understands why teams exist	
5.3 Works and Communicates in the Team Setting: Recognizes the need for good interpersonal skills and practices quality in communication in the team setting	
Effective Problem Solving—An ability to identify, analyze, and solve technical problems	
6.1 Effectively use problem solving methods: Understands and uses traditional and contemporary problem-solving techniques and processes	Foundational Studies 2: Critically evaluate the ideas of others.
6.2 Use electrical circuit troubleshooting tools properly	
6.3 Debugs logic and software applications: Exhibits the ability to logically approach and solve machine control logic programs and custom software applications	
Effective Communication—An ability to communicate effectively through engineering drawings, written reports, or oral presentations	
7.1 Exhibits good verbal communications: Can verbally present and describe technical information and issues in a clear manner	Foundational Studies 10: Express themselves effectively, professionally, and persuasively both orally and in writing.

7.2 Possesses good written communication skills: Can develop well-written e-mails, letters, technical documents, test plans, and PowerPoint presentations	Foundational Studies 10: Express themselves effectively, professionally, and persuasively both orally and in writing.
7.3 Formality and respect in communications: Differentiates between formal, semi-formal, and informal situations involving verbal and written protocols, including meetings	Foundational Studies 10: Express themselves effectively, professionally, and persuasively both orally and in writing.
Embrace Learning—A recognition of the need for and an ability to engage in lifelong learning	
8.1 Demonstrates a desire to learn: Demonstrates the desire to learn and respects those who possess knowledge	
Professional Responsibilities—An ability to understand professional, ethical, and social responsibilities	
9.1 Demonstrates professionalism: Understands the role of the professional and aspires to become a respected member of an organization	
9.2 Understands and exhibits ethics: Is knowledgeable on issues involving social and ethical responsibilities	
9.3 Understands the role of professional societies: Understands the role of professional societies play in technical professions, including automation engineering technology	
Diversity and Contemporary Issues—A respect for diversity and a knowledge of contemporary professional, societal and global issues	
10.1 Automated control system marketplace: Exhibits some knowledge of global nature of automation system use	
10.2 Social and safe design responsibility: Understands the importance of the social issues involved with manufacturing and safety	
10.3 Safe design practices and operations: Understands the responsibility of safe design practices and operations	
Quality and Continuous Improvement—A commitment to quality, timeliness, and continuous improvement	
11.1 Understands the breadth of quality concerns: Understand how quality intersects all aspects of automation engineering technology	

11.2 Understands the importance of quality: Understands the importance of quality in all aspects of automation engineering technology	
11.3 Timeliness and continuous improvement: Exhibits a sense of urgency in all aspects of his/her work and tends to not accept complacency	