

BS in Automat & Control Engineering

Courses and Activities Mapped to BS in Automat&Control Engineer Tech Outcome Set

Program Objective A: Mastery of knowledge and tools an appropriate mastery of the knowledge, techniques, skills, and modern tools						Program Objective B: Apply technical knowledge an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology			Program Objective C: Experiment and apply results an ability to conduct, analyse and interpret experiments, and apply experimental results to improve processes			Program Objective D: 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			Program Objective E: Function in team environment an ability to function effectively on teams			Program Objective F: Effective problem solving an ability to identify, analyse and solve technical problems			Program Objective G: Effective communication an ability to communicate effectively through engineering drawings, written reports, or oral presentations			Program Objective H: Embrace learning a recognition of the need for, and an ability to engage in lifelong learning	Program Objective I: Professional responsibilities an ability to understand professional, ethical and social responsibilities			Program Objective J: Diversity and contemporary issues a respect for diversity and a knowledge of contemporary professional, societal and global issues			Program Objective K: Quality and continuous improvement a commitment to quality, timeliness, and continuous improvement		
SLO A.1: Use CAD, programming languages, HMI and IT	SLO A.2: Use electronics design and analysis tools	SLO A.3: Apply science and engineering tools	SLO A.4: Apply PLCs, and control system equipment	SLO A.5: Use manufacturing processes	SLO A.6: Manage automated systems	SLO B.1: Use mathematics in design	SLO B.2: Modeling for analysis	SLO B.3: System design	SLO C.1: Experimental validation	SLO C.2: Lab exercises	SLO C.3: Test plans	SLO D.1: Mechanical design	SLO D.2: Circuit design	SLO D.3: Software and program development	SLO E.1: Effective team member	SLO E.2: Understands the purpose of teams	SLO E.3: Works and communicates in the team setting	SLO F.1: Effectively use problem solving methods	SLO F.2: Use electrical troubleshooting tools properly	SLO F.3: Debugs logic and software applications	SLO G.1: Exhibits good verbal communications	SLO G.2: Possesses good written communication skills	SLO G.3: Formality and respect in communications	SLO H.1: Demonstrates a desire to learn	SLO I.1: Demonstrates professionalism	SLO I.2: Understands and exhibits ethics	SLO I.3: Understands the role of professional societies	SLO J.1: Automated control system marketplace	SLO J.2: Social and safe design responsibility	SLO J.3: Safe design practices and operations	SLO K.1: Understands the breadth of quality concerns	SLO K.2: Understands the importance of quality	SLO K.3: Timeliness and continuous improvement
SLO A.1: Use CAD, programming languages, HMI and IT. Students will use CAD, programming languages, HMI and IT.						SLO B.1: Use mathematics in design. Students will use mathematics in design.			SLO C.1: Experimental validation. Develop and execute experiments to validate designs.			SLO D.1: Mechanical design. Develop mechanical designs using CAD and analysis tools.			SLO E.1: Effective team member. Functions as an effective team member.			SLO F.1: Effectively use problem solving methods. Understands and uses traditional and contemporary problem solving processes.			SLO G.1: Exhibits good verbal communications. Can verbally present and describe technical information and issues in a clear manner.			SLO H.1: Demonstrates a desire to learn. Demonstrates the desire to learn and respects those who possess knowledge.	SLO I.1: Demonstrates professionalism. Understands the role of the professional and applies to become a respected member of an organization.			SLO J.1: Automated control system marketplace. Exhibits some knowledge of global nature of automation system use.			SLO K.1: Understands the breadth of quality concerns. Understands how quality intersects all aspects of automation engineering technology.		
SLO A.2: Use electronics design and analysis tools. Students will apply electronics design and analysis tools.						SLO B.2: Modeling for analysis. Model electrical, mechanical, and IT systems for design and analysis.			SLO C.2: Lab exercises. Use electrical lab experiences as learning tools.			SLO D.2: Circuit design. Design circuits and electrical interfacing.			SLO E.2: Understands the purpose of teams. Assumes responsibility as a team member, respects chain of command and understands why teams exist.			SLO F.2: Use electrical troubleshooting tools properly. Troubleshoot electrical circuits and equipment using typical tools and equipment.			SLO G.2: Possesses good written communication skills. Can develop well-written e-mails, letters, technical documents, test plans and PowerPoint presentations.			SLO I.2: Understands and exhibits ethics. Knowledgeable on issues involving social and ethical responsibilities.	SLO J.2: Social and safe design responsibility. Understands the importance of the social issues involved with manufacturing and safety.			SLO K.2: Understands the importance of quality. Understands the importance of quality in all aspects of automation engineering technology.					
SLO A.3: Apply science and engineering tools. Students will apply science and engineering tools.						SLO B.3: System design. Design electrical, mechanical, and IT systems.			SLO C.3: Test plans. Design and execute test plans as part of system commissioning.			SLO D.3: Software and program development. Develop machine control logic, HMI applications and data handling software.			SLO E.3: Works and communicates in the team setting. Recognizes the need for good interpersonal skills and practices quality in communication in the team setting.			SLO F.3: Debugs logic and software applications. Exhibits the ability to logically approach and solve machine control logic programs and custom software applications.			SLO G.3: Formality and respect in communications. Differentiates between formal, semi-formal, and informal situations involving verbal and written protocols including meeting.			SLO I.3: Understands the role of professional societies. Understands the role of professional societies play in technical professions, including automation engineering technology.	SLO J.3: Safe design practices and operations. Understands the importance of safe design practices and operations.			SLO K.3: Timeliness and continuous improvement. Exhibits a sense of urgency in all aspects of automation engineering technology and tends to not accept complacency.					

Courses and Learning Activities	SLO A.1	SLO A.2	SLO A.3	SLO A.4	SLO A.5	SLO A.6	SLO B.1	SLO B.2	SLO B.3	SLO C.1	SLO C.2	SLO C.3	SLO D.1	SLO D.2	SLO D.3	SLO E.1	SLO E.2	SLO E.3	SLO F.1	SLO F.2	SLO F.3	SLO G.1	SLO G.2	SLO G.3	SLO H.1	SLO I.1	SLO I.2	SLO I.3	SLO J.1	SLO J.2	SLO J.3	SLO K.1	SLO K.2	SLO K.3				
MET 103	I						I																															
MET 203	I						I	I					I																									
MET 299	P						P	I					P																					I	I	I		
MET 329										R						I	I	I			P												P	P	P	P		
MFG 225																																			I	I	I	
MFG 370																R	R	R			P														P	P	P	
MFG 371																R	R	R			P													P	P	P		
ECT 165		I					I	I	I	I	I		I			I	I	I	I	I				I	P													
ECT 167		I					I	I		I	I		I			I	I	I		P	I			I	P													
ECT 170																																						
ECT 231		P					P	P	P												P																	
ECT 232																					P	P	P	P														
ECT 281	R			I																																I		
ECT 381	R		R	R	R	P			R	P	P	P	R	R	R	P	P	P	R	P	P	P	P	P	P				P				I	I	P	P		
ECT 406		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R		
ECT 437																					P	P	P						P	R	R	R	I	I	I	I		
ECT 444		R		R																																	P	
TMGT 478										R	R																										P	
TMGT 492																																					P	
Physical Sci 8 hours				I																																		
Phy Sci labs 2 hours																																						
Math 115																																						
MATH 301				I																																		
CS 256																																						
For. Language 6 hours																																						
COM 101																																						
ENG 101																																						
ENG 105																																						
ENG 107																																						
ENG 305T																																						
FS courses																																						

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Automation & Control Eng Technology

Courses and Activities Mapped to BS in Automative &Control Engineer Tech Outcome Set

OBJ 5: Mastery of skills and competencies																	
Mastery of skills and competencies																	
Outcome 5.1: Technical Drawings	Outcome 5.2: Knowledge of principles	Outcome 5.3: Apply theory	Outcome 5.4: Automotive Engine Systems	Outcome 5.5: Understanding of service facilities	Outcome 5.6: Ability to apply current knowledge	Outcome 5.7: Improve processes	Outcome 5.8: Apply creativity	Outcome 5.9: Function effectively on teams	Outcome 5.10: Automotive related problems	Outcome 5.11: Communicate effectively	Outcome 5.12: Technical reports	Outcome 5.13: Lifelong learning	Outcome 5.14: Automotive literature	Outcome 5.15: Social responsibilities	Outcome 5.16: Social responsibilities	Outcome 5.16: Respect for diversity	Outcome 5.17: Commitment to improvement
Students will have an ability to read, interpret, and edit technical drawings.	Students will have knowledge of the principles of industrial health and safety.	Students will apply theory through practical experience in industrial settings.	Students will have knowledge of automotive engine systems and design considerations.	Students will have an understanding of service facilities management and organization.	Students will have an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology.	Students will have an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes.	Students will have an ability to apply creativity in the design of automotive systems, components, or processes.	Students will have an ability to function effectively on teams.	Students will have an ability to identify, analyze and solve technical automotive related problems.	Students will have an ability to communicate effectively.	Students will have the ability to plan, organize, prepare, and deliver effective automotive technical reports in written, oral, and other formats.	Students will have a recognition of the need for, and an ability to engage in lifelong learning.	Students will have an ability to utilize appropriate automotive literature and use it as a principal means of staying current in the automotive industry.	Students will have an ability to understand professional, ethical and social responsibilities.	Students will have an ability to understand professional, ethical and social responsibilities.	Students will have a respect for diversity and a knowledge of contemporary professional, societal and global issues.	Students will have a commitment to quality, timeliness, and continuous improvement.

Courses and Learning Activities																	
ECT 281	I																
ECT 381	P																
ECT 406	R																
ECT 437	R																
ECT 444	P																

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