

Curriculum Map for Manufacturing Engineering Technology (MET) Program
School of Engineering & Applied Sciences
Western Kentucky University

The "Core Competencies in Manufacturing Engineering Technology" (see table below) provide guidelines to prepare students for the B.S. degree in Manufacturing Engineering Technology

Core Competency/Outcome	Content	By the completion of the MET program, the student should:	Courses
Industry-Wide Technical Competency – <i>Graduates will possess/demonstrate the ability to identify, formulate strategies and solve technical problems</i>	- CAD drawing fundamentals - Manufacturing process applications and operations: assembly processes, fabrication processes, electrical/electronic manufacturing processes, continuous flow/line balancing processes, hot and cold forming processes, casting and molding processes, heat treatment processes, joining, welding, and assembly processes, etc. - Automated Systems & Control Operations: automated equipment, automated systems, computer control, hydraulics and pneumatics, robotics, process control, analytical testing, etc. - Industrial Materials - Continuous improvement tools and techniques - Knowledge of statistical process control	<ul style="list-style-type: none"> • Design manufacturing production and production support systems. • Understand the various manufacturing types, processes, and products. • Understand and perform manufacturing process applications and operations. • Understand the basic automated systems & control operations. • Set up, operate, monitor, control, and improve manufacturing processes • Be able to maintain equipment, tools, and workstations. • Be able to apply statistical principles to manufacturing applications. • Understand the scientific principles involved in manufacturing processes. 	MFGE120 Basic Electricity MFGE205 or AS163- CADD MFGE217 Industrial Materials MFGE227 Introduction to Manufacturing Methods MFGE271 Industrial Statistics MFGE310 Safety & Ergonomics MFGE328 Robotics & Mach Vision MFGE 342 Manufacturing Operations MFGE 343 Automated Systems MFGE 356 Systems Design & Operations MFGE 370 Computer Numerical Control MFGE 371 Quality Assurance MFGE 394 Lean & Supply Chain Systems MFGE490A Senior Research AGMC 371/372 Agricultural Mechanics PHYS 231/232 Physics CHEM 105/106 or CHEM 120/121 MATH 117 Trigonometry
Communications Skills Competency- <i>Graduates will demonstrate an ability to</i>	Communication skills (i.e., oral, graphic, and written communication, etc.)	<ul style="list-style-type: none"> • Demonstrate the use and practice of different levels of graphic and written communication skills. 	COMM145 Fund Speaking/Communication COMM345 Advanced Public Speaking

<p><i>communicate effectively in pertinent areas, both written and graphic</i></p>			<p>MFGE205 or AS163- CADD MFGE217 Industrial Materials MFGE271 Industrial Statistics MFGE328 Robotics & Mach Vision MFGE 356 Systems Design & Operations MFGE 394 Lean & Supply Chain Systems MFGE430 Tech MGT/Team Building SEAS390 Project Management</p>
<p>Management/Leadership Competency- <i>Demonstrate the knowledge and capacity to apply managerial/ leadership principles and practices to appropriate situations</i></p>	<ul style="list-style-type: none"> - Interaction skills (i.e., teamwork, mentoring, leadership, interpersonal skills, etc.) - Organizational skills (i.e., project management, planning & organizing, training skills, etc.) - Quality assurance tools & techniques - Quality assurance audits - Total quality management - Continuous improvement - Elements of supply chain - Techniques of Inventory management - Principles of lean manufacturing - Materials handling - Plant facility & capacity - Production scheduling - Production systems - Environmental/Health/Safety - Problem solving and decision making 	<ul style="list-style-type: none"> • Understand the manufacturing business as a system that integrates multiple disciplines, processes, and stakeholders. • Demonstrating the ability to work effectively with others. • Be able to develop manufacturing process plans and documentation. • Apply quality tools and techniques to solve problems by generating, evaluating, and implementing solutions. • Ensure product and process meets quality system requirements as defined by customer specifications. • Be able to manage production and continuous improvement process. • Manage, plan and monitor the movement and storage of materials and products in coordination with suppliers, internal systems, and customers. • Employ equipment, practices, and procedures which promote a healthy, safe, and secure work environment. 	<p>MFGE310 Safety & Ergonomics MFGE 342 Manufacturing Operations MFGE 356 Systems Design & Operations MFGE 371 Quality Assurance SEAS390 Project Management MFGE 394 Lean & Supply Chain Systems MFGE490A Senior Research MFGE430 Tech MGT/Team Building</p>