

## Job Outlook

- Engineering technologists and technicians are in demand; employment outlook is excellent.
- Growing demand for modern and complex industrial machinery, machine tools, robotics, and computer-controlled processes require highly qualified technologists for their development, manufacture, use, and support.
- Continued high demand for graduates is expected.
- The occupational outlook is strong for mechanical engineering technologists and will continue to grow with anticipated technical advances in industry.

## Job Titles (with A.S. Degree)

- Lab Technician
- Manufacturing Technician
- Mechanical CADD Technician
- Mechanical Design Technician
- Product Design Technician
- Production Supervisor
- Project Engineering Technician
- Quality Technician
- Tooling Technician

## OTHER REQUIRED COURSES

**CGT 11000 Technical Graphics Communications**—3 cr. hours.

This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include: sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views.

**ECET 21400 Electricity Fundamentals**—3 cr. hours  
*Not open to ECET students. Prerequisite: MATH 115 or Math 125 and 126*

An introduction to elemental electrical components and their characteristics, basic electrical circuit theory, and use of basic laboratory test equipment, electrical motors, and industrial motor controls.

## Program Strengths

- Provides the skill and knowledge that enables the engineering technologist to apply engineering principles.
- Instruction based on job performance needs and lifelong learning.
- Curriculum under continuous review by faculty and industrial advisory board.
- Broad foundation with opportunities to choose depth in a technical specialty.
- Based for two-year continuation to a B.S. degree in Mechanical Engineering Technology at the main campus or Purdue North Central or continue for a B.S. in Industrial Technology, or Organizational Leadership and Supervision at South Bend.

**PURDUE**  
UNIVERSITY



COLLEGE OF TECHNOLOGY

at South Bend

# Mechanical Engineering Technology

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# Associate of Science Degree Plan of Study– MET

Semester 1 - Fall	CR	Semester 2 - Spring	CR	Semester 3 - Fall	CR	Semester 4 - Spring	CR
MATH M115 Precalculus & Trig	5	MATH M119 Brief Survey of Calculus I	3	MET 21100 Strength of Materials	4	SPCH S121 Public Speaking	3
CGT 11000 Graphics Comm.	3	MET 10200 Production Specif.	3	MET 21300 Dynamics	3	MET 21400 Machine Elements	3
MET 16000 Analytical & Comp Tools in MET	3	MET 11100 Applied Statics	3	MET 24500 Manufacturing Systems	3	MET 22000 Heat/Power	3
ENG W131 Elem. Composition	3	MET 14400 Materials & Processes II	3	PHYS P222 or PHYS P202 Physics II <sup>1</sup>	5	MET 23000 Fluid Power	3
MET 14300 Materials & Processes I	3	PHYS P221 or PHYS P201 Physics I <sup>1</sup>	5	ECET 21400 Electricity Fund.	3	Humanities/Social Science Elective	3
						Technical Selective (Needed if take Phys at another institution and is a 4 credit hour course) <sup>2</sup>	2 or 3
						CAND 99100 <sup>3</sup>	0
<b>Total Credit Hours</b>	17	<b>Total Credit Hours</b>	17	<b>Total Credit Hours</b>	18	<b>Total Credit Hours</b>	15

Degree Code: MET-AS  
Date POS Effective: Fall 2009

AS Total Credits 67

<sup>1</sup>Physics 201 and 202 are offered only during summer sessions. Physics 221 and 222 are only offered during the fall and spring semesters.

<sup>2</sup>A Technical Selective is only required if the number of credit hours for technical courses totals less than 65. A list of technical courses approved as technical selectives appear below.

### A.S. Technical Selective Course List

IT 10400 Industrial Organization  
MET 29900 A.S. Independent study project

<sup>3</sup>CAND 99100: Students must include this course in their last semester of enrollment for the completion of the Associate of Science degree. This is the students application for graduation. There are no fees assessed for this course, class attendance is not required and no grade will be issued.

Humanities/Social Science Elective: Anthropology, Economics, English, Foreign Language, History, Philosophy, Political Science, Psychology, Sociology or Appreciation course in Art, Music, or Theatre.

## Course Descriptions

**MET 10200 Production Design and Specifications**—3 cr. hours  
*Prerequisites: CGT 11000 and MET 16000*

The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations and related industrial practices.

**MET 11100 Applied Statics**—3 cr. hours

*Prerequisites: Math 115 or Math 125 & 126, and MET 16000*  
Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied.

**MET 14300 Materials & Processes I**—3 cr. hours

An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing.

**MET 14400 Materials & Processes II**—3 cr. hours

An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nonomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing.

## Course Descriptions (Continued)

**MET 16000 Analytical & Computational Tools in MET**—3 cr. hours  
*Prerequisite: Math Level 4*

The skills needed to solve technical problems in mechanical engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. The electronic calculator, the factor-label method of unit conversions, engineering graphs, and the computer are used to solve problems. Computer emphasis is on spreadsheet analysis, graphics, and generation of technical reports through the integrated use of software packages. Credit will not be granted for MET 16000 and MET 16002 or MET 16300.

**MET 21100 Applied Strength of Materials**—3 cr. hours

*Prerequisites: MET 11100, and 16000; Corequisite: Math 119*  
The principles of strength, stiffness, and stability are introduced and applied primarily to mechanical components.

**MET 21300 Dynamics**—3 cr. hours

*Prerequisite: MET 11100; Corequisite: Math 119*  
Kinematics and kinetics principles of rigid-body dynamics are introduced. Emphasis is on the analysis of bodies in plane motion.

**MET 21400 Machine Elements**—3 cr. hours

*Prerequisites: MET 16000, 21100, and 21300*  
The methods developed in statics, dynamics, and strength of materials are applied to the selection of basic machine components. The fundamental principles required for the selection of individual elements that compose a machine are developed. Selected course topics are included as computer exercises.

**MET 22000 Heat/Power**—3 cr. hours

*Prerequisites: MET 16000, Physics 201 or Physics 221; Corequisite: Math 119*  
Heat/Power is an introduction to the principles of thermodynamics and heat transfer. Basic thermodynamic processes are used to evaluate the performance of energy-based systems such as internal combustion engines, power plants, and refrigeration equipment.

**MET 23000 Fluid Power**—3 cr. hours

*Prerequisite: MET 11100 or Physics 201 or Physics 221; Corequisite: Math 119*  
This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls.

**MET 24500 Manufacturing Systems**—3 cr. hours

*Prerequisites: MET 14300, Math 115 or Math 126, or MET 16000*  
This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing.