

B.S. in Engineering Technology, Mechanical Engineering Technology

The Mechanical Engineering Technology (MET) program prepares graduates with knowledge, problem solving ability, and hands-on skills to enter careers in the design, installation, manufacturing, testing, evaluation, technical sales, or maintenance of mechanical systems. Our graduates typically have strengths in the analysis, applied design, development, implementation, or oversight of advanced mechanical systems and processes.

The MET program emphasizes hands-on experience and the use of state-of-the-art computer software in the fields of mechanical design, automatic controls, power generation, CAD/CAM, HVAC, and engineering sales. The program also provides a background in mathematics and science, which is sufficient to allow students to go on to graduate school, and also obtain a professional engineering license. ***This program is accredited by The Engineering Technology Accreditation Commission (ETAC of ABET), <http://www.abet.org>***

Graduates of this program are eligible to sit for the Professional Engineer's examination in New Jersey with the appropriate experience, as determined by the New Jersey Board of Professional Engineers and Land Surveyors. (<http://www.njconsumeraffairs.gov/pels/>). Graduates of the program are also eligible to pursue graduate degrees in mechanical engineering, management or related areas and students may participate in the BS/MS Program (<http://www.njit.edu/graduatestudies/program-options/bs-ms/index.php> (<http://www.njit.edu/graduatestudies/program-options/bs-ms/>)). The full four-year curriculum for the program is shown below. Students who wish to enter the program as a transfer student are typically students with an A.A.S. degree in Mechanical Engineering Technology and should have completed most or all of the courses, or their equivalents, in the first two years of the program as shown below. In the case of all students, both four-year and transfer, a minimum of 128 credits is required for graduation.

Program Educational Objectives

- Our graduates will possess the strengths to obtain and advance in positions that require analysis, applied design, development, implementation, or oversight of mechanical systems and processes.
- Our graduates will have the knowledge, problem solving ability, and hands-on skills to be successful in careers in the design, installation, manufacturing, testing, evaluation, technical sales, or maintenance of mechanical systems.
- Our graduates will have the foundation to take advantage of opportunities for life-long learning and professional development.

Student Outcomes

- an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
- an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
- an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
- an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives;
- an ability to function effectively as a member or leader of a technical team;
- an ability to identify, analyze, and solve broadly-defined engineering technology problems;
- an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- an understanding of the need for and an ability to engage in self-directed continuing professional development;
- an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
- a knowledge of the impact of engineering technology solutions in a societal and global context;
- a commitment to quality, timeliness, and continuous improvement;

(120 credit minimum)

First Year

1st Semester

		Credits
MATH 138	General Calculus I	3
PHYS 102	General Physics	3
PHYS 102A	General Physics Lab	1
MET 103	Engineering Graphics and Intro. to CAD	2
ENGL 101	English Composition: Introduction to Academic Writing	3
CS 106	Roadmap to Computing for Engineers	3
ET 101	Introduction to Engineering Technology	0

FYS SEM	First-Year Student Seminar	0
Term Credits		15
2nd Semester		
MATH 238	General Calculus II	3
PHYS 103	General Physics	3
PHYS 103A	General Physics Lab	1
MET 105	Applied Computer Aided Design	2
ENGL 102	English Composition: Introduction to Writing for Research	3
ECON 201 or EPS 202	Economics or Society, Technology, and the Environment	3
Term Credits		15
Second Year		
1st Semester		
MET 235	Statics for Technology	3
Technical Elective		3
ECET 201	Circuits I	3
History and Humanities GER 200 level (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/)		3
Select one of the following:		3
Technical Elective		
CHEM 301	Chemical Technology	
Term Credits		15
2nd Semester		
MET 236	Dynamics for Technology	2
MET 237	Strength of Materials for Technology	3
ME 215	Engineering Materials and Processes	3
Free Elective (2xx or 3xx)		3
Technical Elective		3
Term Credits		14
Third Year		
1st Semester		
MATH 309	Mathematical Analysis for Technology	4
MET 301	Analysis and Design of Machine Elements I	3
MET 303	Applied Thermodynamics	3
MET 314	Dynamics of Machinery	3
COM 313	Technical Writing	3
Term Credits		16
2nd Semester		
MET 302	Analysis and Design of Machine Elements II	3
MET 304	Applied Fluid Mechanics	3
ECET 329	Analog and Digital Electronics	3
Select one of the following: *		3
Technical Elective		
CHEM 301	Chemical Technology	
Free Elective (3xx)		3
Term Credits		15
Fourth Year		
1st Semester		
MNET 315	Industrial Statistics	3
MET 415	Automatic Control Systems	3
History and Humanities GER 300+ level (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/)		3

Select one of the following:		3
CPT 310	Computer Design Fundamentals for Computer Technology	
CPT 341	Visual Basic.NET for Engineering Technology	
Technical Elective		3
Term Credits		15
2nd Semester		
MNET 414	Industrial Cost Analysis	3
MET 450	Mech Design Capstone Project	3
Humanities and Social Science Senior Seminar GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/)		3
Technical Elective		3
Technical Elective		3
Term Credits		15
Total Credits		120

* Chem 301 Chemical Technology is a required course to be taken either first semester sophomore year for NJIT sophomores, or second semester junior year for Upper Division Transfer Students.

Free Electives

Consult the program coordinator. Students entering with fewer than 9 credits in humanities/social science must take an appropriate humanities/social science course to fulfill the NJIT GER.

Suggested Technical Electives

Code	Title	Credits
MET 205	Advanced Computer Aided Design	3
IE 224	Production Process Design	3
MET 307	Plastics Technology	3
MET 308	Plastics Processing Techniques	3
MET 395	Co-op Work Experience I	3
MET 403	Applied Thermodynamics II	3
MET 404	Applied Heat Transfer	3
MET 407	Structural Design	3
MET 409	AirConditioning and Refrigeration	3
MET 495	Co-op Work Experience II	3
MNET 300	Concepts In Machining	3
MNET 318	Mnfg Process Design	3
MNET 405	Numc Control Machn Tools	3
MNET 416	Production Scheduling	3
MNET 422	Tool Design	3
MNET 303	Advanced Techniques in CAD/CAM	3
MNET 420	Quality Systems	3
CPT 330	Software Web Applications for Engineering Technology I	3
CPT 341	Visual Basic.NET for Engineering Technology	3

Additional courses from other departments may be substituted as Technical Electives after obtaining prior approval from the MET Program Coordinator.

Co-op

Co-op courses must be approved by the MET Program Coordinator and Career Development Services. MET 395 Co-op Work Experience I is taken as an elective for degree credit. Students taking full time Co-op may only register for a maximum of 9 credits including Co-op. Students taking part time Co-op may only register for a maximum of 15 credits.

See the **General Education Requirements** "Refer to the General Education Requirements for specific information for GER courses"

This curriculum represents the maximum number of credits per semester for which a student is advised to register. A full-time credit load is 12 credits. First-year students are placed in a curriculum that positions them for success which may result in additional time needed to complete curriculum requirements. Continuing students should consult with their academic advisor to determine the appropriate credit load.