



2018 - 2019 Graduate Student Handbook



Rochester Institute of Technology
2016-2017

Introduction

The Master of Science in Mechanical and Manufacturing Engineering Technology (MMET) program is a multidisciplinary STEM (Science, Technology, Engineering, Math) degree offered by the Department of Manufacturing and Mechanical Engineering Technology (MMET) in collaboration with the Saunders College of Business, the Kate Gleason College of Engineering, and the College of Science. The program is designed for individuals who wish to achieve competence in the effective integration of the computing, manufacturing, design, and quality processes found in any robust design or manufacturing enterprise. Students take a set of common core courses and then elect a concentration in Product Design, Automation, Quality, or Electronic Product Manufacturing.

General Information

Applicants for admission are reviewed and processed throughout the academic year. Students may begin their studies in the fall or spring semesters. Limited courses are offered during the summer. Application forms may be obtained online (<https://www.rit.edu/emcs/ptgrad/>) or by writing to:

Graduate Enrollment Services

Rochester Institute of Technology
Bausch & Lomb Center
58 Lomb Memorial Drive
Rochester, New York
14623-5604

Admission Requirements

To be considered for admission to the MS program in Mechanical and Manufacturing Engineering Technology (MMET), candidates must fulfill the following requirements:

- Hold a baccalaureate degree (or equivalent) from an accredited academic institution in the field of engineering or engineering technology. Students with degrees in other disciplines will be considered on an individual basis (see list below for related degrees).

Related Degrees:

- Mechanical
 - Production
 - Industrial
 - Metallurgical
 - Instrumentation
 - Mechatronics
 - Automation
- Have a minimum grade-point average of 3.0. Applicants with a lower GPA will be evaluated on a case-by-case basis and may be admitted on a probationary basis. These students will have to secure a grade-point average of 3.0 (4.0 scale) or better in their first three graduate courses to be considered for full admission.
 - Have completed college-level course work in computer programming, and statistics,
 - Submit two professional recommendations,

- Submit official transcripts (in English) of all previously completed undergraduate and graduate course work,
- Submit a clearly written, one-page statement of purpose, and
- Complete a graduate application
- International applicants must also submit scores for the TOEFL and GRE exam (more info below)

Bridge Courses

Bridge programs are available for applicants who do not have engineering technology or engineering degrees. Students from business or other non-engineering degrees are required to complete the following bridge courses:

- Calculus II and Differential Equations
 - Materials
 - Statics and Strength of Materials
 - Manufacturing Processes
 - Solid modeling and Geometric Dimensioning & Tolerancing
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Transfer Credits

A student may request to transfer up to 9 semester hours of graduate credits from another university or RIT program with grades of 'B' or better. The Program Director will evaluate these requests. Official transcripts should be sent to:

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GRE Scores

Applicants from universities outside of the U.S. must submit Graduate Record Examination (GRE) scores. The GRE score is also recommended for those applicants whose undergraduate grade point average is less than 3.0. A score of 1,200 (V&Q) and an analytical writing score of 3.5 or higher are required scores on the GRE. Applicants with low GRE scores may be admitted conditionally; they may be required to take additional English language tests and, if required, English language courses along with a reduced MS program course load. Official GRE scores should be submitted to:

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58 Lomb Memorial Drive
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14623-5604

TOEFL Scores

International applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A minimum score of 550 (paper-based) or 80 (Internet-based) on the TOEFL is required.

**Financial Aid,
Employment
Opportunities,
and Scholarship****Costs**

Information on the cost of graduate tuition can be found at:

<http://www.rit.edu/grad>

Financial Aid, Scholarship & Student Employment

- The MMET department offers scholarship funding for qualified students. Each student's qualifications and accomplishments are reviewed at the time of admission and again at the start of each academic year (start of fall semester) during their program of study. Appropriate adjustments in scholarship funding are made at the start of each academic year based on a student's academic performance during the previous year.
- Students may earn additional financial support by gaining student employment on campus. For information regarding student employment, visit the Office of Student Employment in the University Services Center USC-1350.
<http://www.rit.edu/emcs/seo/>
- The MMET department also offers a limited number of graduate assistantships (teaching and research based) each year. They range in content and purpose depending on the needs of the department and faculty.
 - Students receiving a teaching assistantship must be registered for no more than 3 courses (9 credits)
 - Students receiving a research assistantship must be registered for no more than 3 courses (9 credits).

Curriculum

The program consists of 36 semester credit hours and is comprised of Graduate Education Courses, Core Courses, a three course Concentration, Electives, and a thesis or capstone project. Students may be required to take additional prerequisite courses depending on their background and elected concentration. The program director may approve the waiver of courses in the prerequisite group from graduation requirements, depending on students' academic and employment backgrounds. Full-time students are eligible for two co-op blocks (three months for each block) after completing two semesters of study at RIT.

Electives

Students in the Thesis option will take one elective and those in the Capstone option will complete two electives. Courses selected must be a course from another concentration, a course from another graduate program (if approved by the program director and faculty member teaching the course), and any independent study course if approved by the Program Director for Graduate Studies and Research.

Graduate Education Courses	GRCS 701 Research Methods STAT 670 Design of Experiments for Engineers and Scientists
Core Courses	MFET 650 - Manufacturing and Mechanical Systems Fundamentals MFET 730 – Six Sigma for Design and Manufacturing ACCT 706 – Cost Management DECS 744 - Project Management
Concentrations	<p>Product Design</p> <p>MCET 620 – Robust Design & Production Systems MCET 670 – Concept Design and Critical Parameter Management MCET 720 – Product and Production System Development and Integration</p> <p>Automation</p> <p>MFET 670 – Controls for Manufacturing Automation MFET 685 – Robots and CNC in Intelligent Manufacturing ISEE 610 – Systems Simulation</p> <p>Quality</p> <p>STAT 621 – Quality Engineering STAT 741 – Regression Analysis MCET 620 – Robust Design & Production Systems</p> <p>Electronic Packaging</p> <p>MFET 655 – Surface Mount Electronics Manufacturing TCET 740 – Fiber-Optic Telecommunications MFET 756 – Advanced Concepts in Surface Mount Electronics</p>
Thesis Track	<p>First Year</p> <p>MFET 650 - Manufacturing and Mechanical Systems Fundamentals GRCS 701 - Research Methods Concentration Course 1 MFET 730 – Six Sigma for Design and Manufacturing ACCT 706 – Cost Management MFET 788 – Thesis Planning</p> <p>Second Year</p> <p>DECS 744 - Project Management STAT 670 – Design of Experiments for Engineers and Scientists Concentration Courses 2, 3 Elective MFET 790 - Thesis</p>

Capstone Track

First Year

MFET 650 - Manufacturing and Mechanical Systems Fundamentals
STAT 670 – Design of Experiments for Engineers and Scientists
GRCS 701 - Research Methods
MFET 730 – Six Sigma for Design and Manufacturing
Concentration Course 1
Elective

Second Year

DECS 744 - Project Management
ACCT 706 – Cost Management
Concentration Course 2, 3
Elective
MFET 797 - Capstone Project

The topic for a student’s thesis or capstone, and the faculty advisor, will be in the concentration which the student has chosen to specialize.

The above schedule is only a suggested order; the specific semester a class is taken is the discretion of the student, their faculty advisor, and the Program Director for Graduate Studies and Research.

Any student who receives a grade of ‘D’ or ‘F’ in a course must repeat that course. If the course is part of the core curriculum, the student cannot use a different course to replace the original course. When a course is repeated, both grades are calculated into the student’s graduate GPA. The original grade is NOT removed.

Cooperative Education

Although graduate students are eligible for Co-op work, it is not required as part of the MS in MMET program. Students are responsible for securing their own Co-op assignment and MMET does not assure Co-op placement. If a student in the MMET program choose to include a Co-op work experience as part of his/her program, Co-op evaluations must be completed by both the employer and student.

It is important to note that accepting a job offer, verbally or in writing, constitutes a binding contract, which may not be rescinded.

International students must complete two semesters of course work at RIT before beginning a Co-op work assignment. RIT’s office of International Students Services and the MMET Program Director for Graduate Studies and Research must approve Co-op assignments for International students, the cumulative total of which must not exceed 365 days in duration.

**Probation and
Suspension**

Any matriculated graduate student whose Program Cumulative GPA falls below a 3.0 after 9 credit hours or subsequently will be placed on probation and counseled by the program director concerning continuation in the graduate program. Those students placed on probation must raise their Program Cumulative GPA to the 3.0 level within 9 credit hours or risk suspension from the program. Should it be necessary to suspend a graduate student for academic reasons, the student may apply for readmission to the dean of the college or designee (department chair, program director, etc.) upon demonstration of adequate reason for readmission. Readmission is NOT guaranteed.

**Master's Thesis
or Capstone**

The culmination of the master's program is a graduate Thesis or Capstone. Before registering for Thesis or Capstone, students must select a Capstone/Thesis advisor and complete a Capstone or Thesis proposal. The Thesis/Capstone proposal must be presented in a public presentation prior to final approval. At a minimum the student's entire committee, including the Graduate Program Director, must be in attendance. The proposal must be approved by the Capstone/Thesis committee prior to the student proceeding. The proposal form must be signed and turned into the MMET office before you will be able to register for Capstone/Thesis. **Please follow the Thesis/Capstone guidelines provided in a separate document.**

**MS Capstone or
Thesis Registration**

In order to register for graduate Capstone or Thesis course(s), student's must have a signed Capstone Project/Thesis Proposal form submitted and on file with the MMET office. Once this has been completed, the MMET office will register you for the appropriate course and section of Capstone or Thesis. If you register for the Capstone and do not complete it in one semester, you will receive an "I" grade. Once the Capstone is complete, the "I" grade will be changed to your new grade. If you choose a Thesis and do not complete it within one semester, you will receive an "R" grade. This indicates that your Thesis is in progress. Once completed, the "R" grade remains but the full title of your thesis is posted to the RIT system, indicating completion of your thesis.

**Checklist for the
Thesis/Capstone
Defense**

When the Capstone or Thesis is complete, the one step remaining is the presentation or defense. This presentation is approximately 50 minutes long including time for questions and is open to the RIT community. Typically MMET faculty members, the Director of Graduate Studies, and the Department Chair are in attendance.

The student is required to:

- Schedule the presentation with the MMET department office. Please submit 3 possible dates and times that work so that the office can choose a time when a majority of the MMET faculty are available to attend. The request for scheduling should be made at a minimum of one week prior to the proposed presentation dates.

- Provide your Capstone/Thesis committee with copies of the written Capstone /Thesis report at least a week prior to your presentation. This will provide your committee time to edit your document and notify you of necessary and suggested changes.
 - Ensure that the room where the presentation is scheduled has all audio/visual equipment necessary. If additional equipment is needed please see the MMET information technology manager.
 - Check with Graduate Program Director that all necessary paperwork is complete.
 - Prepare any handouts that you will need for your presentation.
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Thesis/Capstone Deliverables

You are responsible for submitting the following materials for your capstone /Thesis to the RIT entity listed below.

- Electronic copy (MS Word and PDF) of your final report, including:
 - Title page with the following information
 - Title of Thesis/Project
 - Date presented/defended
 - Academic Program
 - Rochester Institute of Technology
 - Rochester, NY
 - “Thesis submitted in partial fulfillment of the requirements of the degree of Master of Science in Manufacturing and Mechanical Systems Integration”
 - Signature page containing the following information
 - Title of Thesis/Project
 - Date presented/defended
 - Academic Program
 - Rochester Institute of Technology
 - Rochester, NY
 - Signature lines with the names of the signors below the line and date signed at the end
 - Names to be listed in the following order: Student, thesis/project advisors, MMET Graduate Program Director, and MMET Department Chair.

An electronic version of your final paperwork for a thesis must be submitted to RIT Wallace Center-ProQuest. Please note that a print copy is no longer submitted to the library.

Please see <http://infoguides.rit.edu/thesis-services> for more information.

Full-time Equivalency	<p>Continued, active registration at RIT is important for students who must maintain Full-time status, such as international students or students with loans. Students are only eligible for Full Time Equivalency (FTE) when registered for less than 9 credit hours or their project, thesis, or continuation of project/thesis.</p> <p>To be considered a full-time student while completing your project/thesis you must complete a “full-time equivalency” form. The MMET Department allows you to apply for no more than 4 semesters of full-time equivalency. Please see the Program Director for Graduate Studies to complete this form.</p>
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Miscellaneous Information	<p>More information about the program and department can be found online at https://www.rit.edu/cast/mmet/graduate-programs/ms-in-manufacturing-and-mechanical-systems-integration</p>
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Graduate Student Mail Folders	<p>Mail folders are located outside of the main MMET Office. Please check your folder regularly.</p>
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MMET Main Office	<p>The main MMET Office is located in Golisano Hall (Building 70), room 1165. The phone number is 585-475-2270. The office is open Monday-Friday from 8:30am-4:30pm. This office maintains the academic records for all MMET students. If you have questions regarding your curriculum, department, RIT policies, or anything else pertaining to your education, please feel free to come to the office. Forms for change-of-program, program extension, full-time equivalency, application for graduation, and many others are available at the MMET Office.</p>
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Electronic Mail	<p>The MMET faculty and staff use RIT email accounts to communicate with students. Please check your RIT email on a regular basis. When emailing any request to a faculty or staff member at RIT you should always use your RIT email address. <u>When requesting assistance by email to multiple staff members, please CC all parties on a single email.</u></p>
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The 7-year Rule for Course Credit	<p>Courses used to meet degree requirements for the MMET degree must have been completed within seven years of the date of graduation.</p>
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Academic Dishonesty	<p>Academic Dishonesty falls into three areas: cheating, duplicate submission, and plagiarism. Any act of Academic Dishonesty will incur one or more serious consequence. After notifying and presenting the student with evidence of academic dishonesty, the instructor has the full prerogative to assign an “F” for the offense, or to assign an “F” for the entire course. The instructor will inform and, if possible, meet with the student concerning the decision reached on the “F” for the offense, or the “F” for the entire course. A student may be brought before the Academic Conduct Committee</p>

of the College in which the alleged offense occurred, and may face academic suspension or dismissal from the Institute.

Commonly Asked Questions by Our Graduate Students:

- **How can I make an appointment with the Graduate Director?**
 - *Contact the staff assistant in the department office at 585-594-2270.*

- **How to use SIS (Student Information System)?**
 - *Visit this link for instructional aids and tutorials:*
<http://www.rit.edu/sistraining/student-training-materials>

- **Who will help with SIS issues?**
 - *Contact the help desk at 585-475-4357 or visit this link:*
<http://www.rit.edu/sistraining/forms/contact-us>

- **How to use e-services?**
 - *Visit this link to find out more about e-services:*
<https://www.rit.edu/eservices/>

- **What resources are available through ITS, such as Resnet?**
 - *Visit this link to go to the main page for ITS Services:*
<http://www.rit.edu/its/>

- **How to use library resources?**
 - *Visit this link for help with using library resources:*
<http://library.rit.edu/use>

- **How to get access to computer labs?**
 - *Go to the link below to request swipe access:*
http://apps.rit.edu/cast/labs/lab_access/index.php

- **How to get printing access? What is the department policy for how much a student can print out?**
 - *You will have automatic printing access from any of the computer labs for which you have access. The printing limit is 500 pages per semester.*

- **How much tuition will be waived if a student is selected for a teaching or research assistantship?**
 - *This is dependent upon the department. Refer to the question below.*

- **Where can I get information regarding departmental assistantship positions?**
 - *Students should contact the Graduate Program Coordinator, regarding positions available in our department.*

- **Where can I get information regarding on-campus jobs?**

- Visit the Office of Student Employment for more information:
<http://www.rit.edu/emcs/seo/?/home/>
- **Will this program allow a student to switch to another department in the future?**
 - It is possible, but students should work closely with the Graduate Program Coordinator
- **What companies recruit students from the MMET program, especially for international students?**
 - Students in our programs are recruited from a wide variety of employers. Follow this link to find out more: <http://www.rit.edu/emcs/oce/employer/salary>
- **What are the research projects that are being carried out in our department?**
 - Follow the link provided to see our faculty directory. Each faculty member has a bio with their research interests listed: <https://www.rit.edu/cast/mmet/faculty-and-staff-directory>
- **Who will help to get me started on research?**
 - Students should work closely with the Graduate Program Coordinator to establish their research project and to have a faculty member assigned
- **How do I complete my thesis?**
 - Work with a faculty member to answer a research question and then document findings in the thesis. Follow procedures outlined in the Thesis/Capstone Requirements Documents
- **Where to get information regarding departmental clubs like SME?**
 - Visit this link to find out more about our student clubs:
<http://www.rit.edu/cast/mmet/student-experience/clubs-and-activities>
- **When can students go for co-op?**
 - A co-op is optional for graduate students. International students need to complete 9 months of fulltime academic studies before becoming eligible for coop.
- **What is probation?**
 - **Probation** refers to the academic action taken when a student is not in good academic standing. A student placed on probation is expected to sufficiently raise his/her GPA in the succeeding term so that the probationary status can be removed. In some circumstances, a student will also be required to satisfy specific conditions required by the home department in the form of an academic contract in order to be removed from probation. Failure to meet the terms of probation may result in suspension
- **Could I be in danger of losing my scholarship?**
 - Scholarships are dependent on satisfactory performance and are renewable each year. If you fear that you might be in danger of losing your scholarship, you should speak with the Graduate Program Director as soon as possible
- **What is Turnitin? How will it affect me?**
 - **Turnitin** is an Internet-based plagiarism-prevention service created by iParadigms, LLC. Typically, universities and high schools buy licenses to submit essays to the Turnitin website, which checks the documents for unoriginal content. The results can be used to identify similarities to existing sources or

can be used in formative assessment to help students learn how to avoid plagiarism and improve their writing.

- *For more information, visit this link:*

<http://infoguides.rit.edu/turnitin>

- **What is the RIT policy on plagiarism and use of copyrighted material?**

- *RIT does not tolerate plagiarism or copyright infringement. Visit this link for help in understanding how to avoid plagiarism and copyright infringement: <https://library.rit.edu/instruction/dl/cptutorial/>*