MCET-101 Fundamentals of Engineering



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Student Learning Outcomes:

- Apply engineering principles to the analysis and solution of realistic problems.
- Use software to create general solutions to engineering problems including performing calculations and generating charts/graphs.
- Select and apply knowledge of mathematics, science, engineering, and technology to engineering technology problems.
- Work and communicate effectively within teams.
- Develop a basic project plan.
- Formulate experimental methods to collect and analyze data.
- Formulate and organize a design concept.
- Create professional quality documents.
- Apply engineering code of ethics.

Required Text:

Engineering Fundamentals: An Introduction to Engineering, 7th Edition, Saeed Moaveni Minnesota State University at Mankato, Cengage, ISBN: 9780357684412

Recommended Computer Software:

- Microsoft Office: Word, Excel, PowerPoint
- AutoDesk Fusion 360
- NI LabVIEW
- MathWorks MATLAB
- NI Multisim

Communication:

Emails and myCourses will be used as the primary communication tool beyond class meetings. In addition, students are expected, and encouraged, to communicate with their professor outside of class time (e.g. during office hours).

Grading:

The final numeric grade for the course will be computed on the basis of 100 as a perfect score, using the grade modifier system outlined in the "Grading System" section of the RIT Catalog.

Numerical	
Grade Range	Letter Grade
93-100	A
90-93	A-
86-90	B+
83-86	В
80-83	B-
76-80	C+
73-76	С
70-73	C-
60-69	D
0-60	F

Grade Summary:

Class Attendance – attending class and coming on-time	
Participation / In Class Assignments – fully engaged in classroom activities	
Homework Assignments	15%
Project #1	20%
Project #2	20%
Project #3	20%
Quizzes / Exams	15%

Attendance:

The knowledge and skills you will gain in this course depends largely on your participation in class learning activities. There is a generally recognized correlation between student attendance/engagement and student success. Any class session or activity missed, regardless of cause, reduces the opportunity for learning and will typically have an adverse effect on a student's achievement. Because of that, you are expected to attend all class sessions unless you are ill or have a valid reason for missing. Your class attendance will be tracked to help gain an understanding of your engagement in the course. If you have a valid reason for missing class, please contact your instructor by email in advance of the absence. In the event of an unexpected incident that arises to prevent your attendance, you are expected to email your instructor at the earliest opportunity. Any missed class sessions without a valid explanation/notification will be considered an unexcused absence.

Assignments (homework and projects):

To get full credit, assignments are due on the specified dates, at the specified times. Assignments may be accepted up to one week past the due date, with permission from the instructor; a 20% late penalty will be assessed. No submissions later than one week past the assigned due date will be accepted. There are many extra credit opportunities throughout the semester incorporated into the homework and project assignments, so take advantage of them as they arise if you'd like to earn bonus points. No extra credit assignments will be offered at the end of the semester to boost class GPA.

Given that enhancing teamwork skills is a part of the intended learning outcomes for MCET 101, you're encouraged to find classmates with compatible personalities with whom you can study, to whom you can pose questions that test your own ideas and understanding, and for whom you can explain and answer questions, thereby deepening your own understanding of the subject matter. Handing your work to someone so that they may see how a problem is worked out or guiding a person through the problem step by step, however, is not within the spirit of the collaboration policy or the honor code of the university. All homework assignments and the project 3 submission should be completed independently and materials turned in should be the result of one's own independent work.

Project #1 – Launcher Project:

Teams will construct a launcher that must be capable of hurling a projectile the full length of the course and must also be capable of hitting the competition's goal distance, which will not be announced until the competition time. Accuracy and repeatability count. Project is intended to familiarize students with the major elements of teamwork, communication, and the design process. Procuring the materials necessary to complete the project is students' responsibility.

Project #2 – Bridge Building:

Teams will design, build, and test a bridge made using basswood and wood glue. The goal is to construct the most structurally efficient bridge that meets the intended design specifications and predict prior to testing how much load the bridge can support before failure.

Project #3 – Temperature Sensor Project:

This project introduces students to the electrical design, experimental setup, and data analysis of a thermal system while reinforcing problem solving, communication, and presentation skills. Students will construct and calibrate a temperature sensing device with the goal of real-time monitoring. ONE SET of materials will be provided to each student.

Interruptions to Instructional Services:

Interruptions to instructional services could be the result of many events, including illness (faculty and/or student), severe weather, loss of power, catastrophic event, etc.; affect all or parts of the campus; and be of varying durations. Under these circumstances, course requirements, assignment deadlines, and grading procedures may be adjusted. You will be informed via MyCourses and email of any change as promptly as possible.

Accommodations

RIT is committed to providing reasonable accommodations to students with disabilities. If you would like to request accommodations such as special seating, testing modifications, or note taking services due to a disability, please contact the Disability Services Office. It is located in the Student Alumni Union, Rm 1150; the Web site is https://www.rit.edu/disabilityservices/. After you receive accommodation approval, it is imperative that you see me during office hours so that we can work out whatever arrangement is necessary. Students should discuss testing accommodations with faculty at the beginning of each semester, and together make a plan for when and where the tests will be taken. It is the student's responsibility to schedule testing with the DSO per their posted requirements.

Discrimination and Harassment

RIT is committed to providing a safe learning environment, free of harassment and discrimination as articulated in Per Policy C 6.0: Policy Prohibiting Discrimination and Harassment: https://www.rit.edu/academicaffairs/policiesmanual/c060

RIT's policies require faculty to share information about incidents of gender based discrimination and harassment with RIT's Title IX coordinator or deputy coordinators, regardless whether the incidents are stated to them in person or shared by students as part of their coursework.

Academic Honesty Policy and Statement of Academic Integrity:

The RIT Handbook of Student Rights and Responsibilities defines various forms of Academic Dishonesty and procedures for dealing with them. All forms are violations of the trust between the students and instructors. All students should familiarize themselves with this portion of the RIT Handbook and should note that the penalties for the various forms of dishonesty are significant.

As a university, RIT is committed to the pursuit of knowledge and the free exchange of ideas. In such an intellectual climate it is fundamentally imperative that all members of this academic community behave in the highest ethical fashion possible in the manner by which they produce, share, and exchange this information. Academic Honesty demands that at all times student work be the work of that individual student, and that any information which a student uses in a work submitted for evaluation be properly documented. Any violation of these basic standards constitutes a breach of Academic Honesty and hence becomes Academic Dishonesty.

In this course, all submissions will be checked for originality. If necessary, originality reports will be used to provide feedback to students on their use of source material and take actions when appropriate.

Academic dishonesty falls into three basic areas: cheating, duplicate submission and plagiarism.

- 1. **Cheating**: Cheating is any form of fraudulent or deceptive academic act, including falsifying of data, possessing, providing, or using unapproved materials, sources, or tools for a work submitted for faculty evaluation.
- 2. **Duplicate Submission**: Duplicate submission is the submitting of the same or similar work for credit in more than one course without prior approval of the instructors for those same courses.

3. **Plagiarism**: Plagiarism is the representation of others' ideas as one's own without giving proper credit to the original author or authors. Plagiarism occurs when a student copies direct phrases from a text (e.g. books, journals, and internet) and does not provide quotation marks, or paraphrases or summarizes those ideas without giving credit to the author or authors. In all cases, if such information is not properly and accurately documented with appropriate credit given, then the student is guilty of plagiarism.

Academic dishonesty of any kind is taken seriously and the penalty can range from a zero for the assignment to an F in the course depending on the severity of the offense and will be assessed at the discretion of the instructor.

Be certain you are familiar with RIT's Academic Honesty policy (Policy Number: D08.0, Policy Name: Student Academic Integrity Process) as described at:

Link: http://www.rit.edu/academicaffairs/policiesmanual/sectionD/D8.html

Student Success:

The academic demands in this course and your other classes can be understandably difficult and stressful. It is normal to feel anxious about your academic ability, especially when unexpected life events emerge on top of the challenges presented by your classes. I want to invite you to connect with me about any difficulties you have in this course as soon as possible. Your success is important to me as well as everyone in the MMET department and the college of engineering technology. I want you to get the additional assistance needed before the challenges become too much. In addition to me, I strongly encourage you to contact your academic advisor and the many other support services on campus that stand ready to assist you.

Counseling and Psychological Services:

Many students at RIT face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Located on the second floor of the August Center building (above the Student Health Center), Counseling and Psychological Services provides confidential and personalized services to meet the mental health needs of currently enrolled, undergraduate and graduate students on the Henrietta campus.

Their mission is to enhance the RIT student potential for learning and success and to promote the emotional health and well-being of the campus community through:

- 1. Providing responsive, empirically-based, and culturally competent mental health services that include:
 - o Short-term individual psychotherapy
 - o Group counseling and psychotherapy
 - Urgent Care crisis intervention
 - Assessment and evaluation
 - Psychiatric services

2. Providing graduate clinical training in counseling, psychotherapy and college mental health

3. Providing campus-wide consultation and education

Campus Location: 2100 August Center, second floor (Currently, all appointments are

conducted via phone or Zoom)

Phone: During Business Hours: 585-475-2261

After Business Hours, Weekends/Holidays: 855-436-1245

Emergency Contacts: For urgent matters during business hours, contact Counseling and

Psychological Services at 585-475-2261.

For urgent matters that cannot wait for business hours, call **1-855-436-1245** to speak with a mental health provider or call Public Safety at 585-475-3333.

National Suicide Hotline: 1 800 273-8255

Crisis Text Line: Text **HOME** to **741741**

ITS Service Desk:

The ITS Service Desk is your point of contact for your RIT Computer Account, network, or technology-related issues. The Service Desk can:

Troubleshoot your technology issues

• Create a work request ticket and connect you with ITS specialists

When you contact the ITS Service Desk by phone, e-mail, or in-person we create a ticket and share it with you. Your ticket allows you to track progress on your issue, communicate with us quickly, and refer back to the solution if you encounter the problem again. You can also leave us feedback on how we handled your problem.

• Phone Support: (585) 475-4357

• Web Form: help.rit.edu

• In Person: Frank E. Gannett Hall, Room 1113