EMEM 280: Measurements, Instrumentation, & Controls (MIC) I

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Course Content

From SIS:

This course is designed to introduce students to fundamental laboratory techniques and familiarize them with hardware and software tools. Students learn how to obtain and interpret measurements of physical parameters and properties such as temperature, pressure, and flow rate. Students learn how to interface a computer to physical devices such as relays and voltage output. Classroom demonstrations of MIC systems provide students with an appreciation for engineering applications. Lab 4, Credit 2

Prepared:

This course explores introductory concepts of engineering test & measurement, including automation and control. Its formal purpose is to provide preparatory skills and knowledge for the practice of engineering design and development, and experimentation. The primary vehicle for exploring these concepts is LabVIEW from National Instruments, which is an integrated, graphical programming environment ideally suited for developing test and measurement applications. As an early engineering course, its informal purposes include additional preparatory training in engineering analysis and presentation, logical programming and organization, advanced engineering tools, and to provide students with an appreciation for engineering applications.

Prerequisites (None)

Required Textbook (None)

Course Materials & Policies

All course materials are made available via the course coordinator's personal web site at **http://people.rit.edu/jdweme/emem280.htm**, including schedules, downloads, class work, references, and other materials as appropriate. Students are generally responsible for downloading and printing course materials from this site as needed. The RIT courseware management tool at **http://mycourses.rit.edu** will also be used to manage student assignment submissions and collected grades.

Graded work will consist of in-class exercises assigned regularly; a mid-term software-defined project; and a comprehensive, concluding project with software- and hardware-defined elements. The in-class exercises are meant to continue and extend the concepts introduced during the interactive worked examples completed during class time. In many cases, the in-class exercises will be completed during the scheduled class time (at the end of class). In other cases, students will need to complete the exercises outside of class, and submit the solution to the appropriate Dropbox on the myCourses website. Either way, whether completed during the scheduled class time or outside, each student must submit his/her individual solution to the in-class exercise to the Dropbox before the deadline in order to receive credit. Unless stated otherwise, deadlines will typically be at the start of the next scheduled class period. The mid-term and final projects will be detailed in separate documents on the course website when the time comes. Unless stated otherwise, all assignments are to be completed as individual efforts. Final course grades will consist of 20% from the final project, 10% from the mid-term project, and 70% equally spread amongst all of the in-class exercises. Up to two (2) of the in-class exercises can be missed without penalty, but both projects must be completed for full credit. No formal exams or final exam are currently planned for the course.

Students are expected to conduct themselves in an honorable and responsible manner, as outlined at **www.rit.edu/studentaffairs/studentconduct/rr.php**, the RIT Student Rights and Responsibilities manual. Disruptive or disrespectful behavior of any kind will not be tolerated. In particular for this course, strict adherence to proper procedure when using supplied hardware and computers is required. Furthermore, students should not touch any other hardware until told to do so, and then only with the proper care and respect. Any breakage or loss resulting from negligence or disrespect will be recouped from the responsible students, with the likelihood of additional disciplinary action. Attendance is not formally enforced, but each student is nonetheless expected to meet the assignment deadlines clearly stated on the web site. No allowances or measures of help will be given to those students who cannot be bothered to attend, or to pay attention in class.