

## Engineering Analysis II : MECH 3352

**Class Meeting:** (3:45 – 4:50 pm) MTWRF

**Location:** Education Building, 114

**CRN:** 34289

**Instructor:** Methaq S. Abed, Ph.D., P.E.

**Office:** Engineering Building, room A 104

**Phone:** 747-6435

**Email:** [msabed@utep.edu](mailto:msabed@utep.edu)

**Office Hours:** 9:30- 10:30am &  
2:30 -3:00pm , MTWR.  
**Or by appointment.**

**Teaching Assistant:** None

**Prerequisites:** Successful completion *Engineering Analysis I (Differential Equations)* or equivalent.

### Textbooks and Electronic media

**Required:** SC Chapra, “Applied Numerical Methods with MATLAB for Engineers and scientists,” 4<sup>th</sup> Edition, 2018, McGrawHill.

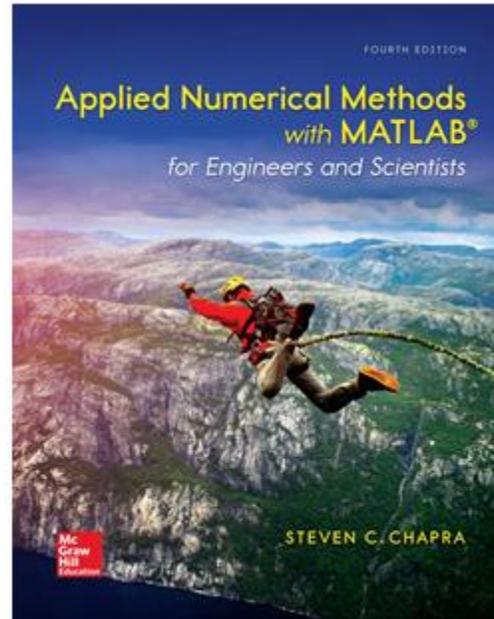
**Required:** Computer with access to the UTEP network and Matlab software  
References materials:

- H Moore. “MATLAB for Engineers,” 2nd Edition, Prentice Hall
- DV Griffiths and IM Smith. “[Numerical Methods for Engineers,](#)” 2nd Edition, Chapman & Hall/CRC
- Online materials as provided by the instructor

### Course Objectives

The primary goal is to provide engineering majors with a basic knowledge of numerical methods including root-finding, elementary numerical linear algebra, solving systems of linear equations, curve fitting, and numerical solution to ordinary differential equations, and numerical integration. An advanced programming tool (e.g., MATLAB) will be used for implementation and application of these numerical methods. The numerical techniques learned in this course enable students to work with mathematical models of technology and systems. By the end of this course, the students should be able to do the following:

- Structured programming: Understand basic structured programming concepts involving decision making, loops, functions, and parameter passing implemented within the MATLAB programming environment.





- Numerical methods: Understand the most common numerical methods used in engineering analysis, when to use each method, and how to implement basic methods in a structured manner using MATLAB’s programming language.
- Numerical accuracy: Estimate the amount of error inherent in different numerical methods.
- Numerical efficiency: Assess the efficiency of a selected numerical method when more than one option is available to solve a certain class of problem.

**ABET Program Outcomes Impacted**

This class significantly addresses the following ABET Objectives (From [ABET](#) on page 3):

- (a) An ability to apply knowledge of mathematics, science, and engineering
- (e) An ability to identify, formulate, and solve engineering problems
- (i) Recognize the need for engaging in lifelong learning
- (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

**Class Materials**

- Class Notes
- Presentations and Online Materials
- Exams, Quizzes and Homework

**Grading**

There will be several assignments at regular intervals during the semester. You are required to submit the assigned work by the deadline. **Late submission of the assigned work will not be allowed** unless medical and extraordinary emergency reasons exist. The following percentages of the assignments, exams, and project will constitute the basis for the assigning of the final grade in the course:

Grade distribution:

Assessment mode	Description	Overall weight
1) Take-home exercises (home works)	Assessments assigned outside of the class-period will be considered as 'take home' exercises.	30%
2) In-class exercises (quizzes)	In-class exercisees will be assigned during the class period.	25%
3) Exam 1	Exam 1	15%
4) Exam 2	Exam 2	15%
5) Exam 3	Exam 3	15%



**The instructor reserves the right to revise this grading plan.** However, students will be informed of any changes during the semester. **The instructor has the right to drop any student from the class if he/she missed 4 classes.**

Note: If conducting any of the exams gets badly affected due to unforeseen events (e.g., inclement weather, total computing infrastructure failure, etc.), the instructor will use one of the officially assigned days (e.g., class period or final exam time) to re-conduct the affected exam(s). If none of the officially assigned dates are available, the instructor will prorate the best exam to replace the score for the affected exam. There will be no-make up (see make-up policy for more) for any of these.

Letter grade – percentage score conversion method:

Letter grade	Overall percentage score
A	88% < Your score
B	78% < Your score < 88%
C	68% < Your score < 78%
D	58% < Your score < 68%
F	Your score < 58%

**Academic Misconduct**

Students are encouraged to work together to discuss the subject, however, all graded materials must represent the student individual work. Scholastic dishonesty is the attempt of any student to present as his or her own work of another, or any work which he/she has not honestly performed, or attempting to pass any examination by improper means. Scholastic dishonesty is a serious offense and will not be accepted. Academic misconducts will be handled according to the current university policy.

**Accommodation**

Any student in this course who has disability that may prevent him or her from demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodation necessary to ensure full participation and facilitate your educational opportunities.

**Make-up policy**

There will be **NO** make-up exams, quizzes or any other evaluation methods. Under exceptional conditions (usually medical conditions), however, you may be allowed to have make-up exams or quizzes. In this case, the instructor will require appropriate supporting materials. Additionally, you must participate in at-least 75% of all the scheduled in-class assessments to qualify for any make-up exams or quizzes.



Special provision: If you miss any of the mid-term exams for any reasons, you must take the final exam.

### **Class Environment**

In-class conversation will only be allowed during the class-discussion session as allowed by the instructor. No other form of conversations will be allowed during the class period.

### **Academic Honesty**

During exams and quizzes, you are not allowed to use any form of wifi enabled electronic device, including cell phones or other electronic communication devices or methods (wrist watches, earbuds, etc.). No wrist watch or another electronic device may be worn.

No electronic version of the book, loose paper print-outs of the book or extra sheets of paper of any kind is allowed unless explicitly mentioned in writing by the instructor. As a part of the zero-tolerance policy, if you have a cellphone or other electronic device capable of communication on your person; or if any proctor sees or hears any electronic device during the exam or if you share your work with someone else, you will be reported to the proper authorities, and you may receive a zero on the exam and an F in the class. Other actions including suspension may also be perused.

If you have a disability that requires the use of an electronic device during exams, you must have a letter of accommodation from the Center for Accommodations and Support Services (CASS). This accommodation must be coordinated in advance with the instructor.

During exams, you will not be allowed to leave the examination room until you complete the exam. This includes restroom breaks. Students with disabilities must have a letter of accommodation and coordinate this in advance with the instructor.

Instructors and/or proctors may record and/or use their personal cell phones to document activity during the exam. Recording devices may also be located at various locations in the room and may be out of sight of the students. These recordings will be managed according to the UTEP approved regulations for such media.

If you are suspected of scholastic dishonesty, you may not be directly confronted about your conduct by the instructor or proctor. You will, however, be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) and your exam will not be admissible. Your grade in the class may not be available until OSCCR makes a final ruling, this may adversely impact your ability to enroll in other classes.

If you arrive more than 15 minutes late to an exam, you will not be allowed to enter the examination room.

There will be no makeup exams administered. If you have a university approved excuse, your instructor will have a process for determining how to handle the missing grade outlined in the syllabus. However, no makeup exams will be given.



If you miss more than one exam, the instructor may choose to administratively drop you from the class. This may adversely impact a visa and financial aid.

No food or drinks will be allowed in the examination room.

Departmental policy allows for the use of assigned seats. All students must present their UTEP issued ID prior to and during every exam and may be required to sign in. Not having a UTEP issued ID when asked will result in forfeiture of the exam.

Scholastic dishonesty on homework, lab assignments, and all other class assignments will be held to the same standards and requirements of academic honesty as quizzes and exams.

### **Class Attendance Policy**

Attendance is mandatory. Anyone with 5 or more absences will be dropped from the class. A drop for not attending will count toward the State Allowed Six Drop Limit. If you are failing the class at the time of the drop, you may also be given a WF designation. Be advised that a drop could adversely impact visa status, financial aid, and other programs.

As per UTEP rules, you may be asked to show a UTEP ID at any time during class. Anyone who is present and not registered in the class will be subject to disciplinary action unless the instructor gives prior approval.

### **Excused Absence for Exams**

The UTEP catalog allows Exam Absence to be excused ONLY for University-Recognized Activities and very specific other situations. Medical absence is NOT allowed in the UTEP catalog. For consistency with the catalog, students will NOT be excused from exams due to illness.

### **Harassment Policy**

The department has a zero-tolerance policy for harassment. Engagement in any behavior considered harassment would be reported to the proper authorities. In addition to generally understood forms of harassment, the department also treats the following behavior as harassment:

- Repeated emails and/or calls regarding subjects that have already been addressed. Once a decision has been made, or a question answered, a student who continues to ask the same question will be given a warning by the recipient of the email/call. If the student continues, the behavior will be reported. Questions that seek understanding of course material are not harassment, but repeated questions about a grade or an administrative decision are.
- Grades are NOT negotiable, ever. If you believe a grading mistake has been made, you must follow the process described in the UTEP catalog. Any request for a grade elevation that is NOT based on a mistake is considered harassment and



will be reported immediately.

- Remaining in an office after the occupant requests you leave is considered harassment and potentially threatening. You will be reported immediately without warning and depending on the severity, may be reported to law enforcement.
- Similar behavior towards department staff and student advisors will also be treated as harassment, including persistent phone calls, emails, and badgering. Department staff and student advisors are there to help students and should be treated with due respect.

**External Resources**

Students are encouraged to make use of external resources in order to expand and improve their learning experience. Attached is a list of links that will be useful during the course.

<b>Name</b>	<b>Hyperlink</b>
Dynamic Learning Framework	<a href="http://dlf.utep.edu/">dlf.utep.edu/</a>
Engineering Technology Center	<a href="http://etc.utep.edu/">http://etc.utep.edu/</a>
Mathworks Online Documentation	<a href="https://www.mathworks.com/help/matlab/?requestedDomain=www.mathworks.com">https://www.mathworks.com/help/matlab/?requestedDomain=www.mathworks.com</a>
Vanderbilt University Online Course	<a href="https://www.youtube.com/watch?v=VheLmG7rh9w">https://www.youtube.com/watch?v=VheLmG7rh9w</a>