Semester	Fall 2023
Course Number	ENGR 0011
Course Title	Introduction to Engineering Analysis
Instructor	Qiang Ma, Email: maqiang809@scu.edu.cn
Teaching Assistant	Junfeng, Lu
Lecture Time	Monday 13:50- 16:25, Tuesday 13:50- 16:25
Lecture Room	Lecture Building 1, Block A, Room 110, Room 111
Prerequisites	No prior programming experience or knowledge of MATLAB is assumed. It is advisable to have a good familiarity with PC operations and a working knowledge of some basic application software, such as MS Excel. Basic knowledge of computer programming and an understanding of matrix and linear algebra and statistics are highly beneficial.
Textbook	Stephen J. Chapman, 2020, MATLAB Programming for Engineers, 6th Edition Cengage Learning Inc., Boston, MA.
Useful References	MATLAB help and User's Guide https://www.mathworks.com/help/matlab/index.html MATLAB Newsletters www.mathworks.com/company/newsleers.html
Course Description	This course is a 3 credit hour class. The course provides a gentle introduction to the MATLAB computing environment and is intended for beginning users. It is designed to give students a basic understanding of MATLAB by acquiring basic operational skills. The course consists of interactive lectures and sample MATLAB problems given as assignments and discussed in class. Concepts covered include basic use and toolboxes use, graphical representations and tips for designing and implementing MATLAB code
Course Outcome	Upon completion of this course, the student should be able to: 1. Understand the main features of the MATLAB development environment 2. Use the MATLAB GUI effectively 3. Design simple algorithms to solve problems 4. Write simple programs in MATLAB to solve scientific and mathematical problems 5. Know where to find help for advanced usage

Session	Course Outline
1	Introduction to MATLAB
2	Basic User Defined Functions and Structures
3	Vectors and Functions with Vector Inputs

4	Introduction to Plot and Features of MATLAB
5	Quiz
6	Nested if and Loops, and Advanced Plots
7	Advanced Functions
8	Review

Homework	Problem sets will be distributed each week after the class. Each problem set is designed to build upon the material covered in the preceding lectures. Homework assigned in a particular class is due at 12 PM on the day of the next class period, unless otherwise posted. Late HW will not be accepted.
Exams	There will be four sec□on exams and all exam will be comprehensive. The exams in this course will be closed book and closed note. No make-up will be given for the missing exam. Exams missed due to unpredictable events will be dealt with on a case-by-case basis.
Final Project	Each student will select a topic of their interest and work independently to deliver the final project. Work scope of the project must involve extensive usage of the MATLAB knowledge. Each student will submit a one-page proposal to outline the project subject, objective, and technical approach. Deliverable of the final project will at least include • a final report, and • the MATLAB source code to demonstrate the application.