Engineering 7: Introduction to computer programming for scientists and engineers

Summer Session 2015
6/08/2015 – 08/14/2015
MW 9:30-11:00  1165 ETCH
W 11:00-1230  1165 ETCH
TUTH 9:00-12:00 1171 ETCH

Instructor : George Anwar
GSI: Harshil Goel
Rubens Salsa
Course Description:
• Elements of procedural and object-oriented programming. Induction, iteration, and recursion.
• Real functions and floating-point computations for engineering analysis.
• Introduction to data structures.
• Representative examples are drawn from mathematics, science, and engineering.
• The course uses the MATLAB programming language
Course Format:
Regular Semester Session
2 hours of lecture (Required)
2 hour of discussion (Optional)
4 hours of laboratory per week (Strongly Recommended)

Summer Semester Session
3 hours of lecture (Required)
1.5 hour of discussion (Optional)
6 hours of laboratory per week (Strongly Recommended)
TOPICS COVERED

• Course Introduction
• Functions and writing MATLAB. Data Structures and Classes.
• Systems of Linear Equations.
• Least-Squares.
• Approximation by polynomials.
• Internal representation of numbers.
• Numerical Root.
• Numerical Integration. Numerical Differentiation.
• Numerical Solution of ODEs.
• Linear Recursion and Tree Recursion.
• Sorting and Searching.
Grading:

Your course grade will be determined by lab assignments, the midterm exam, and the final exam, according to the following weights:

Lab Assignments: 50%
Midterm Exam: 20%
Final Exam: 30% (August 12 at 9:30 am - 12:30 pm)