Syllabus

MEC 102: Engineering Computing and Problem Solving

SPRING 2018

SUNY Korea

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Class Time and Location: MW: 2:00 – 2:53 PM, Room: B207

Instructor: Professor Foluso Ladeinde **Office Location:** B619 (Department Office)

Preferred E-mail Address: foluso.ladeinde@stonybrook.edu

Instructor Office Hours (Tentative): TBD After Consulting with Students; Additionally, by Appointment.

Teaching Assistant (TA): Andreas Jacobs (MEC Major) jacobs.somnic@stonybrook.edu
TA Office Hours (Tentative): TBD

Textbook:
MATLAB Programming for Engineers by Stephen J. Chapman, Publisher: Cengage Learning (2016). ISBN: 978-1-111-57671-4.

Prerequisite: MEC 100 or MEC 101

Course Description:

Introduction to programming with MATLAB. Control structures, arrays and matrix operations, functions, object-oriented programming, interfacing MATLAB with other languages. Projects includes applications in solid mechanics, fluid mechanics, thermodynamics and heat transfer, control theory, and basic design concepts. Emphasizes the interpretation of previous analysis in terms of generating results, making quantitative comparisons, and assessing changes that optimize or otherwise maximize the usefulness of the result.

Contribution of course to meeting the Professional Component (CTPC): __% Engineering Science, Laboratory Experience __%, Mathematics __%, Basic Science ___%, General Education ___%, Design Experience __%

Topics:

- Introduction to Computer Applications in Engineering Analysis, with Historical Perspective. The Data (Variables) in Engineering Analysis.

- Bits, Bytes; Elementary Computer Data Types (Chapter 9); Data Storage Requirements; Non-Decimal Basis.

- Introduction to Linear Algebra: Scalars, Vectors, Matrices, Vector and Matrix Operations, etc.
- Introduction to MATLAB, Plotting, Debugging/Troubleshooting, Good Programming Practice (Chapters 1 – 3)
- Branching Statements and Program Design (Chapter 4)
- Loops and Vectorization (Chapter 5)
- User-Defined and MATLAB Built-in Functions (Chapter 6)
- Additional Data Types in MATLAB (Chapter 9)
- I/O Functions in MATLAB (Chapter 11)

Grading Scheme (Tentative):

Midterm I: 20%, Midterm II: 20%, Final: 25%, Homework: 20%, Quizzes: 10%, Attendance: 5% (0% for 3 or More Absences)

Location of Blackboard: http://blackboard.stonybrook.edu

Important Notice: I will not tolerate a student infringing on another's opportunity to learn in the classroom. Thus, there will be no talking during class and you cannot use laptop computers or cell phones. These are sources of visual and and/or aural distraction. Please turn your cell phones off before class.

Americans with Disabilities Act

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at the academic office. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information visit the Academic Office at SUNY Korea.

Statement on Academic Dishonesty

Academic dishonesty is an extremely serious offense and will not be tolerated in any form. Academic dishonesty in general is the presentation of intellectual work that is not originally yours. Examples include, *but are not limited to*, copying or plagiarizing class assignments including homework, reports, designs, and other submitted materials; copying or otherwise communicating answers on exams with other students; bringing unapproved aids, either in physical (written) or electronic form to an exam; obtaining copies of an exam prior to its administration, etc. Academic dishonesty violates both the ethical and moral standards of the Engineering profession and all infractions related to academic dishonesty will be prosecuted to the fullest via the CEAS CASA committee. For you, the honest student, academic dishonesty results in lower class curves, hence a depression in your GPA and class standing, while cheapening the degree you earn.

Allowed Calculators

Following the Mechanical Engineering Department's mandatory calculator policy, **only** the following calculators will be allowed to be used on the midterm and final exams. There will be no exceptions. This list of calculators is identical to that allowed for the *National Council for Examiners for Engineering and Surveying* (NCEES) Fundamentals of Engineering (FE) exam that many of you will take in your senior year, as well as the Professional Engineering (PE) exam that you may take several years from now. The sooner you become comfortable on one of these calculators, the better. If you have any questions on this policy please feel free to contact me. The NCEES policy on calculators can be found here: http://www.ncees.org/exams/calculators/ .

Casio:	All **fx-115** models. Any Casio calculator must contain **fx-115** in its model name.
Hewlett Packard:	The **HP 33s** and **HP 35s** models, but no others.
Texas Instruments:	All **TI-30X** and **TI-36X** models. Any Texas Instruments calculator must contain either **TI-30X** or **TI-36X** in its model name