FIZ 425E - COMPUTATIONAL ANALYSIS OF PHYSICAL SYSTEMS

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DAYS and HOURS:
Please see http://www.sis.itu.edu.tr/tr/ders_programlari/LSprogramlar/prg.php?fb=FIZ

Office Hour: Please send an e-mail to arrange a personal visit. Feel free to visit my office for quick questions.

TOPICS:
1. Open-source software in science, introduction to Python, data types, basic I/O operations
2. Basic constructions in Python (loops, conditions)
3. Operations on arrays and plotting commands
4. Random numbers
5. Functions
6. Matrix operations
7. Python as a MATLAB-like computation tool
8. Tkinter and graphical user interface
9. Object-oriented programming with Python
10. Interaction of C/C++, Fortran and MATLAB languages with Python
11. Symbolic computation with Python
12. Applications with modules

GRADING:

Quiz	20%
Homeworks	10%
Midterm	30%
Final Exam	40%

QUIZZES:
The course will be exercise-based. Therefore your attendance will be regarded as your quiz grade. The attendance will be taken at the beginning of the first hour.

HOMEWORK ASSIGNMENTS:
Homework assignments will be given via NINOVA. **Belated/e-mailed assignments will not be accepted**. You must upload your homework to NINOVA before the deadline. All assignments **showing an effort for the solution** will be **fully** graded.

REFERENCES:
- Jaan Kiusalaas**, *Numerical Methods in Engineering with Python*, Cambridge University Press, New York, 2010.
- Michael Dawson, *Python Programming for the Absolute Beginner*, Course Technology, Boston, 2010
- Mark Lutz, *Programming Python*, O'Reilly Media, California, 2011
- James Payne, *Beginning Python*, J. Wiley & Sons Inc, Indianapolis, 2010
- Hans Petter Langtangen, *A Primer on Scientific Programming with Python*, Springer, Dordrecht, 2011

OTHER:
The students are **required** to check the **NINOVA** system on a daily basis. All the announcements made via NINOVA will be considered as read and understood by the students.