COMPUTATIONAL ANALYSIS OF PHYSICAL SYSTEMS (FIZ 425E)

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DAYS and HOURS:
Please see: https://www.sis.itu.edu.tr/TR/ogrenci/ders-programi/ders-programi.php?seviye=LS
Office Hour: Send an e-mail to arrange a personal visit.

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. Graphical user interfaces
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 and NOTES:

Quiz Average	**30%**
Term Project	**30%**
Final Exam	**40%**

The students should gather at least 20 points (/60) from the in-term assessments in order to get the final exam. Otherwise, the grade will be VF.

QUIZZES:
You will be free to **cooperate** in quizzes and working with a friend will be encouraged. Please remember that you will be **responsible individually** from the result and be expected to explain your answer. You must upload your quiz to NINOVA before the deadline.

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.