COMPUTATIONAL ANALYSIS OF PHYSICAL SYSTEMS
(FIZ 425E)

LECTURER:
Tolga Birkandan (birkandant@itu.edu.tr)

DAYS and HOURS:
Wednesday (13:30 – 15:30) – FEB OBL1 / Friday (11:30 – 13:30) – FEB OBL1.
Office Hour: Wednesday 09:00-11:00. (Send an e-mail to arrange a personal visit.)

TOPICS:
1. Open-source softwares 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++ languages and Python
11. Symbolic computation with Python

GRADING and NOTES:

Average of **10** Quizzes	**20%**
Average of **7** Homeworks	**20%**
Midterm	**20%**
Final Exam	**40%**

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.

HOMEWORKS:
Homeworks will be assigned on NINOVA. **Belated homeworks will not be accepted**. You must upload your homework to NINOVA before the deadline. All homeworks **showing an effort for 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.