

ITU Physics Engineering Department
FIZ 272 E
COMPUTATIONAL PHYSICS

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All course related info will be posted on the NINOVA page.

Course Goals and Learning Outcomes

Computational Physics is a name given for any and all steps in which the experimental data is analyzed and deductions from those analyses can be drawn. With those results we as physicist conclude that either the theoretical model explains the data or fails to do so. In the later case, new theoretical explanations shall be searched. Thus COMPUTATIONAL PHYSICS is a very important part of science where new understanding, new concepts and law can be established, and developed.

Subject 1: LINUX BASH PROGRAMMING	Week 1,2
Subject 2: INTORUCTION TO MATLAB PROGRAMMING	Week 3
Subject 3: READING DATA with MATLAB	Week 4,5
Subject 4: FIGURE CREATING with MATLAB	Week 5
Subject 5: OPTIMIZATION and NON-LINEAR FITS with MATLAB	Week 6,7
Subject 6: ODE, PARALLEL CODING and FFT with MATLAB	Week 7,8
Subject 7: MEX with MATLAB (Running FORTRAN and C under MATLAB)	Week 9,10
Subject 8: MEX with MATLAB (Running FORTRAN and C under MATLAB)	Week 11,12
Subject 9: GUI with MATLAB (Graphics Interphase Coding)	Week 13,14

GRADING:

HOMEWORKS 40 % (There will be at least 4 Homework)

MIDTERMS 30 % (There will be 2 MIDTERM EXAMS which can be TAKE-HOME EXAM)

FINAL 30 % (This exam can also be a TAKE-HOME)

References:

Numerical Recipes in C & Fortran

MATLAB USER BOOK

And other online sources... Many of them will be shared during the classes.