Crash Course in Electromagnetics 2020

The crash course in electromagnetics aims to give the students who do not have a background in this subject a brief introduction to it. The course is voluntary and there is no need for signing up. There will be no exam or compulsory exercises.

Lecture Plan

Date	Time	Room	Topics	Lecture notes	Exercises	Solutions
Monday 3/8	09.15-12.00	EL3	Maxwell's equations, Coulomb's law, Vector calculus	lecture1.pdf		
Tuesday 4/8	09.15-12.00	EL3	Vector calculus, Gauss' law, scalar potential, Capacitance	lecture2.pdf		
Wednesday 5/8	09.15-12.00	EL3	Exercise session		ov1.pdf , ov2.pdf	lf1.pdf , lf2.pdf
Thursday 6/8	09.15-12.00	EL3	Electric fields in media, Boundary conditions for electric fields, Ideal conductors, Current density, Ohm's law	lecture3.pdf	ov3.pdf	lf3.pdf
Friday 7/8	09.15-12.00	EL3	Biot-Savart's law, Ampere's law	lecture4.pdf	ov4.pdf	lf4.pdf
Wednesday 12/8	09.15-12.00	EL3	Magnetic fields in media, Induction, Inductance, Lenz's law	lecture5.pdf	ov5.pdf	lf5.pdf
Thursday 13/8	09.15-12.00	EL3	Wave equation for the electric field, Maxwell's equations, Antenna equations	lecture6.pdf	ov6.pdf	lf6.pdf
Friday 14/8	09.15-12.00	EL3	Summary	lecture7.pdf		

Lecturer:

Hossein Ehya

E-mail: hossein.ehya@ntnu.no

Office: Elektro E/F, F414

Course Materials:

The lecture notes, exercises and solutions will be uploaded on schedule. We will be mainly using the material from previous years. Below are some additional resources:

- TFE4120 Elektromagnetisme (NTNU, 2013)
- Electromagnetism (Yale, 2010) (English)
- The Feynman Lectures on Physics: http://www.feynmanlectures.caltech.edu/
- Griffiths, "Introduction to Electrodynamics", last edition, Prentice Hall.
- Young & Freedman: University Physics.
- Popovic & Popovic, "Introductory Electromagnetics" Prentice Hall, 2000.