List of topics:

1. Divergence and Curl of Electrostatic Fields
2. Electric Potential, Poisson and Laplace eqns
3. Work and Energy in electrostatics
4. Laplace eqn and uniqueness theorems
5. Method of images
6. Solution of Laplace eqn through separation of variables
7. Multipole expansion
8. Dielectrics and Polarization
9. Electric displacement
10. Linear dielectrics
11. Biot-Savart Law
12. Ampere's law
13. Vector potential in magnetostatics
14. Diamagnets, Paramagnets, Ferromagnets
15. Amper's Law in Magnetized Materials
16. Electromotive force
17. Electromagnetic induction, Faraday's law
18. Maxwell eqns
19. Poynting's theorem
20. Maxwell's Stress Tensor
21. Electromagnetic waves in Vacuum
22. Reflection and Transmission of el-mag waves
23. Guided Waves
24. Scalar and Vector Potentials, Gauge transformations, Coulomb and Lorenz gauge
25. Retarded potentials, Jefiemienko Equations, Lienard-Wiechert potentials
26. Radiation: dipole radiation, point charges

Literature: David J Griffiths "Introduction to electrodynamics"

Exams:

- Testout exam (for tips on how to prepare, please contact the lecturer: Enrico.Sessolo@ncbj.gov.pl)
- Midterm exam 35%
- Final exam 50%
- Homeworks 15%