COURSE DETAIL

CLASSICAL ELECTRODYNAMICS
Country Netherlands
Host Institution Utrecht University – University College Utrecht
Program(s) University College Utrecht
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Physics
UCEAP Course Number 120
UCEAP Course Suffix
UCEAP Official Title CLASSICAL ELECTRODYNAMICS
UCEAP Transcript Title CLASS ELECTRODYNAMC
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course focuses on Maxwell's Laws and provides a solid, modern introduction to classical electrodynamics. Emphasis is on understanding these foundations. There are applications, but they do not take center stage. Once students have understood the theory in its modern formulation, insights can be expanded both in the direction of fundamentals of quantum field theory and in the direction of practical applications to be derived from Maxwell’s laws in their conventional formulation. After completing this course students are able to: describe the principles of the theory of classical electromagnetism and understand its practical applications and start examining the fundamentals of quantum field theory. During the entire course, available class hours are devoted to teacher instruction, problem solving, and student presentations, in which students take turns to explain various aspects of the material. There are graded homework assignments (computational work) designed to reach an adequate level of quantitative ability. After midterms students choose a topic for an individual paper. The purpose of this paper is to demonstrate the ability to fully understand a fundamental issue in, or an application of, electrodynamics. Finally, there is a written exam, the purpose of which is to demonstrate basic knowledge and understanding of the essentials of the theory of electrodynamics. As a prerequisite students must have taken Calculus and Intro to Wave Phenomena in Nature.

Language(s) of Instruction
English

Host Institution Course Number
UCSCIPHY21

Host Institution Course Title
CLASSICAL ELECTRODYNAMICS

Host Institution Course Details
https://cursusplanner.uu.nl/Curriculum

Host Institution Campus

University College Utrecht

Host Institution Faculty
Science

Host Institution Degree

Host Institution Department
Physics

Course Last Reviewed
2024-2025

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