

# 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 ELECTRODYNAMICS

**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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