

COURSE DETAIL

COMPUTABILITY, TURING MACHINES, AND GODEL'S INCOMPLETENESS THEOREMS

Country

Denmark

Host Institution

University of Copenhagen

Program(s)

University of Copenhagen

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Mathematics Computer Science

UCEAP Course Number

143

UCEAP Course Suffix**UCEAP Official Title**

COMPUTABILITY, TURING MACHINES, AND GODEL'S INCOMPLETENESS THEOREMS

UCEAP Transcript Title

COMPUTABILITY

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

This course is an introduction to computability theory and Gödel's incompleteness theorems. The first half of the course focuses on computability theory, and includes Recursive and primitive recursive functions; Turing machines and computable functions; basic results in computability theory including Kleene's Normal Form Theorem, the s-m-n Theorem, Kleene's Recursion Theorem, Recursively enumerable sets, the halting problem and decision problems in general; as well as hierarchy theory, relative computability, and Turing degrees. The second part of the course focuses on Gödel's first incompleteness theorem, and includes Axiom systems for number theory, representable relations and functions, arithmetization of syntax, the Fixed-Point Lemma, and Gödel's first incompleteness theorem, as well as Gödel's second incompleteness theorem.

Language(s) of Instruction

English

Host Institution Course Number

NMAK24006U

Host Institution Course Title

COMPUTABILITY, TURING MACHINES, AND GÖDEL'S INCOMPLETENESS THEOREMS

Host Institution Course Details<https://kurser.ku.dk/course/nmak24006u/2024-2025>**Host Institution Campus****Host Institution Faculty**

Science

Host Institution Degree

Master

Host Institution Department

Mathematical Sciences

Course Last Reviewed

2024-2025

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