

COURSE DETAIL

OPTIMIZATION AND MACHINE LEARNING

Country

Italy

Host Institution

University of Bologna

Program(s)

University of Bologna

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Engineering

UCEAP Course Number

184

UCEAP Course Suffix**UCEAP Official Title**

OPTIMIZATION AND MACHINE LEARNING

UCEAP Transcript Title

OPTMZTN&MACHIN LRNG

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

This course is part of the Laurea Magistrale program. The course is intended for advanced level students only. Enrollment is by permission of the instructor. The course introduces solution algorithms for nonlinear optimization problems that are the basis of many machine learning tools which find applications in telecommunications, electronics, automatic control, and decision support systems. The course is divided into two modules. The first module introduces solution algorithms for nonlinear optimization problems. Topics in this section include: nonlinear optimization: introduction to mathematical programming, models, and algorithms; nonlinear models: unconstrained optimization and constrained optimization; relaxations and penalty algorithms; convex optimization: Lagrangian relaxation and barrier algorithm; and applications of convex optimization to support vector machine and deep learning. The second module introduces basic machine learning techniques for classification and learning. Topics in this section include: algorithms for clustering and classification; neural networks; and laboratory activity on applications for machine learning algorithms arising in real applications.

Language(s) of Instruction

English

Host Institution Course Number

95601

Host Institution Course Title

OPTIMIZATION AND MACHINE LEARNING M

Host Institution Course Details

<https://www.unibo.it/en/teaching/course-unit-catalogue/course-unit/2022/466748>

Host Institution Campus

BOLOGNA

Host Institution Faculty**Host Institution Degree**

LM in TELECOMMUNICATIONS ENGINEERING; LM in ELECTRONIC ENGINEERING; LM in AUTOMATION ENGINEERING

Host Institution Department

Electrical, Electronic, and Information Engineering

Course Last Reviewed

2022-2023

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