# COURSE DETAIL

| ARTIFICIAL INTELLIGENCE IN INDUSTRY |
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| **Country**<br>Italy |
| **Host Institution**<br>University of Bologna |
| **Program(s)**<br>University of Bologna |
| **UCEAP Course Level**<br>Upper Division |
| **UCEAP Subject Area(s)**<br>Statistics Computer Science |
| **UCEAP Course Number**<br>181 |
| **UCEAP Course Suffix** |
| **UCEAP Official Title**<br>ARTIFICIAL INTELLIGENCE IN INDUSTRY |
| **UCEAP Transcript Title**<br>ARTFCL INTELL INDUS |
| **UCEAP Quarter Units**<br>6.00 |
| **UCEAP Semester Units**<br>4.00 |

**Course Description**

This course is part of the Laurea Magistrale degree program and is intended for advanced level students. Enrolment is by permission of the instructor. At the end of the course, the student has a deep knowledge of industrial applications that benefit from the use of machine learning, optimization, and simulation. The student has a domain-specific knowledge of practical use cases discussed in collaboration with industrial experts in a variety of domains such as manufacturing, automotive, and multi-media. The course is primarily delivered as a series of simplified industrial use cases. The goal is to provide examples of challenges that typically arise when solving industrial problems. Use cases may cover topics such as: anomaly detection; Remaining Useful Life (RUL) estimation; RUL based maintenance policies; resource management planning; recommendation systems with fairness constraints; power network; management problems; epidemic control; and production planning. The course emphasizes the ability to view problems in their entirety and adapt to their peculiarities. This frequently requires to combine heterogeneous solution techniques, using integration schemes both simple and advanced. The employed methods include: mathematical modeling of industrial problems; predictive and diagnostic models for time series; Combinatorial Optimization; integration methods for Probabilistic Models and Machine Learning; integration methods for constraints and Machine Learning; and integration methods for combinatorial optimization and Machine Learning. The course includes seminars on real-world use cases, from industry experts. The course contents may be (and typically are) subject to changes, so as to adapt to some degree to the interests and characteristics of the attending students.

**Language(s) of Instruction**
English

**Host Institution Course Number**
91261

**Host Institution Course Title**
ARTIFICIAL INTELLIGENCE IN INDUSTRY

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|---|
| **Host Institution Campus**<br>BOLOGNA |
| **Host Institution Faculty** |
| **Host Institution Degree**<br>LM in ARTIFICIAL INTELLIGENCE |
| **Host Institution Department**<br>Computer Science and Engineering |

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