



POLITECNICO
MILANO 1863

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Data Science for Industrial Engineering

LEARNING OBJECTIVES

The pervasive use of data in mechanical and industrial engineering paves the way to a paradigm shift in product, process, and service lifetime, from design to manufacturing and qualification, from usage to maintenance, and end-of-life/recycle/reuse. The Data Science for Industrial Engineering track is designed to provide students with a solid knowledge of the most advanced tools and methodologies for data science to augment their vertical knowledge of engineering problem domains.

PRE- REQUISITES

The recommended prerequisites for the Data Science for Industrial Engineering track are the courses in fundamental statistics, applied statistics, and basic knowledge of Mechanical Engineering design, manufacturing, and control.

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Data Science for Industrial Engineering

The Data Science for Industrial Engineering track aims to equip students with a blend of skills at the intersection of data science and industrial engineering. Specific learning outcomes include:

1. Advanced Analytical Skills to solve complex engineering problems using data-driven approaches (i.e., AI, machine learning and statistical models) to predict, optimize, and enhance industrial processes;
2. Problem-Setting and Solving to identify, formulate, and solve engineering problems specific to the industrial sector by applying data science techniques;
3. Project Management and Decision Making considering data-driven decision-making processes that consider economic, environmental, and social impacts;
4. Communication and Teamwork to work effectively in multidisciplinary teams, students will learn to present complex data insights and engineering solutions clearly and persuasively to a variety of audiences. By completing this track, students are expected to emerge as professionals capable of leveraging data science to drive innovation and efficiency in industrial engineering projects and operations.

LEARNING OUTCOMES

JOB OPPORTUNITIES

Upon completing the track, students will be well-equipped for various jobs, e.g., data scientist/analyst, process improvement engineer, product development analyst, engineering and data science consultant, research and development engineer, and systems engineer. These jobs span various industries, including automotive, aerospace, electronics, healthcare, and energy.

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Data Science for Industrial Engineering

PARTNER
UNIVERSITIES

The Data Science for Industrial Engineering track has established connections with prominent European and international academic institutions, facilitating opportunities for students to conduct thesis works in collaboration with partner companies (e.g., Leonardo, Siemens, GE additive, Ferrari) and universities among which Technische Universität München (TUM, Germany), Chalmers Tekniska Högskola (Chalmers, Sweden), Georgia Institute of Technology (Georgia Tech, USA), and Massachusetts Institute of Technology (MIT, USA).