Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

# Syllabus
# Course description

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| **Course title** | Programmable Controllers for Industrial Automation |
| **Course code** | 42168 |
| **Scientific sector** | ING-IND/32 |
| **Degree** | |
| **Semester** | II |
| **Year** | III |
| **Academic Year** | 2021-22 |
| **Credits** | 6 |
| **Modular** | No |

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| **Total lecturing hours** | 36 |
| **Total lab hours** | |
| **Total exercise hours** | 24 |
| **Attendance** | |
| **Prerequisites** | Electrotechnics |
| **Course page** | |

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| **Specific educational objectives** | *The course discusses the theoretical and practical basis of the programmable controllers used in industry for automation purposes.*<br>*At first the theory at the basis of digital systems are covered. Then advanced topics related to programmable logic controllers are introduced. Practical exercises will be solved during exercises using virtual environment of real industrial controllers.* |

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| **Lecturer** | Luigi Alberti, Anton Soppelsa |
| **Scientific sector of the lecturer** | ING-IND/32 |
| **Teaching language** | English |
| **Office hours** | Monday-Friday by appointment |
| **Teaching assistant (if any )** | - |
| **Office hours** | - - |
| **List of topics covered** | Digital system, design of logical function and system, implementation of finite state machine, programming languages adopted in programmable controllers. |
| **Teaching format** | *Frontal lectures, exercises at PC.* |

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| **Learning outcomes (ILOs)** | *At the end of the course the student will have knowledge and understanding to master the most important concepts about programmable logic controller. This competence will be applied to describe the state of the art of the adopted technology and to understand the design principles of common automation systems. The student will be able to make judgements selecting the more* |

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| | *adequate automation system for a particular application. He will learn the field related technical terminology to improve his communication skills. In particular he will prepare a technical report about the laboratory activities during the course. He will also improve his ability to autonomously extend the knowledge acquired during the study course by reading and understanding scientific and technical documentation.* |

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| **Assessment** | *The assessment of the course consists of the preparation of a report and its discussion with the teaching staff. In the report, each student will solve a specific automation problem assigned by the instructors. A practical implementation of the adopted solution will be developed by the student in the virtual environment adopted during the lectures.* |
| **Assessment language** | English |
| **Evaluation criteria and criteria for awarding marks** | *The final grade is assigned considering the following criteria: correctness of the developed solution, clarity and correctness of answers, mastery of technical language ability to summarize, evaluate, and presenting the results, ability to establish relationships between topics.* |

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| **Required readings** | There is no single textbook that covers the entire course. The course material is collected from various sources that will be announced during the course. |
| **Supplementary readings** | |