

Course guide

2400231 - 240MEI83 - Formula Student M1

Last modified: 10/07/2026

Unit in charge: Barcelona School of Industrial Engineering
Teaching unit: 724 - MMT - Department of Heat Engines.

Degree: MASTER'S DEGREE IN AUTOMATIC CONTROL AND ROBOTICS (Syllabus 2025). (Optional subject).
MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2025). (Optional subject).

Academic year: 2026 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Arnau Dòria

Others: Lluís Roger, Daniel Montesinos, Vicenç Puig, Vicenç Parisi

TEACHING METHODOLOGY

The course is conceived as an engineering project in which the students have the challenge of designing and building an electric Student Formula vehicle with autonomous driving capabilities and participating in international competitions.

The project is divided into different sections responsible for the parts and functionalities of the vehicle. Each section establishes objectives and tasks that are divided among the students.

Project-based learning not only provides the knowledge to carry out the tasks set out but also promotes independent learning and teamwork, as well as the correct management of resources.

Finally, since the project aims to participate and present the project in international competitions, communication skills and third languages are also developed.

LEARNING OBJECTIVES OF THE SUBJECT

General objective: To acquire and put into practice the necessary knowledge for the design and construction of a Formula Student-type vehicle.

Specific objectives:

To learn to plan, organize and develop the tasks of a project.

To acquire group work skills, responsibilities and leadership.

To develop effective oral and written communication skills.

To acquire knowledge related to automotive and mobility.

To contribute to reducing the gender gap in engineering, in general, and the automotive sector, in particular.

To improve students' motivation and school success through participation in centre projects.

To consolidate more comprehensive training in engineering, with involvement in multidisciplinary projects.

CONTENTS

Training in automotive engineering

Description:

New members will acquire knowledge related to the project section from the sessions with the reference faculty.

Full-or-part-time: 30h

Guided activities: 5h

Self study : 25h

Project planning

Description:

The students, with the help of the reference teachers, will raise the team's objectives and the associated tasks.

Full-or-part-time: 30h

Guided activities: 5h

Self study : 25h

Development of tasks

Description:

The students, with the help of the reference teaching staff, will develop the assigned tasks, with the corresponding validations to corroborate the proposed designs.

Full-or-part-time: 30h

Guided activities: 5h

Self study : 25h

Assembly of the vehicle

Description:

The students, with the help of the reference teachers, will carry out the necessary tasks to have a functional vehicle at the end of the season, and ready to participate in the competitions.

Full-or-part-time: 30h

Guided activities: 5h

Self study : 25h

Preparation and participation in competitions

Description:

The students will prepare the vehicle and participate in the competitions that are considered appropriate.

Full-or-part-time: 30h

Guided activities: 5h

Self study : 25h

GRADING SYSTEM

An evaluation will be made based on the student's participation in the project. The final grade will take into account:

- Development of tasks associated with the project (60%)
- Documentation of the tasks performed (40%)