



Department Project Information

Department Name	<i>MEES - Motorsports</i>	Date Submitted	<i>04/19/2023</i>
Project Title	<i>FSAE ICV (FSAE_ICV2)</i>	Planned Starting Semester	<i>Fall 2023</i>

Senior Design Project Description

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project.

Please provide your estimate of staffing in the below table. The Senior Design Committee will adjust as appropriate based on scope and discipline skills:

Discipline	Number	Discipline	Number
Mechanical	8-9	Electrical	1-2
Computer		Systems	
Other ()			

Project Overview:

The SAE International Formula SAE program is an engineering design competition for undergraduate and graduate students. The competition provides participants with the opportunity to enhance their engineering design and project management skills by applying learned classroom theories in a challenging competition. The engineering design goal for teams is to develop and construct a single-seat racecar for the non-professional weekend autocross racer with the best overall package of design, construction, performance and cost.

The concept behind Formula SAE is that a fictional manufacturing company has contracted a design team to develop a small Formula-style racecar. The prototype racecar is to be evaluated for its potential as a production item. The target marketing group for the racecar is the non-professional weekend autocross racer. Each student team designs, builds and tests a prototype based on a series of rules whose purpose is both to ensure onsite event operations and promote clever problem solving. The vehicle will be inspected in a series of tests to ensure it complies with the competition rules; in addition, the vehicle with driver will be judged in many performance tests on track. The rest of the judging is completed by experts from motorsports, automotive, aerospace and supplier industries on student design, cost and sales presentations.

Project Requirements:

Design, Test and Build an internal combustion FSAE competition vehicle in accordance with the FSAE 2024 Rules. The team is also required to prepare and present Sales Presentation Documents, Design Evaluation Documents, Cost Report Documents, and Technical Inspection



Documents in accordance with competition rules.

Expected Deliverables/Results:

Deliverables include:

- All senior design course deliverables
- All competition deliverables as specified by SAE
- Complete 3D CAD Design and component sources
- BOM for sources
- Documentation and calculations
- Operational and Competition ready FSAE Car
- Build the COMPLETE race car and compete in the 2024 Formula SAE Michigan event
- Run track tests and log testing data
- For full credit the team MUST compete in the 2024 Michigan event at the sole discretion of the Mentor.
- Failure to compete in the 2024 Michigan event may result in an unsatisfactory grade at the sole discretion of the mentor.

Disposition of Deliverables at the End of the Project:

Hardware developed and documentation for competition is the property of the mentor and department.

List here any specific skills, requirements, specific courses, club affiliation, knowledge needed or suggested (If none please state none):

- Motorsports concentration – Not required, but motorsports concentration has priority
- Student Member of SAE and the FSAE student organization– Not required, but has priority