UNC Charlotte – Lee College of Engineering Senior Design Program
Company Information

Company Name	MEES - Motorsports	**Date Submitted**	*3/15/2022*
Project Title	FSAE Electric Vehicle **(FSAE_ELEC3)**	**Planned Starting Semester**	Fall 22

Funding:

What is the source of funds that will be used to cover all of the direct costs of this project?

Motorsports

Is this source of funds already secured? Yes ___x___ No _____

Technical Contact(s)*

	Technical Contact 1	**Technical Contact 2**	**Grader**
Name	Mesbah Uddin		TBD
Phone Number	704-687-7020		
Email Address	muddin@uncc.edu		TBD

*We would like to have more than one technical contact, so there is a back-up in case of travel, sickness, job re-assignment, etc.

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	7	Electrical	3
Computer	1	Systems	
Other ( )			

Project Overview and Requirements:

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.

The goal of this inaugural EFSAE is to prepare the school to participate in future competitions in this new and exciting category.

Requirements:
Design, Test and Build a FSAE Electric competition vehicle in accordance with the FSAE 2023 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.

Student Requirements

1) This is a competition team and all students who volunteer will be required to attend the competition, which may be after graduation. A grade of incomplete will be issued to all members until after the competition. Attendance at the competition is factored into the final grades.
2) The team is required to occasionally test on the weekends and may need to test over scheduled breaks.
3) Fundraising may be required.
4) Members of the FSAE student organization may help with some aspects of the project, but may not hold leadership positions on the competition team and will not be responsible for any portion of the project. The project completion and standings are entirely the responsibility of the senior design team, not the student organization
5) All members of the team, all majors, will be required to take and pass the Motorsports Shop safety test to access the team work area.
6) The team MUST compete in the 2023 Formula SAE Electric Michigan event

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
- Prepare and Archive detailed documentation and calculations
- Carry out lab-scale accumulator safety tests; log data and prepare safety report
- Build the COMPLTE race car and compete in the 2023 Formula SAE Electric Michigan event
- Run track tests and log testing data
- For full credit the team MUST compete in the 2023 Michigan event at the sole discretion of the Mentor.
- Failure to compete in the 2023 Michigan event may result in an unsatisfactory grade at the sole discretion of the mentor.

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

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