UNC CHARLOTTE
The WILLIAM STATES LEE COLLEGE *of* ENGINEERING

Senior Design Project Description – COE Department Project

Department Name	UNCC COE	**Date Submitted**	4/1/19
Project Title	BAJA SAE Competition Team **BAJA_F19**	**Planned Starting Semester**	F 2019

Personnel:
Mechanical (Motorsports) 4-8, Students from other disciplines encouraged to participate with preference given to Motorsports Concentration.

Faculty Mentor:
Charles Jenckes

Grader
Charles Jenckes

Shop Contact:
Luke Woroniecki lworonie@uncc.edu

Project Overview:

As described by the SAE: In Baja SAE, engineering students are tasked with designing and building a single-seat, all-terrain sporting vehicle that is to be a prototype for a reliable, maintainable, ergonomic, and economic production vehicle that serves a recreational user market. The students must function as a team to design, engineer, build, test, promote, and compete with a vehicle within the limits of the rules.

Expected Deliverables/Results:

This project requires the design and construction of a rules compliant vehicle as described by the SAE. More or less focus may be put on individual subsystems depending on the required areas of improvement. Vehicle dynamics and structural strengths will be tested and analyzed. Strong use of analysis and CAD software will be used to create and test parts and systems for the vehicle. Emphasis will also be placed on physically building and producing the vehicle and subsystems. This will include but will not be limited to use of manual mills and lathes, CNC machines, and welders. The goal will be to produce a vehicle and an engineering package to be presented and tested at the yearly SAE baja competition.

Disposition of Deliverables at the End of the Project:
Hardware, software and equipment will be maintained by the team and the mentor for the duration of the project. At the completion of the project, all equipment, hardware and documentation will be turned over to the mentor and maintained by the Kulwicki Motorsports lab for following teams planning and use. Team tool box will be inventoried and organized, toolbox key turned in.

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

Student should have an interest in one or more of the following:
Part design, Vehicle Dynamics, CAD software, CAM Software, CNC and Manual Machining, Fabrication skills, Welding, Structure Analysis, Racing Vehicles, Engines and Test Equipment, Engineering testing.
Knowledge of the following desired
CAD - Solidworks
Matlab , Mathcad
Optimum K/G
ANSYS or other
Microsoft Project
Microsoft Word
Mechanical understanding
Fabrication Skills (steel\aluminum)
General knowledge of the Kulwicki Lab and available tools and equipment