



## PROJECT ORGANIZATIONAL FRAMEWORK

1. Every engineering student is part of a Functional Group AND a Platform Group.
2. Students are assigned to Functional Groups by instructors and to Platform Groups by a process established by the Team.

It is expected that:

1. Each Team, Functional Group and Platform Group will have a coordinator who will represent the team at various meetings and help coordinate activities/decisions.
2. Team and Group coordinators will be selected by the Team.
3. Teams will decide how many Platform Groups they need (no less than 4 or more than 7), the associated basic platform purpose, and the staffing level required for each Platform Group.
4. Platform Groups may be of different sizes depending upon the number of individual platforms to-be-built and complexity of the platform.
5. Platform Groups should have at least one member from each Functional Group (exception: some Platform Groups, e.g. Linemen, may not need a Mechanisms Group member).

## AME40463 Organization Structure:

### Functional Groups:

1. Chassis
2. Drive Train
3. Mechanisms
4. Control
5. Actuation

1. The Chassis group is responsible for the physical structure of the players, including mounting of the tackle sensor. Fundamental interactions are with: Drive Train for installation of the drive train within the chassis; Mechanisms for installation of the mechanisms to the chassis; Control for installation of the control hardware within the chassis, interfacing to the tackle and any other sensors, and wire routing; Actuation for housing the actuators and supporting electronics and for wire routing.
2. The Drive Train group is responsible for the mechanical elements that enable the players to move around on the field. Fundamental interactions are with: Chassis for installation the drive train within the chassis; Mechanisms for providing locomotion capability that is consistent with the specific needs of the mechanisms (passing, kicking, ball transfer); Control for the EXTREMELY important issue of steering control for locomotion; Actuation for the selection of actuators and supporting electronics to provide the input to the drive train.
3. The Mechanisms group is responsible for all mechanical devices used to manipulate the football, including transfer from center, throwing, holding in place following a catch or hand-off, pick-up, kicking, etc. Fundamental interactions are with: Chassis for installation of the mechanisms on the chassis; Drive Train for ensuring manipulation and locomotion capabilities are compatible for achieving the end goals; Control for mechanism actuation control and coordination of that with locomotion control; Actuation for the selection of actuators and supporting electronics to provide the input to the mechanisms.
4. The Control group is responsible for the remote controls and the accompanying software used to control all aspects of the players' motion. Fundamental interactions are with: Chassis for installation of the control hardware within the chassis, interfacing to the tackle sensor, and wire routing; Drive Train for EXTREMELY important issue of steering control for locomotion; Mechanisms for mechanism actuation control and coordination of that with locomotion control;

Actuation for the conversion of control signals into actuator inputs through the supporting electronics and stopping actuation based upon the tackle sensor input.

5. The Actuation group is responsible for the power sources, actuators, the supporting subsystems and electronics that drive/power all electro/mechanical components within the players. Fundamental interactions are with: Chassis for housing the actuators and supporting electronics and for wire routing; Drive Train for the selection of motors/actuators and supporting electronics to provide the input the drive train; Mechanisms for the selection of actuators and supporting electronics to provide the input to the mechanisms; Control for the conversion of control signals into actuator inputs through the supporting electronics and stopping actuation based upon the tackle sensor input.