

## Project Roles in Multidisciplinary Senior Design

*The purpose of this document is to describe the key tasks, and suggested roles, to insure MSD projects are planned for and executed well in terms of the project management aspects.*

### ***Team member (individual contributor)- this section applies to all team members***

- Participate in the process of creating a work breakdown structure, and project schedule, for the team. Accept responsibility for completing tasks assigned to you and those you volunteer for. Participate fully in sessions to maintain and update the team's plan.
- Report progress as needed (e.g. at weekly review meetings) on the tasks you are responsible for. If you miss a reporting session, insure your progress is still properly communicated. Keep a log that shows tasks completed, date, and time spent on the task; have it available for review at all times (you get scored on this).
- Follow the MSD process – the course plans, roadmap, grading rubrics
- Create needed deliverables per required formats, share with teammates and faculty guides / TA's, and insure they are archived on Edge.
- Behave in an efficient manner in team meetings – report on activities in enough detail that others get what they need, but don't overdo it, or use team meetings ineffectively
- Recognize your role as member of a team – if you are ahead of schedule, and others need help, help them! This course is all about team success. Raise problems and concerns with teammates if and as they occur. As problems arise (uneven workload, people lagging behind schedule, recognition of the need for technical help), initiate action to deal with them. If the team cannot resolve, get help from the faculty guide / TA.

### ***Project manager (NOTE: the list above also applies to students in this role)***

- *This role is more of a facilitator / enabler than it is a "command and control" leader.* The role of a project manager is some of this person's work; being an engineer on the team is most of the work – all team members must do engineering design work.
- Act as the "conscience" for the team – e.g. having a plan that is relevant and current, good execution against the plan, tracking progress, fixing problems. Escalate problems the team can't solve to the faculty guide.
- Help facilitate timely and efficient communications inside and outside the team.
- Share the leadership work – insure all team members participate in presentations, interact with faculty and TA's, respond to requests for information, etc.
- Perform "checks" – is Edge up to date? Is our project plan up to date? Have the right people been invited to review meetings? Do meetings have agendas? Are they followed? As problems are found, engage team members as appropriate to resolve them

***Lead engineer (may also be referred to as systems engineer or chief engineer) – NOTE: this role may not exist on every team***

- Primarily responsible for insuring interfaces are properly managed – subsystems, interfaces between the team and the customer, interfaces between the product / system to be developed and the environment (where “it” is located, what it sits on, who uses it).
- Also primarily responsible for coordinating systems integration – insuring systems design is done properly before detailed design gets too far along, insuring the systems design review is properly coordinated and presented.

***Team facilitator (this role may be done by any team member, or it may rotate, or be shared)***

- Insure the interpersonal aspects of the team – relationships, communications, peer to peer feedback, managing conflict, following the team’s agreed to norms and values, running meetings efficiently – are all working well. Escalate problems to faculty guide / TA as needed

***Faculty Guide / TA***

- *Role is that of a coach* – set expectations, provide feedback, instruct in specific topics, solicit help from technical experts / peers as needed, and provide praise and /or correction depending on team and individual performance.
- Early in MSD I (1<sup>st</sup> week), establish rules of engagement between yourself and the team – review forums, problem surfacing and resolution, frequency and means of communication, using email vs. Edge, opportunities for the team to be proactive.
- Insure the teams understand and properly interpret the grading rubrics and course plans by communicating specific expectations that fit the rubrics and plans given the nature of each project – balance using the standard templates with being flexible on specifics.
- Provide timely feedback throughout both quarters, using the rubric and course timelines as the basis, so students know how they are doing and are not surprised at the end.
- Resolve performance issues – e.g. team members not contributing.
- Insure teams recognize they have finite capacity – provide feedback and help with corrections if project scope is too large or too small. Also, if a team falls behind, or gets off track, differentiate between the project being too large, vs. the effort of the team being ineffective or inefficient; help the team address this if it happens.
- Resist the urge to add deliverables or other infrastructure to what is already in MSD – use the structure that is there, but also suggest upgrades to the MSD faculty team

***Other faculty and outside experts (consultants)***

- May be called upon to give advice, help address issues, participate in design reviews.