Enhancing teamwork in group projects by applying principles from Project Management

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Outline

• My class

• Basic principles from Project Management (PM)

• Applying basic principles from PM to group projects

• Conclusions
My class

• Introduction to Engineering

• 100 students, mostly first year

• Major semester-long group project stressing teamwork – ABET requirement

• 25 groups of 4 students

• All team members get the same grade
Example Group Project: Programmable Sundial
### Example project schedule (Gantt chart)

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<th>WEEK 3</th>
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Basic principles from Project Management
Basic framework for Project Management (PM)

- **Sponsor**
- **Upper management**
- **Program manager**
- **Project manager**
- **Specialists**

Teams:
- **Team 1**
- **Team N**
Key principles

• The team is the fundamental unit.

• The team consists of a project manager and specialists.

• One of the specialists could be the project leader, especially on big projects.

• Each member of the team has at least one primary role (probably secondary role too).

• Team members must all agree to take on a particular project.
What a project manager is NOT!

• The boss

• The owner

• The project leader
Applying basic principles from Project Management to group projects
What can go wrong with group projects

• The team is disorganized
• A team member doesn’t contribute
• One person does all the work
• The team can’t finish on time
Application of PM to group projects

Sponsor = Parents

Upper management = University

Program manager = Professor

Project manager = Student

Specialists = Students

Team 1

Team N
# Roles of group members in my class

<table>
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<th>Role</th>
<th>Responsibilities</th>
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| Project manager       | Managing, Planning, Presenting
Leadership role, but not the only leader
Interfaces with instructor |
| CAD leader            | Leader of computer-aided design (CAD) drawing                                    |
| Project engineer      | Leader of design and assembly. On big projects, would be project leader.         |
| Documentation leader  | Leader of reporting interim and final results                                    |
Project managers have got to want it!
How the project manager helps

• Makes project schedule

• Makes sure resources are available

• Coordinates group meetings

• Compares progress with schedule

• Keeps instructor informed
How to apply it to other fields

• Choose projects with clear-cut roles.

• Allow for team creativity in choosing the project topic.

• Explain the roles and responsibilities clearly, especially those of the project manager.

• Get volunteers for project managers, in public.
Example: English/History

Describe a key influence of one author on one aspect of society in a given time period.

Possible topics chosen by teams:
Team 1: Jane Austen, courting customs, Victorian England
Team 2: Augustine, church government, Medieval Europe

Roles
One student for each sub-topic. Must consider status quo before, during, and after.

Project manager coordinates timing and combines into final presentation.
Conclusions

• Group work can benefit by applying some basic principles from the field of Project Management

• Groups are teams in need of a project manager.

• Empower the project manager by explaining the role clearly and asking for volunteers in public.

• All team members must agree from the outset on the project topic and on their respective roles.