



CSCI 1108

## Project Management



# How well do You Manage your Project?

- The first project is beginning!
- Do you have enough time for the labs?
- Will you be able to get everything done within a short time period?
- How can you make effective use of your resources?
- What about dependencies?
- What do you do if things go wrong?

**Project Management & Team  
Working**

# The Goal of Project Management

- Complete a project on time and on budget
- Identify and schedule tasks
- Allocate resources
- Anticipate and manage risks

<https://ocw.mit.edu/courses/mechanical-engineering/2-000-how-and-why-machines-work-spring-2002/tools/management.pdf>

Stage 1: Defining the goals of the project

Stage 2: Define project tasks/activities

Stage 3: Determine and verify resource requirements

Stage 4: Identify risks and develop mitigation (backup) plans

Stage 5: Develop a schedule

Stage 6: Execute the schedule

Stage 7: Finish the project and assessing performance

# Tasks

- A task
  - Is a piece of work that somebody has to do
  - Takes a minimum amount of time to complete
  - Requires specific resources
  - May Require certain other tasks to be completed first
  - May need to be completed before other tasks can begin
  - **May take longer than expected due to unanticipated events**
- For each task we need to identify
  - What the task is
  - What resources it requires
  - What tasks does it depend on
  - How much time the task will take
  - Who is responsible for the task

# Scheduling Tasks & Allocating Resources

- Problem:
  - There are many tasks
  - There are many resources
  - Each task may have multiple dependencies
- Need to
  - Organize all of them in one place
  - Sort dependencies
  - Check for resource contention (i.e. capabilities)

# Gantt Charts

Resource	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	...
Resource 1	Task 4						
Resource 2		Task 1					
Resource 3		Task 1		Task 3	Task 3	Task 3	Task 3
Resource 4				Task 3	Task 3	Task 3	Task 3
Resource 5			Task 2	Task 2	Task 2		
Resource 6							
Resource 7							
Resource 8	Task 4						
...							





Task	Human Resource	Material Needed	Deliverables	Date
Program Design	<u>Susan</u> Mike	NA	State Transition Diagram	Before first Project lab
Implementation and test of line following	Mike Jane	Robot	Program 1	Lab 1
Implementation of line loosing strategy	Susan		Program 2	Lab 1
Combine programs and test	Susan Mike	Program 1 Program 2	Program 3	Lab 2
Testing and tuning	Susan Mike	Robot Program 3		Lab 2
Outline of project report	Jane		Document with headings	Lab 2
Finalization of report	All	Program 3 Notes from labs and competition	Project Report	Due date

# Risk Management

- Things will take longer than you think!
  - What happens to our schedule if we cannot find a solution for software bugs?
- How do we accommodate this fact of life?
- Solutions:
  - Schedule tasks as early as possible to provide time to deal with unforeseen events
  - Schedule extra time for each task
    - 10% to 15% extra time per task is not uncommon