

09/11: Schedule and Teamwork

The Capstone Experience

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*From Students...
...to Professionals*

Schedule and Teamwork

➤ Schedule

➤ Teamwork

Capstone Work Requirements

- Every team member should be working all the time.
- Work on all parts in parallel.
 - Hardware / Software
 - Front End / Back End
 - Web / iOS / Android
- Work in advance.
 - Mitigate risks.
 - Get systems working.
 - Hardware
 - Software



Schedules

- Schedules > Weekly Schedule
- Schedules > Major Milestones
 - 09/09: Status Report Presentations
 - 09/16: Project Plan Presentations
 - 10/09: Alpha Presentations
 - 11/11: Beta Presentations
 - 12/02: Project Videos
 - 12/03: All Deliverables
 - 12/05: Design Day
 - 12/10: Capstone Wrap Up
(10:00 a.m. – 12:00 p.m.)

Are there fixed milestones in the “real” world?



Project Parts

- Break Down Project
 - Main Parts
 - Sub-Parts
 - Sub-Sub-Parts
 - Etc...
- Categorize
 - Risks
 - Dependencies
 - Particularly Risk Dependencies
 - Determines Schedule Order
 - Priorities
- Worry About
 - Interfaces Between Parts
 - Integration of Parts



Building A Project Schedule

- Start With Fixed Course Milestones
 - See [Schedules > Major Milestones](#)
 - Read About Each
- Estimate Times for Tasks for Parts
 - Building
 - Integrating
 - Testing
- Assign Tasks to Team Members
- Must Keep Everyone Busy All the Time
- Use “Short” Deadlines (E.g., 2-3 Days) Why?
- Document and Track
 - Microsoft Project?
 - Collaboration Tool?



Estimating Time for Tasks

- Rough Estimate
 - Intuition
 - Experience
- Refined Estimate
 - Prototype or Partial Build
 - Extrapolation
 - E.g., 2 Days to Build 1 → 6 Days to Build 3
- Keys
 - Be Realistic
 - Include Buffer Time if Unsure
- Adjust Schedule Accordingly



Typical Build Cycle

Until Project Done Do

1. Divide Next Big Task Into Little Tasks
2. Assign Little Tasks to Team Members
3. Complete Little Tasks
 - a. Implement
 - b. Test

4. Integrate Little Tasks Into Big Task

5. Test Big Task

} Very
Important

High Priority Risks Get High Priority Scheduling



Version Control

- Versioning
 - Discrete “Internal” Versions (States)
 - May Correspond to Builds
- Version Control Systems
 - Check Code In and Out
 - Mark Specific States as Versions
- Motivation
 - Build Breaks System
 - Revert to Earlier Build
 - Avoid Bridge Burning
- Every team must use MSU’s GitLab.
 - Manage All Project Code
 - Instructors must have access.
 - Project sponsors may be granted access.

Can Be
Serious
Problem



Living Schedule

- Schedule Is Dynamic
 - Unforeseen Problems
 - Added Features (Avoid Feature Creep)
 - Etc..
- Track Your Progress
 - Microsoft Project?
 - Collaboration Tool?
- Revisit Schedule Often
 - Weekly Team Meetings
 - Weekly Triage Meetings with TMs
 - Identify Slippage
 - Hold Each Other Accountable (or Contact TMs)
 - Set Corrective Action
 - Adjust Schedule



Schedule and Teamwork

✓ Schedule

➤ Teamwork

Team Organization

- Up to Each Team
- Organize into Roles
 - Sponsor/Client Contact
 - Program Manager
 - Developer Roles
 - Web
 - Mobile
 - Back End
 - Front End
 - Etc.
 - Tester
 - Systems Administrator
 - Etc...
- Everyone must make significant technical contributions, including significant software contributions. ← **Fair Warning**



Team Dynamics

- Key to Success
- Significant Component of Course Grade
- Potential Teammate Problems
 - Not Attending Team Meetings
 - Not Being Involved
 - Not Responding
 - Not Completing Tasks On Time
 - Submitting Poor Work
 - Leaving Work for Others
 - Working Job Too Many Hours
 - Etc...
- Address Problems Immediately
 - Within Team
 - In Weekly Triage Reports
 - With Dr. D., Dr. J., Luke, Griffin, Jared
- Be Ready to Discuss During Interviews



Grading

[1 of 5]

- Team (70%)
 - Project Plan Document & Presentation 10
 - Alpha Presentation 10
 - Beta Presentation 10
 - Project Video 10
 - Project Software & Documentation 30
 - Total 70
- Individual (30%)
 - Technical Contribution 10
 - Team Contribution 10
 - Team Evaluation 05
 - Meeting Attendance, Preparation & Participation 05 ← Can Be Negative
 - Total 30



- Final Grade Sum Of...
 - Individual Total
 - % of Team Total Based on Team Contribution
- Grand Total =
$$\begin{aligned} &(\text{Individual Total}) \\ &+ \\ &(\text{Team Total}) * (\text{Team Contribution}) / 10.0 \end{aligned}$$
- *Nota Bene*: Your Team Contribution will have a very significant effect on your final grade.



Grading

[3 of 5]

| Effect of Team Contribution | | | | | |
|---|-------------------|-----------------|--------------------|------------|-------------|
| Technical Contribution | Team Contribution | Team Evaluation | Meeting Attendance | Team Total | Grand Total |
| 10 | 10 | 5 | 5 | 70 | 100 |
| 10 | 9 | 5 | 5 | 70 | 92 |
| 10 | 8 | 5 | 5 | 70 | 84 |
| 10 | 7 | 5 | 5 | 70 | 76 |
| 10 | 6 | 5 | 5 | 70 | 68 |
| 10 | 5 | 5 | 5 | 70 | 60 |
| 10 | 4 | 5 | 5 | 70 | 52 |
| 10 | 3 | 5 | 5 | 70 | 44 |
| 10 | 2 | 5 | 5 | 70 | 36 |
| 10 | 1 | 5 | 5 | 70 | 28 |
| 10 | 0 | 5 | 5 | 70 | 20 |
| <i>Nota Bene:</i> Assumes Perfect Score In Every Other Category | | | | | |



Grading

[4 of 5]

- Every student must earn the following required minimal grades in each grading category.
- Failure to earn the required minimal grades in any of the grading categories is grounds for receiving a final grade of 0.0 for the course.
- Minimal Team Grade Requirements
 - Project Plan Document & Presentation 5.0 / 10.0
 - Alpha Presentation 5.0 / 10.0
 - Beta Presentation 5.0 / 10.0
 - Project Video 5.0 / 10.0
 - Project Software & Documentation 15.0 / 30.0
- Minimal Individual Grade Requirements
 - Technical Contribution 5.0 / 10.0
 - Team Contribution 5.0 / 10.0
 - Team Evaluation 2.5 / 05.0
 - Meeting Attendance, Preparation & Participation 0.0 / 05.0



Grading

[5 of 5]

Absence does not make your teammates' hearts grow fonder.

- Nonresponsive
 - Email
 - Slack
 - Discord
 - Microsoft Teams Messages
 - Phone
- Miss Meetings
 - All-Hands & Split-Hands
 - Triage
 - Sponsors
 - Team
- Miss Work ← **Key**
 - In Lab and/or Online with Teammates
 - During Sprints
 - Before Major Milestones
- Miss Deadlines
 - Other team members may be forced to do your work.
 - We will tell other team members they... ← **Fair Warning**
 - ...can take over the tasks assigned to you.
 - ...no longer need to assign you any tasks.

NB: Your teammates will be evaluating you weekly and at the middle and the end of the semester.



GitLab

- Every team must use MSU's GitLab.
 - Manage All Project Code
 - Instructors must have access.
- Access by External Project Sponsors
 - Can Accommodate
 - Contact James
- To Receive Credit for Code, Student Must
 - Commit Code
 - Using Student's GitLab Account
- Read the syllabus.



Team Contribution

- Based on Variety of Factors Including But Not Limited to...
 - Attendance and Participation
 - Team Meetings
 - Project Sponsor Meetings
 - All-Hands/Split-Hands Meetings
 - Completion of Tasks
 - Correctly
 - On Time
 - Willingness to Take on New Tasks
 - Making Significant Technical Contribution
- Read the syllabus.



Technical Contribution

[1 of 3]

- Required of Everyone
- Significant Work and Code
- Does Not Include Code...
 - Committed to GitLab by Someone Else
 - That Does Not Work
 - That Was Copied from the Internet
 - Not Included In The Project
 - For CheckInCount = 1 to 100 {Modify Code Slightly; Checked Code In Again}
 - Etc...
- Necessary, but Not Sufficient
 - Doing Research
 - Creating UI/UX Designs
 - Creating Documents
 - Giving Presentations
- Read the syllabus.



Technical Contribution

[2 of 3]

- Pair Programming
 - Writing Code Together
 - Not Watching Someone Else Write Code
 - Must Decide When Committing Who Gets Credit for What
 - Receive Credit Only for Code Checked Under Your Account
- Demonstrating and Explaining Software
 - By Author
 - Any Time
 - In-Person
 - Lab iMacs
 - Person Laptop
 - If Not Able, Assume Not Working



Technical Contribution

[3 of 3]

- Significant Effect on Team Contribution
- Project Software == 43% Team Grade
- No Significant Technical Contribution
 - No Credit for Project Software
 - Maximum of 57% of Team Grade
 - Maximum Team Contribution of 5.7/10.0
 - Most Likely Will Not Pass CSE498
- Read the syllabus.



Meeting and Work Expectations

- Meetings
 - In Person
 - Possibly Excused but Very Limited
 - If Miss Team Presentation, Must Give Presentation to Instructors
- Work
 - Entire Semester
 - Cannot Excuse Work Even if...
 - ...Meeting Attendance Excused
 - ...Attending Meetings
 - Missing work...
 - ...may affect Technical Contribution.
 - ...will affect Team Contribution.
 - ...will affect Final Grade.
- Example
 - Miss Entire Week
 - Attendance
 - ❖ Excused: -0
 - ❖ Unexcused:
 - » -3+ MAPP Points == 3+% of Final Grade
 - » -10 MAPP Points == 10% of Final Grade
 - Work
 - ❖ Attendance Excused or Unexcused
 - ❖ 1/15th Semester = 7% Semester \Rightarrow Earned Team Points \leq 93% of 70 Points
 - ❖ At Least -7% of Team Contribution Grade == At Least -4.9% of Final Grade
- **Read the Syllabus.**



Team Problems

- Can Be
 - Really Hard
 - Awkward
 - Frustrating
- Addressing Problems
 - ASAP
 - Directly
 - Respectfully
 - Maturely
- Resolving Problems
 - Internally First
 - TMs
 - Dr. D. and Dr. J.
- “Bad” Team Not an Acceptable Excuse
- Managers
 - Can Help
 - Have Limited Experience with Time Travel



We don't have one of these.



Schedule and Teamwork

✓ Schedule

✓ Teamwork

What's ahead?

[1 of 3]

- Upcoming Meetings
 - 09/16, Tu: Team Project Plan Presentations
 - 09/18, Th: Team Project Plan Presentations
 - 09/23, Tu: Creating and Giving Presentations
 - 09/25, Th: Design Day Booklet Process
 - 09/30, Tu: Resume Writing and Interviewing
 - 10/02, Th: Team Status Report Presentations
 - 10/07, Tu: Intellectual Property
 - 10/09, Th: Alpha Presentations
 - 10/14, Tu: Alpha Presentations
 - 10/16, Th: Alpha Presentations



What's ahead?

[2 of 3]

- Alpha Presentation
 - Th: 10/09, Tu: 10/14, Th: 10/16
 - Purpose: Demonstrate Your Team
 - Has Mitigated All Risks
 - Able to Meet All Specifications
 - Will Deliver Your Project on Time
 - Presentation
 - Rehearsed
 - Time: 14-Minutes
 - Demonstrate Working Software ← Note
 - 10% of Team Grade
 - Both Due Midnight, Wednesday, 10/08 ← 4 Weeks from now
 - Presentation Schedule Posted Evening Before First



What's ahead?

[3 of 3]

- Capstone Due Dates / Deadlines
 - Published at Start of Semester
 - See [Weekly Schedule](#)
 - See [Major Milestones](#)
 - Immovable
 - Your team depends on you.
 - You must get your tasks done on time.
 - Plan well in advance.
 - If you are “stuck,” ask for help sooner rather than later.
 - If you are not going to complete your tasks...
 - ❖ ...tell your team well in advance of the deadline.
 - ❖another team member will complete your task.
 - ❖ ...your team may be told they no longer need to depend on you.



Questions?

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