Carnegie Mellon University
Master of
Software Engineering

17-671 MSE Studio I and 17-676 Software Engineering Bootcamp
Spring 2022, 12 Units
MSE Studio does not have any classes. The SE Bootcamp class schedule is on the Canvas site.

Course Coordinator	Email	Office Location & Hours
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Teaching Assistant	Email	
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Course Description.

Students in the 16-month MSE for Professionals program complete the capstone experience, MSE Studio, during their final three semesters in the program. This capstone experience consists of 3 consecutive core MSE Studio courses and the Software Engineering Bootcamp course in the first of these 3 semesters.

- Spring: 17-671 MSE Studio I and 17-676 Software Engineering Bootcamp
- Summer: 17-672 Studio II
- Fall: 17-673 Studio III

The capstone experience requires students to work in teams of 3-5 on real-world projects that are mostly sponsored by external clients. The purpose of the project is to provide a realistic, experiential opportunity for the evaluation and application of Software Engineering principles, methods, and techniques learned in the MSE program. Teams are assigned faculty mentors with extensive experience to guide students towards their client's goals and the educational goals. At the end, the teams will have delivered a valuable software system to its clients and enhanced their ability with developing software in a principled, disciplined manner. The final project becomes part of each student's MSE program portfolio.

While the project starting points, client expectations, and project-specific deliverables often vary, all teams are expected to guide their approach with the Practice-based Studio framework. The PBS framework is inspired by the concept of Practice Area Process Modeling (Humphrey "Managing the Software Process," 1989) and can be found on the Canvas site. The PBS framework requires teams to demonstrate with evidence that the project is being conducted, over the duration of the capstone experience, with a disciplined approach in each of the following 6 Practice Areas (PAs) of Software Engineering: Requirements Management, Project Management, Architecture and Design, Risk Management, Quality Management, and Construction. Faculty serve as Practice Area Leads to coach and evaluate students on their approaches in these Practice Areas.

The team-oriented nature of Studio is one of the more difficult aspects of this capstone experience and can be the most problematic to instantiate and manage. Teams often spend more time than necessary organizing, planning, and setting up. The Bootcamp class sessions, through presentations, discussions, and workshops, is intended to have teams to get a project initiated effectively.

Learning Objectives. After completing this course, you will be able to:

- **Software Engineering.** Apply, explain, and justify the use of principled, disciplined Software Engineering approaches in 6 practice areas while producing a new software system for customers in a project with unique circumstances while satisfying both external customer goals and internal "business" goals.
- **Project Initiation.** Know, understand, and use project initiation frameworks to define a project at a high level, tie it to the business value to the client and manage client expectations.
- **Stakeholder Communications.** Know, understand, and use communication frameworks to keep external and internal stakeholders aware of the progress, results, and value of a software development project.
- **Collaborative Teamwork.** Know, understand, and use effective team collaboration and teamwork principles when developing software systems to meet the goals.
- **Growth Mindset.** Use critical reflection on one's own practices and of their peers to continually learn and improve.

Learning Resources. The Canvas site for the course offers guidance on each Software Engineering Practice Area and other useful readings and materials.

Assessments. In this capstone experience, students will be assessed for 2 courses: MSE Studio I and Software Engineering Bootcamp.

For MSE Studio I, the course requires the following activities.

- **Project Initiation Assignments**. Teams make various project startup decisions, capture these in various deliverables and get acceptance from their client and team mentor.
- **Practice Area Evaluations**. Teams are expected to apply principled, disciplined Software Engineering approaches in 6 practices during their software project. They're assessed in Checkpoint Evaluations by faculty on their skills with using, explaining, and justifying these approaches. These Checkpoint Evaluations are dynamically assigned by team's mentor in collaboration with the Practice Area leaders.
- **Project Outcomes**. Teams discover their client's business goals and expectations, and they are assigned an 'internal business' goal. The students' time tracking measures and a client survey are used to assess how well the team has done on each.
- **Stakeholder Communication Assignments.** Interactions, reports, and presentations are used to develop a team's ability to keep external and internal stakeholders informed and engaged in projects.

- **Individual Assignments.** Using a student's professional goals, reflective reports, and mentor engagement, students are assessed on their reflective practice and continuous improvement during their project.

Assessment	Final Grade %
Project Initiation	20%
Practice Area Evaluations	35%
Project Outcomes	15%
Stakeholder Communication	20%
Individual Growth	10%

Grade	Percentage Interval
A	90-100%
B	80-89%
C	70-79%
D	60-69%
R (F)	59% or below

Individual Grade Adjustments.

It is not mandatory that every student on a team receive the same grade. Team mentors may raise or lower the grade of an individual student relative to the team's grade. This will be based on their assessment of the presence, or lack of, one or more factors including: effort; participation in presentations and Practice Area evaluations; professionalism; collaborative teamwork; and a growth mindset.

For Software Engineering Bootcamp, students will be assessed on their attendance.

- **Pass** = Attend at least 10 of 14 Bootcamp sessions
- **Fail** = Attend 10 or less bootcamp sessions

If you have a conflict with Bootcamp class due to either another course which meets at the same time, or due to full-time employment during the MSE program, contact the course coordinator to discuss a suitable strategy for your unique circumstances.

If you cannot make a Bootcamp session, your professional responsibility is to let the course coordinator and your team members know. It's your responsibility to catch up after the missed session.

Course and Grading Policies

- **Late-work policy**:
  All team and individual assignments are expected to be submitted by the indicated due date and time. No credit will be given for a late submission.

  Exception (Team assignments): The only exceptions are when a team's mentor approves a different date/time for an assigned Project Initiation deliverable and/or Practice Area Evaluations. This consideration will be a judgment of the mentor based on the unique

circumstances of the team's project. Your team should communicate this change to the course coordinator.

Exception (Individual assignments): Each student is allowed one late submission.

- **Attendance.** In order to attend bootcamp classes in person, I expect that you will abide by all behaviors indicated in A Tartan's Responsibility, including any timely updates based on the current conditions.

- **Use of Zoom in the Class.** In our Bootcamp class sessions, we will be using Zoom. The link is available on Canvas.

  Technology. Please make sure that your Internet connection and equipment are set up to use Zoom and you can share audio and video during class meetings. (See this page for Computing Resources for information on the technology you are likely to need.) Let the instructor know if there is a gap in your technology set-up as soon as possible, and we can see about finding solutions.

  Sharing Video: In this course, being able to see one another helps to facilitate a better learning environment and promote more engaging discussions. Therefore, our default will be to expect students to have their cameras on during lectures and discussions. However, I also completely understand there may be reasons students would not want to have their cameras on. If you have any concerns about sharing your video, please email your instructor as soon as possible to discuss possible adjustments. Note: You may use a background image in your video if you wish; just check in advance that this works with your device(s) and internet bandwidth.

  Technical Difficulties: From time to time, we all experience unstable internet connections, unstable computers, etc. In those cases, you may find it necessary to turn your camera off. If you experience technical difficulties during class, please let me know via private chat in Zoom prior to turning your camera off. If technical difficulties are a recurring issue, please reach out to your HUB liaison who will help you access the appropriate resources.

  Breakout rooms: Our Zoom meetings will involve teamwork in breakout rooms, and those will work better if everyone in your small group has their camera turned on.

- **Recording of Bootcamp Class Sessions.** All synchronous classes will be recorded via Zoom so that students in this course (and only students in the course) can watch or re-watch past class sessions. Please note that breakout rooms will not be recorded. We will make recordings available on Canvas as soon as possible after each class session (usually within 3 hours of the class meeting). Please note that you are not allowed to share these recordings. This is to protect your FERPA rights and those of your fellow students.

Accommodations for Students Disabilities. If you have a disability and have an accommodations letter from the Disability Resources office, I encourage you to discuss your accommodations and needs with me as early in the semester as possible. I will work with you to ensure that accommodations are provided as appropriate. If you suspect that you may have a

disability and would benefit from accommodations but are not yet registered with the Office of Disability Resources, I encourage you to contact them at access@andrew.cmu.edu.

Academic Integrity. Honesty and transparency are important to good scholarship. Plagiarism and cheating, however, are serious academic offenses with serious consequences. If you are discovered engaging in either behavior in this course, you will earn a failing grade on the assignment in question, and further disciplinary action may be taken.

For a clear description of what counts as plagiarism, cheating, and/or the use of unauthorized sources, please see the University's Policy on Academic Integrity.

If you have any questions regarding plagiarism or cheating, please ask me as soon as possible to avoid any misunderstandings. For more information about Carnegie Mellon's standards with respect to academic integrity, you can also check out the Office of Community Standards & Integrity website.

Student Well-Being. We are all under a lot of stress and uncertainty at this time. Attending Zoom classes all day can take its toll on our mental health. Make sure to move regularly, eat well, and reach out to your support system or me if you need to. We can all benefit from support in times of stress, and this semester is no exception.

As a student, you may experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. CMU services are available, and treatment does work. You can learn more about confidential mental health services available on campus at the Counseling and Psychological Services website. Support is always available (24/7) from Counseling and Psychological Services: 412-268-2922.

If you are worried about affording food or feeling insecure about food, there are resources on campus who can help. Email (cmu-pantry@andrew.cmu.edu) or call (412-268-8704) the CMU Food Pantry Coordinator to schedule an appointment.

We must treat every individual with respect. We are diverse in many ways, and this diversity is fundamental to building and maintaining an equitable and inclusive campus community. Diversity can refer to multiple ways that we identify ourselves, including but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Each of these diverse identities, along with many others not mentioned here, shape the perspectives our students, faculty, and staff bring to our campus. We, at CMU, will work to promote diversity, equity, and inclusion not only because diversity fuels excellence and innovation, but because we want to pursue justice. We acknowledge our imperfections while we also fully commit to the work, inside and outside of our classrooms, of building and sustaining a campus community that increasingly embraces these core values.

Each of us is responsible for creating a safer, more inclusive environment.

Unfortunately, incidents of bias or discrimination do occur, whether intentional or unintentional. They contribute to creating an unwelcoming environment for individuals and groups at the university. Therefore, the university encourages anyone who experiences or observes unfair or hostile treatment on the basis of identity to speak out for justice and support, within the moment of the incident or after the incident has passed. Anyone can share these experiences using the following resources:

- **Center for Student Diversity and Inclusion**: csdi@andrew.cmu.edu, (412) 268-2150
- **Report-It online anonymous reporting platform**: reportit.net username: *tartans* password: *plaid*

All reports will be documented and deliberated to determine if there should be any following actions. Regardless of incident type, the university will use all shared experiences to transform our campus climate to be more equitable and just.