Carnegie Mellon University
Master of
Software Engineering

17-672 MSE Studio

MSE Studio does not have any class sessions after Studio Orientation Day.

Course Coordinator	Email	Office Location & Hours
Jim Berardone	jberardone@cmu.edu	300 SCRG, Room 275, by appt.

Faculty, Mentors and Practice Area Coaches

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Course Description.

Students in the 16-month MSE for Professionals and dual MSE/MBA programs complete the capstone experience, MSE Studio, during their final 3 semesters in the MSE program. It's a practical, professional, and dynamic opportunity to strengthen the connection between the student's education and career.

This capstone experience consists of 3 consecutive core MSE Studio courses.

- Spring: 17-671 MSE Studio I – 12 units
- Summer: 17-672 Studio II – 36 units
- Fall: 17-673 Studio III – 36 units

The capstone experience requires students to work in teams on real-world software projects that are important for a sponsoring organization. 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 members with expertise in each area serve as Practice Area Coaches. They provide expert consulting, coaching, direction, and instruction with applying, explaining, and justifying the use of Software Engineering principles and practices.

In the end, students will have delivered valuable software results that satisfies its client's goals and the academic program's goals while advancing their own software engineering abilities.

Learning Objectives. After completing the 3 courses, 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 the goals of multiple stakeholders (e.g., client, users, academic)
- **Project and Team Initiation.** Know, understand, and use project and team initiation frameworks to define a project at a high level to achieve client goals and create a high-performing team.
- **Project Closure.** Know, understand, and use project closure frameworks to confirm completion of the project to the satisfaction of the project sponsor and lessons are learned for future projects.
- **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 of stakeholders.
- **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 each course in the capstone experience.

For MSE Studio II – 17-672, the following activities will be evaluated and graded.

- **Software Engineering Application.** Teams are expected to apply principled, disciplined Software Engineering approaches in up to 6 practice areas during their software project. While Practice Area Coaches can provide consultation, coaching, and feedback, the team's Mentors will evaluate the team's skills with deciding, justifying and use the approaches on their project.

- **Project Success.** Teams are evaluated by their Mentors on the results they've achieved in relation to the client's goals and expectations, the satisfaction of any specific requirements and expectations of their mentors, the team's engagement with the client and academic stakeholders, the client's experience, and their client management.
- **End of Semester Presentation.** Teams are asked to give a presentation to the faculty, their clients, and other teams about their project. They are evaluated on the content, delivery, organization and appearance of their presentations and responses to questions.
- **Professional Growth.** Each student is asked to use critical reflection on their own practices and of their peers to continually learn and improve.

NOTE: Your team's Mentor may require other activities due to the unique circumstances of the project. You should consult with your Mentors to identify any such requirements and expectations.

Assessment	Final Grade %		Course Grade	Percentage Interval
Mentor's Evaluation *(Software Engineering Application and Project Success)*	70%		A+	98-100%
			A	93-97%
			A-	90-92%
End of Semester Presentation	10%		B+	88-89%
			B	83-87%
			B-	80-82%
Personal Reflection Report	10%		R (F)	59% or below
Peer Review	10%			

Individual Grade Adjustments.
A significant portion of the grading (80%) is assessed at the team level. Therefore, at the end of the semester, the team mentors may raise or lower the computed course grade of an individual student. This adjustment will be based on the mentors' assessment of the presence, or lack of, one or more factors including: effort; participation (in the End of Semester presentation, mentor meetings, coaching sessions, studio orientation day; etc.); professionalism; collaborative teamwork; and leadership of the team (project or technical.)

Late Submission Policy. The individual assignments are expected to be submitted by the indicated due date and time. No credit will be given for a late submission unless the team's Mentors approves of a different due date/time in consideration of the project's unique circumstances.

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 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.