

Course Number	CS 435	Course Title	Software Engineering				
Semester Hours	3	Course Coordinator	Koushik Sinha				
		SP20					
Catalog Description	Principles, practices and methodology for development of large software systems. Object-oriented principles, design notations, design patterns and coping with changing requirements in the software process. Experiences with modern development tools and methodologies. A team project is an integral part of this course.						
Textbooks							
SP18							
Pressman, R.S. & Maxim, B.R. (2020). <i>Software Engineering: A Practitioner's Approach</i> , McGraw Hill, 6 th Edition. ISBN: 978-1259872976.							
References							
Various references to tool and language documentation, resources on patterns, principles, etc.							
Course Learning Outcomes							
<ul style="list-style-type: none"> • To understand and develop experience working within a collaborative team environment. • To become familiar with concepts of software development methodologies and notations. • To be able to apply modern development tools and practices to create software both individually and collaboratively. • To understand basic principles of Object Oriented design and the value of software patterns. 							
Assessment of the Contribution to Student Outcomes							
SP20							
Outcome →	1	2	3	4	5	6	7
Assessed →		X	X	X	X	X	
Prerequisites by Topic							
CS 330 with a grade of C or better or graduate standing; CS 306 with a grade of C or better recommended.							

Major Topics Covered in the Course

1. Introduction to software development {2 classes}
2. Perspectives on software process {3 classes}
3. Introduction to software best practices {3 classes}
4. Communication, collaboration and teamwork {6 classes}
5. Software development tools & environment IDE, testing framework, build scripts {3 classes}
6. Coding style and conventions {2 classes}
7. Object oriented principles {5 classes}
8. Practices and process in depth {6 classes}
9. Design notations {3 classes}
10. Software design patterns {5 classes}
11. Anti-patterns {2 classes}

NOTE: When course is taken as 500-level credit (CS 591 “Special Topics”), there will be additional requirements such as a research project.