Course Objective and Outcome Form
Department of Electrical and Computer Engineering
School of Engineering and Physical Sciences
North South University, Bashundhara, Dhaka-1229, Bangladesh

1. **Course Number and Title:** **CSE 327 Software Engineering**
2. **Number of Credits:** **03**
3. **Type:** **Core**
4. **Prerequisites:** **CSE225**
5. **Faculty Name:** **Dr. Nabeel Mohammed (NbM)**
6. **Room:** **SAC 917**
7. **Office Hours:** **TBA (We will schedule as needed)**
8. **Email:** **nabeel.mohammed@northsouth.edu**
9. **Contact Hours:** **Lectures – 3 Hours/week**

10. Course Summary:

Follows the software life cycle - from the requirements, specification, and design phases through the construction of actual software. Topics include management of programming teams, programming methodologies, debugging aids, documentation, evaluation, and measurement of software, verification and testing techniques, and the problems of maintenance, modification, and portability.

11. Course Objectives:

The objectives of this course are

a. Give the students an appreciation of the complexity involved in the inception, design, implementation, and delivery of modern software systems.
b. Students should appreciate what makes quality software and how software engineering topics/methods can be effective to deliver such quality products.
c. The course will present theoretical material and create opportunities for students to apply what they learn in class and from other sources.

12. Course Outcomes (COs):

Upon successful completion of this course, students will be able to:

Sl.	CO Description	Weightage (%)
1	**identify** the requirements of a software system, including technical-functional requirements, non-technical requirements, and wider societal impact.	10
2	**design** an object oriented software architecture and **express** the architecture using UML or other standard tools under a set of requirements and/or constraints,.	30
3	**choose** an appropriate design pattern for a particular scenario to solve the problem.	20
4	**implement** a software system with multiple, possibly heterogeneous, components for a given set of requirements..	20
5	**devise** test cases to test functions and/or functionality of software system against a set of requirements.	20

13. Mapping of CO-PO:

Sl.	CO Description	POs	Bloom's taxonomy domain/level	Delivery methods and activities	Assessment tools
CO 1	**Identify** the requirements of a software system, including technical-functional requirements, non-technical requirements, and wider societal impact.	**b**	Cognitive/ Apply	Lectures	Quiz, Project (SRS)
CO 2	**Design** an object oriented software architecture and **express** the architecture using UML or other standard tools under a set of requirements and/or constraints,.	**c**	Cognitive/ Create	Lectures	Quiz
CO 3	**Choose** an appropriate design pattern for a particular scenario to solve the problem.	**n**	Cognitive/ Understand	Lectures	Quiz
CO 4	**Implement** a software system with multiple, possibly heterogeneous,	**f**	Cognitive/ Create	Lectures	Project ,Demonstration

	components for a given set of requirements..				
CO 5	**Devise** test cases to test functions and/or functionality of software system against a set of requirements.	**a**	Cognitive/ Apply	Lectures	Quiz/Exam

14. Resources

Text books:

No	Name of Author(s)	Year of Publication	Title of Book	Edition	Publisher's Name	ISBN
1	Ian Sommerville	2010	Software Engineering	9th	Pearson	ISBN-13: 978-0137035151
2	Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides	1994	Design Patterns: Elements of Reusable Object-Oriented Software	1st	Addison-Wesley Professional	ISBN-13: 978-0201633610

Reference books:

No	Name of Author(s)	Year of Publication	Title of Book	Edition	Publisher's Name	ISBN
1	Stephen R Schach	2010	Object-Oriented and Classical Software Engineering	8th	McGraw-Hill Education	ISBN-13: 978-0073376189

Online resources:

- https://airbrake.io/blog/design-patterns/
- https://www.atlassian.com/git/tutorials
- https://git-scm.com/docs/gittutorial
- https://laravel.com/
- https://www.djangoproject.com/
- http://hibernate.org/
- https://spring.io/
- https://msdn.microsoft.com/en-us/library/aa480021.aspx

15. Weightage Distribution among Assessment Tools

Assessment Tools	The weightage (%)
Quizzes (Best n-1)	20
Midterm	25(has viva)
Final Exam	25
Project	30
	100

16. Grading policy: As per NSU grading policy available in http://www.northsouth.edu/academic/grading-policy.html

17. Course Policies:

a. Students are expected to abide by the NSU code of conduct
b. Students are expected to join (and regularly follow) the posts made in the appropriate Google Classroom/Facebook/Other online groups
c. No extension for *at home* tasks.
d. Students are expected by the NSU online course of conduct.