Course Title and Code	CS383-Software Engineering

I. Course Identification and General Information:

Course Title	Software Engineering	Course Code	CS383	Pre-requisite	CS222
Department	Computer Science	Course Level	7	Credit Hours	3(3+0)

II. Course Description/Topics: The following course topics will be covered.

- Introduction to Software Engineering, FAQs in software engineering, software types, and software cost.
- Computer-Aided Software Engineering (CASE), software processes models, process iterations, and process activities.
- Project management, management tasks,risk management, and team management.
- Software requirements, functional and non-functional requirements, interface specification, software constraints, and stakeholders.
- System modeling, behavioral models, data models, object models.
- Software architecture, architecture types, system organization, and modular decomposition styles, control styles.
- Software design, object oriented approach, object oriented design process, generality, and a study of weather station system: an example, tools and environments, and use components in design.
- Software evolution, software change, software reuse, and systems reengineering.
- Software verification and validation:software testing types; component testing, system testing, integration testing, component or white box testing, black box testing, and functionality testing.

III. Course Outcomes: Summary of the main learning outcomes for students enrolled in the course.

- Learn fundamentals and concepts of software engineering, essential tasks and activities of S/W project management.
- Learn and understand S/W requirements engineering processes, modeling and S/W testing and evolution.
- Able to identify and collect software requirements, classify functional and none functional requirements.
- Study and differentiate between all S/W testing types, tools and environments.
- Able to identify user problems, analyze, design the required solution.
- Apply the learned concepts through a simple project in a group.
- Work effectively in teams to accomplish common tasks such as requirements gathering and system design.
- Acquire important skills for S/W requirements collection, S/W modeling, software design tasks, risks management, team work, S/W testing methods.

IV. Required Text:

- Software Engineering, Ian Sommerville, 9thEdition, (2010), ISBN-13: 978-0137035151.

V. References:

- Requirements Engineering for Software and Systems, Phillip A. Laplante, 2nd Edition, (Oct 17, 2013), Applied Software Engineering Series, ISBN-13: 978-1466560819.
- Object-Oriented Software Engineering: An Agile Unified Methodology , David Kung,1st Edition, (2013), ISBN-13: 978-0073376257
- Essentials Of Software Engineering, Frank Tsui, Orlando Karam, Barbara Bernal, 3rd Edition, (2013).