

**Course number and name:** 324CIS-3 Modern Application Development

**Credits and contact hours:** 3 crs.; 10hrs (1hrs theory, 4hrs Lab and 1 hr. Tutorial)

**Course Coordinator's name:** Mr. Muhammad Akram

**Text book, Title, Author, and Year:**

1. Software Engineering, Ian Sommerville, Addison-Wesley, 2007. or
2. Software Engineering, A Practioner's Approach, (latest edition), Roger S. Pressman, McGraw-Hill

**a. Supplemental Materials:**

1. Modern Software Development using Java. P. T. Tymann, M. Schneider, Thomson Books. 2004
2. Software Engineering: Theory and Practice, (latest edition), Shari Lawrence Pfleeger, Joanne M. Atlee, Pearson International Edition, Pearson Education, 2010
3. Object Oriented Software Engineering, Timothy C. Lethbridge and Robert Laganieri. McGraw Hill Education, 2001

**Specific Course Information**

- a. Catalog Description:** In this course, modern programming trends and techniques are given, and their usage in developing real applications for society organizations. Students go through a learning curve that starts by understanding a problem, analyzing it, sketching a solution, implementing the solution, documenting it and finally presenting the work in a professional manner. Hence, all these skills must be emphasized in this course. This course is intended to widen the vision of students and gives them a flavor of the real world problems that can be tackled using programming languages, as opposed to higher level tools such as CASE tool or DB packages. Projects must be selected
- b. Pre-requisites or Co-requisites:**
  - 224CIS
  - 113CSS
  - 111CSS
- c. Required, Elective, or Selected elective:** Required

**Specific Goals for the Course**

- a. Specific Outcomes of the Instruction:**
  - Describe principles, techniques and usage of modern software development process.
  - Solve problems related to real world application development.
  - Use standard practices to develop modern application.
  - Implement recent devices to develop application.
  - Evaluate modern trends of software development.
- b. Students Outcomes Addressed by the Course:** a, b, c, i, j, k, h

**Brief List of Topics to be Covered**

- Overview of Modern Software Development, The software Life Cycle.

- Understanding requirements: Identifying stakeholders,
- Elements of Requirement models, Analysis Patterns.
- Requirement modeling: Developing Use Case, Activity diagram, Data, objects, Analysis, Relationship.
- Class based modeling, Events in the Use case.
- Design concepts: Refactoring.
- Object Oriented Design Concept.
- Design classes and Design Models.
- Architectural Design and Component Level Design.
- User Interface Design, Pattern based Design .
- Software testing: Verification and Validation.
- Software Maintenance and Reengineering.
- Emerging Trends in Software: Open-world software, Software building blocks.
- Model Driven Software and Test Driven Software.
- New Modes in Representing Information.