



Course description:

The course will discuss concepts for systematically establishing, defining and managing the requirements for complex, large, changing and software-intensive systems. In addition, the course will focus on requirements from the technical, organizational and management perspectives. The course will take into considerations the past, present and future paradigms and methodologies in requirements engineering.

The course will cover informal, semi-formal and formal approaches, while maintaining a notable balance between theory and practice. The course will involve building models of both requirements engineering process and requirements engineering product, concerning both functional and non-functional goals/requirements/specifications, using a systematic decision-making process.

Aims of the course:

Upon successful completion of this course, students will:

1. Understand the need for requirements for large-scale systems.
2. Understand the stakeholders involved in requirements engineering.
3. Understand requirements engineering processes.
4. Understand models of requirements.
5. Understand functional requirements.
6. Understand non-functional requirements.
7. Understand scenario analysis
8. Understand object-oriented and goal-oriented requirements engineering.

Intended Learning Outcomes: (ILOs)

A. Knowledge and Understanding

Knowledge and Understanding *

The significance of requirements engineering and its role in the software engineering industry.

A1. Concepts and Theories:

* Ability to analyse the architecture of an existing computer system * Ability to develop a candidate architecture from system requirements * Ability to evaluate a software architecture

A2. Contemporary Trends, Problems and Research:

Able to complete a search about the given subjects and problems

B. Subject-specific skills

Ability to use appropriate tools and notations for developing and documenting software architectures *
Ability to relate a software architecture to a practical implementation

B1. Problem solving skills:

Ability to recognize potential problem causes and fix it if not prevented



B2. Modeling and Design:

During the module, the student will deal with the UML modeling language.

B3. Application of Methods and Tools:

Java programming language will be the tool in which the student will reflect his module understanding.

C. Critical-Thinking Skills

Business problems and any proposed solution(s) towards them.

C2. Strategic Thinking:

Will take place in the form of how to avoid any problematic designs.

D. General and Transferable Skills (other skills relevant to employability and personal development)**D1. Communication:**

The student will be introduced to some of the important communication skill through the module

Course structures:

Week	Credit Hours	IL Os	Topics	Teaching Procedure	Assessment methods
1			1. Introduction to Requirements Engineering <ul style="list-style-type: none"> • what requirements • Types of Requirement 		
			2. Functional Requirements <ul style="list-style-type: none"> • Definition • Types • Examples 		
			3. Non-Functional Requirements <ul style="list-style-type: none"> • Definition • Types Examples		
5.	5.51	dedcc5.	4. Goals and Requirements <ul style="list-style-type: none"> • introduction • Domain requirements • Domain requirements problems 		
			5. Software Requirements Document <ul style="list-style-type: none"> • Definition 		



				<ul style="list-style-type: none"> • What should be written and what should not • Agile methods • Variability • Structure of Requirements Document • Specification 			
				6. Guidelines of Requirements writing <ul style="list-style-type: none"> • Natural language and their problems 			
				7. Requirements Elicitation and Analysis <ul style="list-style-type: none"> • Problems of requirements analysis • 			
				Midterm Exam			
				8.			
				<ul style="list-style-type: none"> • understanding quality attributes • ty, interoperability, performance and security 			

References:

Main Textbook:

1. **Software Requirements (3rd Edition) (Developer Best Practices, Karl Weigers and Seilevel Microsoft Press 2013**
2. We will also use a collection of supplementary readings, which will be available through the course web site.
3. **Supplementary Textbook(s):**

Assessment Methods:

Methods	Grade	Date
Mid Exam	30%	
Paper and presentation	30%	
Final	40%	

