

GAU, Faculty of Engineering

Course Unit Title	Software Requirements Analysis & Specification	
Course Unit Code	SEN313	
Type of Course Unit	Compulsory for SE	
Level of Course Unit	3rd year BSc	
National Credits	3	
Number of ECTS Credits Allocated	5	
Theoretical (hour/week)	3	
Practice (hour/week)	0	
Laboratory (hour/week)	0	
Year of Study	3	
Semester when the course unit is delivered	5	
Mode of Delivery	Face to face, E-learning	
Language of Instruction	English	
Prerequisites	SEN201	
Corequisites		
Recommended Optional Programme Components		
Objectives of the Course:		
<ul style="list-style-type: none"> • Introduce the principles, activities, and deliverables of requirements engineering within the software development life cycle • Develop student ability to elicit, analyze, specify, validate, and manage software requirements • Provide practical experience with requirements modeling, traceability, and Software Requirements Specification preparation • Encourage students to connect stakeholder needs with verifiable and manageable software requirements 		
Learning Outcomes		
When this course has been completed the student should be able to		Assess.
1	Learn how to explain the role of requirements engineering in software project success	1,3
2	Learn to elicit and analyze stakeholder needs using structured techniques	1,3
3	Learn how to prepare a clear and consistent Software Requirements Specification document	1,3
4	Learn how to model functional and non-functional requirements and maintain traceability among them	1,3
5	Understand the fundamentals of requirements validation, prioritization, and change management	1,3
6	Learn how to develop a small requirements engineering project by applying elicitation, specification, and review practices	1,3
Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab Work		
Course's Contribution to Program		
		CL
1	Ability to understand and apply knowledge of mathematics, science, and engineering	2
2	Ability to design and conduct experiments as well as to analyze and interpret	2
3	Ability to work in multidisciplinary teams while exhibiting professional responsibility and ethical conduct	3
4	Ability to apply systems thinking in problem solving	3
5	Knowledge of contemporary issues while continuing to engage in lifelong learning	2
6	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	3

7	Ability to express their ideas and findings, in written and oral form	3
8	Ability to design and integrate systems, components or processes to meet desired needs within realistic constraints	3
9	Ability to approach engineering problems and effects of their possible solutions within a well structured, ethically responsible and professional manner	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Subject	Exams
1	1	Introduction to Requirements Engineering	
2	2	Stakeholders and Requirements Elicitation Techniques	
3	3	Requirements Analysis and Negotiation	
4	4	Functional and Non-functional Requirements	
5	5	Use Cases, User Stories, and Scenarios	
6	6	Requirements Modeling and UML Basics	
7	7	Software Requirements Specification (SRS)	
8			Midterm
9	8	Requirements Validation and Review	
10	9	Prioritization and Traceability	
11	10	Requirements Change and Configuration Management	
12	11	Agile Requirements Engineering	
13	12	Project: SRS Development and Presentation	
14	13	Course Review	
15			Final

Recommended Sources

- Textbook: Software Requirements, 3rd Edition, Karl Wiegers and Joy Beatty Supplementary: Requirements Engineering: Fundamentals, Principles, and Techniques, Klaus Pohl Supplementary: Mastering the Requirements Process, 3rd Edition, Suzanne Robertson and James Robertson

Assessment

Midterm exam	25 %
Final exam	35 %
Project/report	30 %
Quizzes	10 %

ECTS Allocated Based on the Student Workload

Activities	Number	Duration (hour)	Total Workload (hour)
In-class lecture (including exam weeks)	15	3	45
Midterm exam	1	1.5	1.5
Midterm exam preparation	1	15	15
Final exam	1	1.5	1.5
Final exam preparation	1	20	20
Quiz	2	2	4
Assignment	4	3	12
Project/presentation/report writing	1	16	16
Lab and tutorial	0	0	0
Self-study	15	2	30

Total Workload	145.00
Total Workload / 30 (h)	4.83
ECTS Credit of the Course	5