

GAU, Faculty of Engineering

Course Unit Title	Data Communications	
Course Unit Code	CEN415	
Type of Course Unit	Technical Elective for Computer Engineering	
Level of Course Unit	4th year	
National Credits	3	
Number of ECTS Credits Allocated	6 ECTS	
Theoretical (hour/week)	3	
Practice (hour/week)	-	
Laboratory (hour/week)	-	
Year of Study	4	
Semester when the course unit is delivered	7-8	
Course Coordinator	Assist. Prof. Dr. Kamil Dimililer	
Name of Lecturers	Assist. Prof. Dr. Kamil Dimililer	
Name of Assistant	-	
Mode of Delivery	Face to Face,	
Language of Instruction	English	
Prerequisites and co-requisites	-	
Recommended Optional Programme Components		
Objectives of the Course:		
<ul style="list-style-type: none"> ➤ Teaching fundamental techniques used for data and computer communications ➤ Overviewing of networking and protocol architecture ➤ Teaching modulation/coding encoding techniques ➤ Teaching multiplexing techniques used for data communications 		
Learning Outcomes		
When this course has been completed the students should be able to		Assesment.
1	Explain the role of layered systems in open systems and task of each layer in the protocol architectures	1
2	Discriminate the type of transmission medium respect to requirements	1
3	Recognise requirements of different modulation and encoding in data communications	1
4	Solve fundamentals problems for data transmission	1
5	Solve simple problems for analog-to-digital conversion	1
Assesment Methods: 1. Written Exam, 2. Assignment 3. Project/Report, 4. Presentation, 5 Lab. Work, 6 Oral Exam		
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 data	2
3	Ability to work in multidisciplinary teams while exhibiting professional responsibility and ethical conduct	2
4	Ability to apply systems thinking in problem solving and system design	5
5	Knowledge of contemporary issues while continuing to engage in lifelong learning	5
6	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	2
7	Ability to express their ideas and findings, in written and oral form	1
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	1
10	To apply fundamental concepts of software design, database design, data processing and artificial intelligence in the modeling, designing, implementing, testing and deploying software solutions.	2
11	Ability to analyse and design hardware systems by applying the principles of embedded systems, microprocessors, computer networks, distributed systems and data communication.	4
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate 4: High, 5: Very High)		

Course Contents			
Week			Exams
1	Chapter 1	Introduction	
2	Chapter 2	Protocol Architecture OSI and TCP/IP	
3			
4	Chapter 3	Data Transmission	
5			Quiz
6	Chapter 4	Guided and Wireless Transmission	
7			
8	Chapter 5	Signal Encoding	
9			Midterm
10	Chapter 6	Digital Data Communication Techniques	
11			
12	Chapter 7	Data Link Control	
13	Chapter 8	Multiplexing	
14			
15			Final
Recommended Sources			
<p>Textbook: Data and Computer Communications, W. Stallings, Prentice Hall, 2004 Supplementary Material (s): Data Communications, Computer Networks and Open Systems, 3rd Ed., F. Halsall, Addison-Wesley, 1994</p>			
Assessment			
Attendance	5%		
Midterm Exam	25%	Problem Solution + Multiple Choice	
Quiz	20%	Problem Solution + Multiple Choice	
Final Exam	40%	Problem Solution + Multiple Choice	
Total	100%		
ECTS Allocated Based on the Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including the Exam week)	15	3	45
Labs and Tutorials	-	-	-
Assignments	-	-	-
Project/Presentation/Report Writing	-	-	-
E-learning Activities	12	2	24
Quizzes	1	15	15
Midterm Examination	1	15	15
Final Examination	1	18	18
Self Study	14	4	56
Total Workload			173
Total Workload/30 (h)			5.77
ECTS Credit of the Course			6