



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	Computer Networks
2	Course number	1931361
3	Credit hours (theory, practical)	3
	Contact hours (theory, practical)	3
4	Prerequisites/corequisites	Data Structures (1901231)
5	Program title	Computer Science
6	Program code	1901
7	Awarding institution	The University of Jordan
8	Faculty	King Abdullah II School for Information Technology
9	Department	Computer Science
10	Level of course	3
11	Year of study and semester (s)	2022/2023
12	Final Qualification	
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	October-2022
16	Required/ Elective	Required

16. Course Coordinator:

Name	Office Number	Office Phone	Office Hours	E-mail
Dr. Iman Almomani	KASIT/CS			imomani@ju.edu.jo

17. Other instructors

Office numbers, office hours, phone numbers, and email addresses should be listed.

Name	Office Number	Office Phone	Office Hours	E-mail
Dr. Saleh Al-Sharaeh	KASIT 111	22576		ssharaeh@ju.edu.jo
Dr. Sherenaz Al-Haj Baddar				s.baddar@ju.edu.jo

18. Course Description:

As stated in the approved study plan.

This course explores key concepts and essential technologies of computer networks and broad range of topics

in networking, including: General overview: Networks applications, Network classifications and topologies, Network layers, Channel performance measures, transmission media, Communication Network Protocols and architecture; Data link layer: framing, error detection and correction, CSMA/CD, LAN IEEE standards; Network layer: IP service model, IP Addressing, subnetting, Host configuration DHCP, ARP Protocol, ICMP protocol; Transport layer: UDP protocol, TCP protocol, TCP reliable transfer and sliding window, TCP flow and congestion control; Application layer: DNS protocol, NAT protocol, HTTP protocol, persistent and non-persistent HTTP connection.

19. Course aims and outcomes:

A- Aims:

The aim of this course is to introduce the basics computer networks. Students will learn their fundamental layered structure, understand common offered layered services, examine protocols and algorithms used to operate the network.

B- Intended Learning Outcomes (ILOs):

Successful completion of this module should lead to the following learning outcomes:

A- Knowledge and Understanding (students should)

- A1) Be able to understand data communication and networking concepts.
- A2) Be able to understand computer networks' standards, protocols (OSI and Internet reference models).
- A3) Be able to understand principles, concepts and protocols of computer network design and building.

B- Intellectual skills: with the ability to

- B1) To recognize internetworking concepts, architecture and protocols.
- B2) To compare between alternative computer networks design approaches.
- B3) To analyze network protocols designs.

C- Subject specific skills – with ability to use

- C1) Network configuration commands
- C2) Network monitoring tools.

D- Transferable skills – with ability to

- D1) Discuss various network architectures and protocols.
- D2) Elaborate on differences of protocols and architectures.
- D3) Quantify the values of protocol parameters and indicate their advantages and disadvantages.

20. Topic Outline and Schedule:

Topic & References	Week	Achieved ILOs	New ABET SOs	Teaching Learning and Assessments (TLA)	Evaluation Methods
<u>PART I:</u> <i>Overview</i> Chapters 1 & 2: Introduction and Network Models	1-2	A1			
<u>PART II</u> <i>Physical Layer and Media</i> Chapters 3, 4, 5, 6,7, & 8	3-4	C1			
<u>PART III</u> <i>Data-Link Layer</i> Chapters 10, 11, 13&14	5-6	A1 + A2 + A3			
<u>PART IV</u> <i>Network Layer</i> Chapter 15, 19, 20, 21, 21&22	7-9	B1+B2+ B3			
<u>PART V</u> <i>Transport Layer</i> Chapters 23, 24	10-12	B1+B2+ B3 +C2			
<u>PART VI</u> <i>Application Layer</i> Chapters 25, 26 &2	13-15	B1+B2+ B3 +C1 +C2			

Topic & References	Week	Achieved ILOs	Evaluation Methods
PART 1: Chapter 1 and 2: Introduction and Network Models	1-2	A1	
PART 2 Physical Layer and Media Chapters 3 to 8 Network Protocols and Communications	3&4	C1	
c	5&6	A1 + A2 + A3	
PART 4 Network Layer Chapter 15,19,20,21,21	7-9	B1+B2+ B3	
PART 5 Transport Layer Chapters 23-24	10-12	B1+B2+ B3 +C2	
PART 6 Application Layer Chapters 25-27	13-15	B1+B2+ B3 +C1 +C2	

	15	B1+B2+ B3 +C2		
		B1+B2+ B3 + D1+D2+ D3 +C1		
		B1+B2+ B3 + D1+D2+ D3 +C1		
		B1+B2+ B3 + D1+D2+ D3+C1 +C2		
		B1+B2+ B3 + D1+D2+ D3 +C1+C2		

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

Method	Lecture	Demo	Laboratory	Case study
Learning outcome	A1 + A2 + A3+ B1 + B3 + D1 + D3	A3 + B2 +	C1 + C2	B2 + B3 + D2
Assessment	Exams + Assignments	Exams + Assignments	Project + Presentation	Exams + Presentation

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Type	Expected Due Date	Weight
Midterm Exam		30%
Final Exam		50%
Quizzes	TWO Quizzes/assignment/lab	20%

23. Course Policies:

Cheating	Cheating or copying on exam or quiz is an illegal and unethical activity. Standard University of Jordan policy will be applied. All graded assignments must be your own work (your own words).
Attendance	<ul style="list-style-type: none"> • Excellent attendance is expected. • The University of Jordan policy requires the faculty member to assign ZERO grade (F) if a student misses 10% of the classes that are not excused. • Sign-in sheets will be circulated. • If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed.
Workload	<ul style="list-style-type: none"> • Average work-load student should expect to spend 6 hours per week.
Participation	<ul style="list-style-type: none"> • Participation in and contribution to class discussions will affect your final grade positively. Raise your hand if you have any question. • Making any kind of disruption and (side talks) in the class will affect you negatively.
Concerns or Complaints	<ul style="list-style-type: none"> • Concerns or complaints should be expressed in the first instance to the module lecturer; if no resolution is forthcoming, then the issue should be brought to the attention of the module coordinator (for multiple sections) who will take the concerns to the module representative meeting. Thereafter, problems are dealt with by the Department Chair and if still unresolved the Dean and then ultimately the Vice President. For final complaints, there will be a committee to review grading the final exam.

University Regulations

- For more details on University regulations please visit: <http://www.ju.edu.jo/rules/index.htm>

24. Required equipment:

Cisco switches routers, and various types of cables which are available in the CISCO Academy LAB. Mainly Packet Tracer due to COVID-19

25. References:

A- DATA COMMUNICATIONS AND NETWORKING Fourth Edition Behrouz A. Forouzan
Other software such as packet tracer.

B- Recommended books, materials, and media:

- 1) L. Peterson and B. Daive, "Computer Networks : A Systems Approach". Latest edition, Morgan Kaufmann.
- 2) A. Tanenbaum, "Computert Networks", Latest edition, Prentice Hail.
- 3) Douglas Comer, "Internetworking with TCP/IP Vol. I: Principles, Protocols, and Architecture", Prentice Hall, latest edition.
- 4) Uyles Black, "TCP/IP and Related Protocol", Latest Edition, McGraw-Hill.

26. Additional information:

Semester / Academic Year: Fall 2022-23

Course Website: MS teams

Name of Course Coordinator: -Iman Almomani---Signature: ----- Date: --16/10/2022---- Head

of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File