1	**Course title**	**Computer Networks**
2	**Course number**	**0907322**
3	**Credit hours (theory, practical)**	3,0
	Contact hours (theory, practical)	3,0
4	**Prerequisites/corequisites**	None
5	**Program title**	Computer Engineering
6	**Program code**	0907
7	**Awarding institution**	The University of Jordan
8	**School**	Engineering
9	**Department**	Computer Engineering
10	**Level of course**	Third Level
11	**Year of study and semester (s)**	Third Year, First/Second Semester
12	**Final Qualification**	Passing the exams
13	**Other department (s) involved in teaching the course**	None
14	**Language of Instruction**	English
15	**Teaching methodology**	☒Regular (Physical) ☐Blended ☐Online
16	**Electronic platform(s)**	☐Moodle ☒Microsoft Teams ☐Skype ☐Zoom ☐Others…………
17-A	**Course Time**	• **Section 1: 11:00 am -12:15 pm (Sunday-Thursday).**
17-B	**Date of production/revision**	July 2023

18. Course Coordinator:

Instructor: Prof. Khalid A. Darabkh
Office#: CPE 342,
Office hours: Monday, Tuesday, and Thursday: 12:30 pm - 1:30 pm, or by appointment
E-mail address: k.darabkeh@ju.edu.jo

19. Other instructors:

None

20. Course Description:

This course gives a broad view of the current state of computer networking research. Topics include: Internet architecture; Internet routing: the Border Gateway Protocol (BGP), routing characterization, routing security, Internet AS relationships, traffic engineering, end host congestion control; quality-of-service, network security: intrusion detection systems, worms, and honeypots; mobile and wireless networking; peer to peer and overlay networking; content distribution networks; sensor networks; critical network infrastructure services: Domain Name Server (DNS), mail servers, etc.; network measurement: distance estimation, bandwidth measurement, trouble shooting tools; network management.

21. Course aims and outcomes:

A- Aims:

- To educate concepts, vocabulary and techniques currently used in the area of computer networks.

- To master the terminology and concepts of the OSI model and the TCP/IP model.

- To be familiar with wireless networking concepts

- To be familiar with contemporary issues in networking technologies.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to

I.   Master the terminology and concepts of the OSI and TCP-IP reference models. [1]
II.   Master the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks, [1, 3]
III.   Be familiar with wireless networking concepts, [3]
IV.   Be familiar with contemporary issues in networking technologies, [7]
V.   Be familiar with network tools and network programming, [3]
VI.   Be familiar with TCP flow and congestion controls, [1, 3]

22. Topic Outline and Schedule:

Topic	Week	Instructor	Teaching Methods*/platform	Evaluation Methods	Reference
Computer Networks and the Internet	1	Khalid A. Darabkh	Regular/Physical	Exams	[1]
The Physical layer	2	Khalid A. Darabkh	Regular/Physical	Exams	[1,3]
The Link Layer and Local Area Networks	5	Khalid A. Darabkh	Regular/Physical	Exams	[1, 3]

The Network Layer	8	Khalid A. Darabkh	Regular/Physical	Exams	[3, 7]	
The Transport Layer	13	Khalid A. Darabkh	Regular/Physical	Exams	[1, 3]	
The Application Layer	15	Khalid A. Darabkh	Regular/Physical	Exams	[1, 3]	

23. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:
- The student attends the class presentations and participates in the discussions.
- The student studies online video recordings along with references and research papers.

24. Evaluation Methods and Course Requirements:

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

25. Course Policies:

A. Attendance policies:
- Attendance is mandatory and highly encouraged. To that end, attendance will be taken every lecture. All exams (including the final exam) should be considered cumulative.

B- Absences from exams and handing in assignments on time:
- A makeup exam can be arranged for students with acceptable absence causes.

C- Health and safety procedures:

- All health and safety procedure of the university and school should be followed.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

- The homeworks and exams are expected to be individual work (have to be done by your own) and completed without any help of your classmates. Handing in work that was jointly prepared and/or copied will be considered plagiarism and will be handled according to the University regulations.

E- Grading policy:
- First Exam (25%)
- Second Exam (25%)
- Final Exam (50%)

F- Available university services that support achievement in the course:

- Course Website: http://eacademic.ju.edu.jo/k.darabkeh/Material
- **<u>Documents will be posted over Microsoft Teams</u>**

26. Required equipment: (Facilities, Tools, Labs, Training….)

None

27. References:

Required book (s), assigned reading and audio-visuals:
- L. L. Peterson and B. S. Davie, *Computer Networks: A System Approach*, Morgan Kaufman Publishers, 5th Edition, March 2011.

Recommended books, materials, and media:
- Ivan Marsic, *Computer Networks: Performance and Quality of Service*, Rutgers University, December 2010.
- Olivier Bonaventure, *Computer Networking: Principles, Protocols and Practice*, cnp3book, September 2014.
- Chwan-Hwa (John) Wu and J. David Irwin, *Introduction to Computer Networks and Cybersecurity*, CRC Press, February 2013.
- J. F. Kurose and K. W. Ross, *Computer Networking, A top-Down Approach*, Pearson, 6th Edition, March 2012.
- W. Stallings, *High-speed networks and internets: performance and quality of service*, Prentice Hall, 2nd Edition, 2002.
- D. P. Bertsekas and R. Gallager, *Data Networks*, Prentice Hall, 2nd Edition, January 1992.
- S. Tanenbaum and D. J. Wetherall, *Computer Networks*, Prentice Hall, 5th Edition, October 2010.
- D. Gross and C. M. Harris, *Fundamentals of Queuing Theory*, John Wiley & Sons Inc., 3rd Edition, 1998.

28. Additional information:

Students are assumed to have sufficient knowledge pertaining to probability theory.

Name of Course Coordinator: **Prof. Khalid A. Darabkh**

Signature:

Date: **9-7-2023**