The University of Jordan
School of Engineering
Department of Computer Engineering
Fall Term – A.Y. 2023/2024

Course:	Programming of Networks Protocols: - 0907522 (3 Cr. – Core Course)
Catalog Data:	A review of basic networking principles: Protocol Stacks; The Transport Layer, TCP and UDP; The Network Layer, IP; The Link Layer, LANs; Application Protocols, HTTP, ftp; The Sockets interface, primarily on Unix/Linux; Advanced Sockets, select, socket options; Other socket types, Unix, Raw; Network programming methodologies and protocols, primarily for the World Wide Web: Name servers, DNS; IPv6; Server design, daemons, inetd; CGI; XML; Sockets in Java; Cookies, Javascript; Servlets, JSP; JDBC; Java RMI; Remote Procedure Calls; Network Security, firewalls, ssl, ssh; Grid computing, web spiders; Bluetooth; VoIP.
Prerequisites by Course:	0907342 Object-Oriented Problem Solving 0907422 Computer Networks
Prerequisites by Topic:	Introduction to computer networks and object-oriented programming languages.
Textbook:	David Reilly and Michael Reilly, Java™ Network Programming and Distributed Computing, ISBN: 0-201-71037-4, Addison Wesley Professional, 2002.
References:	• Elliotte Rusty Harold, Java Network Programming, O'Reilly, 4th Edition, 2013. • Douglas Comer, Internetworking with TCP/IP Vol. I: Principles, Protocols, and Architecture, Prentice Hall, 4th Edition, 2000. • Uyless Black, TCP/IP and Related Protocol, McGraw-Hill, 1998. • (Harvey & Paul) Deitel & Associates, Java How to Program, 9th Edition, Prentice Hall, 2012.
Course Website:	The course group on Microsoft Teams.
Schedule & Duration:	16 Weeks, 40 lectures, 60 minutes (blended) each (including exams).
Minimum Student Material:	Text book, class handouts, some instructor keynotes, calculator and access to a personal computer and internet.
Minimum College Facilities:	Classroom with whiteboard and projection display facilities, library, and computational facilities.
Course Objectives:	The objectives of this course are: 1. Introduce students to the concepts involved with network programming. 2. Introduce students to how to communicate between hosts utilizing different network protocols.

Course Outcomes and Relation to ABET Program Outcomes:	Upon successful completion of this course, a student should be able to:	

Course Outcomes and Relation to ABET Program Outcomes:

Upon successful completion of this course, a student should be able to:

- Have the basic concepts of networks and needs for network programming. [1]
- Understand the importance of a protocol in deriving the communication between hosts on a network. [1]
- Analyze and compare the advantages/disadvantages of different transport layer protocols and justify their usage by some application protocols. [1]
- Conduct experiments that allow communication between different network hosts utilizing TCP and UDP transport layer protocols along with analyzing and interpreting the results. [6]

Course Topics:

1. Networking Theory
2. Java Overview
3. Internet Addressing
4. Data Streams
5. User Datagram Protocol
6. Transmission Control Protocol
7. Multi-threaded Applications
8. Uniform Resource Locators (URLs)
9. Hyper Text Transfer Protocol

Computer Usage: Practical network assignments and labs will be covered in this course.

Attendance: Class attendance will be taken every class and the university's polices will be enforced in this regard.

Assessments: Assignments, a Project, and Exams.

Grading policy:

Assignments	20%
Midterm Exam	25% TBA
Project	15%
Final Exam	40% TBA

Instructor:
Eng. Asma Abdelkarim
a.abdelkarim@ju.edu.jo
Office Hours: Sun, Tue: 11:30-12:30
                    Mon: 12:00-13:00

Class Time and Location:

Section 1 Sun, Tue, Thu: 12:30 – 13:30

Section 2 Mon,Wed: 8:30 – 9:30

Program Outcomes (PO)

1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3	an ability to communicate effectively with a range of audiences
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Last Updated: OCTOBER 1, 2023