

Course Specifications

Course Title:	Network Programming
Course Code:	ICS 333
Program:	Computer Science and Information Program
Department:	Department of Computer Science and Information
College:	College of Science at Azzulfi
Institution:	Majmaah University

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A. Course Identification

1. Credit hours: 3			
2. Course type			
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input type="checkbox"/>
b.	Required <input type="checkbox"/>	Elective <input type="checkbox"/>	Others <input type="checkbox"/>
3. Level/year at which this course is offered: 4			
4. Pre-requisites for this course (if any): ICS 314			
5. Co-requisites for this course (if any):			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom		
2	Blended		
3	E-learning		
4	Correspondence		
5	Other		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	
2	Laboratory/Studio	
3	Tutorial	
4	Others (specify)	
	Total	
Other Learning Hours*		
1	Study	
2	Assignments	
3	Library	
4	Projects/Research Essays/Theses	
5	Others(specify)	
	Total	

*The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

The main aim of this course is to offer an introduction to a range of aspects of computer network programming. Hence, basic concepts are covered, such as host TCP/IP configuration, TCP/IP addressing, socket programming, data presentation issues, client/server model programming, and HTTP.

This course is intended for developing traditional and multithreaded client/server applications in both the TCP/IP as well as UDP/IP. It also deals with how programs in distributed systems can make use of OS services.

2. Course Main Objective

- understand the key protocols that support the Internet
- describe major technologies and protocols used in network communications be familiar with many common programming interfaces for network communication
- demonstrate advanced knowledge of programming for network communications
- have basic knowledge of the TCP/UDP Sockets
- make use of different types of I/O such as non-blocking I/O and event driven I/O
- make use of various solutions to perform inter-process communication

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	Understand basic network protocols.	
1.2	Understand basic network programming interfaces.	
2	Skills :	
2.1	Be able to implement application protocol	
2.2	Assess different interfaces for computer networks programming	
3	Competence:	
3.1	Be able to present and distinguish between transport layer protocols	
3.2	implement practical network protocols, for clients and servers, using Java networking API	

C. Course Content

No	List of Topics	Contact Hours
1	Networking Revision	3
2	Java Overview	12
3	Internet Addressing	3
4	Socket programming	9
5	User Datagram Protocol	9
6	Multithreaded Applications	6
7	Implementing application protocol	6
Total		48

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
1.1	the basic concepts associated with network programming	Lectures	Written Exam
1.2	the role of a protocol in controlling the communication between hosts in a network	Lab demonstrations	Homework assignments
1.3	the advantages of multithreaded applications	Case studies Individual presentations	Class Activities Quizzes
2.0	Skills		
2.1	distinguish between transport layer protocols	Small group discussions.	Written Exam
2.2	recognize the significance of flexibility, extendibility, simplicity, and efficiency in protocol design and implementation	Whole group discussions. Brainstorming. Presentations.	Homework assignments Class Activities Quizzes
3.0	Competence		
3.1	implement practical network protocols, for clients and servers, using Java networking API	Small group discussions.	Written Exam
3.2	use Java I/O streams and Java exception handling primitives	Whole group discussions. Brainstorming. Presentations.	Homework assignments Class Activities Quizzes

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First written mid-term exam	6	20%
2	Second written mid-term exam	12	20%
3	Presentation, class activities, lab activity, and group discussion	Every week	10%
4	Homework assignments	After every chapter	10%
5	Final written exam	15	40%
TOTAL			100%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

1. A total of 6 office hours per week in the lecturer schedule in order to facilitate the student.
2. Contacting students using e-mail , mobile, office telephone and website.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Bob Quinn, David K. Shute , “Windows Sockets Network Programming: Text“, Addisonwesley Advanced Windows Series, Prentice Hall, 2011
Essential References Materials	An Introduction to Network Programming with Java: Java 7 Compatible Paperback by Jan Graba
Electronic Materials	http://nptel.ac.in/courses.php?branch=Comp
Other Learning Materials	Video and presentations that are available with the instructor

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and, Library, as those are available at the college of science at Azzulfi
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	<ul style="list-style-type: none"> • Analysis of students' results. Observation during class work. • Students' evaluations. • Colleagues' evaluations. • Evaluation questionnaire filled by the students. • Interview a sample of students enrolled in the course to take their opinions
Evaluation of Teaching	Program leaders	<ul style="list-style-type: none"> • Self-assessment. • External evaluation. • Periodic review of course (the Commission of study plans)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	