

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education		وزارة التعليم العالي
Syrian Virtual University		الجامعة الافتراضية السورية

Course Definition: Network Application Programming

1- Basic Information:

Course Name	Network Application Programming
Course ID	NAP
Contact Hours (Registered Sessions)	24
Contact Hours (Synchronized Sessions)	24
Mid Term Exam	-
Exam	2
Registered Sessions Work Load	24
Synchronized Session Work Load	24
Credit Hours	3

2- Pre-Requisites:

Course	ID
Programming 1	CP1
Programming 2	CP2
Operating System 1	OS1
Operating System 2	OS2

3- Course General Objectives:

This course introduces some of the techniques of network application programming, such as: Threads and their use in multithreading applications programming, the programming of client/server applications and related technologies and protocols, Remote Procedure Call (RPC), Remote Method Invocation (RMI), and web services programming.

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4- Intended Learning Outcomes (ILO):

Code	Intended Learning Outcomes
ILO1	Understanding the basic concepts of Threads and related technologies for multithreading applications programming, how they are built and handled programmatically, how to synchronize between these threads.
ILO2	Illustrates the basic concepts of server / client applications, technologies and associated protocols for programming different types of network applications.
ILO3	introduction of remote networking technologies (such as Remote Procedure Call (RPC), Remote Method Invocation(RMI))
ILO4	Reviews the basic concepts of Web services and related technologies for programming multiple network applications and the use of Web services technologies to allow software reinvestment in distributed systems.

5- Course Syllabus (18 hours of total synchronized sessions)

- RS: Recorded Sessions; SS: Synchronized Sessions;

ILO	Course Syllabus	RS	SS	Type	Additional Notes
ILO1	<ul style="list-style-type: none"> • Understanding the basic concepts of Threads and related technologies for multithreading applications programming 	6	6	assignments	Exercises
ILO2	<ul style="list-style-type: none"> • Illustrates the basic concepts of server / client applications, technologies and associated protocols. 	6	6	assignments	Exercises
ILO3	<ul style="list-style-type: none"> • introduction of remote networking technologies (such as Remote Procedure Call (RPC), Remote Method 	6	6	assignments	Exercises

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	Invocation(RMI))				
ILO4	<ul style="list-style-type: none"> Reviews the basic concepts of Web services and related technologies 	6	6	assignments	Exercises

6- Assessment Criteria (Related to ILOs)

ISC	Interactive Synchronized Collaboration	Ex	Exams	Rpt	Reports
PF2F	Presentations and Face-to-Face Assessments	PW	Practice Work		

ILO Code	ILO	Intended Results	Assessment Type				
			ISC	PW	Ex	PF2F	Rpt
ILO1	1. Thread States 2. Thread Priorities and Scheduling 3. Creating and Executing Threads 4. Thread Synchronization 5. Producer/Consumer Relationship without Thread Synchronization 6. Producer/Consumer Relationship with Thread Synchronization 7. Producer/Consumer Relationship: Circular Buffer 8. Multithreading in GUIs		✓	✓	✓		✓
ILO2	1. Connection-Oriented vs. Connectionless Communication 2. Transmission Protocols 3. Building TCP Server by using Stream Sockets		✓	✓	✓		✓

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	4. Building TCP Client by using Stream Sockets 5. Client/Server application using Stream Sockets 6. Connectionless Client/Server Interaction With Datagrams 7. Multithreading Client/Server Application 8. WebBrowser 9. Remoting Networks						
ILO3	1. Web Services 2. Simple Object Access Protocol (SOAP) 3. Publishing and Consuming Web Services 4. Web Forms 5. User-Defined Types 6.		✓	✓	✓		✓

7- Practice Tools:

Tool Name	Description
C++ Programming Language	Any tool or application used to write a C++ Program

8- Main References

- Book ,“Network Application Programming” ,<https://pedia.svuonline.org/course/view.php?id=226>

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9- Additional References

- Ciubotaru, Bogdan, Muntean, Gabriel-Miro, “Advanced Network Programming – Principles and Techniques” 2013.