

## COURSE OUTLINE

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Course Code: Network Communication (SCSR1213) Total Lecture Hours: 42 hours	Semester: II Academic Session: 2014/2015

### LECTURER'S INFORMATION:

Sect.	Lecturer	Room No	Tel	Email
01	Dr. Johan bin Mohamad Sharif	N28-347-11	07-5532006	johan@utm.my
02	Cik Marina Md Arshad	N28-346-07	07-5532414	marina@fc.utm.my
03	Dr. Mohd Fo'ad bin Rohani (C)	N28-347-02	07-5532374	foad@utm.my
04	Dr. Maznah Kamat	N28-346-19	07-5532378	kmaznah@utm.my
05	Dr. Raja Zahilah Raja Mohd Radzi	N28-347-10	07-5532367	zahilah@utm.my
06	Cik Hazinah Kutty Mammi	N28-346-18	07-5532379	hazinah@utm.my
07	Dr. Mohd Murtadha bin Mohamad	N28A-02-30-01	07-5535000	murtadha@utm.my
08	Encik Muhalim bin Mohamed Amin	N28-346-05	07-5532387	muhalim@utm.my

<b>Synopsis</b> :	This course will discuss the basic topics of computer network and data communications. Based on OSI seven layers, the course will apply top down approach. Starts with the important and usage of computer network in commonly applications, the approach will go further detail in the technical aspect in data communication. At the end of this course, students will have an understanding and appreciation of how the network works.
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### LEARNING OUTCOMES

By the end of the course, students should be able to:

No.	Course Learning Outcome	Programme Learning Outcome(s) Addressed	Assessment Methods
1	Understand the details and functionalities of the layers and protocols of the Internet protocol stack.	PO1, PO3 (C2,C3,P2,A1)	T1, T2, F
2	Gain experience with network troubleshooting using acquired knowledge and/or software tools.	PO3, PO5 (C3, P3, A2, CTPS1)	T1, T2, F, L, G
3	Acquire the required skill to design simple computer networks.	PO6 (C3, A2, TS1)	G
<i>(G – Group Project, F- Final Exam, L – Lab, T – Test)</i>			

Prepared by: <b>Name: Dr. Mohd Fo'ad Rohani</b> (Course Coordinator)  Signature: Date: 11 February 2015	Certified by: (Head of Department) <b>Name: Prof. Madya Dr. Muhammad Shafie Abd Latiff</b>  Signature: Date:
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### STUDENT LEARNING TIME

Teaching and Learning Activities			Student Learning Time (hours)
Face to face Learning	• Lecturer Centered	Lecture	22
		- Practical/Lab/Tutorial	22
	• Student Centered	- Student Centered Activity	12
	<b>Sub Total</b>		<b>56</b>
Self Learning	• Non Face to face or Student Centered Learning (SCL)	- Manual	
		- Assignment	2
		- Module	
		- Project	2
		- Group Discussion	4
		- Others	
	• Revision		25
	• Assessment Preparation		12
• Others			
<b>Sub Total</b>		<b>45</b>	
Formal Assessment	• Continuous Assessment	- Lab/Test/Project	10
		- Exam	2
		- Skill Based	4
	• Final Examination		3
	• Others		
<b>Sub Total</b>		<b>19</b>	
<b>TOTAL SLT</b>			<b>120</b>

### TEACHING METHODOLOGY

Lecture, Co-operative Learning, Active Learning, E-learning

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### WEEKLY SCHEDULE

WEEK	DATE	TOPIC	ACTIVITY
<b>MODULE 1: COMPUTER NETWORKS AND THE INTERNET</b>			
1 2	22 – 26 Feb 1 – 5 Mar	What is the Internet, The Network Edge, Network Core, Delay and Loss and Throughput in Packet-Switched Networks, Protocol Layers and Their Service Models, Network Under Attack, History of Computer Networking and the Internet.	<b>22 Feb (CNY Replacement Leave)</b> W2: Proj (Task 1 & 2)
<b>MODULE 2: APPLICATION LAYER</b>			
3 4	8 – 12 Mar 15 – 19 Mar	Principles of Applications , The Web and HTTP, File Transfer: FTP, Electronic Mail in the Internet, DNS - The Internet's Directory Service, Peer-to-Peer Application, Socket Programming: Creating Network Applications	W4: Lab 1 (Wireshark), HBS
<b>MODULE 3: TRANSPORT LAYER</b>			
5 6	22 – 26 Mar 29 Mar – 2 Apr	Introduction and Transport-Layer Services, Multiplexing and Demultiplexing, Connectionless Transport: UDP, Principles of Reliable of Data Transfer, Connection-Oriented Transport: TCP, Principles of Congestion Control, TCP Congestion Control.	W5: Test 1 (27 Mar),  W6: Lab 2 (PT1), Proj (Task 3 & 4)
7	5 – 9 Apr	<b>SEMESTER BREAK</b>	
<b>MODULE 4: THE NETWORK LAYER</b>			
8 9 10	12 – 16 Apr 19 – 23 Apr 26 – 30 Apr	Introduction, Virtual Circuit and Datagram Networks, What is Inside a Router? The Internet Protocol (IP): Forwarding and Addressing in the Internet, Routing Algorithms, Routing in the Internet, Broadcast and Multicast Routing	W9: Last week of Withdrawal  W10 Test 2, Lab 3 (PT2), Proj (Ts 5 & 6)
<b>MODULE5: THE LINK LAYER: LINKS, ACCESS NETWORKS, AND LANs</b>			
11 12 13	3 – 7 May 10 – 14 May 17 – 21 May	Introduction to the Link Layer, Error Detection and Correction Techniques, Multiple Access Links and Protocols, Switched Local Area Networks, Link Virtualization: A Network as a Link Layer, Data Center Networking, Retrospective: A Day in the Life of a Webpage Request.	<b>3 May (Wesak Day)</b>  W12: Lab 4 (PT3), Proj (Task 7 & 8)
<b>MODULE 6: WIRELESS AND MOBILE NETWORKS</b>			
14 15	24 – 28 May 31 May – 4 Jun	Introduction, Wireless Links and Network Characteristics, WiFi: 802.11 Wireless LANs, Cellular Internet Access, Mobility Management: Principles, Mobile IP, Managing Mobility in Cellular Networks, Wireless and Mobility: Impact on Higher-Layer Protocols	W13-14: Lab 5 (Cabling)  W15: Proj (Task 9 &10)
16	5 – 9 Jun	<b>STUDY WEEK</b>	

\*\* For project, those are the dates the tasks are distributed. For deadlines, please refer the handouts \*\*

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**REFERENCES :**

**Main Text:**  
James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach: International Edition (6th Edition), Pearson Education, 2013, ISBN13 978-0-273-76896-8

**Other References:**  
Dye, McDonald and Ruff (2008). Network Fundamentals: CCNA Exploration Companion Guide, CISCO Press.

### GRADING

No.	Assessment	Number	% each	% total	Dates
1	Labs	5	3	15	W4, W6, W10, W12, W13 or W14
2	Test 1	1	15	15	W5: 27 Mar 9.30 am – 11.30am
3	Test 2	1	20	20	W10: 24 Apr 9.30 am – 11.30am)
4	Group Project	1	10	10	Refer to Project Handouts
5	HBS	1	5	5	W4
6	Final Exam	1	35	35	Exam week
<b>Overall Total</b>		100			

HBS: Harvard Business Study – to assess soft skill

### COURSE POLICY:

- ❖ Attendance is compulsory and will be taken in every class. **Students with less than 80% total attendance (45 hours) will not be allowed to sit for the final exam.**
- ❖ Students are required to behave and follow the dressing and conduct as stated by the University's regulations while in class, lab and in the exam hall.
- ❖ Any form of plagiarisms is NOT ALLOWED. Students who are caught cheating during exams will FAIL the course. Students who are copying other student's assignment will get ZERO mark.
- ❖ Make up exam and skill based will not be given, except for students who are sick and submit medical certificate from UTM clinic within 3 days from the exam date. Makeup exam will be given within one week from the initial date of exam.
- ❖ Assignments and group project must be submitted on the due dates. Marks will be deducted for late submissions. Assignments and group project that are handed over after three days from the due dates will NOT be accepted.

For other rules and regulations, please refer to UTM Academic Rule Book.