ITE4010	Network Programming, Protocols and Standards	L	T	P	J	C
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Pre-requisite	**ITE3001**	**Syllabus version**				
		1.0				

Course Objectives:

- To learn the foundation of various techniques for Network Programming.
- To understand the TCP/IP protocol suite
- To get an insight into network standards.

Expected Course Outcome:

1) Demonstrate the knowledge of fundamentals of Network Layer Protocols
2) Comprehend the basics of network programming models
3) Provide a basic knowledge of network programming and client server architecture.
4) Demonstrate the URL and HTTP.
5) Use and apply the function, services, header formats of TCP and UDP.
6) Provide solutions using socket programming and UDP sockets.
7) Use the network standard in wired and wireless networks.
8) Design and implement the protocols and standards of network programming in real time applications.

Student Learning Outcomes (SLO):	**2, 7, 17**
[2]	Having a clear understanding of the subject related concepts and of contemporary issues
[7]	Having computational thinking
[17]	Having an ability to use techniques, skills and modern engineering tools necessary for engineering practice

Module:1	**Network Layer Protocols**	**6 hours**
IPv4 – IPv6 - RIP – OSPF – BGP – Multicasting		

Module:2	**Basics of Network Programming**	**5 hours**
Internet – Client Server Model – Streams – Internet Address		

Module:3	**URL and HTTP**	**6 hours**
URL's and URI's - HTTP Methods – URL Connections		

Module:4	**Transport Layer Protocols**	**5 hours**
Functions, Services and Header Formats of TCP and UDP		

Module:5	**Socket Programming for Clients and Server**	**10 hours**
Using Sockets – Constructing and connecting sockets – Getting information about a socket –		

Setting socket options - Using Server sockets – Constructing Server sockets – Server socket options		
Module:6	**UDP Sockets**	**5 hours**
UDP Protocol-UDP clients and Servers- Datagram Packet Class – Datagram Socket class – Socket options		
Module:7	**Network Standards**	**5 hours**
Wired Standards – Wireless Standards		
Module:8	**Contemporary issues:**	**3 hours**
	Total Lecture hours:	**45 hours**

Text Book(s)	
1.	Elliotte Rusty Harold, Java Network Programming, O'Reilly Media, 2013
Reference Books	
1.	Behrouz A. Forouzan, TCP/IP Protocol Suite, McGrawHill Publication, 2011
2.	W. Richard Stevens, Unix Network Programming-The Sockets Networking API, Pearson, 2013

Total Laboratory Hours	30 hours

Recommended by Board of Studies	05-03-2016		
Approved by Academic Council	No. 40	Date	18-03-2016