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CMR INSTITUTE OF TECHNOLOGY

Session wise – Course Plan

Department of Computer Science and Engineering

SEMESTER	:	M.Tech I SEM	NAME OF THE FACULTY	:	Shivaraj Veerappa Banakar
BRANCH	:	CNE	DATE OF COMMENCEMENT	:	03/10/2016
SUBJECT	:	Advanced Computer Networks	DATE OF CLOSING	:	30/12/16
SUBJECT CODE	:	16SCN12	CLASS STRENGTH	:	2
NO OF HRS/WK	:	6	TOTAL HRS	:	50

Session No	Chapter no (No of hrs planed for the chapter)	DATE	Topics planned for the session	Teaching Aids	Assignments/ Tests planned for the chapter
1	**1/1**	3-Oct-16	Introduction to Computer Networks	Chalk and Talk	
2	**1/2**	4-Oct-16	Building a Network, Requirements, Perspectives	”	
3	**1/3**	5-Oct-16	Scalable Connectivity, Cost-Effective Resource sharing, Support for Common Services	”	
4	**1/4**	6-Oct-16	Manageability, Protocol layering, Performance, Bandwidth and Latency, Delay X Bandwidth Product	”	
5	**1/5**	7-Oct-16	Perspectives on Connecting, Classes of Links	”	
6	**1/6**	10-Oct-16	Reliable Transmission, Stop-and-Wait , Sliding Window,	”	
7	**1/7**	11-Oct-16	Concurrent Logical Channels.	”	
8	**1/8**	12-Oct-16	Numeric problems on networks	”	
9	**1/9**	13-Oct-16	Numeric problems on networks	”	
10	**1/10**	14-Oct-16	Numeric problems on networks	”	Assignment
11	**2/1**	31-Oct-16	Switching and Bridging, Datagram’s	”	
12	**2/2**	1-Nov-16	Virtual Circuit Switching	”	

13	**2/3**	2-Nov-16	Source Routing, Bridges and LAN Switches	”	
14	**2/4**	3-Nov-16	Basic Internetworking (IP)	”	
15	**2/5**	4-Nov-16	What is an Internetwork ?, Service Model	”	
16	**2/6**	7-Nov-16	Global Addresses, Datagram Forwarding in IP	”	
17	**2/7**	8-Nov-16	sub netting and classless addressing	”	
18	**2/8**	9-Nov-16	Address Translation(ARP)	”	
19	**2/9**	10-Nov-16	Host Configuration(DHCP), Error Reporting(ICMP), Virtual Networks and Tunnels	”	
20	**2/10**	21-Nov-16	Problems on Unit : 2	”	Assignment
21	**3/1**	22-Nov-16	Network as a Graph, Distance Vector(RIP)	”	
22	**3/2**	23-Nov-16	Link State(OSPF)	”	
23	**3/3**	24-Nov-16	The Global Internet	”	
24	**3/4**	25-Nov-16	Routing Areas	”	
25	**3/5**	28-Nov-16	Routing among Autonomous systems(BGP)	”	
26	**3/6**	29-Nov-16	IP Version 6(IPv6)	”	
27	**3/7**	30-Nov-16	Mobility and Mobile IP	”	
28	**3/8**	1-Dec-16	Programs on Network concepts	”	
29	**3/9**	2-Dec-16	Programs on Network concepts	”	
30	**3/10**	5-Dec-16	Programs on Network concepts	”	Assignment
31	**4/1**	6-Dec-16	Simple Demultiplexer (UDP)	”	
32	**4/2**	7-Dec-16	Reliable Byte Stream(TCP)	”	
33	**4/3**	8-Dec-16	End-to-End Issues, Segment Format	”	
34	**4/4**	9-Dec-16	Connecting Establishment and Termination	”	

35	**4/5**	12-Dec-16	Sliding Window Revisited, Triggering Transmission	”	
36	**4/6**	13-Dec-16	Adaptive Retransmission, Record Boundaries	”	
37	**4/7**	14-Dec-16	TCP Extensions, Queuing Disciplines	”	
38	**4/8**	15-Dec-16	FIFO, Fair Queuing	”	
39	**4/9**	16-Dec-16	TCP Congestion Control, Additive Increase/ Multiplicative Decrease	”	
40	**4/10**	19-Dec-16	Slow Start, Fast Retransmit and Fast Recovery.	”	Assignment
41	**5/1**	20-Dec-16	Congestion-Avoidance Mechanisms	”	
42	**5/2**	21-Dec-16	DEC bit, Random Early Detection (RED),	”	
43	**5/3**	22-Dec-16	Source-Based Congestion Avoidance	”	
44	**5/4**	23-Dec-16	The Domain Name System(DNS),	”	
45	**5/5**	26-Dec-16	World Wide Web(HTTP),	”	
46	**5/6**	27-Dec-16	Electronic Mail(SMTP,POP,IMAP,MIME),	”	
47	**5/7**	28-Dec-16	Network Management(SNMP)	”	
48	**5/8**	29-Dec-16	Seminars	”	
49	**5/9**	30-Dec-16	Seminars	”	
50	**5/10**	30-Dec-16	Seminars	”	

Syllabus for Internal Assessment Tests (IAT)*

Sessional #	Syllabus
T1	Class # 01 - 20
T2	Class # 20 – 50

See calendar of events for the schedules of IATs.

Literature

Book Type	Code	Author & Title	Publication information Edition // Publisher	ISBN
Text Book	TB1	**Larry Peterson and Bruce S Davis** "Computer Networks :A System Approach"	Elsevier -2014	
Text Book	TB2	**Douglas E Comer, "**Internetworking with TCP/IP, Principles, Protocols and Architecture	6th Edition, PHI - 2014	
Reference	RB1	**Uyless Black** "Computer Networks, Protocols , Standards and Interfaces" 2nd Edition	PHI	
Reference	RB2	**Behrouz A Forouzan** "TCP/IP Protocol Suite"	4th Edition – Tata McGraw-Hill	

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CMR INSTITUTE OF TECHNOLOGY

Session wise – Course Plan

Department of Computer Science and Engineering

SEMESTER : I
BRANCH : C.N.E M.TECH
SUBJECT : WAN
SUBJECT CODE : **16SCN11**
NO OF HRS/ WK : 6

NAME OF THE FACULTY : Mrs. Kalpana.T
DATE OF COMMENCEMENT : 3-10-2016
DATE OF CLOSING : 28-12-2016
CLASS STRENGTH : 02
TOTAL HRS : 56

Session No	Chapter no (No of hrs planed for the chapter)	DATE	Topics planned for the session	Teaching Aids	Assignments/ Tests planned for the chapter	Topics covered As per plan
1	**1/1**	3.10.16	**Unit-1**-Introduction, Issues in Ad-hoc Wireless Networks, Ad-hoc Wireless Internet.	Board, chalk, duster		
2	**2/1**	4.10.16	MAC Protocols for Ad-hoc Wireless Networks:Introduction, Issues in Designing a MAC Protocol.	,,		
3	**3/1**	5.10.16	Issues in Designing a MAC Protocol(Routing & Multi casting).	,,		

4	**4/1**	6.10.16	Issues in Designing a MAC Protocol(T.L.P,P.S,Q.O.S,S.O).	,,	Assignment-1	
5	**5/1**	6.10.16	Issues in Designing a MAC Protocol(Security,A.S.D,E.M,scalability)	,,		
6	**6/1**	8.10.16	Issues in Designing a MAC Protocol(D.C),	,,		
7	**7/1**	8.10.16	Design Goals of MAC Protocols, Classification of MAC protocols.	,,		
8	**8/1**	17.10.16	Contention-Based Protocols	Board, chalk, duster		
9	**9/1**	18.10.16	Contention-Based Protocols ,Contention-Based Protocols with Reservation Mechanisms.	,,		
10	**10/1**	19.10.16	Contention-Based Protocols with Reservation Mechanisms	,,		
11	**11/1**	21.10.16	Contention-Based Protocols with Scheduling Mechanisms,	,,		
12	**12/1**	24.10.16	MAC Protocols that Use Directional Antennas.	,,		
13	**1/2**	25.10.16	**Unit-2-** Routing Protocols for Ad-hoc Wireless Networks Introduction, Issues in Designing a Routing Protocol for Ad-hoc Wireless Networks.	,,		
14	**2/2**	26.10.16	Classification of Routing Protocols, Table Driven Routing Protocols.	,,		
15	**3/2**	26.10.16	Table Driven Routing Protocols.	,,		
16	**4/2**	27.10.16	On-Demand Routing Protocols.	,,	Assignment - 2	
1 7	**5/2**	28.10.16	On-Demand Routing Protocols.	,,		
18	**6/2**	5.11.16	On Demand Routing protocols.	,,		
19	**7/2**	7.11.16	Hybrid Routing protocols.	,,		
20	**8/2**	8.11.16	Hybrid Routing Protocols.	,,		
21	9/2	9.11.16	Hierarchical Routing Protocols.	,,		
22	10/2	10.11.16	Power-Aware Routing Protocols.	,,		
21	**1/3**	12.11.16	**Unit-3-** Multi cast Routing in Ad-hoc Wireless Networks Introduction, Issues in Designing a Multi cast Routing Protocol.	,,		
22	**2/3**	15.11.16	Operation of Multi cast Routing Protocols.	,,		

23	**3/3**	18.11.16	An Architecture Reference Model for Multi cast Routing Protocols.	,,	Assignment-3	
24	**4/3**	19.11.16	Classifications of Multi cast Routing Protocols, Tree-Based Multi cast Routing Protocols.			
25	**5/3**	21.11.16	Tree-Based Multi cast Routing Protocols.	Board, chalk, duster		
26	**6/3**	22.11.16	Tree-Based Multi cast Routing Protocols.	,,		
27	**7/3**	23.11.16	Tree-Based Multi cast Routing Protocols.	,,		
28	**8/3**	24.11.16	Mesh-Based Multi cast Routing Protocols.	,,		
29	9/3	25.11.16	Mesh-Based Multicast Routing Protocols.			
30	10/3	28.11.16	Mesh-Based Multicast Routing Protocols(N.SA.M.R.P,C.A.M.P)			
31	**1/4**	29.11.16	**Unit-4-** Transport Layer and Security Protocols for Ad-hoc Networks: Introduction, Issues in Designing a Transport Layer Protocol.	,,		
32	**2/4**	30.11.16	Design Goals of a Transport Layer Protocol.	,,		
33	**3/4**	29.11.16	Classification of Transport Layer Solutions; TCP over Transport Layer Solutions.	,,		
34	**3/4**	30.11.16	TCP over Transport Layer Solutions.	,,		
35	**4/4**	1.12.16	Other Transport Layer Protocols for Ad-hoc Networks.	,,		
36	**5/4**	2.12.16	Security in Ad-hoc Wireless Networks, Issues and Challenges in Security Provisioning.	Board, chalk, duster	Assignment-4	
37	**6/4**	3.12.16	Network Security Attacks.	,,		
38	**7/4**	5.12.16	Key Management.	,,		
39	**8/4**	6.12.16	Key Management.	,,		
40	**9/4**	7.12.16	Secure Routing Ad-hoc Wireless Networks.	,,		
41	10/4	7.12.16	Secure Routing Ad-hoc Wireless Networks.	,,		

42	**1/5**	8.12.16	**Unit-5-** Quality of Service and Energy Management in Ad-hoc Wireless Networks: Introduction.	,,		
43	**2/5**	9.12.16	Issues and Challenges in Providing QoS in Ad-hoc Wireless Networks.	,,		
44	**3/5**	13.12.16	Classification of QoS Solutions.	,,		
45	**4/5**	14.12.16	MAC Layer Solutions.	,,		
46	**5/5**	15.12.16	Network Layer Solutions.	,,		
47	**6/5**	16.12.16	Network Layer Solutions(B.W.R.P,O.D QOS.R.P).	,,		
48	**7/5**	17.12.16	Network Layer Solutions.	,,	Assignment-5	
49	**8/5**	19.12.16	Energy Management in Ad-hoc Wireless Networks: Introduction.	,,		
50	**9/5**	20.12.16	Need for Energy Management in Ad-hoc Wireless Networks.	,,		
51	**10/5**	21.12.16	Classification of Energy Management Schemes.	,,		
52	**11/5**	22.12.16	Battery Management Schemes.	,,		
53	**12/5**	23.12.16	Transmission Management Schemes.	Board, chalk, duster		
54	**13/5**	24.12.16	System Power Management Schemes.	,,		
55	**14/5**	27.12.16	REVISION	,,		
56	**15/5**	28.12.16	REVISION	,,		

Syllabus for Internal Assessment Tests (IAT)*

IAT #	Syllabus
IAT-1	CLASS #1 - #18
IAT-2	CLASS #19 -#56

* : See calendar of events for the schedules of IATs.

Literature:

Book Type	Code	Author & Title	
Text Book	TB	C. Siva Ram Murthy & B. S. Manoj: Ad-hoc Wireless Networks, 2 nd Edition,	Pearson Education, 2011.

References1	RB1	Ozan K. Tonguz and Gianguigi Ferrari: Ad-hoc Wireless Networks.	John Wiley, 2007.
Reference2	RB2	Xiuzhen Cheng, Xiao Hung, Ding-Zhu Du: Ad-hoc Wireless Networking.	Kluwer Academic Publishers, 2004.

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CMR INSTITUTE OF TECHNOLOGY

Session wise – Course Plan

Department of Computer Science and Engineering

SEMESTER	: 1 M.Tech	NAME OF THE FACULTY	: Dr. Prem Kumar Ramesh
BRANCH	: CNE	DATE OF COMMENCEMENT	: 03-10-2016
SUBJECT	: Internet of Things	DATE OF CLOSING	: 28-12-2016
SUBJECT CODE	: 16SCN144	CLASS STRENGTH	: 02
NO OF HRS/WK	: 6	TOTAL HRS	: 50

Session No	Chapter no (No of hrs planed for the chapter)	DATE	Topics planned for the session	Teaching Aids	Assignments/ Tests planned for the chapter
1	**1/1**	03-10-2016	**Module 1** **What is 'The Internet of Things'**? Overview and Motivations, Examples of Applications	Chalk & Talk / PPT	
2	**2/1**	04-10-2016	IPV6 Role, Areas of Development and Standardization, Scope of the Present Investigation.	,,	
3	**3/1**	05-10-2016	Internet of Things Definitions and frameworks-IoT definitions,	,,	
4	**4/1**	06-10-2016	IoT Frameworks, Basic Nodal Capabilities.	,,	
5	**5/1**	07-10-2016	Internet of Things Application Examples-Overview, Smart Metering/Advanced Metering Infrastructure	,,	
6	**6/1**	08-10-2016	Health/Body Area Networks,	,,	
7	**7/1**	13-10-2016	City Automation, Automotive Applications	‘’	
8	**8/1**	14-10-2016	Home Automation	,,	
9	**9/1**	17-10-2016	Smart Cards	,,	
10	**10/1**	18-10-2016	Tracking		

11	**11/2**	19-10-2016	Over-The-Air-Passive Surveillance/Ring of Steel	,,	
12	**12/2**	20-10-2016	Control Application Examples, Myriad Other Applications	,,	
13	**13/2**	21-10-2016	Module 1 Revision/Quiz	,,	Assignment- I
14	**14/2**	22-10-2016	Technical Discussion on Module 1	,,	
15	**1/2**	24-10-2016	**Module 2** **Fundamental IoT** Mechanism and Key Technologies-Identification of IoT Object and Services,	‘’	
16	**2/2**	25-10-2016	Structural Aspects of the IoT,	,,	
17	**3/2**	26-10-2016	Key IoT Technologies.	,,	
18	**4/2**	27-10-2016	Evolving IoT Standards-Overview and Approaches	,,	
19	**5/2**	28-10-2016	IETF IPV6 Routing Protocol for RPL Roll	,,	
20	**6/2**	02-11-2016	Constrained Application Protocol	,,	
21	**7/2**	03-11-2016	Representational State Transfer	,,	
22	**8/2**	04-11-2016	ETSI M2M	,,	
23	**9/2**	05-11-2016	Third Generation Partnership Project Service Requirements for Machine-Type Communications	‘’	
24	**10/2**	07-11-2016	CENELEC, IETF IPv6	,,	
25	**11/2**	08-11-2016	Over Lowpower WPAN	,,	
26	**12/2**	09-11-2016	Zigbee IP(ZIP)	,,	
27	**13/2**	10-11-2016	IPSO	,,	
28	**14/2**	11-11-2016	Module 2 Revision/Quiz	,,	Assignment –II
29	**15/2**	12-11-2016	Technical Discussion on Module 2	,,	
30	**1/3**	18-11-2016	**Module 3** **Layer ½ Connectivity**: Wireless Technologies for the IoT-WPAN Technologies for IoT/M2M **(part1/3)**	,,	
31	**2/3**	19-11-2016	**Layer ½ Connectivity**: Wireless Technologies for the IoT-WPAN Technologies for IoT/M2M **(part2/3)**	,,	
32	**3/3**	21-11-2016	**Layer ½ Connectivity**: Wireless	,,	

			Technologies for the IoT-WPAN Technologies for IoT/M2M **(part3/3)**		
33	**4/3**	22-11-2016	Cellular and Mobile Network Technologies for IoT/M2M	,,	
34	**5/3**	23-11-2016	Layer 3 Connectivity :IPv6 Technologies for the IoT:Overview and Motivations.Address Capabilities	,,	
35	**6/3**	24-11-2016	IPv6 Protocol Overview	‘’	
36	**7/3**	25-11-2016	IPv6 Tunneling	,,	
37	**8/3**	26-11-2016	IPsec in IPv6	,,	
38	**9/3**	28-11-2016	Header Compression Schemes,Quality of Service in IPv6	,,	
39	**10/3**	29-11-2016	Migration Strategies to IPv6.	,,	
40	**11/3**	30-11-2016	Module 3 Revision/Quiz	,,	Assignment –III
41	**12/3**	01-12-2016	Technical Discussion on Module 3	,,	
42	**1/4**	02-12-2016	**Module 4** **Case Studies** illustrating IoT Design-Introduction, Home Automation **(part 1/2)**	,,	
43	**2/4**	03-12-2016	Home Automation **(part 2/2)**	‘’	
44	**3/4**	04-12-2016	Cities**(part 1/2)**	,,	
45	**4/4**	05-12-2016	Cities**(part 2/2)**	,,	
46	**5/4**	06-12-2016	Environment**(part 1/2)**	,,	
47	**6/4**	07-12-2016	Environment**(part 2/2)**	,,	
48	**7/4**	08-12-2016	Agriculture**(part 1/2)**	,,	
49	**8/4**	09-12-2016	Agriculture**(part 2/2)**	,,	
50	**9/4**	10-12-2016	Productivity Applications**(part 1/2)**	,,	
51	**10/4**	13-12-2016	Productivity Applications**(part 2/2)** Closing Remarks	,,	
52	**11/4**	14-12-2016	Module 5 Revision/Quiz	,,	Assignment –IV
53	**12/4**	15-12-2016	Technical Discussion on Module 4	,,	
54	**1/5**	16-12-2016	**Module 5** **Data Analytics for IoT** – Introduction	,,	
55	**2/5**	17-12-2016	Apache Hadoop,	,,	
56	**3/5**	19-12-2016	Using Hadoop	,,	

57	**4/5**	20-12-2016	MapReduce for Batch Data Analysis	,,	
58	**5/5**	21-12-2016	Apache Oozie	,,	
59	**6/5**	22-12-2016	Apache Spark	,,	
60	**7/5**	23-12-2016	Apache Storm	,,	
61	**8/5**	24-12-2016	Using Apache Storm for Real-time Data Analysis	,,	
62	**9/5**	25-12-2016	Structural Health Monitoring Case Study	,,	
63	**10/5**	26-12-2016	Module 5 Revision/Quiz	,,	Assignment –V
64	**11/5**	27-12-2016	Technical Discussion on Module 5	,,	
65		28-12-2016	Revision	,,	

Syllabus for Internal Assessment Tests (IAT)*

Session #	Syllabus
T1	Module 1-2
T2	Module 3-5

*: See calendar of events for the schedules of IATs.

Literature:

Book Type	Code	Author & Title	Publication info	
			Edition & Publisher	ISBN #
Text Book	TB1	Daniel Minoli, ”Building the Internet of Things with IPv6 and MIPv6:The Evolving World of M2M Communications”	Wiley, 2013	978-81-265-5823-0
Text Book	TB2	ArshdeepBahga, Vijay Madisetti, ”Internet of Things: A Hands on Approach”	Universities Press., 2015	978-09-960-2551-5
References	RB1	Michael Miller,” The Internet of Things”, First Edition	Pearson, 2015	978-07-897-5400-4
References	RB2	Claire Rowland,Elizabeth Goodman et.al.,” Designing Connected Products”, First Edition	O’Reilly, 2015	978-14-493-7256-9