

**M.Sc. Computer Science First Year 2018-23****Advanced Networking**

<b>Semester- I</b>	<b>Subject Code: MS11802</b>	<b>Lectures: 60</b>
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**Objectives:**

The syllabus aims in equipping students with,

- To understand wireless networks, its types.
- To understand the concept of networking model protocols and functionality.
- To understand multimedia concept
- To Understand importance of network security and cryptography

<b>Unit 1: Basic Concepts and The Internet Layer Protocols</b>	<b>8</b>
<b>Ch 1: Review of Basic Concepts</b> <ul style="list-style-type: none"> <li>• IEEE 802.XX(0-15)</li> <li>• TCP/IP Protocol Suite</li> <li>• Point-to-point WANS (VPN)</li> <li>• Switched WANS (MPLS)</li> </ul>	<b>4</b>
<b>Ch 2: The Internet Layer Protocols</b> <ul style="list-style-type: none"> <li>• Review of IPv4 Protocol</li> <li>• ICMPv4</li> <li>• IGMPv6</li> <li>• Transition from IPv4 to IPv6</li> <li>• ICMPv6</li> </ul>	<b>4</b>

**BOS Members:**

Prof. Seema Chowhan (Subject Expert)

Prof. M.B. Lonare (Subject Expert)

Ms. Shilpa Khadilkar (Subject Expert)

Ms Anuradha Bhamre (Industry Expert)

Ms Aishwarya Kaliyiluvila (Alumni)

Prof. Ashwini Kulkarni (Chairman)

Prof. Swati Pulate (Internal Faculty)

Prof. Smita Borkar (Internal Faculty)



<b>Unit 2: Routing Protocols and Multimedia</b>	<b>12</b>
<b>Ch3: Routing Protocols</b> <ul style="list-style-type: none"> <li>• Forwarding</li> <li>• Structure of a Router</li> <li>• Routing Tables</li> <li>• Intra – And Inter-Domain Routing with reference to Autonomous System</li> <li>• RIP, OSPF</li> <li>• BGP</li> <li>• Distance Vector Routing and Link state routing</li> <li>• Multicast Routing (MVRIP, MOSPF, MSBGP)</li> </ul>	<b>6</b>
<b>Ch4: Multimedia</b> <ul style="list-style-type: none"> <li>• Digitizing Audio and Video</li> <li>• Streaming stored Audio / Video</li> <li>• Streaming Live Audio / Video</li> <li>• Real-Time Interactive Audio / Video</li> <li>• RTP</li> <li>• RTCP</li> <li>• Activity based on Multimedia.</li> </ul>	<b>6</b>

<b>Unit 3: Security Concepts</b>	<b>12</b>
<b>Ch 5: Introduction To Security</b> <ul style="list-style-type: none"> <li>• The need for Security</li> <li>• Security Approaches</li> <li>• Principles of Security</li> <li>• Types of Attacks (Phishing, Smishing, Vishing)</li> </ul>	<b>6</b>

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<b>Ch 6: Detection and Prevention System</b>	<b>6</b>
<ul style="list-style-type: none"> <li>• IDS</li> <li>• IPS</li> <li>• Packet forwarding</li> <li>• Port forwarding</li> <li>• IP forwarding</li> <li>• IP tables</li> </ul>	

<b>Unit 4: Digital Certificates and Internet Security Protocols</b>	<b>16</b>
<b>Ch 7: Digital Certificates</b>	<b>2</b>
<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Digital Certificates</li> </ul>	
<b>Ch 11. Internet Security Protocols</b>	<b>10</b>
<ul style="list-style-type: none"> <li>• Secure Socket Layer</li> <li>• TLS</li> <li>• SHTTP</li> <li>• TSP</li> <li>• SET</li> <li>• SSL Verses SET</li> <li>• 3-D Secure Protocol</li> <li>• Electronic Money</li> <li>• PCI</li> <li>• DSS</li> </ul>	

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**Ch 12. User Authentication**

- CIA model
- AAAAA model
- X.509 model (Certificate-based Authentication)
- Kerberos
- Plan protect response

4

\*Contact hours – 12 hours

**Reference Books:**

1. Richard Stevens, TCP/IP Illustrated, Vol. 1, by, Addison Wesley (A very practical book with lots of useful network diagnostic tools and programs.)
2. William Stallings, " Cryptography And Network Security" Prentice Hall /Pearson Education
3. Computer Network Security, Kizza, Springer, 9780387204734
4. Craig Hunt, TCP/IP Network Administration O'Reilly & Associates, Inc. (A must for network and system administrators dealing with internetworking.)

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*[Handwritten signatures and initials corresponding to the BOS members listed above]*

