1. **Course Number and Course Title**
   COE 371 – Computer Networks I

2. **Credit Hours**
   3-2-3

3. **Prerequisites and/or Co-Requisites:**
   Prerequisite: MTH 104 (Calculus II), and COE 221 (Digital Systems)

4. **Name and Contact Information of Instructor:**
   Dr. Taha Landolsi

5. **Course Description (Catalog Description):**
   Provides an overview of computer networks and the Internet. Covers application layer services and protocols, transport layer services, principles of flow and congestion control, network layer addressing, forwarding, and routing, link layer protocols, addressing and multiple access, multimedia networking, computer networks security, and network delay performance.

6. **Textbook and other Supplemental Material:**
   Textbook:
   - J. Kurose, K. Ross, Computer Networking: A Top-Down Approach, 7th. Pearson, 2016.

   Supplemental material:
   - None

7. **Learning Outcomes:**
   Upon completion of the course, students will be able to:
   1. Describe the application layer protocols: HTTP, SMTP, and DNS.
   2. Compute network delays for HTTP1.0 and HTTP1.1 with and without web caching.
   3. Describe multimedia characteristics and network support for content streaming.
   4. Compare TCP and UDP transport layer protocols and service models.
   5. Apply addressing, subnetting, and routing techniques to various network designs.
   6. Compare link layer wired and wireless LAN technologies and protocols.
   7. Apply the principles of network security in the various layers of TCP/IP stack.
   8. Design a LAN in a lab environment; configure its hosts, routers, and switches; and perform networking testing and troubleshooting.

8. **Teaching and Learning Methodologies:**
   Methods include lectures, labs, class discussions, and homework assignments.

9. Course Topics and Schedule:

Topic	Weeks
Layered protocol stack, OSI and TCP/IP models	1
Network delays and throughput	1
Application layer principles, HTTP and delay models	1
Web caching performance, SMTP, DNS	1
Transport layer principles, UDP, ARQ protocols	1
Pipelined ARQ, TCP overview	1
TCP timers, congestion control	1
Network layer principles, IP addressing and subnetting	1
Routing protocols, ICMP	1
Link layer principles, MA protocols	1
LAN technologies and protocols, IEEE802.3, 802.11	1
WAN technologies, ATM, MPLS	1
Multimedia networking	1
Computer networks security	1
Review and evaluations	2
Total:	**16**