1. **Course number and name**  
   **CSC 645: Computer Networks**

2. **Credits and contact hours**  
   3 credits  
   Contact hours: 150 minutes of lecture sessions /week

3. **Instructor’s or course coordinator’s name**  
   Course coordinator: Hao Yue, Assistant Professor of Computer Science

4. **Text book, title, author, and year**  
   a. **other supplemental materials**  
      Lecture slides

5. **Specific course information**  
   a. **brief description of the content of the course (catalog description)**  
      Computer network design, evaluation, and testing. Computer network standards and implementation.  
      Hardware/software design and compatibility issues. Paired with CSC 745. Students who have completed  
      CSC 645 may not take CSC 745 later for credit. Extra fee required.

   b. **prerequisites or co-requisites**  
      CSC 415 with grade of C or above.

   c. **indicate whether a required, elective, or selected elective course in the program**  
      Elective for Computer Engineering.

6. **Specific goals for the course**  
   a. **specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.**  
      Students completing the course successfully will be able to  
      - Write correct and well documented advanced C code using low level Unix/Linux system calls, including the  
        sockets family of system calls, that is demonstrated to execute correctly  
      - locate platform specific programming information and be familiar with reading and using man page information  
        as well as other standard reference materials  
      - Clearly and accurately explain design decisions in written program documentation  
      - Work with the mechanics of Unix/Linux distributed application programming, testing and debugging in a multi- 
        machine environment.
b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
   Course addresses ABET Student Outcome(s): a, b, c, e, j, k.

7. Brief list of topics to be covered
1. Introduction, Internetworking, ISO/OSI Protocol Stacks and Services
2. Network Hardware, Physical-Data Link-Network Layers/ MAC Layers/
3. Introduction to WLAN and CC, Ethernet, ARQ (Windowing) protocols
4. Internetworking, RARP, ARP, IPv4 & IPv6, ICMP
5. Programming with the Internet: Sockets & other Unix Systems Calls
6. Internetwork Routing, X75 VC
7. Implementing Applications Oriented Services, UDP/TCP, Client/Server
8. Interaction, software development using high level networking frameworks
9. Advanced Topics (as time permits): Name Servers, ISO Transport, Session, Presentation, Application Layers