Note:

Course content may be changed, term to term, without notice. The information below is provided as a guide for course selection and is not binding in any form, and should <u>not</u> be used to purchase course materials.

LIBERTY UNIVERSITY

COURSE SYLLABUS

CSIS 355

NETWORK ARCHITECTURE AND PROTOCOLS

COURSE DESCRIPTION

A study of how computer networks and internets operate. Investigates networking from the level of data transmission and wiring through the level of application software that provides networking functionality. Topics include: data and packet transmission, LANs and WANs, and internet concepts, including architecture, protocol layering, and application software. (Formerly CSCI 355)

RATIONALE

Computer networking is one of the most exciting and important technological fields of our time. The Internet and its applications and services, such as Web, email, Voice over IP, video-on-demand, mobile networks, etc., are changing the ways we live and work. The networking/Internet field and all that it entails are a vast new frontier, full of amazing challenges. There is always room for innovation. This course covers fundamental computer networking concepts and principles with exercises which guide students to apply the networking theory and design principles, verify their understandings, and build a solid foundation for creating innovations in today's Internet. The course serves students in two ways. For those students who will continue in computer networking, it lays foundations of protocol design principles, secure network architecture and design skills, and experience with TCP/IP network management protocols, which are necessary to take more advanced courses in graduate study and/or technical training in the industry. For those not continuing in computer networking, it covers basic networking knowledge, network configuration, application-level network communications methods, and in-depth understanding of the inner-workings of computer networks and their development.

I. PREREQUISITE

For information regarding prerequisites for this course, please refer to the Academic Course Catalog.

II. REQUIRED RESOURCE PURCHASE

Click on the following link to view the required resource(s) for the term in which you are registered: http://bookstore.mbsdirect.net/liberty.htm

III. ADDITIONAL MATERIALS FOR LEARNING

A. Computer with basic audio/video output equipment

B. Internet access (broadband recommended)

C. Blackboard recommended browsers

D. Microsoft Office

IV. MEASURABLE LEARNING OUTCOMES

Upon successful completion of this course, the student will be able to:

A. Demonstrate the ability to understand the principles required to design network application protocols and network designs.

B. Demonstrate the ability to define and analyze the problems of reliable secure network communications across various mediums and network designs.

C. Demonstrate the ability to develop simple LAN and WAN network designs to establish IP intra and internetwork-to-network communications.

D. Demonstrate the ability to understand issues with IP host naming, addressing, and packet routing for intra and internetworks-of-networks (internetworks).

E. Apply a biblical worldview to secure computing methods

V. COURSE REQUIREMENTS AND ASSIGNMENTS

A. Textbook readings and lecture presentations

B. Course Requirements Checklist

After reading the Course Syllabus and Student Expectations, the student will complete the related checklist found in Module/Week 1.

C. Discussion Board Forums (4)

Discussion boards are collaborative learning experiences. Therefore, the student will create a thread in response to the provided prompt for each forum. Each thread must be at least 300 words and demonstrate course-related knowledge. In addition to the thread, the student will reply to the threads of at least 2 classmates. Each reply must be at least 100 words. At least 1 citation must be included in each thread and reply. Current APA formatting is required for any citations.

D. Lab Assignments (4)

Using a virtual lab environment, the student will complete computer networking lab assignments that will give him or her an opportunity to demonstrate mastery of the lessons learned during the assigned or previous module/week.

E. Quizzes (5)

Each quiz will cover the Reading & Study material for the module/week in which it is assigned (Quiz 2 will also cover material from the preceding module/week). Each quiz will be open-book/open-notes and will have a time limit of 1 hour and 30 minutes. Each quiz will contain a variety of multiple-choice, true/false, and short essay questions.

F. Final Exam

The student will complete a comprehensive Final Exam which will cover all the material from the course. This exam will be open-book/open-notes, contain a variety of multiple-choice, true/false , and short essay questions, and have a time limit of 3 hours.

VI. COURSE GRADING AND POLICIES

A. Points

Course Requirements Checklist		10
Discussion Board Forums (4 at 50 pts ea)		200
Lab Assignments (4 at 100 pts ea)		400
Quizzes (5 at 40 pts ea)		200
Final Exam		200
	Total	1010

B. Scale

A = 900–1010 B = 800–899 C = 700–799 D = 600–699 F = 0–599

C. Quizzes/Tests/Exams

For timed quizzes/tests/exams, the student is required to complete the quiz/test/exam within the assigned time. For the student who exceeds this time limit, a penalty of 1 point will be deducted for each minute, or part thereof, he/she exceeds the assigned time limit.

D. Disability Assistance

Students with a documented disability may contact Liberty University Online's Office of Disability Accommodation Support (ODAS) at LUOODAS@liberty.edu to make arrangements for academic accommodations. Further information can be found at www.liberty.edu/disabilitysupport.

If you have a complaint related to disability discrimination or an accommodation that was not provided, you may contact ODAS or the Office of Equity and Compliance by phone at (434) 592-4999 or by email at equityandcompliance@liberty.edu. Click to see a full copy of Liberty's Discrimination, Harassment, and Sexual Misconduct Policy or the Student Disability Grievance Policy and Procedures.

LIBERTY UNIVERSITY

COURSE SCHEDULE

CSIS 355

Textbook: Kurose & Ross, *Computer Networking: A Top-Down Approach* (2017).

MODULE/ WEEK	READING & STUDY	ASSIGNMENTS	POINTS
1	Kurose & Ross: ch. 1 2 presentations	Course Requirements Checklist Class Introductions Quiz 1	10 0 40
2	Kurose & Ross: ch. 2 2 presentations	DB Forum 1 Lab Assignment 1	50 100
3	Kurose & Ross: ch. 3 2 presentations	Lab Assignment 2 Quiz 2	100 40
4	Kurose & Ross: chs. 4–5 3 presentations	DB Forum 2 Quiz 3	50 40
5	Kurose & Ross: ch. 6 3 presentations	Lab Assignment 3 Quiz 4	100 40
6	Kurose & Ross: ch. 7 3 presentations	DB Forum 3 Quiz 5	50 40
7	Kurose & Ross: ch. 8 3 presentations	DB Forum 4 Lab Assignment 4	50 100
8	Kurose & Ross: ch. 9 1 presentation 1 website	Final Exam	200
		TOTAL	**1010**

DB = Discussion Board

NOTE: Each course module/week (except Module/Week 1) begins on Tuesday morning at 12:00 a.m. (ET) and ends on Monday night at 11:59 p.m. (ET). The final module/week ends at 11:59 p.m. (ET) on **Friday**.