**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 651

### NETWORK ARCHITECTURE AND DESIGN

#### COURSE DESCRIPTION

This course provides an in-depth analysis of network architecture models that are designed to support business strategies in a changing environment. It addresses optimization of network functionality including resilience, modularity, security, virtualization, management, and topology design.

#### RATIONALE

Network Architecture and Design is the final course in the network design and security cognate. Networks become challenging to manage as they grow in size and complexity. Focal to the course is advanced network design and management, including flexibility, scalability, availability, security, convergence, and optimization.

#### 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. Relate network management strategies to Christian principles. (PLO-1)

B. Customize network designs to support business needs and workflows. (PLO-2)

C. Design networks for security, resilience, redundancy, and modularity. (PLO-3)

D. Contrast network models and topologies. (PLO-3)

E. Select appropriate routing protocols. (PLO-2)

## V. COURSE REQUIREMENTS AND ASSIGNMENTS

A. Textbook readings and lecture presentations/notes

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 (3)

Discussion boards are collaborative learning experiences. Therefore, the student is required to provide a thread in response to the provided prompt for each forum. Each thread must be at least 500 words and demonstrate course-related knowledge with at least 2 citations. In addition to the thread, the student is required to reply to 3 other classmates' threads. Each reply must be at least 200 words and contain at least 1 citation. Current APA format must be used.

D. Networking Labs (3)

The student will complete skill integration challenges using Packet Tracer. A Packet Tracer simulation file and a Microsoft Word document with screenshots showing student progress will both need to be submitted for each lab.

E. Thesis Project (Phase 1 and Phase 2)

There will be 2 phases of this assignment. In preparation for the capstone course, the student will begin the process of researching and writing his/her thesis. Phase 1 must contain at least 2,150 words and 19 citations. Phase 2 must contain at least 3,000 words and 28 citations. Reference the grading rubrics for specific breakdown of criteria and points. Current APA format must be used.

F. Network Design Project (Phase 1 and Phase 2)

There will be 2 phases of this assignment. Both phases of this project will align with the Cisco PPDIOO network lifecycle. Phase 1 of the project will address the Prepare, Plan, and Design phases of PPDIOO. Phase 2 of the project will address the Design, Implement, Operate, and Optimize phases of the Cisco PPDIOO network lifecycle. Phase 1 must contain at least 2,750 words and 20 citations. Phase 2 must contain at least 1,250 words and 17 citations. The student must reference the grading rubrics for specific breakdown of criteria and points. Current APA format must be used.

## VI. COURSE GRADING AND POLICIES

A. Points

| | | |
|---|---|---|
| Course Requirements Checklist | | 10 |
| Discussion Board Forums (3 at 50 pts ea) | | 150 |
| Networking Labs (2 at 25 pts ea, 1 at 50 pts) | | 100 |
| Thesis Project | | |
| Phase 1 | | 150 |
| Phase 2 | | 200 |
| Network Design Project | | |
| Phase 1 | | 200 |
| Phase 2 | | 200 |
| | **Total** | 1010 |

B. Scale

A = 940–1010 A- = 920–939 B+ = 900–919 B = 860–899 B- = 840–859
C+ = 820–839 C = 780–819 C- = 760–779 F = 0–759

C. 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.

# *COURSE SCHEDULE*

## CSIS 651

Textbooks: Bruno & Jordan, *CCDA 200–310 Official Cert Guide* (2016).
Cisco, *Connecting Networks Companion Guide* (2014).
Joyner et al., *Writing the Winning Thesis or Dissertation* (2018).

| MODULE/ WEEK | READING & STUDY | ASSIGNMENTS | POINTS |
|---|---|---|---|
| **1** | Cisco: chs. 1–2<br>Joyner et al.: chs. 5–7<br>1 presentation | Course Requirements Checklist<br>Class Introductions<br>DB Forum 1<br>Networking Lab 1 | 10<br>0<br>50<br>25 |
| **2** | Cisco: chs. 3–4<br>Joyner et al.: chs. 17–19<br>1 presentation | DB Forum 2<br>Networking Lab 2 | 50<br>25 |
| **3** | Joyner et al.: chs. 17–19 (review)<br>1 presentation | Thesis Project: Phase 1 | 150 |
| **4** | Cisco: chs. 5, 8–9<br>1 presentation | Networking Lab 3 | 50 |
| **5** | Joyner et al.: chs. 17–19 (review)<br>1 presentation | Thesis Project: Phase 2 | 200 |
| **6** | Bruno & Jordan: chs. 6–7<br>1 presentation | Network Design Project: Phase 1 | 200 |
| **7** | Bruno & Jordan: chs. 10–12<br>Genesis 11<br>Matthew 28<br>1 presentation | DB Forum 3 | 50 |
| **8** | Bruno & Jordan: chs. 13–15<br>1 presentation | Network Design Project: Phase 2 | 200 |
| | | **TOTAL** | **1010** |

DB = Discussion Board

**NOTE**: Module/Week one through seven begin on Monday and ends at 11:59 p.m. (ET) on Sunday. Modules/Week 8 begins on Monday and ends at 11:59 p.m. (ET) on Friday.