

JEFFERSON COLLEGE
COURSE SYLLABUS

CIS247
NETWORKING II

4 Credit Hours

Revised by:
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CIS247 Networking II

I. CATALOGUE DESCRIPTION

- A. Pre-requisites: Reading Proficiency; CIS147 Networking I with a Grade of “C” or Better
- B. 4 Credit Hours
- C. Networking II teaches advanced concepts in computer networking. Activities include building, troubleshooting, and correcting a complex LAN. The course will focus on concepts and operations of routers and routing. (F)

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

Describe and select various networking devices and protocols used in the operation of IP Data Networks	Quizzes Exams Hands-On Exercises
Configure and verify functionality of LAN switching technologies	Quizzes Exams Hands-On Exercises
Describe the appropriate IPv4 and IPv6 addressing schemes and technical requirements	Quizzes Exams Hands-On Exercises
Configure and verify basic routing concepts, including basic router configuration, OSPF, and inter-VLAN routing	Quizzes Exams Hands-On Exercises
Configure and verify various IP services, including DHCP, ACLs, and NAT	Quizzes Exams Hands-On Exercises
Configure and verify network device security	Quizzes Exams Hands-On Exercises
Troubleshoot and resolve various network switching and routing problems	Quizzes Exams Hands-On Exercises

III. OUTLINE OF TOPICS

- A. Introduction to Routing and Packet Forwarding
 - 1. Inside the router
 - 2. CLI configuration and addressing
 - 3. Building a routing table
 - 4. Path determination and switching functions

- B. Static Routing
 - 1. Router configuration
 - 2. Configuring static routing
 - 3. Managing and troubleshooting static routes

- C. Introduction to Dynamic Routing Protocols
 - 1. Classifying dynamic routing protocols
 - 2. Dynamic routing protocol metrics
 - 3. Administrative distance

- D. Distance Vector Routing Protocols
 - 1. Network discovery
 - 2. Routing table maintenance
 - 3. Routing loops

- E. RIP Version I
 - 1. Basic RIPv1 configuration
 - 2. Verification and troubleshooting RIPv1
 - 3. Automatic summarization

- F. VLSM and CIDR
 - 1. Classful and classless addressing
 - 2. VLSM
 - 3. CIDR

- G. RIP Version 2
 - 1. RIPv1 limitations
 - 2. Configuring RIPv2
 - 3. Verifying and troubleshooting RIPv2

- H. The Routing Table: A Closer Look
 - 1. The routing table structure
 - 2. Routing table lookup process
 - 3. Routing behavior

- I. EIGRP
 - 1. Basic EIGRP configuration
 - 2. EIGRP metric calculation
 - 3. DUAL
 - 4. Fine-tuning EIGRP

- J. Link-State Routing Protocols
 - 1. Link state routing
 - 2. Implementing link state routing

- K. OSPF
 - 1. Basic OSPF configuration
 - 2. The OSPF metric
 - 3. OSPF and multi-access networks

IV. METHOD(S) OF INSTRUCTION

- A. Lectures
- B. Discussion
- C. Hands-On Activities

V. REQUIRED TEXTBOOK(S)

- A. Graziani, *Routing Protocols Etc.*, Pearson, (current edition)
- B. Johnson, *Routing Protocols Etc. Lab/Study Guide*, Pearson, (current edition)

VI. REQUIRED MATERIALS

USB Removable Storage Device (Flash Drive)

VII. SUPPLEMENTAL REFERENCES

None

VIII. METHOD OF EVALUATION

- | | | |
|----|--------------------|-----|
| A. | Hands-On Exercises | 40% |
| B. | Quizzes | 20% |
| C. | Exams | 40% |

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Technology Center 101; phone 636-481-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website, <http://www.jeffco.edu>).

XI. ATTENDANCE STATEMENT

Students who attend class regularly and punctually do themselves a service and show instructors and other class members a courtesy. Students are not entitled to a certain number of absences. Information presented in the classroom is critical in the learning process. An instructor may consider excessive tardiness as absences in determining if a student may remain in the class. If a student misses more than 15 percent of the total time (including lecture and laboratory) that the class meets in a semester, the student may be prohibited from attending the class by the instructor. In such cases, the student must officially withdraw from the course, by the designated withdrawal date, in order to reduce the possibility of receiving an "F" for the course. At the beginning of the semester, the instructor will notify his or her students of the attendance and punctuality requirements for the class. Failure to attend class does not constitute an official withdrawal.

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.