

1. **COURSE TITLE\*:** CISCO Routing and Switching Essentials
2. **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*:** CSCI 2236
3. **PREREQUISITE(S)\*:** CSCI 2233                      **COREQUISITE(S)\*:** None
4. **COURSE TIME/LOCATION:** (Course Syllabus – Individual Instructor Specific)
5. **CREDIT HOURS\*:** 3                                      **LECTURE HOURS\*:** 3  
**LABORATORY HOURS\*:** (contact hours)              **OBSERVATION HOURS\*:**
6. **FACULTY CONTACT INFORMATION:** (Course Syllabus – Individual Instructor Specific)
7. **COURSE DESCRIPTION\*:**

Describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.

8. **LEARNING OBJECTIVES\*:**
  1. Understand and describe basic switching concepts and the operation of Cisco switches
  2. Understand and describe the purpose, nature, and operations of a router, routing tables, and the route lookup process
  3. Understand and describe how VLANs create logically separate networks and how routing occurs between them
  4. Understand and describe dynamic routing protocols, distance vector routing protocols, and link-state routing protocols
  5. Configure and troubleshoot static routing and default routing (RIP and RIPv6)
  6. Configure and troubleshoot an Open Shortest Path First (OSPF) network
  7. Understand, configure, and troubleshoot access control lists (ACLs) for IPv4 and IPv6 networks
  8. Understand, configure, and troubleshoot Dynamic Host Configuration Protocol (DHCP) for IPv4 and IPv6 networks
  9. Understand, configure, and troubleshoot Network Address Translation (NAT) operations

**9. ADOPTED TEXT(S)\*:**

No textbook required

**9a: SUPPLEMENTAL TEXTS APPROVED BY FULL TIME DEPARTMENTAL FACULTY (INSTRUCTOR MUST NOTIFY THE BOOKSTORE BEFORE THE TEXTBOOK ORDERING DEADLINE DATE PRIOR TO ADOPTION) \*\*\*.**

**10. OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)\*\***

CISCO NetAcademy Access and CISCO Packet Tracer Software.

**11. GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

- A: 90 – 100
- B: 80 – 89
- C: 70 – 79
- D: 60 – 69
- F: 0 – 59

**12. GRADING PROCEDURES OR ASSESSMENTS:**

<i>Category</i>	<b><u>EXAMPLE ONLY</u></b> <i>Total Points</i>	<i>% of Grade</i>
Chapter Assignments (10x30)	300	30%
Quizzes (10x20)	200	20%
Unit Exams (3x100)	300	30%
Assignments (5x10)	50	5%
Annual Report Project (100)	100	10%
Attendance	50	5%
Total	1000	100%

**13. COURSE METHODOLOGY OR COURSE FORMAT:**

May include but not limited to: Lectures, independent and group projects, in-class and home assignments, tests, quizzes and lab exercises. This course must be offered on campus. Attendance is required.

**14. COURSE OUTLINE:**

Week	Topics	Chapters	Learning Objectives
1	Introduction	1	1
2	Basic Switching Concepts and Configuration	2	1
3	Basic Switching Concepts and Configuration	2	1
4	Virtual Local Area Network Segmentation and Implementation.	3	3
5	Virtual Local Area Network Segmentation and Implementation.	3	3
6	Routing Concepts and Configuration	4	2
7	Inter-Virtual Local Area Network Routing.	5	3, 4
8	Mid-Term		1, 2, 3, 4
9	Static Routing.	6	5
10	Routing Dynamically.	7	5
11	Single-Area Open Shortest Path First.	8	6
12	Access Control Lists.	9	7
13	Dynamic Host Control Protocol.	10	8
14	Network Address Translation for IPv4.	11	9
15	Final Exam Review		
16	Final Exam		1,2,3,4,5,6,7,8,9

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

**16. FERPA \*:** Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**17. ACCOMMODATIONS: \***

Students requesting accommodations may contact Ryan Hall, Accessibility Coordinator at [rhall21@sscc.edu](mailto:rhall21@sscc.edu) or 937-393-3431, X 2604.

Students seeking a religious accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor and the Academic Affairs office with written notice of the specific dates for which the student requires an accommodation and must do so no later than fourteen (14) days after the first day of instruction or fourteen (14) days before the dates of absence, whichever comes first. For more information about Religious Accommodations, contact Ryan Hall, Accessibility Coordinator at [rhall21@sscc.edu](mailto:rhall21@sscc.edu) or 937-393-3431 X 2604.

**18. OTHER INFORMATION\*\*\*:**

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**SYLLABUS TEMPLATE KEY**

\* Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

\*\* Any alteration or addition must be approved by the Curriculum Committee

\*\*\* Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.