Wharton County Junior College

Administrative - Master Syllabus
COVER SHEET

Purpose*: It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.*

Course Title - Routing and Switching Essentials (CISCO 2)
Course Prefix and Number – ITCC 1476
Department – Computer Science **Division** – Technology & Business
Course Type: (check one)
☐ Academic General Education Course (from ACGM – but not in WCJC Core)
☐ Academic WCJC Core Course
☒ WECM course (This course is a Special Topics or Unique Needs Course: Y☒ or N☐)

Semester Credit Hours #: Lecture Hours #: Lab/Other Hours #: 4:3:3

List Lab/ Other Hours
Lab Hours 3
Clinical Hours 0
Practicum Hours 0
Other (list) 0

Equated Pay hours for course – 4.5

This course 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.

Typically offered spring semester

Prerequisites/Co-requisites – C or better in ITCC 1475

Prepared by: Donna Schilling ***Date:*** 07-19-2015

Reviewed by Department Head: Donna Schilling ***Date:*** 07-19-2015

Accuracy verified by Division Chair: David Kucera ***Date:*** 8/12/15

Approved by Dean or Vice President of Instruction: Leigh Ann Collins ***Date:*** 3-4-16

I. Topical Outline – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

Introduction to Switched Networks
Basic Switching Concepts and Configuration
Implementing VLAN Security
Routing Concepts
Inter-VLAN Routing
Static Routing
Routing Dynamically
Single-Area OSPF
Access Control Lists
DHCP
Network Address Translation for IPv4

II. Course Learning Outcomes

Learning Outcomes **Upon successful completion of this course, students will:**	**Methods of Assessment** All outcomes will be assessed by one or more of the following:
1. Understand and describe basic switching concepts and the operation of Cisco switches. 2. Understand and describe enhanced switching technologies such as VLANs, VLAN Trunking Protocol (VTP), Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Protocol (PVSTP), and 802.1q. 3. Configure and troubleshoot basic operations of a small switched network. 4. Understand and describe the purpose, nature, and operations of a router, routing tables, and the route lookup process. 5. Understand and describe how VLANs create logically separate networks and how routing occurs between them. 6. Configure and troubleshoot basic operations of routers in a small routed network: A. Routing Information Protocol (RIPv1 and RIPv2) B. Open Shortest Path First (OSPF) protocol (single-area OSPF) 7. Configure and troubleshoot VLANs and inter-VLAN routing. 8. Understand and describe the purpose and types of access control lists (ACLs). 9. Configure, monitor, and troubleshoot ACLs for IPv4 and IPv6. 10. Understand and describe the operations and benefits of Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) for IPv4 and IPv6. 11. Understand and describe the operations and benefits of	Individual Projects Tests and Quizzes Lab Assignments Final Exam Skills Exam

Network Address Translation (NAT). 12. Configure and troubleshoot NAT operations. 13. Configure and verify static routing and default routing.	

III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

- CCNA Portable Command Guide Third Edition by Empson ISBN-9781587204302 eBook: 9780133381368
- USB Flash Drive
- High-speed Internet Connection

IV. Suggested Course Maximum - 18

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.

Computer for each student, Cisco routers, switches, wireless routers, fiber cable tester, Ethernet cable testers

VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course

Course Requirements

Comprehensive Skills Exam	20-25%
Comprehensive Final Exam	20-25%
Labs/Homework	25-30%
Chapter Tests	20-25%
Attendance/Participation	0-15%

Grading System –

100 -90	= A
89 - 80	= B
79 - 70	= C
69 - 60	= D
and below	= F

VII. Curriculum Checklist

☐ - **Academic General Education Course** (from ACGM – but not in WCJC Core)
No additional documentation needed

☐ - **Academic WCJC Core Course**
Attach the Core Curriculum Checklist, including the following:
- Basic Intellectual Competencies
- Perspectives
- Exemplary Educational Objectives

☒ - **WECM Courses**
If needed, revise the Program SCANS Matrix & Competencies Checklist.