**Course Title** – Cisco Exploration – Networking Fundamentals  
**Course Prefix and Number** – ITCC 1401  
**Department** - Computer Science  
**Division** - Tech & Bus

**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  
**Equate Pay hours for course –** 4.5

**Course Catalog Description** – Introduces the architecture, structure, functions, components, and models of the internet. Describes the use of OSI and TCP layered models to examine the nature and roles of protocols and services at the applications, network, data link, and physical layers. Covers the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations. Build simple LAN topologies by applying basic principles of cabling; perform basic configurations of network devices, including routers and switches; and implementing IP addressing schemes.

**Prerequisites/Corequisites** - ITSC 1325 and ITSC 1305 Recommended

**Approvals – the contents of this document have been reviewed and are found to be accurate.**

<table>
<thead>
<tr>
<th>Prepared by Donna Schilling</th>
<th>Signature</th>
<th>Date 11/23/2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Head Stephanie Dees</td>
<td>Signature</td>
<td>Date 11/23/2009</td>
</tr>
<tr>
<td>Division Chair Stephanie Dees</td>
<td>Signature</td>
<td>Date 11/23/2009</td>
</tr>
<tr>
<td>Vice President of Instruction or Dean of Vocational Instruction</td>
<td>Signature</td>
<td>Date 12-1-09</td>
</tr>
</tbody>
</table>

**List Lab/Other Hours**  
- Lab Hours 3  
- Clinical Hours  
- Practicum Hours  
- Other (list)
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):

- Explain the importance of data networks and the Internet in supporting business communications and everyday activities
- Explain how communication works in data networks and the Internet
- Recognize the devices and services that are used to support communications across an Internetwork
- Use network protocol models to explain the layers of communications in data networks
- Explain the role of protocols in data networks
- Describe the importance of addressing and naming schemes at various layers of data networks
- Describe the protocols and services provided by the Application layer in the OSI and TCP/IP models and describe how this layer operates in various networks
- Analyze the operations and features of the Transport layer protocols and services
- Analyze the operations and feature of the Network layer protocols and services and explain the fundamental concepts of routing
- Design, calculate, and apply subnet masks and addresses to fulfill given requirements
- Describe the operation of protocols at the OSI Data link layer and explain how they support communications
- Explain the role of Physical layer protocols and services in supporting communications across data networks
- Explain fundamental Ethernet concepts such as media, services, and operation
- Employ basic cabling and network designs to connect devices in accordance with stated objectives
- Build a simple Ethernet network using routers and switches
- Use Cisco command-line interface (CLI) commands to perform basic router and switch configuration and verification
- Analyze the operations and features of common Application layer protocols such as HTTP, Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP), Simple Mail Transfer Protocol (SMTP), Telnet, and FTP
- Utilize common network utilities to verify small network operations and analyze data traffic
II. Course Learning Outcomes

<table>
<thead>
<tr>
<th>Course Learning Outcome</th>
<th>Method of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe and identify a physical network interconnection structure</td>
<td>Skills Final; 70% of students will achieve a C or higher; grading is based on scoring rubric</td>
</tr>
</tbody>
</table>

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


IV. Suggested Course Maximum - 20

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

One computer per student running a Windows client operating system and network cable construction and testing equipment.

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.

Module Tests, Lab Assignments, Homework Assignments, Group Case Study, Comprehensive Final Exam and Comprehensive Skills Exam  
Skill Exams 25%  
Labs/Homework 30%  
Chapter Tests 20%  
Final Test 25%

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.