

# Telecommunications Systems Technology (TEL)

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## Courses

### TEL-107. Computers and Data Networks. 3 Credits.

LECT 30 hrs LAB 30 hrs

This course introduces basic networking principles focusing on network terminology and protocols. Ethernet, Internet Protocol addressing/subnetting and network topologies will be explored. The laboratory component will cover topics on computer setup, network setup and integration and operating system utilities. Local area networks (LANs), wide area networks (WANs) and wireless local area networks (WLANs) will be used in the labs.

**Prerequisites:** CMP-130

**Additional Fees:** Course fee applies.

### TEL-110. Routing I. 3 Credits.

LECT 30 hrs LAB 30 hrs

The course introduces basic routing principles in a network environment, supplemented with industry-standard labs, such as those provided by CISCO. Lecture and laboratory assignments are an integral part of the course. The course focuses on network terminology and protocols, local area networks (LANs), wide area networks (WANs), Open System Interconnection (OSI) networking model, cabling, cabling tools, routers, router programming, Ethernet, Internet Protocol addressing/subnetting and network standards.

**Prerequisites:** TEL-107

**Additional Fees:** Course fee applies.

### TEL-120. Routing II (CISCO). 3 Credits.

LECT 30 hrs LAB 45 hrs

The course follows CISCO's CCNA2 curriculum for Routers and Routing Basics. The course focuses on initial router configuration, CISCO IOS software management, routing protocol configuration, TCP/IP and access control lists (ACLs). Through lectures and laboratory assignments, students develop the skills to configure and maintain a router as well as the creation of software firewalls.

**Prerequisites:** TEL-110

**Additional Fees:** Course fee applies.

### TEL-220. Routing III (CISCO CCNA3 & CCNA4). 4 Credits.

LECT 45 hrs LAB 45 hrs

This course follows CISCO's CCNA3 curriculum for Switching and Intermediate Routing and CISCO's CCNA4 curriculum for WAN Technologies. The first half of the course focuses on advanced IP addressing techniques (Variable Length Subnet Masking (VLSM), intermediate routing protocols (RIP v2, single-area OSPF, EIGRP), command-line interface configuration of switches, Ethernet switches, Virtual LANs (VLANs), Spanning Tree Protocol (STP) and VLAN Trunking Protocol (VTP). The second half of the course focuses on advanced IP addressing techniques (Network Address Translation (NAT), Port Address Translation (PAT), and (DHCP), WAN terminology and technology, PPP, ISDN, DDR, Frame Relay, network management and an introduction to optical networking. Preparation is also given to the study of CISCO's CCNA certification examination. Students learn through lecture and laboratory assignments.

**Prerequisites:** TEL-120

**Additional Fees:** Course fee applies.

### TEL-233. Network Operating Systems. 3 Credits.

LECT 45 hrs LAB 15 hrs

This course introduces various network fundamentals and multiuser network operating systems, and it focuses on the functions of a network operating system so the student can effectively maintain and manage a network. Topics of study include how to establish and oversee the operations of a network, create logins, design and establish directory structures, implement security and troubleshoot the network.

**Prerequisites:** CMP-255

**Additional Fees:** Course fee applies.

### TEL-290. Independent Study in Telecommunications Systems Technology. 3 Credits.

LECT 45 hrs

Students, in consultation with a Telecommunications Technology advisor, undertake an in-depth analysis of a selected topic, problem or issue related to the telecommunications industry or pursue additional related work experience. Students are responsible for developing a statement of goals and strategies, maintaining a weekly log and preparing a written and oral summary report. Written permission must be obtained from the department before registering for this course.

**Prerequisites:** Permission of department chair.