UNIVERSITY COLLEGE of the FRASER VALLEY

PAC FORM #2

COURSE IMPLEMENTATION DATE: [?]
COURSE REVISED IMPLEMENTATION DATE: [January 2007]
COURSE TO BE REVIEWED: [December 2010]
(Four years after implementation date)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT: **Computer Information Systems**

CIS 390		**3**
	FORMER COURSE NUMBER	UCFV CREDITS

Data Communications
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

Students will become familiar with the ideas, methods and standards being used for the electronic exchange of data, as well as a discussion of interfaces. Included will be discussions on the OSI reference model, commonly used protocols, data communication equipment, network topologies (international, national, provincial, local), network design and tradeoffs, routing protocols, performance analysis and modeling, and network and data security. Students will consider case studies of different performance measures and management requirements, so that they can effectively analyze data communication alternatives for a business problem.

PREREQUISITES: CIS 291 or CIS 295; and MATH 106, or MATH 104 with a grade of B+ or better, or CYC 425, or PSYC 110 with a grade of B+ or better. Acceptance to CIS degree program. (Students accepted to a CIS or Computing Science minor may register with permission of the department.)

COREQUISITES:

SYNONYMOUS COURSE(S)
(a) Replaces: _____ *(Course #)*
(b) Cannot take: _____ *(Course #)* For further credit.

SERVICE COURSE TO: _____ *(Department/Program)* _____ *(Department/Program)*

TOTAL HOURS PER TERM: **45**

STRUCTURE OF HOURS

Lectures:	**45**	Hrs
Seminar:		Hrs
Laboratory:		Hrs
Field Experience:		Hrs
Student Directed Learning:		Hrs
Other (Specify):		Hrs

TRAINING DAY-BASED INSTRUCTION
LENGTH OF COURSE: _____
HOURS PER DAY: _____

MAXIMUM ENROLLMENT: **35**
EXPECTED FREQUENCY OF COURSE OFFERINGS: **Once per year**
WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) ☐ Yes ☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) ☐ Yes ■ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: ☐ Yes ■ No

AUTHORIZATION SIGNATURES:

Course Designer(s): **Edward Lo** Chairperson: _____ *(Curriculum Committee)*

Department Head: **Paul Franklin** Dean: **Karen Evans**

PAC Approval in Principle Date: _____ PAC Final Approval Date: Dec. 13, 2006

CIS 390
COURSE NAME/NUMBER

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

After successful completion of CIS390, students should:

1. Understand and describe the data network control protocols.
2. Define and explain the techniques of flow control and error control.
3. Understand and describe the principles of circuit-switching and packet-switching networks.
4. Understand and explain various routing protocols and strategies.
5. Understand the concepts of congestion control.
6. Design and analyze Frame Relay networks.
7. Understand and explain ATM networks.
8. Design and analyze Local Area Networks.
9. Understand and explain network security and encryption techniques.

METHODS:

Lecture with hands-on lab exercises in class.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):
Credit can be awarded for this course through PLAR ■ Yes ☐ No

METHODS OF OBTAINING PLAR:

Course challenge with departmental approval

TEXTBOOKS, REFERENCES, MATERIALS:
[Textbook selection varies by instructor. An example of texts for this course might be:]

Data and Computer Communications, 8th Edition, William Stallings, Pearson Prentice Hall, Inc., 2007.

SUPPLIES / MATERIALS:

STUDENT EVALUATION:
[An example of student evaluation for this course might be:]

Component	Percentage
Participation	5%
Assignments	15%
Project & lab	10%
Midterm exam	25%
Final exam	45%
Total	100%

COURSE CONTENT:
[Course content varies by instructor. An example of course content might be:]

1. Introduction and overview - OSI Reference Model, TCP/IP protocols
2. Data Link Control - Principles of Flow Control, Principles of Error Control, High-Level Data Link Control, Other Data Link Control Protocols
3. Wide Area Networks - circuit-switching networks, switching networks, Routing in circuit-switched Networks
4. Packet Switching - Principles of packet-switching, Routing in Packet-switching, Congestion Control, X.25
5. Frame Relay - Principles of Frame Relay Protocol Architecture, Congestion Control of Frame Relay
6. ATM (Asynchronous Transfer Mode) - Principles of ATM protocol Architecture - ATM Cell Structure, Transmission of ATM cells, ATM Traffic and Congestion Control
7. LAN (Local Area Networks) - LAN architecture, Bus/Tree LANs, Ring LANs, Star LANs, Wireless LANs
8. LAN Systems - Design of Ethernet Networks, Design of Token Ring Networks, Design of ATM Networks
9. Internetworking - Principles of Bridge Operations, Routing with Bridges, Principles of Switch Operations
10. Network Security - Security Requirements and Attacks, Conventional Encryption and Decryption, Public-Key Encryption