



Los Angeles Community College District

COURSE OUTLINE

(Replaces PNCR and Course Outline)

Section I: BASIC COURSE INFORMATION

OUTLINE STATUS: New Course, Degree Applicable, 2006-2007
(Addition of Existing Course)

1. COLLEGE: Southwest

2. SUBJECT (DISCIPLINE) NAME: Computer Science
(40 characters, no abbreviations)

3. COURSE NUMBER: 681

4. COURSE TITLE: Computer Networking I

5. UNITS: 4

6. CATALOG COURSE DESCRIPTION -- Provide a description of the course, including an overview of the topics covered:

This course focuses on the following: network terminology and protocols, Local Area Networks (LANs) & Wide Area Networks (WANs), Open System Interconnection (OSI) & TCP/IP networking models, cabling, cabling tools, routers and router programming, Ethernet, Internet Protocols (TCP/IP), IP addressing and networking standards.

7. CLASS SCHEDULE COURSE DESCRIPTION -- Provide a brief description of the course, including an overview of the topics covered:

This course covers the basic concepts of computer networking including Local Area Networks (LANs) & Wide Area Networks (WANs). Basic network media such as wireless, copper and fiberoptic cabling, and cabling tools are included.

8. INITIAL COURSE COLLEGE APPROVAL DATE, Curriculum Committee: 3/20/2007
COLLEGE OUTLINE APPROVAL DATE: 3/20/2007
COLLEGE APPROVAL DATE, Academic Senate: 4/10/2007

9. UPDATES, IF PREVIOUSLY EXISTING: (check all applicable boxes): NA/New Course

- Content Last Update:
Objectives Last Update:
College Specific Course Attributes/Data Elements Last Update:
Districtwide Course Attributes/Data Elements Last Update:
Other (describe) Last Update:

[Empty box for additional information]

1 Underlined course attributes are the same for the course throughout the LACCD; all other course attributes are college specific.

**10. CLASS HOURS:**

	"Standard Hours" per Week (based on 18 weeks)	Total Hours per Term (hrs per week x 18)	Units
Lecture:	3	54	3
Lab/activity (w/ homework):			
Lab/activity (w/o homework):	3	54	1
<b>Total:</b>	<b>6</b>	<b>108</b>	<b>4</b>

**Note:** The Carnegie Rule and Title 5, section 55002 sets forth the following minimum standards: 1 unit = 1 hour lecture per week, 2 hours homework per week; **OR** 2 hours per week of lab with homework; **OR** 3 hours of lab per week without homework. The hours per week are based on a standard 18-week calendar. Lecture also includes discussion and/or demonstration hours, laboratory includes activity and/or studio hours.

**11. PREREQUISITES, COREQUISITES, ADVISORIES ON RECOMMENDED PREPARATION, and LIMITATION ON ENROLLMENT**

**Note:** The LACCD's *Policy on Prerequisites, Corequisites and Advisories* requires that the curriculum committee take a separate action verifying that a course's prerequisite, corequisite or advisory is an "appropriate and rational measure of a student's readiness to enter the course or program" and that the prerequisite, corequisite or advisory meets the level of scrutiny delineated in the policy.

Prerequisites: **Yes** (If Yes, complete information below)

**or**

Subject	Number	Course Title	Units	Validation Approval Date (official use only)
Computer Science	601	Introduction to Computers and Their Uses	3	3/20/2007
Electronics	112	Computer Servicing Technology	4	3/20/2007

Corequisite: **None** (If Yes, complete information below)

Subject	Number	Course Title	Units	Validation Approval Date (official use only)

Advisories: **None** (If Yes, complete information below)

Subject	Number	Course Title	Units	Validation Approval Date (official use only)

**12. REPETITIONS --** Number of times course may be repeated for credit (three maximum): (see: Section V, #9) **0 None**

**13. OTHER LIMITATIONS ON ENROLLMENT** (see Title 5, Section 58106 and Board Rule 6803 for policy on allowable limitations. Other appropriate statutory or regulatory requirements may also apply):

Enrollment is limited by the number of workstations available; as of March 2007, 30 workstations are available.

**Section II: COURSE CONTENT AND OBJECTIVES****1. COURSE CONTENT AND OBJECTIVES:**

COURSE CONTENT AND SCOPE – <b>Lecture:</b> If applicable, <b>outline</b> the topics included in the lecture portion of the course ( <b>outline reflects course description, all topics covered in class</b> ).	Hours per topic	COURSE OBJECTIVES - <b>Lecture</b> (If applicable): Upon successful completion of this course, the student will be able to... (Use action verbs – see Bloom's Taxonomy below for "action verbs requiring cognitive outcomes.")
1. Introduction to Networking a. Enterprise Networks and Home Internet b. TCP/IP Protocol Suite and TCP/IP Software	3	1. Describe the physical connections needed for a computer to connect to the Internet
2. Networking Fundamentals a. Networking Terminology b. Ethernet Repeaters, Hubs, Bridges c. Bandwidth and networking (OSI)	3	2. Review Networking Terminology, Ethernet, significance of bandwidth, and networking models such as OSI
3. Networking Media a. Circuits b. Copper Cabling c. Wireless Media	3	3. Define voltage, resistance, impedance, and current in electronics circuits and their effect on different types of cable media
4. Cable Testing a. Frequency-Based Cable Testing b. Signal and Noise	6	4. Name TCP/IP protocols as they relate to network devices like routers and switches
5. Cabling LANs and WANs a. Wireless Communications and Access Points b. Router Serial Interface c. Cable, DSL, and ISDN	6	5. Explain the functions, advantages and disadvantages of repeaters, hubs, bridges, routers, switches, and wireless network components
6. Ethernet Fundamentals a. CSMA/CD and Collisions on 10BASE-T LANs with Hubs b. Preventing Collisions with Switch Buffering c. Collision Domains and Full Duplex	6	6. Describe and differentiate between serial, ISDN, DSL, and cable modem WAN connections
7. Ethernet Technologies a. 10- and 100 Mbps Ethernet b. Gigabit Ethernet and Beyond	3	7. Define collisions, broadcast, collision domains and broadcast domains, and segmentation of a network
8. Ethernet Switching a. Layer 2 Bridging and Switching Operations b. Spanning Tree Protocol c. LAN Design: Collision Domains and Broadcast Domains	3	8. Explain the difference between public and private addressing, use of static and dynamic addressing for a device; configure the computer for a reserved IP address; assign dynamic addresses using (Routing) RARP and DHCP.
9. TCP/IP Protocol Suite and IP Addressing a. IP Addressing Fundamentals b. Static vs. Dynamic Addresses c. Public, Private and Reserve IP Addresses d. Dynamic IP Addresses	6	<b>SLOs:</b> As a result of this learning experience, the student can: 1. Recall the major subsystems and components of a computer
10. Routing Fundamentals and Subnets	6	2. Explain bandwidth & Throughput; OSI & TCP/IP models of networking; define LAN, WAN, MAN, SAN, VPN, and equipment configuration used in each 3. Sketch cabling layout for LANs and WANs

<ul style="list-style-type: none"> <li>a. IP Routing (Forwarding)</li> <li>b. Routing Protocols</li> <li>c. Interior and Exterior Routing Protocols</li> </ul>		
11. TCP/IP Transport and Application Layers <ul style="list-style-type: none"> <li>a. Flow Control and Windowing</li> <li>b. Application Protocols Used by End Users</li> </ul>	3	
12. Review for Testing of Lab Skills, Final Exam	6	
13. Cisco Semester 1 Exam		
<b>Total Lecture hours*</b>		<b>54</b>

COURSE CONTENT AND SCOPE -- <b>Laboratory:</b> If applicable, <b>outline</b> the topics included in the laboratory portion of the course ( <i>outline reflects course description, all topics covered in class</i> ).	Hours per Topic	COURSE OBJECTIVES - <b>Laboratory</b> (If applicable): Upon successful completion of this course, the student will be able to... (Use action verbs – see Bloom’s Taxonomy below for “action verbs requiring cognitive outcomes.”) <sup>2</sup>
1. Introduction to Networking <ul style="list-style-type: none"> <li>a. Enterprise Networks and Home Internet</li> <li>b. TCP/IP Protocol Suite and TCP/IP Software</li> </ul>	3	<ol style="list-style-type: none"> <li>1. Configure a computer to connect to the Internet</li> <li>2. Use various tools to monitor and troubleshoot issues related to electrical properties of the cables</li> <li>3. Identify different cable types used as network media and list the major network devices</li> <li>4. Name the seven layers of an OSI model and relate network devices to each layer</li> <li>5. Define IP addressing and explain the importance of unique IP addresses</li> <li>6. Introduce a variety of network components and find prices using Web sites such as <a href="http://www.cisco.com">http://www.cisco.com</a>, local sources and catalogs</li> </ol> <p><b>SLOs:</b> As a result of this learning experience, the student can:</p> <ol style="list-style-type: none"> <li>1. Identify the components of a PC system and how it is connected to the Internet</li> <li>2. differentiate among a hub, a switch, and a router</li> <li>3. Assemble a straight through, rollover and crossover cables</li> <li>4. Design a simple campus LAN</li> </ol>
2. Networking Fundamentals <ul style="list-style-type: none"> <li>a. Networking Terminology</li> <li>b. Ethernet Repeaters, Hubs, Bridges</li> <li>c. Bandwidth and networking (OSI)</li> <li>d. Network Components</li> </ul>	3	
3. Networking Media <ul style="list-style-type: none"> <li>a. Circuits</li> <li>b. Copper Cabling</li> <li>c. Wireless Media</li> </ul>	3	
4. Cable Testing <ul style="list-style-type: none"> <li>a. Frequency-Based Cable Testing</li> <li>b. Signal and Noise</li> <li>c. Troubleshooting Tools</li> </ul>	6	
5. Cabling LANs and WANs <ul style="list-style-type: none"> <li>a. Wireless Communications and Access Points</li> <li>b. Router Serial Interface</li> <li>c. Cable, DSL, and ISDN</li> </ul>	6	
6. Ethernet Fundamentals <ul style="list-style-type: none"> <li>a. CSMA/CD and Collisions on 10BASE-T LANs with Hubs</li> <li>b. Preventing Collisions with Switch Buffering</li> </ul>	3	

<sup>2</sup> In general “activity” courses or portions of courses are classified “laboratory.”

c. Collision Domains and Full Duplex		
7. Ethernet Technologies	3	
a. 10- and 100 Mbps Ethernet		
b. Gigabit Ethernet and Beyond		
8. Ethernet Switching	6	
a. Layer 2 Bridging and Switching Operations		
b. Spanning Tree Protocol		
c. LAN Design: Collision Domains and Broadcast Domains		
9. TCP/IP Protocol Suite and IP Addressing	6	
a. IP Addressing Fundamentals		
b. Static vs. Dynamic Addresses		
c. Public, Private and Reserve IP Addresses		
d. Dynamic IP Addresses		
10. Routing Fundamentals and Subnets	6	
a. IP Routing (Forwarding)		
b. Routing Protocols		
c. Interior and Exterior Routing Protocols		
11. TCP/IP Transport and Application Layers	3	
a. Flow Control and Windowing		
b. Application Protocols Used by End Users		
12. Review for Testing of Lab Skills, Final Exam	6	
Cisco Semester 1 Exam		
<b>Total Lab hours*</b>	<b>54</b>	

\*Total lecture and laboratory hours (which include the final examination) must equal totals on page 1.

### Bloom's Taxonomy

SIMPLE SKILLS <<----->> COMPLEX SKILLS					
			Critical Thinking		
<u>Knowledge</u>	<u>Comprehension</u>	<u>Application</u>	<u>Analysis</u>	<u>Synthesis</u>	<u>Evaluation</u>
define	translate	interpret	distinguish	compose	judge
repeat	restate	apply	analyze	plan	appraise
record	discuss	employ	differentiate	propose	evaluate
list	describe	use	appraise	design	rate
recall	recognize	demonstrate	calculate	formulate	compare
name	explain	dramatize	experiment	arrange	value
relate	express	practice	test	assemble	revise
underline	identify	illustrate	compare	collect	score
	locate	operate	contrast	construct	select
	report	schedule	criticize	create	choose
	review	shop	diagram	set up	assess
	tell	sketch	inspect	organize	estimate
			debate	prepare	measure
			inventory		

			question relate solve examine categorize		
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**2. REQUIRED TEXTS:**

Provide a representative list of textbooks and other required reading; include author, title and date of publication:

*Networking Basics (CCNA 1 Companion Guide): Odom & Knott, Cisco Press 2006*

**3. SUPPLEMENTARY READINGS:**

Reading assignments may include, but are not limited to the following:

*CCNA 1 and 2 Lab Companion, J. Lorenz, Cisco Press, 3<sup>rd</sup> ed. 2006*

**4. WRITING ASSIGNMENTS:**

Title 5, section 55002 requires grades to be “based on demonstrated proficiency in subject matter and the ability to demonstrate that proficiency, at least in part, by means of essays or, in courses where the curriculum committee deems them to be appropriate, by problem solving exercises or skills demonstrations by students.” Writing assignments in this course may include, but are not limited to the following:

Sample assignments:

1. Summarize a module and answer questions from the Student Manual
2. Show the addressing scheme for a small area network.
3. Discuss the major differences between a LAN and a WAN.

**5. REPRESENTATIVE OUTSIDE ASSIGNMENTS:**

Out of class assignments may include, but are not limited to the following:

Sample assignments:

1. Create a portfolio out of the key concepts and lab exercises of all the modules
2. Summarize what is learned in each lab exercise on a weekly basis.
3. Pose a problem and a possible solution that might occur on a small local area network.

**6. REPRESENTATIVE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING:**

Title 5, section 55002(a) requires that a degree-applicable course have a level of rigor that includes “critical thinking and the understanding and application of concepts determined by the curriculum committee to be at college level”. Critical thinking may include, but is not limited to analysis, synthesis, and evaluation. Provide examples of assignments that demonstrate critical thinking.

Sample assignments:

1. Students will apply critical thinking and reading skills when they summarize the textbook modules.
2. They answer questions in the Student Manual.
3. They paper-design a small campus network and assign an IP address to each host, or node.

**7. METHODS OF EVALUATION:**

Title 5, section 55002 requires grades to be “based on demonstrated proficiency in subject matter and the ability to demonstrate that proficiency, at least in part, by means of essays, or, in courses where the curriculum committee deems

them to be appropriate, by problem solving exercises or skills demonstrations by students.” Methods of evaluation may include, but are not limited to the following (please note that evaluation should measure the outcomes detailed “Course Objectives” at the beginning of Section II):

*Weekly quizzes, monthly tests, assignments related to concepts and labwork, midterm and final exams*

#### 8. METHODS OF INSTRUCTION:

Methods of instruction may include, but are not limited to the following:

- Lecture
- Discussion
- Laboratory
- Activity
- Field Experience
- Independent Study
- Other (explain)

Web search for related subject matter

#### 9. SUPPLIES:

List the supplies the student must provide.

USB memory sticks (256 MB or more), Binder and folders, notebook, etc

#### 10. COMPUTER COMPETENCY:

If applicable, explain how computer competency is included in the course.

Basic computer Literacy will be demonstrated by booting up and launching an application software. Students will also work with application software.

#### 11. INFORMATION COMPETENCY:

Information competency is the ability to find, evaluate use, and communicate information in all its various formats. It combines aspects of library literacy, research methods and technological literacy. Information competency includes consideration of the ethical and legal implications and requires the application of both critical thinking and communications skills. If applicable, explain how information competency is included in the course.

Student will use critical thinking and reading to summarize textbook modules. Student will also be encouraged to use the library and other campus resources. Student will organize and maintain a profolio of work.

#### 12. DIVERSITY:

If applicable, explain how diversity (e.g., cultural, gender, etc.) is included in the course.

A variety of teaching methodologies are used in order to serve diversity needs; students of all cultures, genders, etc. will be served.

#### 13. SCANS COMPETENCIES (required for all courses with vocational TOP Codes; recommended for all courses):

SCANS (**S**ecretary's **C**ommission on **N**ecessary **S**kills) are skills the Department of Labor identified, in consultation with business and industry leaders, which reflect the skills necessary for success in the workplace. Check the appropriate boxes to indicate the areas where students will develop the following skills (please note that all SCANS competencies do not apply to all courses):

### RESOURCES

- Managing Time:** Selecting relevant goal-related activities, ranking them in order of importance, allocating time to activities, and understanding, preparing and following schedules.
- Managing Money:** Using or preparing budgets, including making cost and revenue forecasts; keeping detailed records to track budget performance, and making appropriate adjustments.
- Managing Material and Facility Resources:** Acquiring, storing, allocating, and distributing materials, supplies, parts, equipment, space or final products in order to make the best use of them.

### INTERPERSONAL

- Participating as Member of a Team:** Working cooperatively with others and contributing to group's efforts with ideas, suggestions and effort.
- Teaching Others New Skills:** Helping others learn needed knowledge and skills.
- Exercising Leadership:** Communicating thoughts, feelings, and ideas to justify a position, encouraging, persuading, convincing or otherwise motivating an individual or group, including responsibly challenging existing procedures, policies or authority.
- Negotiating:** Working toward agreement that may involve exchanging specific resources or resolving divergent interests.
- Working with Cultural Diversity:** Working well with men and women and with people from a variety of ethnic, social, or educational backgrounds.

### INFORMATION

- Acquiring and Evaluating Information:** Identifying a need for data, obtaining the data from existing sources or creating them, and evaluating their relevance and accuracy.
- Organizing and Maintaining Information:** Organizing, processing and maintaining written or computerized records and other forms of information in a systematic fashion.
- Interpreting and Communicating Information:** Selecting and analyzing information and communicating the results of others, using oral, written, graphic, pictorial, or multimedia methods.
- Using Computers to Process Information:** Employing computers to acquire, organize, analyze and communicate information.

### SYSTEMS

- Understanding Systems:** Knowing how social, organizational and technological systems work and operating effectively with them.
- Monitoring and Correcting Performance:** Distinguishing trends, predicting impacts of actions on system operations, diagnosing deviations in the functioning of a system/organization, and taking necessary steps to correct performance.
- Improving or Designs Systems:** Making suggestions to modify existing systems in order to improve the quality of products or services and developing new or alternative systems.

### TECHNOLOGY

- Selecting Technology:** Judging which sets of procedures, tools or machines, including computers and their programs, will produce the desired results.

- Applying Technology to Tasks:** Understanding overall intent and proper procedures for setting up and operating machines, including computers and their reprogramming systems.
- Maintaining and Troubleshooting Equipment:** Preventing, identifying, or solving problems with equipment, including computers and other technologies.

### Section III: RELATIONSHIP TO COLLEGE PROGRAMS

1. **THIS COURSE WILL BE AN APPROVED REQUIREMENT FOR AN APPROVED ASSOCIATE DEGREE OR CERTIFICATE PROGRAM:** **Yes**

- a. If yes, the course will be a **"restricted" elective** portion of the "approved program" listed on the State Chancellor's Inventory of Approved Programs (approved programs can be found on the State Chancellor's Office website at <http://misweb.cccco.edu/esed/webproginv/prod/invmenu.htm>)

This course will be a restricted elective for AA, Computer Science (Program ID 02866).

NOTE: In order for a course to be approved as a requirement for an associate degree or certificate program, the program must be listed on the State Chancellor's Office *Inventory of Approved Programs* AND the course must be listed in the college catalog as either a requirement or an elective for the program. If course is not part of an approved program at the college adopting the course, it will be considered to be a "stand-alone" course, and is subject to the State Chancellor's approval criteria. The college must complete and submit the Chancellor's Office "APPLICATION FOR APPROVAL OF CREDIT" form. Certain courses are granted "blanket approval" by the State Chancellor's Office and do not require separate approval. See the Chancellor's Office *Program and Course Approval Handbook* for details. LACCD Skills **Certificates are not State approved programs** and are not listed on the Chancellor's Office *Inventory of Approved Programs*.

2. **GENERAL EDUCATION REQUIREMENTS FOR THE ASSOCIATE DEGREE STATUS:**

- a. Area requested: **None** **Approval** date:

If applicable, provide an explanation of how the course meets the General Education parameters for one of the five general education areas – *Natural Sciences, Social and Behavioral Sciences, Humanities, Language and Rationality, Health and Physical Education* -- contained in Board Rule 6201.14 -General Education Requirements. [http://marlin.laccd.edu/district/BoardRules\\_AdmsRegs/boardrules.htm](http://marlin.laccd.edu/district/BoardRules_AdmsRegs/boardrules.htm)

N/A

- a. 2<sup>nd</sup> Area requested: **None** **Approval** date:

If applicable, provide an explanation of how the course meets General Education parameters for an additional general education area – *Natural Sciences, Social and Behavioral Sciences, Humanities, Language and Rationality, Health and Physical Education* -- contained in Board Rule 6201.14 - General Education Requirements. [http://marlin.laccd.edu/district/BoardRules\\_AdmsRegs/boardrules.htm](http://marlin.laccd.edu/district/BoardRules_AdmsRegs/boardrules.htm)

N/A

## Section IV: ARTICULATION INFORMATION

(Complete in consultation with College Articulation Officer)

### 1. TRANSFER STATUS:

- a. Transferable to the University of California:             c. Transferable to the California State University: Yes
- b. UC approval date:      d. College approval date: 3/20/07
- e.

### 2. GENERAL EDUCATION FOR TRANSFER: N/A

#### IGETC Certification:

- a. Area requested: None
- b. Date requested:
- c. IGETC approval date:

If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in IGETC Certification Guidelines.

#### CSU Certification:

- a. Area requested: None
- b. Date requested:
- c. CSU approval date:

If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in CSU Certification Guidelines.

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- a. 2<sup>nd</sup> Area requested: None
- b. Date requested:
- c. IGETC approval date:

If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in IGETC Certification Guidelines.

- a. 2<sup>nd</sup> Area requested: None
- b. Date requested:
- c. CSU approval date:

If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in CSU Certification Guidelines.

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### 3. MAJOR REQUIREMENT FOR TRANSFER – Will this course be articulated to meet lower division major requirements? **NO** List college/university and the majors: **N/A**

College/University	Major(s)

**CAN NUMBER:**      **CAN SEQUENCE NUMBER:**  
CAN Approval -- Date requested:      Date approved:

## Section V: SUPPLEMENTAL COURSE INFORMATION

1. **DEPARTMENT/DIVISION NAME:** **Business (Computer Science)**
2. **DEPARTMENT/DIVISION CODE:** **03**
3. **SUBJECT CODE** -- 3 characters, assigned by District Office: **213** (existing subject codes are available on the LACCD web site at <http://www.laccd.edu/curriculum/directory-programs-courses/index.htm>)
4. **SUBJECT ABBREVIATION** -- 7 characters, assigned by District Office: **CO SCI**
5. **SPC CODE** -- 3 characters, assigned by District Office:
6. **ABBREVIATION FOR TRANSCRIPTS** -- 20 characters, assigned by District Office: **CO SCI 681**
7. **DEGREE CREDIT:** Indicate whether the course meet the "standards for approval" for degree credit course set forth in Title 5, section 55002(a)(2), which requires the course to have a degree of intensity, difficulty, and vocabulary that the curriculum committee has determined to be at the college level :  
This courses is **Degree Applicable**
8. **CREDIT/NO CREDIT GRADING:** **No**
9. **REPETITIONS** -- Number of times course may be repeated for credit (three maximum): **0**

How does the repetition of this course meet Title 5, section 58161 requirements? A course may be repeatable when, "course content differs each time it is offered, and that the student who repeats it is gaining an expanded educational experience for one of the following reasons: (A) Skills or proficiencies are enhanced by supervised repetition and practice within class periods; or (B) Active participatory experience in individual study or group assignments is the basic means by which learning objectives are obtained."

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10. **PRIOR TO TRANSFERABLE LEVEL** – This course attribute applies to **English, writing, ESL, reading** and **mathematics** courses ONLY. If applicable, indicate how many levels below the transferable level this course should be placed: **Not applicable**
  11. **CREDIT BASIC SKILLS** -- Title 5, section 55502(d) defines basic skills as "courses in reading, writing, computation, and English as a Second Language, which are designated as non-degree credit courses pursuant to Title 5, section 55002(b)." **No** If Yes, course must be non-degree applicable.
  12. **CROSS REFERENCE** -- Is this course listed as equivalent in content to existing College/District courses in another discipline? **No**

If Yes, list courses (documentation of cross-discipline agreement must be provided):

13. **COURSE SPECIFICALLY DESIGNED FOR STUDENTS WITH DISABILITIES** -- Title 5, section 56029 allows a course to be repeatble when continuing success of the students with disabilities is dependent on additional repetitions of a specific class. Is this course designated as an "approved special class" for students with disabilities? **No**

If yes, provide an explanation of how this course meets the requirements of Title 5, section 56029.

NA

**14. COOPERATIVE EDUCATION STATUS** -- Title 5, section 55252 allows for two types of Cooperative Education: 1) General Work Experience Education -- i.e., supervised employment, which is intended to assist students in acquiring desirable work habits, attitudes and career awareness, which need not be related to the students' educational goals; or 2) Occupational Work Experience Education -- i.e., supervised employment, extending classroom based occupational learning at an on-the-job learning station, which is related to the students' educational or occupational goal. Is this course part of the college's approved cooperative work experience education program? **No**

**15. COURSE CLASSIFICATION:** **Occupational**

Note: A course's Classification, TOP Code and SAM code must be aligned – e.g., Courses with an "Occupational" Course Classification must have an "Occupational" TOP Code **and** a SAM Code of A, B, C, or D; courses that do not have an "Occupational" Course Classification cannot have an Occupational TOP Code **and** must have an "E" SAM Code. Courses coded as "basic skills" in #11 should be coded "Adult and Secondary Basic Skills."

**16. TOP CODE – (6 digits XXXX.XX) 0701.00**

Course content should match discipline description in Taxonomy of Programs found at [www.cccco.edu/cccco/esed/curric/curriculum.htm](http://www.cccco.edu/cccco/esed/curric/curriculum.htm).

**17. SAM CODE (Student Accountability Model):** **C - Clearly Occupational**

SAM Codes (see CCC Chancellor's Office *Student Accountability Model Operations Manual*, 1984) should be assigned as follows:

**Priority "A" – Apprenticeship:** Courses designed for an indentured apprentice must have the approval of the State of California, Department of Industrial Relations Department, Division of Apprenticeship Standards.

**Priority "B" – Advanced Occupational:** Courses taken by students in the advanced stages of their occupational programs. Courses should be offered in one specific occupational area only. Priority letter "B" should be assigned sparingly; in most cases, no more than two courses in any one program should be labeled "B." "B"-level courses must have Priority "C" prerequisites in the same program area.

**Priority "C" – Clearly Occupational:** Courses generally taken by students in the middle stages of their programs should have a difficulty level sufficient to detract "drop-ins." Courses may be offered in several occupational programs within a broad area. The "C" priority, however, should also be used for courses within a specific program area when the criteria for "B" classification are not met. A "C"-level course should provide the student with entry-level job skills.

**Priority "D" -- Possibly Occupational:** "D" courses are those taken by students in the beginning stages of their occupational programs. The "D" priority can also be used for service (or survey) courses for other occupational programs.

**Priority "E" -- Non-occupational.**

## SECTION VI: APPROVAL STATUS

### 1. APPROVAL STATUS:

- a.  New Course . Board Approval Date: . Effective Semester:  
b.  Addition of Existing District Course . College Approval Date: 4/10/07 . Effective Semester: Fall  
07  
c.  Course Change\* . College Approval Date: . Effective Semester:  
d.  Outline Update . College Approval Date:

\* Changes to a course require the completion of a "Course Change Request" form and approval by the college's Curriculum Committee. In some cases districtwide approval is also required; see, Administrative Regulation E-65, section 3(c) for details.

## SECTION VII: APPROVAL INFORMATION FOR NEW OR ADDED COURSES

(complete in consultation with Department Chair and the appropriate Academic Administrator)

1. **ORIGINATOR:** Neil Mantena, Vibha Gupta

2. **DEPARTMENT:** Math & Engineering and Business Dept.

3. **IF THIS IS A NEW COURSE, INDICATE HOW THE COLLEGE PLANS TO MEET THE EXPENSE OF THIS COURSE:**

By additional funds. Describe:

Equipment: CISCO has tentatively agreed to provide initial setup costs and LASC to provide additional funds as needed through Block Grants to establish needed equipment.

By deleting courses from the college catalog and course database. List specific courses to be deleted:

N/A

By deleting sections of existing courses. List courses and number of sections to be deleted: N/A

First year:                      Second year:                      Third year:

By rotating sections of existing courses. List courses and number of sections to be rotated, as well as the semesters in which they will be offered:

Teaching: Sections will be rotated to accommodate the new series of classes within the CO SCI program (CO SCI 630, 639 and 660)

4. **IMPACT** -- Will this course directly impact other course offerings and/or associate degree or certificate programs on campus?

**Yes** (If yes, briefly explain how)

Marginal Impact; perhaps will decrease electronics enrollment; enrollment may affect that of nearby colleges offering the same classes.

5. **METHOD OF SUPPORT** -- Indicate how the college plans to support the proposed course:

Additional staff -- List additional staff needed:

Additional duties will be placed on existing instructional assistant/lab technicians needed to monitor/maintain lab.

Classroom -- List classroom type needed:

Classroom equipped with computers

Equipment -- List new equipment needed and indicate funding source for any new equipment:

30 computers with multimedia capability, routers, switches, cables, terminators, testers, etc

Supplies- List supplies and indicate dollar value:

15,000 for supplies specified by Cisco; approximately \$3,000 per year to supply wires, cables, plugs, tools, etc.

Library/Learning Resources- The course initiator shall consult with the College Librarian and review the college library, book, periodical, and electronic resource collections relevant to this course. List additional titles and resources to be considered for purchase as funding permits:

The department will supply textbooks, reference materials and online resources to the Library.

6. **APPROPRIATENESS TO MISSION**—Describe how the objectives of the proposed course are consistent with the mission of the community colleges as established by the Legislature in the Education Code. The course should also be congruent with the mission statement of the local college and district.

**CCNA program falls in line with the college mission of providing vocational (job) skills needed for underrepresented population of Southcentral community.**

7. **NEED**—Demonstrate the need for the course that meets the stated objectives, at this time, and in the region.
- A. To provide job skills needed in the market place
  - B. “Network systems and Communication Analysts, +57%); jobs that will add the largest percentage of positions through 2012” (Bureau of Labor Statistics, 2005)
  - C. Advisory committee recommendation of 3/24/06 strongly urged starting CCNA program at LASC

## CONTENT REVIEW FOR PREREQUISITE VALIDATION

### Target Course & Number, Title: **CO SCI 681, Computer Networking I**

(Course to which pre/corequisite/advisory applies)

Check  
Applicable  
Box

Prerequisite: **Course & Number, Title: Computer Science 601, Introduction to Computers and Their Uses**

Corequisite:

Advisory:

A. **Target Course Entry Skills: Course & Number, Title: CO SCI 681, Computer Networking I**  
(For prerequisites/corequisites, list specific skills and/or knowledge necessary for students to succeed in the target class. For advisories, list skills/knowledge which will enrich or deepen the student's knowledge obtained from the course but without which the student may still succeed in the course. Attach additional sheet if necessary. NUMBER EACH SKILL.)

1. Define the major functional components of computer operating systems.
2. Differentiate between data files and system files.
3. Identify key commands and describe procedures to organize, create, locate, access, and retrieve files (folders).
4. Explain problems of computer memory and how to overcome them.
5. List, describe, and prepare the hardware requirements needed to install or upgrade computer operating systems.
6. Diagram computer boot sequence and create an emergency boot disk(s).
7. Discuss options of configuring and using typical printing subsystems.
8. Describe common problems and name the tools used for troubleshooting.

B. **Exit Skills Provided By Prerequisite/Corequisite/Advisory Course or Assessment:**  
**Course & Number, Title: CO SCI 601, Introduction to Computers and Their Uses**  
(List specific skills and/or knowledge that are the outcome of the prerequisite/corequisite/advisory course or assessment. For courses already in the curriculum, these should be present in the course objectives in the course outline. Attach additional sheet if necessary. NUMBER EACH SKILL.)

1. Define the term "computer;" identify and describe its hardware components.
2. Compare and contrast computer hardware capabilities.
3. Identify software operating systems; compare and contrast features of file management software.
4. Evaluate the uses and distinguishing features of software for operating systems and processing of digital media data.
5. Apply concepts of computer literacy in the use of hardware and software.
6. Compare the features and roles of the Internet, the Web and Email services.
7. Assess the social and economic implications of computer technology on society.

**CONTENT REVIEW SKILLS MATRIX FOR PREREQUISITE VALIDATION\***

**\*Validation requires at least one match of each entry skill with any exit skill(s).**

**COURSE & NUMBER: CO SCI 681,  
Course Title: Computer Networking I**

**Entering Skills of Target Course**

**COURSE & NUMBER: CO SCI 601  
Course Title: Introduction to Computers and  
Their Uses  
Exit Skills of Prerequisite Course**

	1	2	3	4	5	6	7	8	9
1	X								
2				X				X	
3		X	X					X	
4				X	X				
5						X			
6							X		
7									
8									
9									

Was validation achieved?  YES or  NO

**Comments:**

(Include justification for assessments, health and safety, or non-course prerequisites)

**PARTICIPANTS IN CONTENT REVIEW:**

(Signatories should include instructors for both exit and entering skills courses.)

Name: **Dr. Mantena** Title: Instructor \_\_\_\_\_ Initial: \_\_\_\_\_ Date: \_\_\_\_\_

Name: **Mr. Hicks** \_\_\_\_\_ Title: \_\_\_\_\_ Initial: \_\_\_\_\_ Date: \_\_\_\_\_

Name: **Dr. Haghoo** \_\_\_\_\_ Title: \_\_\_\_\_ Initial: \_\_\_\_\_ Date: \_\_\_\_\_

**CERTIFIED BY:**

Neil Mantena \_\_\_\_\_

Initiator \_\_\_\_\_ Date \_\_\_\_\_

Saakian/Magee \_\_\_\_\_

Department Chairperson \_\_\_\_\_ Date \_\_\_\_\_

Linda Larson Singer \_\_\_\_\_

Curriculum Chairperson \_\_\_\_\_ Date \_\_\_\_\_

## CONTENT REVIEW FOR PREREQUISITE VALIDATION

### Target Course & Number, Title: **CO SCI 681, Computer Networking I**

(Course to which pre/corequisite/advisory applies)

Check  
Applicable  
Box

- Prerequisite: **Course & Number, Title: Electronics 112, Computer Operating Systems**
- Corequisite:
- Advisory:

A. **Target Course Entry Skills: Course & Number, Title: CO SCI 681, Computer Networking I**

(For prerequisites/corequisites, list specific skills and/or knowledge necessary for students to succeed in the target class. For advisories, list skills/knowledge which will enrich or deepen the student's knowledge obtained from the course but without which the student may still succeed in the course. Attach additional sheet if necessary. NUMBER EACH SKILL.)

1. Define the major functional components of computer operating systems.
2. Differentiate between data files and system files.
3. Identify key commands and describe procedures to organize, create, locate, access, and retrieve files (folders).
4. Explain problems of computer memory and how to overcome them.
5. List, describe, and prepare the hardware requirements needed to install or upgrade computer operating systems.
6. Diagram computer boot sequence and create an emergency boot disk(s).
7. Discuss options of configuring and using typical printing subsystems.
8. Describe common problems and name the tools used for troubleshooting.

B. **Exit Skills Provided By Prerequisite/Corequisite/Advisory Course or Assessment:**  
**Course & Number, Title: ELECTRONICS 112, Computer Operating Systems**

(List specific skills and/or knowledge that are the outcome of the prerequisite/corequisite/advisory course or assessment. For courses already in the curriculum, these should be present in the course objectives in the course outline. Attach additional sheet if necessary. NUMBER EACH SKILL.)

1. Define the major functional components of computer operating systems.
2. Differentiate between data files and system files.
3. Identify key commands and describe procedures to organize, create, locate, access, and retrieve files (folders).
4. Explain problems of computer memory and how to overcome them.
5. List, describe, and prepare the hardware requirements needed to install or upgrade computer operating systems.
6. Diagram computer boot sequence and create an emergency boot disk(s).
7. Discuss options of configuring and using typical printing subsystems.
8. Describe common problems and name the tools used for troubleshooting.
9. Explain the need for a home network and sharing a common internet connection.



**CONTENT REVIEW SKILLS MATRIX FOR PREREQUISITE VALIDATION\***

**\*Validation requires at least one match of each entry skill with any exit skill(s).**

**COURSE & NUMBER: CO SCI 681**  
**Course Title: Computer Networking I**

**Entering Skills of Target Course**

**COURSE & NUMBER: ELECTRN 112**  
**Course Title: Computer Operating Systems**

**Exit Skills of Prerequisite Course**

	1	2	3	4	5	6	7	8	9
1	X								
2		X							
3			X						
4					X				
5						X		X	
6						X			
7									
8				X					
9							X		

Was validation achieved?  YES or  NO

**Comments:**

(Include justification for assessments, health and safety, or non-course prerequisites)

**PARTICIPANTS IN CONTENT REVIEW:**

(Signatories should include instructors for both exit and entering skills courses.)

Name: **Dr. Mantena** \_\_\_\_\_ Title: \_\_\_\_\_ Initial: \_\_\_\_\_ Date: \_\_\_\_\_

Name: **Mr. Hicks** \_\_\_\_\_ Title: \_\_\_\_\_ Initial: \_\_\_\_\_ Date: \_\_\_\_\_

Name: **Dr. Haghoo** \_\_\_\_\_ Title: \_\_\_\_\_ Initial: \_\_\_\_\_ Date: \_\_\_\_\_

**CERTIFIED BY:**

Neil Mantena \_\_\_\_\_

Initiator \_\_\_\_\_ Date \_\_\_\_\_

Saakian/Magee \_\_\_\_\_

Department Chairperson \_\_\_\_\_ Date \_\_\_\_\_

Linda Larson Singer \_\_\_\_\_

Curriculum Chairperson \_\_\_\_\_ Date \_\_\_\_\_

## LOS ANGELES COMMUNITY COLLEGE DISTRICT COURSE STANDARDS AND CRITERIA

Subject: **Computer Science**; Number: **681**; Course Title: **Computer Networking I**

Using the Official Course Outline, please determine whether or not the above listed credit course meets the following standards and criteria required in Title V, Part VI of the California Administrative Code, and which has been designated as appropriate to the Associate Degree. Place a (X) in the appropriate box.

<u>CRITERIA AND STANDARDS</u> Section 55002	<u>RATING CRITERION</u>	
	MET	NOT MET
Is recommended by the responsible college officials, and the academic senate or other appropriate faculty body as meeting the requirements of this subsection and has been approved by the local district governing board as a course meeting the needs of the students for admission.	√	
Is taught by a credentialed instructor in the discipline.	√	
Is offered as described in an outline in official college files. That the outline shall specify the unit value, scope, objectives, content in terms of a specific body of knowledge, appropriate reading and writing assignments, outside of class assignments, instructional methodology and methods of evaluation for determining whether the stated objectives have been met by students.	√	
Is taught in accordance with a set of instructional objectives common to all students.	√	
Provides for measurement of students performance in terms of the stated course objectives and culminates in a formal recorded grade based upon uniform standards in accordance with Section 55578 of Title 5, which is permanently recorded as an evaluation of student performance; bases grades on demonstrated proficiency in subject matter determined by multiple measurement for evaluation; and has examinations, including essays and/or, where appropriate, uses appropriate symbol systems and/or skills demonstrations by students.	√	
Grants units of credit based upon a specified relationship between the number of lecture and/or laboratory hours or performance criteria specified in the course outline; and requires a minimum of three hours of work per week including class time for each unit of credit, prorated for short-term, lab and activity courses.	√	
Treats subject matter with a scope and intensity which requires students to study independently outside of class time.	√	
Requires, when appropriate, entrance skills and consequent prerequisites for the course before students are enrolled	√	
Requires the ability to think critically and to understand and apply concepts in order to participate in the course.	√	
Requires learning skills and a vocabulary appropriate for a college course.	√	
Requires the use of college level educational materials.	√	

Title5Assurances

## CERTIFICATION AND RECOMMENDATION

This course meets Title 5 requirements for Associate Degree applicable college credit towards an Associate of Arts Degree.

This course meets Title 5 requirements but does not satisfy the requirements for an Associate Degree applicable course.

**We certify that the information and answers above properly represent this course.**

**Neil Mantena**

Originator

**05/23/2007**

Date

**Carolyn Magee**

Department/Cluster Chairperson

**05/31/2007**

Date

**Linda Larson Singer**

Articulation Officer

**05/24/2007**

Date

**Linda Brady**

Librarian

**06/01/2007**

Date

**Leige Henderson for E. Robertson**

Dean (if applicable)

**06/01/2007**

Date

**Linda Larson-Singer**

Curriculum Committee Chairperson

**05/27/2007**

Date

**Reggie Morris**

Academic Senate President

**05/31/2007**

Date

**Leige Henderson**

Vice President, Academic Affairs

**06/01/2007**

Date

**Jack E. Daniels, III**

College President

Date

**DATA INPUT PAGES**  
(Fills Automatically from Other Pages)

**COLLEGE:** LA Southwest

**APPROVAL STATUS:**

New Course	Board Approval Date:	Effective Semester:
<input checked="" type="checkbox"/> Addition of Existing District Course	College Approval Date: 4/10/07	Effective Semester:

**DEPARTMENT/DIVISION NAME:** BUSINESS (COMPUTER SCIENCE, INFORMATION TECHNOLOGY)

**DEPARTMENT/DIVISION CODE:** 03

**SUBJECT (DISCIPLINE) NAME:** Computer Science

**SUBJECT CODE** -- 3 characters, assigned by District Office: **213**

**SUBJECT ABBREVIATION** -- 7 characters, assigned by District Office: **CO SCI**

**COURSE TITLE:** Computer Networking I

**COURSE NUMBER:** 681

**UNITS:** 4

**CLASS HOURS:**

	Hours per week (based on 18 weeks)	Total Hours per term (hrs per week x 18)	Units
Lecture:	3	54	3
Lab/activity (w/ homework):			
Lab/activity (w/o homework):	3	54	1
<b>Total:</b>	<b>6</b>	<b>108</b>	<b>4</b>

**DEGREE CREDIT:** Indicate whether the course meet the "standards for approval" for degree credit course set forth in Title 5, section 55002(a)(2), which requires the course to have a degree of intensity, difficulty, and vocabulary that the curriculum committee has determined to be at the college level :  
This courses is

**THIS COURSE WILL BE AN APPROVED REQUIREMENT FOR AN APPROVED ASSOCIATE DEGREE OR CERTIFICATE PROGRAM:**

If yes, the course will be a "restricted" elective portion of the "approved program" listed on the State Chancellor's Inventory of Approved Programs (approved programs can be found on the State Chancellor's Office website at **(Restricted elective for Associate Degree, Computer Science, Program ID #02866)**)

**GENERAL EDUCATION FOR TRANSFER:**

Area requested: None Approval date:

**GENERAL EDUCATION REQUIREMENTS FOR THE ASSOCIATE DEGREE STATUS:**

Area requested: None Approval date:  
2nd Area requested: None Approval date:

**TRANSFER STATUS:**

Transferable to the University of California: UC approval date:

Transferable to the California State University: **YES** College approval date: **3/20/07**

**GENERAL EDUCATION FOR TRANSFER:**

**IGETC**

Area requested:  
Date requested:  
IGETC approval date:

**CSU CERTIFICATION**

Date requested:  
CSU approval date:

**ABBREVIATION FOR TRANSCRIPTS** -- 20 characters, assigned by District Office: **CO SCI 681**

**COURSE CLASSIFICATION:**

**TOP CODE** -- (6 digits xxxx.xx) **0701.00**

**SAM CODE** (Student **A**ccountability **M**odel): **C, Clearly Occupational**

**PREREQUISITES, COREQUISITES, ADVISORIES ON RECOMMENDED PREPARATION, and LIMITATION ON ENROLLMENT**

Prerequisites: **Yes** (If Yes, complete information below) :  
Electronics 112, Computer Operating Systems **or**  
Computer Science 601, Introduction to Computers and Their Uses

Corequisite: None (If Yes, complete information below)

**CREDIT/NO CREDIT GRADING: No**

**REPETITIONS** -- Number of times course may be repeated for credit (three maximum): **None**

**CROSS REFERENCE** -- Is this course listed as equivalent in content to existing College/District courses in another discipline? **NO**

**CREDIT BASIC SKILLS** -- Title 5, section 55502(d) defines basic skills as "courses in reading, writing, computation, and English as a Second Language, which are designated as non-degree credit courses pursuant to Title 5, section 55002(b)." **No**

If Yes, course must be non-degree applicable **NO**

**COURSE SPECIFICALLY DESIGNED FOR STUDENTS WITH DISABILITIES** -- Title 5, section 56029 allows a course to be repeatable when continuing success of the students with disabilities is dependent on additional repetitions of a specific class. Is this course designated as an "approved special class" for students with disabilities? **NoNO**

**APPROVAL STATUS:**

New Course

Board Approval Date:

Effective Semester:

Addition of Existing District Course

College Approval Date: **4/10/2007**

**COOPERATIVE EDUCATION STATUS** -- Title 5, section 55252 allows for two types of Cooperative Education: 1) General Work Experience Education -- i.e., supervised employment, which is intended to assist students in acquiring desirable work habits, attitudes and career awareness, which need not be related to the students' educational goals; or 2) Occupational Work Experience Education -- i.e., supervised employment, extending classroom based occupational learning at an on-the-job learning station, which is related to the students' educational or occupational goal. Is this course part of the college's approved cooperative work experience education program? **No**

**CATALOG COURSE DESCRIPTION** -- Provide a description of the course, including an overview of the topics covered:

This course focuses on the following: network terminology and protocols, Local Area Networks (LANs) & Wide Area Networks (WANs), Open System Interconnection (OSI) & TCP/IP networking models, cabling, cabling tools, routers and router programming, Ethernet, Internet Protocols (TCP/IP), IP addressing and networking standards.

**CLASS SCHEDULE COURSE DESCRIPTION** -- Provide a brief description of the course, including an overview of the topics covered:

This course covers the basic concepts of computer networking including Local Area Networks (LANs) & Wide Area Networks (WANs). Basic network media such as wireless, copper and fiberoptic cabling, and cabling tools are included.

**SPC CODE** -- 3 characters, assigned by District Office: