Computer Information Systems
Computer Science

Computer Studies

CERTIFICATES OF COMPLETION

Certificates of completion are awarded for completion of a course, or short sequence of courses. The Certificate provides evidence of training in a limited area of study. Employees find these certificates helpful in demonstrating to employers that they have upgraded their current skills or developed new skills in other areas. Certificates of Completion are issued in the following areas upon completion of the courses listed with a grade of "C" or better.

Network Administrator - Novell Certificate of Completion

Required Courses: 3 units

Course Number	Title	Units
COMS B80	CNA/CNE Network Administrator - Novel	3.0

Advanced Network Administration -Novell Certificate of Completion

Required Courses: 2 units

Course Number	Title	Units
COMS B81	CNE Advanced Network Administration - Novell	2.0

Network Technologies Certificate of Completion

Required Courses: 3 units

Course Number	Title	Units
COMS B82	MCSE/CNE Network Technologies	3.0

Installation/Configuration - Novell Certificate of Completion

Required Courses: 1 unit

Course Number	Title	Units
COMS B83	CNE Installation/Configuration - Novell	1.0

Administering/Supporting Microsoft NT Certificate of Completion

Required Courses: 3 units

Course Number	Title	Units
COMS B91	MCSE Administering and Supporting Microsoft NT Server	3.0

Web Authoring Certificate

Designed for the student who plans to specialize in creating Web sites. Upon completion of the following courses with at least a "C" grade in each course, a student will be awarded a Web Authoring Certificate of Completion.

Required Courses: 12 units

Course Number	Title	Units
COMS B74a	Web-Site Construction Using Web Authoring Tools	1.5
COMS B74b	Web-Site Construction Using Hypertext Markup Language	1.5
COMS B74c	Web-Site Construction Using Dynamic HTML	1.5
COMS B74d	Intermediate Dynamic HTML	1.5
ART B20	Introduction to Computer Graphics	3.0
ART B24	Digital Imaging	3.0

Geographic Information Systems (GIS) Certificate of Completion

Designed for students who plan to utilize GIS to display and analyze a variety of information that is geographically related. This certificate provides knowledge and skills for public and private sector applications of GIS technologies. Upon completion of the following courses with at least a "C" grade in each course, a student will be awarded a Geographic Information Systems (GIS) Certificate of Completion.

Required Courses: 16 units

Course Number	Title	Units
COMS B32	Programming in Windows Using Visual BASIC	3.0
COMS B34	Business Database Systems	3.0
COMS B37	Introduction to Geographic Information Systems (GIS)	3.0
COMS B77	Introduction to ArcView® GIS	1.0
GEOG B1	Physical Elements of Geography	3.0

Electives: at least 3 units

Course Number	Title	Units
COMS B36	Systems Analysis and Design	3.0
ART B20	Introduction to Computer Graphics	3.0
INDR B52	Geographic Information Systems (GIS)	3.0
MATH B22	Elementary Probability and Statistics	5.0

CERTIFICATES OF ACHIEVEMENT

These training programs are designed for those who prefer career specialization courses and the earliest possible opportunity for job placement. Students wishing greater in-depth preparation may continue toward more advanced courses, an Associate Degree or transfer to a four-year institution.

Computer Information Systems Certificate

Designed for the student who plans to specialize in business computer applications. Upon completion of the following courses with at least a "C" grade in each course, a student will be awarded a Computer Information Systems Certificate of Achievement.

Required Courses: 38 units

Course Number	Title	Units
COMS B2	Introduction to Computer Information Systems	3.0
COMS B5	Introduction to Microcomputer Applications	3.0
COMS B10	Structured Program Design	1.0
COMS B16	COBOL Programming Language	3.0
COMS B26	Advanced Programming in COBOL	3.0
COMS B32	Programming in Windows Using Visual BASIC	3.0
COMS B34	Business Database Systems	3.0
COMS B36	Systems Analysis and Design	3.0
COMS B37	Introduction to Geographic Information Systems (GIS)	3.0
COMS B82	MCSE/CNE Networking Technologies	3.0
BSAD B1a	Financial Accounting	4.0

Electives: at least 6 units

Course Number	Title	Units
COMS B11	Introduction to Programming with Pascal	3.0
COMS B12	Introduction to Programming with BASIC	3.0
COMS B25	Introduction to Programming with C	3.0
COMS B27	Introduction to Assembly Language	3.0
COMS B35	Object-Oriented Programming with C++	3.0
COMS B74a	Web-Site Construction Using Web Authoring Tools	1.5
COMS B74b	Web-Site Construction Using Hypertext Markup Language	1.5
COMS B74c	Web-Site Construction Using Dynamic HTML	1.5
COMS B74d	Intermediate Dynamic HTML	1.5
COMS B80	CNA/CNE Network Administration - Novell	3.0
COMS B81	CNE Advanced Network Administration - Novell	3.0
COMS B83	CNE Installation and Configuration - Novell	3.0
COMS B91	MSCE Administering and Supporting Microsoft NT Server	3.0
BSAD B1b	Managerial Accounting	4.0
BSAD B20	Introduction to Business	3.0
MATH B22	Elementary Probability and Statistics	5.0

Computer Science Certificate

Designed for the student who plans to specialize in math, science, or engineering computer applications. Upon completion of the following courses with at least a “C” grade in each course, a student will be awarded a Computer Science Certificate of Achievement.

Required Courses: 35 units

Course Number	Title	Units
COMS B2	Introduction to Computer Information Systems	3.0
COMS B10	Structured Program Design	1.0
COMS B11 or	Introduction to Programming with Pascal	3.0
COMS B12	Introduction to Programming with BASIC	
COMS B25	Introduction to Programming with C	3.0
COMS B27	Introduction to Assembly Language	3.0
COMS B32	Programming in Windows Using Visual BASIC	3.0
COMS B35	Object-Oriented Programming with C++	3.0
COMS B82	MCSE/CNE Networking Technologies	3.0
MATH B6a	Analytic Geometry and Calculus I	4.0

Electives: at least 9 units

Course Number	Title	Units
COMS B5	Introduction to Microcomputer Applications	3.0
COMS B11	Introduction to Programming with Pascal	3.0
COMS B12	Introduction to Programming with BASIC	3.0
COMS B16	COBOL Programming Language	3.0
COMS B21	Data Structures with Pascal	3.0
COMS B34	Business Database Systems	3.0
COMS B37	Introduction to Geographic Information Systems (GIS)	3.0
COMS B74b	Web-Site Construction Using Hypertext Markup Language	1.5
COMS B74c	Web-Site Construction Using Dynamic HTML	1.5
COMS B74d	Intermediate Dynamic HTML	1.5
COMS B80	CNA/CNE Network Administration - Novell	3.0
COMS B81	CNE Advanced Network Administration - Novell	3.0
COMS B83	CNE Installation and Configuration - Novell	3.0
COMS B91	MSCE Administering and Supporting Microsoft NT Server	3.0
MATH B22	Elementary Probability and Statistics	5.0

ASSOCIATE DEGREE PROGRAMS

Students are encouraged to continue their training and education beyond the Certificate of Achievement by taking additional technical-related courses and general education courses which may lead to an Associate in Science or Associate in Arts Degree.

Students must comply with the requirements as shown in the catalog under Graduation Requirements. Counselors/advisors will assist the student in planning for an associate degree.

For students wishing to transfer, the current catalog of the chosen college or university should be consulted for specific requirements. The college or university should be contacted to insure the transferability of the courses.

ASSOCIATE IN ARTS

Computer Information Systems

Designed for the student who plans to transfer to California State University system or private colleges as a Computer Information Systems, Management Information Systems, or Data Processing major. Provides an emphasis in business computer applications with a broad educational background.

Required Courses: 23 or 24 units

Course Number	Title	Units
COMS B2 or	Introduction to Computer Information Systems	3.0
COMS B5	Introduction to Microcomputer Applications	
COMS B11 or	Introduction to Programming with Pascal	3.0
COMS B12	Introduction to Programming with BASIC	
COMS B16	COBOL Programming Language	3.0
COMS B21 or	Data Structures with Pascal	3.0
COMS B26 or	Advanced Programming in COBOL	
COMS B35	Object-Oriented Programming with C++	
COMS B32	Programming in Windows Using Visual BASIC	3.0
BSAD B1a	Financial Accounting	4.0
MATH B22 or	Elementary Probability and Statistics	5.0
PSYC B5	Elementary Statistics for the Behavioral and Social Sciences (4.0)	

Other Suggested Courses

Course Number	Title	Units
COMS B5	Introduction to Microcomputer Applications	3.0
COMS B25	Introduction to Programming with C	3.0
COMS B34	Business Database Systems	3.0
COMS B35	Object-Oriented Programming with C++	3.0
COMS B37	Introduction to Geographic Information Systems (GIS)	3.0
COMS B74a	Web-Site Construction Using Web Authoring Tools	1.5

COMS B74b	Web-Site Construction Using Hypertext Markup Language	1.5
COMS B74c	Web-Site Construction Using Dynamic HTML	1.5
COMS B74d	Intermediate Dynamic HTML	1.5
COMS B80	CNA/CNE Network Administrator - Novell	3.0
COMS B81	CNE Advanced Network Administration - Novell	2.0
COMS B82	MCSE/CNE Network Technologies	3.0
COMS B83	CNE Installation/ Configuration - Novell	1.0
COMS B91	MCSE Administering and Supporting Microsoft NT Server	3.0
MATH B2	Basic Functions and Calculus for Business	4.0
BSAD B1b	Managerial Accounting	4.0
BSAD B20	Introduction to Business	3.0
ECON B1	Principles of Economics-Micro	3.0
ECON B2	Principles of Economics-Macro	3.0
MGMT B43	Principles of Organization and Management	3.0
MKTG B1	Fundamentals of Marketing	3.0
SPCH B1	Speech Communications	3.0

ASSOCIATE IN SCIENCE

Computer Information Systems

Designed for the student who plans to specialize in business computer applications. The student will learn professional skills leading to employment and will gain a broad educational background. Provides a foundation for further studies in Computer Information Systems, Management Information Systems, or Data Processing.

Required Courses: 35 units

Course Number	Title	Units
COMS B2	Introduction to Computer Information Systems	3.0
COMS B5	Introduction to Microcomputer Applications	3.0
COMS B10	Structured Program Design	1.0
COMS B16	COBOL Programming Language	3.0
COMS B32	Programming in Windows Using Visual BASIC	3.0
COMS B26	Advanced Programming in COBOL	3.0
COMS B34	Business Database Systems	3.0
COMS B36	Systems Analysis and Design	3.0
COMS B82	MCSE/CNE Network Technologies	3.0
BSAD B1a	Financial Accounting	4.0

Electives: at least 6 units

Course Number	Title	Units
COMS B11	Introduction to Programming with Pascal	3.0
COMS B12	Introduction to Programming with BASIC	3.0
COMS B25	Introduction to Programming with C	3.0
COMS B27	Introduction to Assembly Language	3.0
COMS B35	Object-Oriented Programming with C++	3.0
COMS B37	Introduction to Geographic Information Systems (GIS)	3.0
COMS B74A	Web-Site Construction/Authoring Tools	1.5
COMS B74B	Web-Site Construction/Hypertext Language	1.5
COMS B74C	Web-Site Construction/Dynamic HTML	1.5
COMS B74D	Intermediate Dynamic HTML	1.5
COMS B80	CNA/CNE Network Administrator/Novell	3.0
COMS B81	CNE Advanced Network Administration - Novell	2.0
COMS B82	MCSE/CNE Network Technologies	3.0
COMS B83	CNE Installation/ Configuration - Novell	1.0
COMS B91	MCSE Administering and Supporting Microsoft NT Server	3.0
BSAD B1b	Managerial Accounting	4.0
BSAD B20	Introduction to Business	3.0
ART B20	Introduction to Computer Graphics	3.0

Other Suggested Courses

Course Number	Title	Units
MATH B2	Basic Functions and Calculus for Business	4.0
ECON B1	Principles of Economics-Micro	3.0
ECON B2	Principles of Economics-Macro	3.0
MGMT B43	Principles of Organization and Management	3.0
MKTG B1	Fundamentals of Marketing	3.0
SPCH B1	Speech Communication	3.0

Computer Science

Designed for the student who plans to specialize in math, science, or engineering applications. Students will learn professional skills leading to employment and will gain a broad educational background. Provides a foundation for further studies in Computer Science.

Required Courses: 36 units

Course Number	Title	Units
COMS B2	Introduction to Computer Information Systems	3.0
COMS B10	Structured Program Design	1.0
COMS B25	Introduction to Programming with C	3.0
MATH B6a	Analytic Geometry and Calculus I	4.0
MATH B6b	Analytic Geometry and Calculus II	4.0
MATH B6c	Calculus III	4.0
MATH B22	Elementary Probability and Statistics	5.0

Electives: at least 12 units

Course Number	Title	Units
COMS B11	Introduction to Programming with Pascal	3.0
COMS B12	Introduction to Programming with BASIC	3.0
COMS B21	Data Structures with Pascal	3.0
COMS B27	Introduction to Assembly Language	3.0
COMS B32	Programming in Windows Using Visual BASIC	3.0
COMS B34	Business Database Systems	3.0
COMS B35	Object-Oriented Programming with C++	3.0
COMS B82	MCSE/CNE Networking Technologies	3.0
MATH B6d	Ordinary Differential Equations	3.0
MATH B6e	Elementary Linear Algebra	3.0

Other Suggested Courses

Course Number	Title	Units
COMS B5	Introduction to Microcomputer Applications	3.0
COMS B37	Introduction to Geographic Information Systems (GIS)	3.0
COMS B74b	Web-Site Construction Using Hypertext Markup Language	1.5
COMS B74c	Web-Site Construction Using Dynamic HTML	1.5
COMS B74d	Intermediate Dynamic HTML	1.5
PHYS B2a	General Physics-Mechanics and Heat	4.0

PHYS B2b	General Physics-Sound, Light Electricity, Magnetism, Modern Physics	4.0
PHIL B7	Introduction to Logic	3.0
ELET B1	Basic Electricity	4.0

COURSE DESCRIPTIONS

The following abbreviations are commonly used in the course descriptions: **lect** lecture; **lab** laboratory; **demo** demonstration; **Repeat** repeatability (see policy on course repetition); **CCOMS B** Course Classification System. Hours given in parentheses are total hours for the course. Hours lecture, lab, etc., are hours required per week usually. **Offered:** F=course is offered fall semester; S=course is offered spring semester; SS=course is offered summer session. If there is no designation, the course is offered irregularly. Check with the department for information. Many classes are offered occasionally during the summer. Check the summer class schedule for additional course listings. Prerequisites are expressed as minimum requirements. See page 40 for a complete explanation. (CSU) indicates transferable to California State Universities; (UC) indicates transferable to University of California.

COMPUTER STUDIES

Credit limitations may apply. For specific information see a counselor.

COMS B2 Introduction to Computer Information Systems (3 units)

Introduction to the concepts of computer information systems as problem-solving tools in business, economics, mathematics, and the sciences. Includes the history of computer system components, and sequential and direct-access processing. Database management systems, teleprocessing, and distributed processing are covered. An overview of personal computer applications software (word processing, electronic spreadsheets, and personal database management systems) are also included. **Recommended:** Minimum one year of high school algebra or MATH BA and Reading Level 5 or 6. **Hours:** (81) 3 lect, 1.5 lab by arrangement. **Offered:** F, S, SS. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

COMS B5 Introduction to Microcomputer Applications (3 units)

Intended for home users and business people who desire a working knowledge of personal computer hardware and software. Special emphasis on software that is most widely used in Kern County as well as the nation. Mainly focuses on business and home applications of personal computers. Hands-on training with word processing, spreadsheets, database management systems and the necessary operating system fundamentals to use the listed application software. **Recommended:** Reading Level 5 or 6. **Hours:** (81) 3 lect, 1.5 lab by arrangement. **Offered:** F, S. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

COMS B10 Structured Program Design (1 unit)

Fundamentals of writing computer programs. Emphasis is on the development of logic to solve problems. Covers various tools and techniques used to write structured programs using any programming language. **Recommended:** Reading Level 5 or 6, MATH BA. **Hours:** (18) 3 lect for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

COMS B11 Introduction to Programming with Pascal (3 units)

Fundamentals of structured programming and operating computer systems in Pascal. Develops structured programming and problem solving skills and provides experience in using the computer in a variety of applications. Prerequisite: MATH BD or two years of high school algebra or equivalent or evaluation by instructor. Recommended: Reading Level 5 or 6. Hours: (108) 3 lect, 3 lab by arrangement. Offered: F, S. CCS: Occupational Education. Transferable: UC, CSU and private colleges.

COMS B12 Introduction to Programming with BASIC (3 units)

Fundamentals of programming and operating computer systems in BASIC (Beginner's All-purpose Symbolic Instruction Code). Develops skills in computer programming and general problem-solving tools in business, mathematics, physical sciences, social sciences, and other disciplines. **Prerequisite:** MATH BD or two years of high school algebra or equivalent. **Recommended:** COMS B2 or COMS B10 (may be taken concurrently), Reading Level 5 or 6. **Hours:** (108) 3 lect, 3 lab by arrangement. **Offered:** F, S. **CCS:** Occupational Education. **Transferable:** UC, CSU and private colleges.

COMS B16 COBOL Programming Language (3 units)

The fundamentals of the COBOL programming language. Writing structured COBOL programs to solve various types of business problems. **Prerequisite:** COMS B2 or evaluation by instructor. **Recommended:** Reading Level 5 or 6. **Hours:** (108) 3 lect, 3 lab by arrangement. **Offered:** F, S. **CCS:** Occupational Education. **Transferable:** UC, CSU and private colleges. (CAN CSCI 8)

COMS B21 Data Structures with Pascal (3 units)

Advanced techniques of programming in the structured problem-solving language Pascal. Emphasis is on developing advanced skills in algorithm building and understanding data structures in a variety of applications. **Prerequisite:** COMS B11 or evaluation by instructor. **Recommended:** Reading Level 5 or 6. **Hours:** (108) 3 lect, 3 lab by arrangement. **Offered:** S. **CCS:** Occupational Education. **Transferable:** UC, CSU and private colleges.

COMS B25 Introduction to Programming with C (3 units)

Fundamentals of structured programming and operating computer systems in C. Develops structured programming and problem-solving skills and provides experience in using the computer in a variety of applications. **Prerequisite:** Successful completion of a high-level programming language course, or an assembly language course or evaluation by instructor. **Recommended:** Reading Level 5 or 6. **Hours:** (108) 3 lect, 3 lab by arrangement. **Offered:** F. **CCS:** Occupational Education. **Transferable:** UC, CSU and private colleges.

COMS B26 Advanced Programming in COBOL (3 units)

Advanced applications, techniques, procedures, and language statements in COBOL. Development of skills required to write COBOL programs of professional quality. **Prerequisite:** COMS B16 or evaluation by instructor of COBOL programming skills. **Recommended:** MATH BA and Reading Level 5 or 6. **Hours:** (108) 3 lect, 3 lab by arrangement. **Offered:** S. **CCS:** Occupational Education. **Transferable:** UC, CSU and private colleges.

COMS B27 Introduction to Assembly Language (3 units)

Fundamentals of assembly language programming. Topics include binary, octal and hexadecimal arithmetic, data storage, bit manipulation, processor architecture and instruction set, system hardware, operating-system supervisory functions, program modularization through effective use of macros and procedures, use of assembler, linker, object-library manager, and debugger utilities, and I/O to/from the screen, keyboard and auxiliary storage. Emphasizes the development of libraries (macro and object) of commonly-used input/output routines. The primary machine for the course will vary; the major topics of the course are common to assembly-language programming on any processor, and in any environment. **Prerequisites:** MATH BD or two years of high school algebra or equivalent, at least one course in high level computer language. **Recommended:** COMS B2 or COMS B10 (may be taken concurrently) Reading Level 5 or 6. **Hours:** (108) 3 lect, 3 lab by arrangement. **CCS:** Occupational Education. **Transferable:** UC, CSU and private colleges. (CAN CSCI 10)

COMS B32 Programming in Windows Using Visual BASIC (3 units)

An introduction to creating Windows applications using the Visual BASIC programming language. The course will cover the fundamentals of event-driven programming in a graphical user interface environment. Students will write programs using Visual BASIC forms and properties, events, controls, built-in functions, procedures, graphics and animation. **Prerequisite:** A high-level programming language. **Hours:** (108) 3 lect, 3 lab by arrangement. **Offered:** F. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

COMS B34 Business Database Systems (3 units)

The fundamentals of the use of relational and CODASYL model databases in a business environment. Emphasizes the use of SQL, IDMS, and dBASE III database formats. Distinguishing between the various data structures. Designing databases for both the relational and CODASYL models, as well as the fundamentals of writing business applications. **Prerequisites:** COMS B2 and COMS B16 or evaluation by instructor. **Hours:** (81) 3 lect, 1.5 lab by arrangement. **Offered:** F. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

COMS B35 Object-Oriented Programming with C++ (3 units)

Fundamentals of object-oriented programming (OOP) with the C++ programming language. Develops object-oriented programming skills and provides experience using a computer and the C++ language in a variety of applications. **Prerequisite:** COMS B25 or equivalent. **Hours:** (108) 3 lect, 3 lab by arrangement per week. **Offered:** S. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

COMS B36 Systems Analysis and Design (3 units)

Tools and techniques involved in the analysis and design of computerized business systems. Investigative techniques such as interviewing, sampling, questionnaire design, cost-benefit analysis, project management tools, and evaluation of hardware, software and vendors; actual business systems. **Prerequisites:** COMS B2 and a high-level programming language. **Recommended:** Reading Level 5 or 6. **Hours:** (72) 3 lect, 1 lab by arrangement. **Offered:** S. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

COMS B37 Introduction to Geographic Information Systems (GIS) (3 units)

An introduction to methods of managing and processing spatial data. Covers the basic assumptions, concepts, theories, and structures of geographic information systems. Hands-on experience in data input, management, analysis, and display. **Recommended:** Minimum one year of high school algebra of MATH BA (may be taken concurrently). **Hours:** (108) 3 lect, 3 lab by arrangement. Field trips required. **Offered:** F, S. **CCS:** Occupational Education. **Transferable:** UC, CSU and private colleges. **Note:** Not open to students who have taken the equivalent course, INDR B37.

COMS B40 Special Topics in Computing (0.5-1 unit)

Special computer technology topics of interest and concern, including recent developments in the field of computing. **Hours:** (8-16) 2-4 lect. for 4 weeks. **Repeat:** 3. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

COMS B50a Introduction to the Microcomputer and MS DOS (1 unit)

An introduction to the microcomputer and its operating systems. Enables the student to use the disk operating system

(DOS) on IBM and compatible microcomputers, including program and file capabilities, advanced features, many utilities and major applications, and provide a basis for computer literacy. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B50b Intermediate DOS (1 unit)

A continuation of COMS B50a. Hard disk management, subdirectories, paths, batch files, menus, backup strategies, protection and security, and optimizing the performance of the computer. Provides a foundation for setting up a computer in a small business environment. **Prerequisite:** COMS B50a. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B52a Introduction to the Microcomputer and Windows (1 unit)

An introduction to the microcomputer and the Microsoft Windows operating system. Provides a basis for computer literacy and enables the students to use the Windows operating system on an IBM and compatible microcomputers. Includes use of the mouse, the desktop, working with files, printers and fonts, the Windows Explorer, the accessories, sharing data between applications, the Windows Network Neighborhood, and how to customize and enhance the performance of the Windows operating system. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B53 Intermediate Microcomputer Applications (3 units)

A continuation of COMS B5. Intermediate capabilities of word processing, spreadsheet, database management system and electronic presentation application software programs. **Prerequisite:** COMS B5 or evaluation by instructor of student's Word, Excel, Access, PowerPoint, and operating system skills. **Recommended:** Reading Level 5 or 6. **Hours:** (81) 3 lect, 1.5 lab. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B56a Introduction to WordPerfect for Windows (1 unit)

Word processing fundamentals including creating, saving and retrieving documents will be covered as well as editing, formatting, proofing tools and printing fundamentals. **Hours:** (36) 3 lect, 3 lab by arrangement. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B56b Intermediate WordPerfect for Windows (1 unit)

Word Processing features such as merging, sorting, macros, and document management. **Prerequisite:** COMS B56a. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B56c Advanced WordPerfect for Windows (1 unit)

Word processing features such as using the draw feature creating charts, columns, styles, and outlines. **Prerequisite:** COMS B56b. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B57a Introduction to Microsoft Word for Windows (1 unit)

Use of the Microsoft Word for Windows word processing application. Word Processing fundamentals such as creating, saving, and retrieving documents will be covered. Also included will be editing, formatting, proofing tools, and printing fundamentals. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B57b Intermediate Microsoft Word for Windows (1 unit)

Intermediate capabilities for Microsoft Word for Windows word processing program. Word processing features such as merging, sorting, macros, and document management will be covered. **Prerequisite:** COMS B57a. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B57c Advanced Microsoft Word for Windows (1 unit)

Word processing features such as using Microsoft draw, creating charts, columns, styles and outlines. **Prerequisite:** COMS B57b. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B62a Introduction to Spreadsheets with Excel (1 unit)

Introduces students to the use of the spreadsheet using the Excel spreadsheet program. Covers instruction in spreadsheet fundamentals, the use of a mouse, setting up a spreadsheet, cell data entry and edit, formulas, Excel menus, formats, and simple functions and graphs. **Recommended:** COMS B51a or COMS B50a or some knowledge of microcomputer operations. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B62b Intermediate Spreadsheets with Excel (1 unit)

Intermediate aspects of Excel. Includes advanced formatting, functions, and printing. Also presents database, enhances charts, and an introduction to macros and multiple spreadsheets. **Prerequisite:** COMS B62a or COMS B5 or evalua-

tion of Microsoft Excel skills by instructor. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B62c Advanced Spreadsheets with Excel (1 unit)

Advanced Excel emphasizes building and troubleshooting advanced worksheets and using multiple worksheets. Also includes building and troubleshooting advanced databases and charts, advanced functions, and advanced marcos. **Prerequisite:** COMS B62b or evaluation by instructor of Excel skills. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B68a Introduction to Microsoft Access (1 unit)

An introduction to the use of the Microsoft Access database management program to solve typical business database problems. Includes creating and updating a database, sorting, querying and maintaining a database, creating and using indexes, and joining tables. Also includes the creation of custom data entry forms, validity checks and referential integrity, and the creation of reports. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B70a Introduction to Electronic Presentations with Microsoft Powerpoint (1 unit)

An introduction to the use of the Microsoft Powerpoint presentation package to create professional quality electronic presentations. The course will cover the basics of using Powerpoint as well as the basics of how to plan and build a presentation, making color and text choices, and adding graphics and other media. The course will also cover using Powerpoint to convert existing information such as word processing, and graphic data into a presentation. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B72 Microcomputer Applications (0.5-1 unit)

Topics in series about Microcomputer Literacy will be offered on an occasional basis as the community need seems to indicate. Microcomputer application courses both for the home and office will offer hands-on experience with popular microcomputers. **Hours:** (18-36) 1.5-3 lect and 1.5-3 lab by arrangement for 6 weeks. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B73 Introduction to the Internet (1 unit)

An introduction to the history, structure, and tools of the Internet. Students will learn how to use electronic mail, listservs, newsgroups, FTP, Telnet, Gopher, and World Wide Web browsers. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **Offered:** F, S. CCS: Occupational Education. **Not Transferable:** Associate Degree only.

COMS B74a Web-Site Construction Using Web Authoring Tools (1.5 unit)

An introduction to the creation of Web sites using a variety of resources. Emphasizes the use of popular Web-authoring tools (such as Netscape Composer and Microsoft FrontPage) to create custom Web pages without the knowledge of hypertext markup language. **Prerequisite**: COMS B52a or evaluation by instructor of the student's ability to use Windows; COMS B73 or evaluation by instructor of student's ability to navigate the Internet. **Recommended**: Reading Level 5 or 6. **Hours**: (54) 3 lect, 3 lab by arrangement for 9 weeks. **CCS**: Occupational Education. **Not Transferable**: Associate Degree only.

COMS B74b Web-Site Construction Using Hypertext Markup Language (1.5 unit)

An introduction to using hypertext markup language to create Web sites. Students will learn how to create HTML documents in a text editor, how to test and debug them, and how to publish their Web sites. **Prerequisite**: COMS B52a or evaluation by instructor of student's ability to use Windows; COMS B73 or evaluation by instructor of student's ability to navigate the Internet. **Recommended**: Reading Level 5 or 6. **Hours**: (54) 3 lect, 3 lab by arrangement for 9 weeks. **CCS**: Occupational Education. **Not Transferable**: Associate Degree only.

COMS B74c Web-Site Construction Using Dynamic HTML (1.5 unit)

Uses of dynamic hypertext markup language to create Web sites. Emphasizes scripting for flexibility, interactivity and dynamic content. Students will learn basic programming concepts and techniques, using HTML and popular scripting languages. Includes a brief introduction to the Java programming language. **Prerequisite**: COMS B73 or evaluation by instructor of student's ability to use HTML to create Web sites. **Recommended:** Reading Level 5 or 6. **Hours**: (36) 3 lect, 3 lab by arrangement for 9 weeks. **CCS**: Occupational Education. **Not Transferable**: Associate Degree only.

COMS B74d Intermediate Dynamic HTML (1.5 units)

Uses intermediate-level dynamic HTML to enhance Web sites. Topics covered include: cascading style sheets; dynamic style, dynamic content, bound data and DHTML positioning. Other topics may be included/substituted in order to stay current with the field. **Prerequisite**: COMS B74c or evaluation by instructor of the student's ability to use dynamic HTML at an introductory level. **Recommended**: COMS B10 or a high-level programming language. Reading Level 5 or 6. **Hours**: (54) 3 lect, 3 lab arrangement for 9 weeks. **CCS**: Occupational Education. **Not Transferable**: Associate Degree only

COMS B77 Introduction to Arc View® GIS (1 unit)

Creating, editing, querying, analyzing and displaying geographic and tabular data. Earn a Certificate of Completion. A conceptual experience and hands-on experience using ArcView®. **Hours**: (36) 3 lect, 3 lab by arrangement. **Repeat**:

3. **Offered**: F, S, SS. **CCS**: Occupational Education. **Not Transferable**: Associate Degree only.

COMS B80 CNA/CNE Network Administration - Novell (3 units)

Fundamentals of managing a Novell network, using Novell administrative tools to set-up, manage, and employ basic network services, including file systems, network printing, security, and email. **Recommended:** Reading Level 5 or 6, COMS B50a, COMS B52a and COMS B82. **Hours:** (108) 3 lect, 3 lab by arrangement. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B81 CNE Advanced Network Administration - Novell (2 units)

Advanced management skills for managing a Novell network. Covers advanced server tuning for better performance, management of complex tree structures and networking environment, NDS partitioning and replication, time synchronization strategies, and integration with NetWare 3. **Recommended:** Reading Level 5 or 6 and COMS B80. **Hours:** (72) 3 lect, 3 lab by arrangement for 12 weeks. **CCS**: Occupational Education. **Not Transferable:** Associate Degree only.

COMS B82 MCSE/CNE Networking Technologies (3 units)

Course serves as a general introduction to networking including local and wide area network technology. It lays the foundation for network design, installation and administration. **Recommended:** COMS B52a (Windows Operating System) and Reading Level 5 or 6. **Hours:** (108) 3 lect, 3 lab by arrangement. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B83 CNE Installation and Configuration - Novell (1 unit)

Installing and configuring a NetWare network. Hands on experience, including scenarios for installing, upgrading, migrating, and implementing a Novell network. How to implement a different design of a NDS tree structure. **Recommended:** Reading Level 5 or 6 and COMS B81. **Hours:** (36) 3 lect, 3 lab by arrangement for 6 weeks. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B91 MSCE Administering and Supporting Microsoft NT Server(3 units)

Course serves as a detailed evaluation of Microsoft Windows NT, including both the Client and Server software. It covers introductory and in-depth topics related to Windows NT Client and Server Administration, as well as the core components of the NT operating system. This course is in preparation for the MCSE exams. **Recommended:** COMS B52a (Windows Operating System), and COMS B82 (Network Technologies), and Reading Level 5 or 6. **Hours:** (108) 3 lect, 3 lab by arrangement. **CCS:** Occupational Education. **Not Transferable:** Associate Degree only.

COMS B248ab Cooperative Work Experience Education (1-8 units. Limit 16 units)

See WEXP B248ab description.

COMS B249ab Cooperative Work Experience Education (1-4 units. Limit 16 units)

See WEXP B249ab description.