

Internet and Database Programming

COURSE TITLE	CBEDS TITLE	CBEDS NO.	JOB TITLES and DOT CODE:
Internet and Database Programming	Computer Operations/Computer Science	4601	

1. Computer Programmer
2. Entry-level Database Engineer
3. Associate Consultant
4. Database Administrator
5. Database Analyst
6. Technical Sales Consultant
7. Systems Analyst

PROGRAM GOALS

The goal is to develop students' academic and technical skills so they will be prepared for:

- Employment
- Opportunities for promotion
- College
- Advanced training

COURSE DESCRIPTION

This course is designed to educate students on the fundamentals of Internet and database programming and the necessary skills to pursue academic and professional opportunities. The course is centered in traditional classroom format while simultaneously exposing students to the latest in electronic learning technology. Instruction includes business analysis, relational database modeling, structured query language, and Java programming.

This competency-based course prepares students for entry-level positions in the computer programing or Information Technology industry. Integrated throughout the course are industry preparation standards that include academic skills, data analysis communication, interpersonal skills, problem solving, workplace safety, technology and employment literacy.

Hours: Students receive up to 360 hours of classroom instruction and may include an additional 360 hours of Community Classroom and/or Cooperative Vocational Education experience.

Prerequisites:

Date written/revised: (Approved: July 9, 2004)

Course Outline:

Articulation:

Academic Credit:

Business Partnerships: Information technology is everywhere, from electronic time cards to complex database systems. The need for higher level business analysis, design and information technology is increasing. To stay current with the needs of the business community and add "real world" experiences to this course, it is recommended that business partnerships be formed. Examples include chamber members, database and technology users groups, and the existing members of the course advisory committee who also provide ongoing curriculum review, update assistance and a source of job placements for students. Finding a business that will partner with the course has the potential of providing internships, speakers, tours, job shadowing and community classroom and co-op experiences.

Upon completion of the course, students are eligible to take the introduction to Oracle9i – SQL exam.

Instruction: Instruction includes business analysis, relational database modeling, structured query language and Java programming. Integrated throughout the course are industry preparation standards that include academic skills, data analysis communication, interpersonal skills, problem solving, workplace safety, technology and employment literacy. This competency-based course prepares students for entry-level positions in the computer programming or information technology industry.

Block D – Java Programming
 Examining Packages and Interfaces
 Review for Advance Placement Computer Science Exam (APCS)
 Introduction to Integrated Design Environment (IDE) JDeveloper
 Applications, Applets, and UI components
 Resume-Portfolio Building

Block C – Introduction to Java
 Object-Oriented Programming
 Essential concepts, syntax, & programming constructs of the Java language
 Introductions to Classes, Objects, and Methods
 College Application Process
 IT Career Research

Block B – Database Programming
 SQL (Select Statement; Data definition, manipulation, and control languages, Transaction control)
 Structured Query Language
 Interview and Presentation Skills
 Portfolio

Block A – Database Fundamentals
 Relational database development, modeling, design & normalization
 Business analysis, business profiling, and information analysis

COURSE DESCRIPTION:

CBEDS# 4601 DATE OF COURSE CERTIFICATION: July 9, 2004 APPROVED HOURS: 720

COURSE TITLE: Internet and Database Programming Course I.D.# _____

II. STUDENT PERFORMANCE OBJECTIVES

After completion of the program, the student will be able to:

1. Understand data modeling and relational database design
 - Transform business requirements into an operational database utilizing a top-down, systematic approach
 - Create Entity-Relationship Diagrams that accurately model the organization's information needs and support the functions of the business
 - Map the information requirements reflected in the Entity-Relationship Model into a relational database design
 - Create physical relational database tables to implement the database design
 - Manage a data analysis project that delivers a persuasive database design and model for potential client
2. Demonstrate proficiency in SQL programming
 - Rely on knowledge of data server technology for future study or internship/job-shadowing opportunities
 - Solve complex business problems using data storage and retrieval techniques
 - Articulate issues involving data security and keeping "history" of data in business systems, as well as the role of the Database Administrator in these practices
 - Demonstrate knowledge base by passing the SQL final exam
3. Understand introductory concepts in Java programming
 - Practice and apply skills needed to develop Object-Oriented (OO) systems, employing concept-based approach
 - Demonstrate proficiency in creating and utilizing classes, objects, methods and statements that control program flow
 - Utilize OO principles such as classes, objects, and relationships
 - Write stand-alone applications with the Java programming language
 - Identify career options in IT
4. Demonstrate proficiency in Java programming
 - Create and implement packages and interfaces
 - Explain the purpose of the Thread class and the Runnable interface
 - Describe the purpose of exception handling and understand the consequences of an unhandled exception
 - Convert strings to numeric values using Java's type wrappers
 - Construct a professional resume and personal statement

A. Database Fundamentals (90 Class Hours)

Class CC CVF

Workplace Basic Skills and Behaviors (Integrated throughout course)
 Applies Skills learned in class
 Analyzes information and makes decisions
 Communicates verbally and in writing
 Works independently and as a team member in a diverse workplace
 Works reliably, responsibly, and ethically

1. Introduction 5 3 3
- a. Overview of the field of computer programming and database design
 - b. Classroom procedures and grading
 - c. Safety Unit
 - i. Review of safety rules and emergency procedures
 - ii. Ergonomics and computer use
 - iii. Lab procedures and equipment

2. Introduction to entities, attributes and relationships 5 4 4
- a. List five reasons for building a conceptual data model
 - b. List the four goals of Entity Relationship Modeling
 - c. Distinguish between an entity and an "instance" of an entity
3. Entities, attributes and relationships (continued) 5 4 4
- a. Define an attribute and give an example
 - b. Define an Entity Relationship Model (ER model)
 - c. Describe the purpose of an ER Diagram

4. Entities, attributes and relationships (in more detail) 5 5 5
- a. Describe the difference between data and information and provide examples of each
 - b. Describe and give an example of how data become information
 - c. Define the term "design modeling"

5. Relationships in detail 5 5 5
- a. Demonstrate the five key steps for establishing a relationship, including:
 - i. Determining the existence of a relationship
 - ii. Choosing a name for the relationship
 - iii. Determining the optionality, degree and nontransferability in a relationship given a basic end diagram
 - b. List and give an example of a one-to-many, many-to-many and one-to-one relationships
 Give an example of a redundant relationship

6.	Relationships in detail (continued)	a. Apply modeling skills to find a context that fits an existing model	5	5	5
		b. Identify data for a conceptual data model from an authentic source document			
		c. Construct an Entity Relationship model based on the practice scenario			
7.	Normalization and unique identifiers	a. Describe the first three rules of normalization	5	5	5
		b. Explain the overall rationale for producing a normalization model			
		c. Identify characteristics of an Entity Relationship diagram that are not normalized			
8.	Constraints	a. Define and give three real-world examples of unique identifiers	5	5	5
		c. Define and model a single attribute, multiple attribute, composed, and cascade composed UID			
		c. Distinguish between correct and incorrect unique identifiers			
9.	Modeling hierarchical/recursive relationships	a. Define and give an example of a hierarchical relationship	5	5	5
		b. Describe the implication of transferability for modeling			
		d. Define and give three real-world examples of uses for recursive relationships			
10.	Activity	a. Develop interview questions to determine the business needs of an organization	5	5	5
		b. Document thoroughly the client's responses to interview questions			
		c. Construct business rules from an interview using critical thinking skills			
11.	Modeling change	a. List three issues associated with change and time in a business application	5	7	7
		b. Produce a model using both date attributes and historical entities			
		c. Define conditional transferability as it relates to time-related constraints			
12.	Advanced modeling topics	a. List at least five of the nine generic patterns in data modeling and provide a specific implementation example of each	5	7	7
		b. Describe the benefits of identifying similarities in modeling patterns			
		c. Describe how constraints help shape the choice of modeling pattern			

Employment Skills (Infused throughout course)
 A. Develops a plan to achieve career goals
 B. Uses effective job search strategies
 C. Demonstrates an awareness of the importance of lifelong learning

13.	Mapping the ER model	a. Compare and contrast Entity Relationship models with Database Models	b. Define an integrity rule as it applies to database tables	d. Identify table, row, column, primary key, unique key, and foreign key given a diagram containing these elements	5	5	5
14.	Getting inside the database	a. Explain the steps in the System Development Life Cycle	b. Log onto Project Marvel	b. Enter some sample data and produce query output	5	7	7
15.	Denormalized Data	a. Define the term "denormalization"	b. Explain when and why denormalization should or should not be used	c. List the six denormalization techniques	5	6	6
16.	Presentation skills—visual presentation	a. Identify appropriate content for the final presentation	b. Demonstrate choice of images, fonts, colors and text size to produce a consistent theme	c. Demonstrate correct grammar and spelling	5	5	5
17.	Final presentation project	a. Present the Final Presentation Project to a client	b. Present central message and supporting arguments	c. Show analysis of client's needs and how they were met	5	7	7
18.	Final presentation	a. Deliver a formal business presentation to the class that discusses an Entity-Relationship Model and Initial Database Design	b. Demonstrate the functionality of the database and how SQL is used to query data	c. Self-assess the learning experience through the presentation and demonstration of final Database Project	5		

Workplace Basic Skills and Behaviors (integrated throughout course)
 Applies Skills learned in class
 Analyzes information and makes decisions
 Communicates verbally and in writing
 Works independently and as a team member in a diverse workplace
 Works reliably, responsibly, and ethically

1. Introduction to Structured Query Language (SQL)

- a. Identify six features of SQL
- b. Use pictures and descriptions to explain the architecture of the Internet Platform
- d. Name the five steps in the System Development Life Cycle and identify the primary functions for each step

2. Restricting and sorting data

- a. Formulate and execute a query to restrict the rows returned from a query
- b. Demonstrate application of the WHERE clause syntax
- c. Demonstrate use of BETWEEN, IN, LIKE conditions to return a desired result

3. Single row functions — Part 1

- a. Identify where single-row functions can be used in query statement
- b. Differentiate between single-row functions and multi-row functions and the result returned by each
- c. Demonstrate proper use of the character case-manipulation functions LOWER, INNER, INITCAP in a SQL query

4. Single row functions — Part 2

- a. Give an example of an explicit data-type conversion and an implicit data-type conversion
- b. Explain why it is important, from a business perspective, for a language to have built-in data conversion capabilities
- c. List at least four general functions that work with any data type and relate to handling null values

5. Displaying data from multiple tables

- a. Describe the SELECT statement conditions that result in a Cartesian Product
- b. List at least three different types of joins
- c. Write SELECT statements to access data from more than one table using an equijoin

6.	Aggregating data using group functions	a. Define and identify at least seven group functions	5	5	5
		b. Construct and execute an SQL query using SELECT, FROM, WHERE, GROUP BY, ORDER BY syntax			
		c. Identify which group functions operate only with numeric data types			
7.	Subqueries and producing readable output	a. Explain the purpose of a subquery	6	6	6
		b. Name the types of query problems that can be solved using a subquery			
		c. Write proper syntax for and execute a single-row subquery in the WHERE clause or HAVING clause			
8.	Manipulating data	a. List three SQL statements used for manipulating data in an Oracle Database	6	6	6
		b. Define and give an example of a "transaction"			
		c. Write proper syntax for and execute INSERT statements for the explicit basic insert, copying rows from another table using a subquery			
9.	Creating and managing tables and constraints	a. List and describe five database objects	6	6	6
		b. Create a table using correct naming conventions and syntax for columns, data types, default syntax, and column size			
		c. Create a table from a subquery			
10.	Including constraints	a. Define the term "constraint"	6	6	6
		b. List five different types of declarative constraints			
		c. Provide two reasons why constraints are important			
11.	Creating views	a. List at least three important uses for views	6	6	6
		b. Explain, from a business perspective, why it is important to be able to create and use logical subsets of data derived from one or more tables			
		c. Create a view with and without column aliases in the subquery using a single base table			
12.	Other database objects	a. Name and define five database objects	6	6	6
		b. List at least three useful characteristics of a sequence			
		c. Create and execute a sequence that correctly includes INCREMENT BY and START WITH			

- MINVALUE/NOMINVALUE
- CYCLE/NOCYCLE
- CACHE/NOCACHE

13.	Controlling user access	<p>a. Explain the difference between system security and data security as it relates to a database</p> <p>b. Provide evidence to support the topic, "Why is it important, from a business perspective, to be able to set up user accounts with different types of access permissions?"</p>	6	9	9
14.	SQL Workshop	<p>a. Create tables and sequences</p> <p>b. Modify data in the tables</p> <p>c. Modify table definitions</p> <p>d. Set up software and hardware in a simulated business environment</p>	10	10	10
15.	Comprehensive SQL Review		5	5	5
16.	Comprehensive Final – Practical and Written		3		

Employment Skills (Infused throughout course)
 C. Develops a plan to achieve career goals
 D. Uses effective job search strategies
 E. Demonstrates an awareness of the importance of lifelong learning

C. Introduction to JAVA (90 Class Hours)

Class CC CVE

Workplace Basic Skills and Behaviors (integrated throughout course)

- Applies Skills learned in class
- Analyzes information and makes decisions
- Communicates verbally and in writing
- Works independently and as a team member in a diverse workplace
- Works reliably, responsibly, and ethically

1. Java fundamentals 5

- a. Describe Java's place in computer language history and current Java Technology
- b. Explain how Java relates to the Internet
- c. Recite the fundamentals of object-oriented programming

2. Java fundamentals (continued) 5

- a. Describe the general form of a Java program
- b. Use variables and apply the **if** and **for** statements
- c. Create a block of code

3. Introducing data types and operators 5

- a. Use Java's simple types
- b. Specify literals for the simple types and for strings
- c. Describe the scope rules of a method

4. Introducing data types and operators (continued) 5

- a. Specify literals for the simple types and for strings
- b. Initialize variables
- c. Understand type conversion in expressions

5. Program control statements 5

- a. Input characters from the keyboard
- b. Use the full forms of the **if** and **for** statements
- c. Apply the **switch** and **while** loop

6. Program control statements (continued) 5

- a. Use the **do-while** loop
- b. Employ **break** effectively
- c. Apply **continue** and identify when appropriate to use

7. Program control statements (continued) 5

- a. Use the full forms of the **if** and **for** statements
- b. Use the **while** loop and **do-while** loop
- c. Recognize the basic structure of a resume

8.	Classes, objects and methods	a. Describe the general form of a class	5	5	5
		b. Create an object of a class			
		c. Understand object references			
9.	Classes, objects and methods (continued)	a. Demonstrate how to overload a constructor	5	5	5
		b. Create methods			
		c. Return a value from a method			
10.	More data types and operators	a. Use single-dimensional arrays	5	5	5
		b. Apply multi-dimensional arrays			
		c. Initialize arrays			
11.	More data types and operators (continued)	a. Use single- and multi-dimensional arrays	5	5	5
		b. Use the alternative array declaration syntax			
		c. Utilize command-line arguments			
12.	More data types and operators (continued)	a. Initialize arrays	5	5	5
		b. Utilize command-line arguments			
		c. Declare four String objects			
13.	A closer look at methods and classes	a. Use the public and private access specifiers	5	5	5
		b. Pass objects to methods			
		c. Return objects from methods			
14.	A closer look at methods and classes (continued)	a. Create recursive methods	5	5	5
		b. Create static methods and variables			
		c. Use static blocks			
15.	A closer look at methods and classes (continued)	a. Pass objects to methods	5	5	5
		b. Return objects from methods			
		c. Describe nested and inner classes			

Employment Skills (Infused throughout course)

- A. Develops a plan to achieve career goals
- B. Uses effective job search strategies
- C. Demonstrates an awareness of the importance of lifelong learning

16.	Inheritance	a. Use the extends keyword to inherit a class	b. Describe the difference between a superclass and a subclass	c. Explain how inheritance affects member access	5	5	5
17.	Inheritance (continued)	a. Override methods	b. Use dynamic method dispatch to support polymorphism	c. Explain the purpose and importance of the Object class	5	5	5
18.	Review for Java exam				5	5	5

Class CC CVE

D. Java Programming (90 Class Hours)

	Class	CC	CVE
1.	Packages and interfaces	5	5
	a. Create a package		
	b. Describe how packages affect member access		
	c. Implement an interface		
2.	Packages and interfaces (continued)	5	5
	a. Extend an interface		
	b. Compare various cover letters and determine the best format for them		
	c. Complete a generic cover letter to serve as a template for easy customization		
3.	Exception handling	5	5
	a. Describe the purpose of exception handling		
	b. Create an exception handler		
	c. Understand the consequences of an unhandled exception		
4.	Using input/output	5	5
	a. Describe a stream		
	b. List the main byte and character stream classes		
	c. Read from the keyboard and write to the monitor		
5.	Using input/output (continued)	5	5
	a. Use the predefined streams		
	b. Read and write binary data		
	c. Access files in random order		
6.	Multi-threading	5	5
	a. Describe the fundamentals of multi-threading		
	b. Explain the purpose of the Thread class and the Runnable interface		
	c. Determine when a thread ends		
7.	Multi-threading (continued)	5	5
	a. Change a thread's priority		
	b. Describe the purpose of synchronization		
	c. Create synchronized methods		
8.	Applets, events, and miscellaneous topics	5	5
	a. Explain applet fundamentals		
	b. Describe the architecture of an applet		

9.	Applets, events, and miscellaneous topics (continued)	a. Pass parameters to an applet	b. Describe the operation of the delegation event model	c. Explain event sources and event listeners	5	5	5
10.	Introduction to integrated design environment (IDE)	a. Compare various types of IDE's for their strengths and weaknesses	b. Analyze performance and ease of use through creating new workspaces, projects and applications	i. Build and execute Java applications	6	8	8
		ii. Modify Java application source code	a. Recompile sample applications from previous section	c. Identify businesses in local area that use Java software			
11.	AP computer science and Java final exam	a. Prepare to take the APCS or the Academy Java Final exam	b. Identify possible dates for taking the exam	c. Develop a schedule for preparation and list of activities	5	5	5
12.	Software Development Lifecycle	a. Past methods of software development and why they did not always work	b. Overview of current methods (example, Boehm Spiral, Object Oriented Design)	c. Rapid Application Development Methods (include current methods of RAD)	2	5	5
		d. Introduction to the Unified modeling language					
13.	Case study final project—Narrative and part 1	a. Read the narrative and understand the general description of the case	Study	b. Develop a plan for implementation	5	5	5
		c. Write a program outline					
14.	Case study final project—parts 2 and 3	a. Write the skeleton for the class	b. Choose the objects and/or variables that are needed to display the question and the menu of options		5	5	5
15.	Case study final project—parts 4 and 5	a. Assign the functionality in the current program to one or more methods of the class	b. Rewrite the program to declare an instance of the class and then call appropriate methods of the instance to create the functionality that exist		6	6	6

Class	CC	CVE	Total Hours	Total Hours of Course
16.	6	6	6	720
Case study Final project—parts 6 and 7				
a.				
Modify the program so that there is one question and four menu items, each containing an opinion				
b.				
Enable the question and opinions to be overwritten on the command line				
c.				
Organize and modify the code to incorporate inheritance				
17.	5	5	5	360
Final presentation project or APCS				
a.				
Demonstrate ability to work collaboratively within a group				
b.				
Mock interview				
c.				
Provide feedback to peer groups				
18.	5		5	360
Review—Java final exam				
Employment Skills (Infused throughout course)				
Develops a plan to achieve career goals				
Uses effective job search strategies				
Demonstrates an awareness of the importance of lifelong learning				

c. Modify the program so that students' votes are tallied

IV. ACADEMIC STANDARDS

STATE OF CALIFORNIA HIGH SCHOOL ACADEMIC STANDARDS REINFORCED INTO THIS ROCP CURRICULUM

ENGLISH-LANGUAGE ARTS STANDARDS (from Content Standards for California Public School adopted by the California State Board of Education December 1997)

Reading

- 2.0 **Reading Comprehension (Focus on Informational Materials)**—Students read and understand grade level-appropriate material...including a wide variety of classic and contemporary literature, magazine newspapers, and online information.
- 2.3 Verify and clarify facts presented in other types of expository texts by using a variety of consume workplace, and public documents.

Writing

- 1.0 **Writing Strategies**—Students write coherent and focused texts that convey a well-defined perspective at tightly reasoned argument. The writing demonstrates students' awareness of the audience and purpose at progression through the stages of the writing process.

Organization and Focus

- 1.1 Demonstrate an understanding of the elements of discourse (e.g., purpose, speaker, audience, form) when completing narrative, expository, persuasive, or descriptive writing assignments.

Research and Technology

- 1.6 Develop presentations by using clear research questions and creative and critical research strategies (e.g., field studies, oral histories, interviews, experiments, electronic sources).
- 1.7 Use systematic strategies to organize and record information (e.g., anecdotal scripting, annotating bibliographies).
- 1.8 Integrate databases, graphics, and spreadsheets into word-processed documents.
- 2.0 **Writing Applications (Genres and Their Characteristics)**
- 2.5 Write job applications and resumes:
 - a. Provide clear and purposeful information and address the intended audience appropriately.
 - b. Use varied levels, patterns, and types of language to achieve intended effects and a comprehension.
 - c. Modify the tone to fit the purpose and audience.
 - d. Follow the conventional style for that type of document (e.g., resume, memorandum) and use page formats, fonts, and spacing that contribute to the readability and impact of the document.

Written and Oral English Language Conventions

- 1.0 **Written and Oral English Language Conventions**—Students write and speak with a command standard English conventions.

- 1.1 Demonstrate control of grammar, diction, and paragraph and sentence structure and an understanding English usage.
- 1.2 Produce legible work that shows accurate spelling and correct punctuation and capitalization.
- 1.3 Reflect appropriate manuscript requirements in writing.

Listening and Speaking

2.0 Speaking Applications (Genres and Their Characteristics)

2.4 Deliver multimedia presentations:

- Combine text, images, and sound by incorporating information from a wide range of media including films, newspapers, magazines, CD-ROMs, online information, television, videos, and electronic media-generated images.
- Select an appropriate medium for each element of the presentation.
- Use the selected media skillfully, editing appropriately and monitoring for quality.

MATHEMATICS STANDARDS (from Mathematics Contents Standards for California Public Schools adopted by California State Board of Education December 1997):

Algebra I

Symbolic reasoning and calculations with symbols are central in algebra. Through the study of algebra, a student develops an understanding of the symbolic language of mathematics and the sciences. In addition, algebraic skills and concepts are developed and used in a wide variety of problem-solving situations.

2.0 Students understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and raising to a fractional power. They understand and use the rules of exponents.

3.0 Students solve equations and inequalities involving absolute values.

5.0 Students solve multi-step problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.

13.0 Students add, subtract, multiply, and divide rational expressions and functions. Students solve both computationally and conceptually challenging problems by using these techniques.

15.0 Students apply algebraic techniques to solve rate problems, work problems, and percent mixture problems. Students understand the concepts of a relation and a function, determine whether a given relation defines a function, and give pertinent information about given relations and functions.

20.0 Students use the quadratic formula to find the roots of a second-degree polynomial and to solve quadratic equations.

24.0 Students use and know simple aspects of a logical argument.

24.1 Students explain the difference between inductive and deductive reasoning and identify and provide examples of each.

24.2 Students identify the hypothesis and conclusion in logical deduction.

25.0 Students use properties of the number system to judge the validity of results, to justify each step of a procedure, and to prove or disprove statements.

25.2 Students judge the validity of an argument according to whether the properties of the real number system and the order of operations have been applied correctly at each step.

25.3 Given a specific algebraic statement involving linear, quadratic, or absolute value expressions or equations or inequalities, students determine whether the statement is true sometimes, always, or never.

Algebra II

1.0 Students solve equations and inequalities involving absolute value.

18.0 Students use fundamental counting principles to compute combinations and permutations.

19.0 Students use combinations and permutations to compute probabilities.

Probability and Statistics

This discipline is an introduction to the study of probability, interpretation of data, and fundamental statistical problem solving. Mastery of this academic content will provide students with a solid foundation in probability and facility in processing statistical information.

1.0 Students know the definition of the notion of *independent events* and can use the rules for addition, multiplication, and complementation to solve for probabilities of particular events in finite sample spaces.

2.0 Students know the definition of *conditional probability* and use it to solve for probabilities in finite sample spaces.

3.0 Students demonstrate an understanding of the notion of *discrete random variables* by using them to solve for the probabilities of outcomes, such as the probability of the occurrence of five heads in 14 coin tosses.

4.0 Students are familiar with the standard distributions (normal, binomial, and exponential) and can use them to solve for events in problems in which the distribution belongs to those families.

INDUSTRY STANDARDS—from *CHALLENGE STANDARDS* developed by the *Business Education Resource Consortium under the auspices of the California Department of Education (updated 9/25/01)*

1.0 BUSINESS CORE

1.1 Business Communications: Students will understand communications as applied to personal and professional situations. They will demonstrate competency by selecting and using appropriate forms of communications in a variety of situations.

1.1.1 Diversity—demonstrate the ability to work and communicate effectively with persons of different ethnicities and culturally diverse backgrounds

1.1.2 Effectiveness—compose oral and written business communications that demonstrate the use of critical thinking, decision making and problem solving skills

1.1.3 Ethics—discuss ethics and the need for confidentiality, loyalty, integrity and honesty in communicating with business associates

1.1.4 Methods of Communication—demonstrate the use of various methods of communications; research, compose and orally present information using appropriate technology

1.6 INFORMATION TECHNOLOGIES: Students will understand technology used in business. They will demonstrate competency by utilizing technology to access, manipulate, and produce information.

1.6.1 Applications—utilize a variety of software programs to manipulate, analyze and produce data

1.6.2 Computer Operations—demonstrate proper use and care of equipment

1.6.3 Document Processing—create, format and produce documents

1.6.4 Global Communications—discuss the skills necessary for communicating in an international, pluralistic business environment

1.6.5 Information Resources—use electronic media, manuals, and tutorials as resources to access information

1.6.6 Presentation—develop and produce presentations utilizing electronic media

1.6.7 Problem Solving—solve problems effectively by utilizing appropriate technology

1.6.8 Social Issues—discuss the technological issues of ethics and etiquette as they relate to emerging technologies and the impact on society

1.6.9 Technology Innovations—examine the role of technology in future business applications

1.6.10 Telecommunications—use technology to transmit and receive information

Additional hours for Career Preparation Standards (SCANS) are integrated into instruction in content area standards.

V. CAREER PREPARATION STANDARDS (SCANS) (Adapted from standards prepared by the California Association of Regional Occupational Centers and Programs, 2000)

Standard 1: Personal Skills

Students will understand how personal skill development affects their employability. This skill includes positive attitudes, self-confidence, honesty, responsibility, initiative, self-discipline, time management, and the capacity for lifelong learning.

Standard 2: Interpersonal Skills

Students will understand key concepts on group dynamics, conflict resolution, and negotiation. This skill includes the ability to work cooperatively, accept supervision, assume leadership roles, and show respect for others. This standard includes an appreciation of cultural diversity in the workplace.

Standard 3: Thinking and Problem-Solving Skills

Students will exhibit critical and creative thinking skills, logical reasoning, and problem-solving. These skills include applying basic skills in order to calculate, estimate, measure, identify, locate, and organize information/data; interpret and follow directions from manuals and other sources; analyze and evaluate information and solutions.

Standard 4: Communication Skills

Students will understand principles of effective communication. This standard includes effective oral and written communication, listening skills, following and giving directions, requesting and giving information, and asking questions.

Standard 5: Occupational Safety

Students will understand occupational safety issues, including the avoidance of physical hazards in the work environment. This includes the safe operation of equipment, avoidance of physical injuries, interpretation of warning and hazard signs and terminology, and following and understanding safety-related directions.

Standard 6: Employment Literacy

Students will understand career paths and strategies for obtaining employment within their chosen field. This includes traditional job preparation skills, such as resumes, application forms, cover letters, sources of employment information, and interviewing skills, but also includes an overview of the industry and an understanding of labor market trends. It should also include an understanding of the importance of basic skills to the field and options for further training. Students should learn to develop a portfolio and should take responsibility for further professional growth.

Standard 7: Technology Literacy

Students will understand and adapt to changing technology by identifying, learning, and applying new skills to improve job performance. Students should understand the role of technology in their chosen field and should be able to use all appropriate technology. Students should also feel confident in their ability to learn new technology by generalizing from what they know, adapting skills to new situations, and identifying and using sources of information and of further learning.

VI. METHODS, STRATEGIES AND TECHNIQUES

A variety of strategies and techniques are used to instruct the students. These include the following:

- Tests and quizzes
- Classroom participation and effort
- Mastery of skills and quality of work
- Completion of assignments/portfolio
- Individual projects/group projects
- Punctuality and attendance

Assessment of student performance will include but will not be limited to:

VII. ASSESSMENT OF STUDENT PERFORMANCE

- Use of a variety of instructional materials and resources (professional journals, reference materials, textbooks, electronic media)
- Project-based learning
- Embedded assessments
- Collaborative learning opportunities
- Use of community resources including guest speakers and mentors
- Simulations
- Student presentations
- Peer coaching and assessment
- Use of technology-based resources such as the internet
- Use of a variety of instructional materials and resources (professional journals, reference materials, textbooks, electronic media, scientific literature)
- Hands-on experience