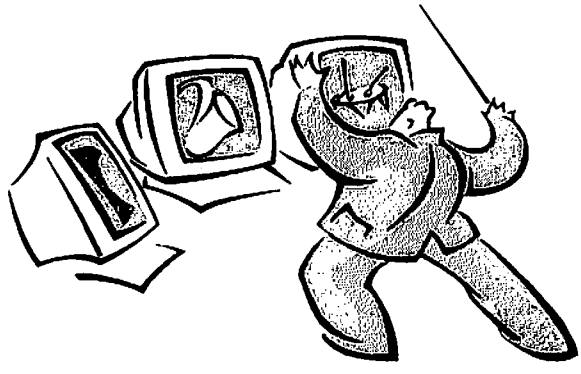
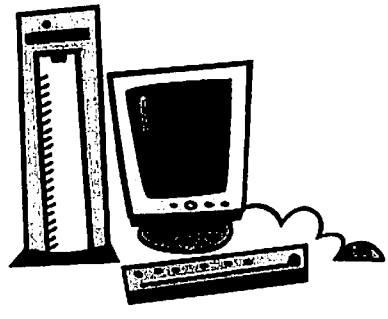
Lewis & Clark Career Center

Curriculum Guide

Computer Information Systems





Curriculum Guide
For
Computer Information Systems

Course Rationale, Course Description, Units of Study

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Lewis & Clark Career Center
Computer Information Systems

Course Rationale

The computer information systems course at Lewis & Clark is a one-year program with an optional second year available. This course is designed to provide intermediate-level programming students with 480 (or 960) hours of training. Students in this class study C++, C#, Java, and HTML programming with additional units in traditional business programming, database design and administration, elements of graphical (including entertainment) design, the incorporation of audio, video, and still imagery (both photographic and computer generated) into software applications, and basic personal and business communication skills.

This course grew out of a need to expose young people to intensive training in the C++ and C# languages which are the primary programming languages used in business today. A good solid understanding of these languages will allow students to more quickly learn new computer languages that might be used in a work situation. Students who complete this course will be ready to pursue more advanced studies in C++, C#, Java, HTML, application (both business and game) development and computer science and business administration.

Computer programming and software development is a high growth area in all facets of life. Business and systems level programmers continue to be in high demand. Additionally, programming in the entertainment industry has grown to higher levels in recent years. This course will provide the basic foundation for students to pursue a career in these fields.

COMPUTER INFORMATION SYSTEMS

1 year program; 3 units of credit
Prerequisites: 10th grade reading and 8th grade or higher math.

This program is open to juniors, seniors and post-secondary students who have an interest in computer programming or database administration as a wage earning occupation or post-secondary degree.

Students will learn beginning and intermediate business programming and business communication concepts. They will learn the basics of the C++ and C# programming languages, database administration and design skills. The students will complete a final project that will incorporate all facets of the class.

Students who successfully complete this program will be able to develop business and other forms of software application or serve as an entry-level database administrator. Graduates may be employed by software development or consulting firms, or may continue on to a college level degree program.

COMPUTER INFORMATION SYSTEMS-2ND YEAR

1 year program; 3 units of credit
Prerequisites: 10th grade reading and 8th grade or higher math, CIS 1st year with 85% or higher after 1st semester, no disciplinary issues, and have instructor approval.

This program is open to seniors and post-secondary students who have an interest in more advanced computer programming or web design as a wage earning occupation or post-secondary degree.

Students will choose between three paths: business programming, graphics programming and development, or web design. If they choose the business programming path, they will learn advanced database design concepts and how to work with databases in the C++ language using Microsoft SQL Server. If they choose the graphics programming/development path, they will learn advanced techniques for programming utilizing DirectX and Open GL. If they choose the web design path, they will learn advanced HTML including DHTML, CSS, and advanced Flash. They will be asked to complete large scale projects and assist in instruction in their chosen pathway.

Students who successfully complete this program will be able to develop advanced applications in their chosen path. Graduates may be employed by software development or consulting firms, or continue on to a college level degree programs.

LEWIS & CLARK CAREER CENTER

COMPUTER INFORMATION SYSTEMS
UNITS OF STUDY

I. **The Role Of The Software Professional**
   a. Understanding the role of the programmer
   b. Understanding the role of a database administrator
   c. Understanding the role of an analyst
   d. Understanding the role of an internet professional
   e. Overview of the educational requirements for the profession
   f. Overview of the job opportunities both now and the future
   g. Software Certifications
   h. Professional Ethics

II. **Basic Computing Theories and Fundamentals**
   a. Binary Number System
   b. Binary Addition
   c. Binary Multiplication
   d. Binary to Decimal
   e. Decimal to Binary
   f. Hexadecimal Number System
   g. Hexadecimal to Decimal
   h. Decimal to Hexadecimal
   i. Common Data Types
   j. Logical Flow (If-then-else)
   k. C++ Operators & Order of Operations
   l. Parts of Computers
   m. Types of Software
   n. ASCII
   o. Compiling and Linking

III. **Business Application Development**
   a. Design Methodologies
   b. Styles of Computing
   c. Pseudo-coding
   d. Database Design
   e. Flowchariting
   f. User-Interface Design
   g. System Design Documentation
   h. User Specifications
   i. User Manuals

IV. **Database Administration**
   a. Microsoft SQL Server
      i. Creation of Databases

Articulated with: St Charles Community College
Linn State Technical College

Lewis & Clark Career Center - Computer Information Systems

Instructor: Martin Hanley
Office Phone: 636-443-4987
E-Mail: mhanley@mail.stcharles.k12.mo.us
Office Hours: M-F 7:00 – 2:30

I. Program Objectives
   a. The student will understand what it means to be in the software industry
   b. The student will be able to develop and work within a set of professional ethics
   c. The student will be able to work with binary and hexadecimal
   d. The student will understand logical flow of computer programs
   e. The student will be able to design effective databases
   f. The student will be able to pseudo-code, flowchart, and design both simple and complex applications
   g. The student will be able to create web pages
   h. The student will be able to create both simple and complex applications in C++
   i. The student will be able to effectively design user interfaces
   j. The student will be able to create simple Java applications. Some students will also be able to create more complex applications.
   k. The student will be able to create user documentation, system design documentation, and standard business documentations.

II. Textbooks Used
   a. *Diane Zak – An Introduction to Programming With C++ - Thompson – 2004*
   b. Michael Dawson – Beginning C++ Game Programming – Thompson – 2004
   c. *Joyce Farrell – Programming Logic and Design – Thompson – 2006*
   d. Wanda Dann and others - Learning to Program with Alice - Prentice Hall - 2006
   e. Wendy Jones – Beginning DirectX9 – Thomson – 2004
   f. John Molluzzo – C++ For Business Programmers – Prentice Hall – 2006
   g. Barbara Johnston – C++ Programming Today – Prentice Hall – 2002
   h. Others as needed

III. Course Outline
   a. The Role Of The Software Professional
   b. Basic Computing Theories and Fundamentals
   c. Business Application Development/ Database Administration
   d. Programming
   e. Final Project/Independent Study
   f. Business Communications

IV. Grading and Attendance Policy
   a. Based on the following breakdown:
      i. Employability skills – 25%
      ii. In-class work and assignments – 15%
      iii. Quizzes – 10%
      iv. Labs and tests – 25%
      v. Final project – 25%
   b. Employability Skills
      i. Attendance
      ii. Behavior
      iii. Preparedness
      iv. Participation

Computer Information Systems Curriculum
Lewis & Clark Career Center
Instructor: Martin P. Hanley

Course Goals

At the completion of this course, students will have the skills necessary and be prepared to a) enter the work place as a junior level programmer, b) enter a post-secondary technical school, or c) enter a post-secondary college or university. They will be able to use the following course goals to succeed in any of those three options.

1. Understand what it means to be a computer programmer/analyst and potential job responsibilities
2. Understand concepts of business application development and game development
3. Understand and be able to use the C++ and C# computer languages
4. Understand and be able to use HTML and Java
5. Understand and be able to create computer generated animation and images
6. Understand and be able to create multi-media projects (i.e. video, print, and web)
7. Understand and be able to use SQL and Microsoft SQL Server
8. Understand and use effective business communication skills
9. Understand and practice effective personal business development skills

Course Overview
The course will be divided into individual, distinct units with one large final project and three smaller quarter projects and two on-going units of study. In addition to these items, there will be extra units that will build upon what the students are learning in the other units and apply those skills and concepts to other areas of the information technology industry and other industries.

Individual Units

The Role of the Software Professional
This unit will discuss different career opportunities available to computer programmers and others in the information systems field.

Basic Computer Programming Concepts, Theories, and Fundamentals
This unit will discuss the basic concepts that are used by programmers.

Application Development
This unit will discuss methods and theories of applications written for both businesses and personal use. Also included will be the relationship between business applications and gaming applications

Programming
This unit will teach the basic to intermediate skills in C++ necessary to create a computer program in C++. After the students have a good understanding of C++, C# will be touched upon to give them the opportunity to learn an additional high-level programming language. Also covered will be basic to intermediate HTML and basic Java.

On-going Units and Final Project

Effective Business Communication Skills
This on-going unit will teach the students how to effectively communicate in the business environment.

Effective Personal Business Development Skills
This on-going unit will allow the student to work on developing their own interpersonal and business skills.

Final Project
The final project and each quarter project will tie all of the units together in one complete package.

Extra Units

Robotics
This unit will give the students a chance to create a robot using the Lego Mindstorms kit and program it to compete in a contest. This will help develop their logic and problem solving skills.

3D Animation and Design
This unit will give the students a chance to work with professional level software that is used in game, video, and instructional development. The software used will be Bryce 3D and 3DS Max. This will also help the students develop their problem solving skills.

Video Creation
This unit is designed to give the students a chance to explore additional creative outlets in the IT industry. It gives the students exposure to working with others and creating presentations that are usable by a larger audience. It will help the students develop their project planning and management skills.

Detailed Unit Information

The Role of the Computer Programmer

This unit covers the different responsibilities, job duties, and titles for a computer programmer.

Course goals covered:

- Understand what it means to be a computer programmer/analyst and potential job responsibilities

State Goals covered:

- Use technological tools and other resources to locate, select and organize information (1-4)
- Evaluate the accuracy of information and the reliability of its sources (1-7)
- Apply acquired information, ideas and skills to different contexts as students, workers, citizens and consumers (1-10)
- Analyze the duties and responsibilities of individuals in societies (4-3)
- Explore, prepare for and seek educational and job opportunities (4-8)
- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)

ShowMe Standards covered:
Communication Arts

- Speaking and writing standard English (1)
- Reading and evaluation nonfiction works and material (3)
- Participating in formal and informal presentations and discussions of issues and ideas (6)

Enduring Understandings
Upon completion of this unit, the student will understand what it means to be a computer programmer. The student will also understand the different roles and job responsibilities of a computer programmer.

Essential Questions

- What is a computer programmer?
- What is an analyst?
- What is the difference between the two?
- What area of IT do I want to explore?

What key knowledge and skills will students acquire as a result of this unit?

Students will know:	Students will be able to:
Career opportunities Job duties and responsibilities Certifications available	Prepare career plans

Unprompted Evidence (i.e. observations, dialogues)
Classroom discussion
Instructor evaluation of the internet research

Learning Tasks/Activities
Readings/discussion on Programmers, Software Engineers, Database Administration, and Internet professionals
Readings/discussion on duties of those above listed employment types
Readings/discussion about game programming and business level programming
Discussion and internet research on work place ethics
Discussion and internet research on jobs available
Discussion and internet research on IT certifications
Presentation by industry members
Presentation by building placement counselor

Role of the Software Professional Items

- Handouts for lecture and discussion
    - System Analyst/Database Administrator
    - Internet professional
    - Programmer
    - Equivalent Titles
- Assignments
    - Ethics internet research
    - Pre-reading on analysts
    - Pre-reading on programmers
    - System Analyst internet assignment
- Tests
    - Unit test

Basic Computer Programming Concepts, Theories, and Fundamentals

This unit will discuss the basic concepts that are used by programmers.

Course goals covered:

- Understand what it means to be a computer programmer/analyst and potential job responsibilities
- Understand concepts of business application development

State Goals covered:

- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)
- Explain reasoning and identify information used to support decisions (4-1)
- Identify problems and define their scope and elements (3-1)
- Develop and apply strategies based on ways others have prevented or solved problems (3-2)
- Develop and apply strategies based on one's own experience in preventing or solving problems (3-3)
- Evaluate the processes used in recognizing and solving problems (3-4)
- Reason inductively from a set of specific facts and deductively from general premises (3-5)
- Examine problems and proposed solutions from multiple perspectives (3-6)
- Evaluate the extent to which a strategy addresses the problem (3-7)
- Use technological tools and other resources to locate, select and organize information (3-4)

ShowMe Standards covered:

Communication Arts

- Speaking and writing standard English (1)
- Reading and evaluation nonfiction works and material (3)
- Participating in formal and informal presentations and discussions of issues and ideas (6)

Mathematics

- Addition, subtraction, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations (1)
- Mathematical systems

Enduring Understandings

Upon completion of this unit, the student will understand the basic concepts of computing.

Essential Questions

- What are the parts of a computer?
- What are the types of software?
- How does the binary system work?
- How does the hexadecimal system work?
- What is a data type?
- What are the different basic data types?
- How do programs work?
- What are some of the terms of programming?
- What are ASCII codes?
- What is source code documentation

What key knowledge and skills will students acquire as a result of this unit?

Students will know:	Students will be able to:
Binary and hexadecimal systems Computer terms Types of software	Identify basic computer components Explain types of computer software Convert from decimal to binary and hexadecimal and understand why we do that (and convert back again) Utilize the ASCII character set Explain data types Document source code

Performance Tasks

Conversion of numbers

Basic Computer Programming Concepts, Theories, and Fundamentals (continued)

Other Evidence (Quizzes, Tests, Prompts and Work Samples)
Unit test (copy attached)
Practice work (copies attached)

Unprompted Evidence (i.e. observations, dialogues)
Instructor's evaluation of discussion

Student Self-Assessment
Internet research

Learning Tasks/Activities
Team number calculators
Logic Games
Discussion of C++ operators and orders of operation
Discussion of Logic Flow
Discussion of types of computers and Internet design of "dream" systems
Discussion and "game show" of terminology

Examples for Basics of Computing

Lecture/discussion notes
- **Types of Computers**
- **Terminology and Types of Software**
- **Order of Operations**
- **Logic operators**
- **Data types**
- **Compiling**
- **Hex and binary**

Test and quizzes
- **Unit test**
- **Binary and Hex quizzes**

Application Development

This unit will discuss methods and theories of applications written for both businesses and personal use. Also included will be the relationship between business applications and gaming applications

Course goals covered:

- Understand concepts of business application development and game development

State Goals covered:

- Discover and evaluation patterns and relationships in information, ideas and structures (1-6)
- Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation (1-8)
- Identify problems and define their scope and elements (3-1)
- Develop and apply strategies based on ways others have prevented or solved problems (3-2)
- Develop and apply strategies based on one's own experience in preventing or solving problems (3-3)
- Evaluate the processes used in recognizing and solving problems (3-4)
- Reason inductively from a set of specific facts and deductively from general premises (3-5)
- Examine problems and proposed solutions from multiple perspectives (3-6)
- Evaluate the extent to which a strategy addresses the problem (3-7)
- Assess costs, benefits and other consequences of proposed solutions (3-8)
- Explain reasoning and identify information used to support decisions (4-1)
- Use technological tools and other resources to locate, select and organize information (1-4)
- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)

ShowMe Standards covered:

Mathematics

- Data analysis, probability and statistics (3)
- Patterns and relationships within and among functions and algebraic, geometric and trigonometric concepts(4)
- Mathematical systems (5)

Enduring Understandings

- Concepts of database design
- How to design a database
- Concepts of user interface design
- Relational expressions
- System design
- Logic

Essential Questions

What is a database?
Why use a database?
What is logic and why is it important?
Is this a good user-interface design?
What is program flow?

What key knowledge and skills will students acquire as a result of this unit?

Students will know:	Students will be able to:
Database "normalization" concepts How to separate business and UI	How to design a database How to implement and build effective user-interfaces Flow chart/design a program

Other Evidence (Quizzes, Tests, Prompts and Work Samples)

Unit test (copy attached)
Lab work on design concepts (copy attached)

Application Development (continued)

Unprompted Evidence (i.e. observations, dialogues)
Instructor's evaluation of discussion

Student Self-Assessment
Designing of web pages, databases, and working prototype GUI systems

Learning Tasks/Activities
Design a database
Design multiple working prototype applications
Creating databases
Creating both flow charts and pseudo code documents
Interview for user requirements gathering

Application Development Handouts and Assignments

Handouts
- Structure Terminology
- Windows Controls
- Flowcharting
- Principles of Design

Assignments
- Internet Accessibility
- User Requirements Gathering
- Flowcharting
- Student Info Screens

Computer Programming

This unit will teach the basic to intermediate skills in C++ and C# necessary to create a computer program in C++ and C# and the skills needed to create an HTML document.

Course goals covered:

- Understand and be able to use the C++ and C# computer languages
- Understand and be able to use HTML and Java
- Understand and be able to use SQL and Microsoft SQL Server

State Goals covered:

- Conduct research to answer questions and evaluate information and ideas (1-2)
- Identify problems and define their scope and elements (3-1)
- Develop and apply strategies based on ways others have prevented or solved problems (3-2)
- Develop and apply strategies based on one's own experience in preventing or solving problems (3-3)
- Evaluate the processes used in recognizing and solving problems (3-4)
- Reason inductively from a set of specific facts and deductively from general premises (3-5)
- Examine problems and proposed solutions from multiple perspectives (3-6)
- Evaluate the extent to which a strategy addresses the problem (3-7)
- Assess costs, benefits and other consequences of proposed solutions (3-8)
- Explain reasoning and identify information used to support decisions (4-1)
- Use technological tools and other resources to locate, select and organize information (1-4)
- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)

ShowMe Standards covered:

Mathematics

- Addition, subtraction, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations (1)
- Data analysis, probability and statistics (3)
- Patterns and relationships within and among functions and algebraic, geometric and trigonometric concepts(4)
- Mathematical systems (5)
- Discrete mathematics (6)

Enduring Understandings

How to utilize the C++ language to write programs
How to use basic HTML and HTML design tools to create web sites
How to utilize the Java and J# languages to write small programs and scripts

Essential Questions

How do I program in C++, Java, J# or HTML?

What key knowledge and skills will students acquire as a result of this unit?

Students will know:	Students will be able to:
C++ syntax Good C++ coding styles HTML and HTML Tools J# and Java	Write basic and intermediate C++ applications Write basic Java and J# scripts Create web sites Explain and document their applications

Unprompted Evidence (i.e. observations, dialogues)

Instructor's evaluation of both discussion and lab work

Computer Programming (continued)

Student Self-Assessment
Do their programs work?

Learning Tasks/Activities
C++ Syntax drill
HTML Syntax drill
"Talking" in C++
Creating multiple web sites
Creation of multiple applications
Game Development Project from I Support Learning
Support of Lewis & Clark Web Site

Computer Programming Assignments and Handouts

Assignments

- Personal Web Site
- Exercises from the book (not included in this document)
- Other website assignments (not included in this document)

Effective Business Communication Skills

This on-going unit will teach the students how to effectively communicate in the business environment.

Course goals covered:

- Understand and use effective business communication skills
- Understand and be able to create multi-media projects (i.e. video, print, and web)

State Goals covered:

- Comprehend and evaluate written, visual and oral presentations and works (1-5)
- Apply acquired information, ideas and skills to different contexts as students, workers, citizens and consumers (1-10)
- Plan and make written, oral and visual presentations for a variety of purposes and audiences (2-1)
- Review and revise communications to improve accuracy and clarity (2-2)
- Exchange information, questions and ideas while recognizing the perspectives of others (2-3)
- Apply communication techniques to the job search and to the workplace (2-6)
- Use technological tools to exchange information and ideas (2-7)
- Develop, monitor and revise plans of action to meet deadlines and accomplish goals (4-5)
- Identify tasks that require a coordinated effort and work with others to complete those tasks (4-6)
- Explore, prepare for and seek educational and job opportunities (4-8)

ShowMe Standards covered:
Communication Arts

- Speaking and writing standard English (1)
- Reading and evaluation nonfiction works and material (3)
- Writing formally (such as reports, narratives, essays) and informally (such as outlines, notes) (4)
- Participating in formal and informal presentations and discussions of issues and ideas (6)

Enduring Understandings

- Sharing ideas with others in an organization
- Speaking in front of a group
- Understanding what they are being asked to do by a supervisor
- Being able to explain duties to someone being supervised

Essential Questions

- Can I talk in front of a group?
- Can I make myself understood in written format?

What key knowledge and skills will students acquire as a result of this unit?

Students will know:	Students will be able to:
How to write basic user documentation How to write user requirements lists	Write basic user documentation Write user requirements Write proposals Write memos about a project Manage small projects Create PowerPoint presentations

Other Evidence (Quizzes, Tests, Prompts and Work Samples)
Documents turned in during course of work
Personal presentation during the first week
Article Reviews throughout the year (sample assignments follow this section)

Unprompted Evidence (i.e. observations, dialogues)
Instructor evaluation of presentation

Effective Business Communication Skills (continued)

Student Self-Assessment
Did I meet my milestones?
Did the class understand my project?

Learning Tasks/Activities
Creation of different documents
Interview instructor and other staff members about applications
Presenting their projects to the class
Generation of time lines and work processes

Effective Personal Business Development Skills

This on-going unit will allow the student to work on developing their own interpersonal and business skills.

Course goals covered:

- Understand and practice effective personal business development skills

State Goals covered:

- Comprehend and evaluate written, visual and oral presentations and works (1-5)
- Evaluate the accuracy of information and the reliability of its sources (1-7)
- Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation (1-8)
- Apply acquired information, ideas and skills to different contexts as students, workers, citizens and consumers (1-10)
- Plan and make written, oral and visual presentations for a variety of purposes and audiences (2-1)
- Review and revise communications to improve accuracy and clarity (2-2)
- Exchange information, questions and ideas while recognizing the perspectives of others (2-3)
- Apply communication techniques to the job search and to the workplace (2-6)
- Use technological tools to exchange information and ideas (2-7)
- Develop and apply strategies based on ways others have prevented or solved problems (3-2)
- Evaluate the processes used in recognizing and solving problems (3-4)
- Analyze the duties and responsibilities of individuals in societies (4-3)
- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)
- Develop, monitor and revise plans of action to meet deadlines and accomplish goals (4-5)
- Identify tasks that require a coordinated effort and work with others to complete those tasks (4-6)
- Explore, prepare for and seek educational and job opportunities (4-8)

ShowMe Standards covered:
Communication Arts

- Speaking and writing standard English (1)
- Reading and evaluation nonfiction works and material (3)
- Writing formally (such as reports, narratives, essays) and informally (such as outlines, notes) (4)
- Comprehending and evaluating the content and artistic aspects of oral and visual presentations (such as story-telling, debates, lectures, and multi-media productions) (5)
- Participating in formal and informal presentations and discussions of issues and ideas (6)

Enduring Understandings
How to be a good employee
How to be a good supervisor
How to market one's self

Essential Questions
What is ethics?
What is workplace ethics?
How should I act at work and in the community?

What key knowledge and skills will students acquire as a result of this unit?

Students will know:	Students will be able to:
What is expected of them in the community What is expected of them in a job	Handle the requirements of being an employee Effectively manage themselves and others (including time and project management) Market their abilities

Other Evidence (Quizzes, Tests, Prompts and Work Samples)
Final CD portfolio creation
Mock job interview

Effective Personal Business Development Skills (continued)

Unprompted Evidence (i.e. observations, dialogues)
Instructor's evaluation of discussion and behavior

Student Self-Assessment
Personal evaluation of behavior

Learning Tasks/Activities
Employability skills grading (attendance, participation, preparedness, punctuality)
Classroom discussion on being an employee
Classroom discussion on being a supervisor
Creation of resume (web and print)
Interview day

Final/Quarter Project

The final project will tie all of the units together in one complete package.

Course goals covered:

- Understand concepts of business application development
- Understand and be able to use the C++ computer language
- Understand and be able to use HTML and Java
- Understand and be able to create computer generated animation and images
- Understand and be able to create multi-media projects (i.e. video, print, and web)
- Understand and use effective business communication skills
- Understand and practice effective personal business development skills

State Goals covered:

- Develop questions and ideas to initiate and refine research (1-1)
- Conduct research to answer questions and evaluate information and ideas (1-2)
- Use technological tools and other resources to locate, select and organize information (1-4)
- Comprehend and evaluate written, visual and oral presentations and works (1-5)
- Discover and evaluation patterns and relationships in information, ideas and structures (1-6)
- Evaluate the accuracy of information and the reliability of its sources (1-7)
- Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation (1-8)
- Plan and make written, oral and visual presentations for a variety of purposes and audiences (2-1)
- Review and revise communications to improve accuracy and clarity (2-2)
- Exchange information, questions and ideas while recognizing the perspectives of others (2-3)
- Perform or produce works in the fine and practical arts (2-5)
- Use technological tools to exchange information and ideas (2-7)
- Identify problems and define their scope and elements (3-1)
- Develop and apply strategies based on ways others have prevented or solved problems (3-2)
- Develop and apply strategies based on one's own experience in preventing or solving problems (3-3)
- Evaluate the processes used in recognizing and solving problems (3-4)
- Reason inductively from a set of specific facts and deductively from general premises (3-5)
- Examine problems and proposed solutions from multiple perspectives (3-6)
- Evaluate the extent to which a strategy addresses the problem (3-7)
- Assess costs, benefits and other consequences of proposed solutions (3-8)
- Explain reasoning and identify information used to support decisions (4-1)
- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)
- Develop, monitor and revise plans of action to meet deadlines and accomplish goals (4-5)
- Identify tasks that require a coordinated effort and work with others to complete those tasks (4-6)

ShowMe Standards covered:

Communication Arts

- Speaking and writing standard English (1)
- Reading and evaluation nonfiction works and material (3)
- Writing formally (such as reports, narratives, essays) and informally (such as outlines, notes) (4)
- Comprehending and evaluating the content and artistic aspects of oral and visual presentations (such as story-telling, debates, lectures, and multi-media productions) (5)
- Participating in formal and informal presentations and discussions of issues and ideas (6)

Mathematics

- Addition, subtractions, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations (1)
- Data analysis, probability and statistics (3)
- Patterns and relationships within and among functions and algebraic, geometric and trigonometric concepts(4)
- Mathematical systems (5)
- Discrete mathematics (6)

Final/Quarter Project (continued)

Enduring Understandings

- What is involved in the creation of a major product
- How to manage time and resources for a major product
- How to present their product

Essential Questions

- How do I "sell" my proposal?
- How do I get the job finished?
- What happens if I can't get finished?

What key knowledge and skills will students acquire as a result of this unit?

Students will know:	Students will be able to:
How to create an application from start to finish How to create supporting documentation	Create supporting documentation Create and manage an application development project

Other Evidence (Quizzes, Tests, Prompts and Work Samples)
Project completion
Project presentation

Unprompted Evidence (i.e. observations, dialogues)
Instructor's evaluation of meetings and discussions

Student Self-Assessment
Student evaluation of project
Class evaluation of project

Learning Tasks/Activities
Creation of an application
Design documentation of the applications
Proposal document and presentation
Time management reporting
Team management reporting

Other Units Detailed Information
Robotics and Logic

Course Goals Covered

- Understand concepts of business application development and game development

State Goals Covered

- Develop questions and ideas to initiate and refine research (1-1)
- Conduct research to answer questions and evaluate information and ideas (1-2)
- Use technological tools and other resources to locate, select and organize information (1-4)
- Comprehend and evaluate written, visual and oral presentations and works (1-5)
- Discover and evaluation patterns and relationships in information, ideas and structures (1-6)
- Exchange information, questions and ideas while recognizing the perspectives of others (2-3)
- Perform or produce works in the fine and practical arts (2-5)
- Use technological tools to exchange information and ideas (2-7)
- Identify problems and define their scope and elements (3-1)
- Develop and apply strategies based on ways others have prevented or solved problems (3-2)
- Develop and apply strategies based on one's own experience in preventing or solving problems (3-3)
- Evaluate the processes used in recognizing and solving problems (3-4)
- Reason inductively from a set of specific facts and deductively from general premises (3-5)
- Examine problems and proposed solutions from multiple perspectives (3-6)
- Evaluate the extent to which a strategy addresses the problem (3-7)
- Assess costs, benefits and other consequences of proposed solutions (3-8)
- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)
- Develop, monitor and revise plans of action to meet deadlines and accomplish goals (4-5)
- Identify tasks that require a coordinated effort and work with others to complete those tasks (4-6)

ShowMe Standards covered:
Communication Arts

- Speaking and writing standard English (1)
- Reading and evaluation nonfiction works and material (3)
- Writing formally (such as reports, narratives, essays) and informally (such as outlines, notes) (4)
- Comprehending and evaluating the content and artistic aspects of oral and visual presentations (such as story-telling, debates, lectures, and multi-media productions) (5)
- Participating in formal and informal presentations and discussions of issues and ideas (6)

Mathematics

- Addition, subtractions, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations (1)
- Data analysis, probability and statistics (3)
- Patterns and relationships within and among functions and algebraic, geometric and trigonometric concepts(4)
- Mathematical systems (5)
- Discrete mathematics (6)

Enduring Understandings

- Thinking outside of conventional thinking to accomplish a task
- How to use something fun to learn and explain

Robotics and Logic (continued)

Essential Questions

- How can I use logic and unconventional thinking together?
- How can I work with others to solve problems?

What skills and knowledge with the students gain as a result of this unit?

Students will know:	Students will be able to:
How to design and build a small robot to accomplish a task How to use logic and critical thinking to solve problems How to use creative thinking to solve problems	Design and program a Lego robot to solve problems

Evidence and Learning Activities

- Team report
- Robot contests – can clearing and obstacle course

3D Animation and Graphics

Course Goals Covered

- Understand and be able to create computer generated animation and images
- Understand and be able to create multi-media projects (i.e. video, print, and web)

State Goals Covered

- Develop questions and ideas to initiate and refine research (1-1)
- Comprehend and evaluate written, visual and oral presentations and works (1-5)
- Discover and evaluation patterns and relationships in information, ideas and structures (1-6)
- Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation (1-8)
- Plan and make written, oral and visual presentations for a variety of purposes and audiences (2-1)
- Review and revise communications to improve accuracy and clarity (2-2)
- Exchange information, questions and ideas while recognizing the perspectives of others (2-3)
- Perform or produce works in the fine and practical arts (2-5)
- Use technological tools to exchange information and ideas (2-7)
- Identify problems and define their scope and elements (3-1)
- Develop and apply strategies based on ways others have prevented or solved problems (3-2)
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- Examine problems and proposed solutions from multiple perspectives (3-6)
- Evaluate the extent to which a strategy addresses the problem (3-7)
- Assess costs, benefits and other consequences of proposed solutions (3-8)
- Explain reasoning and identify information used to support decisions (4-1)
- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)
- Develop, monitor and revise plans of action to meet deadlines and accomplish goals (4-5)
- Identify tasks that require a coordinated effort and work with others to complete those tasks (4-6)

ShowMe Standards covered:

Communication Arts

- Speaking and writing standard English (1)
- Reading and evaluation nonfiction works and material (3)
- Writing formally (such as reports, narratives, essays) and informally (such as outlines, notes) (4)
- Comprehending and evaluating the content and artistic aspects of oral and visual presentations (such as story-telling, debates, lectures, and multi-media productions) (5)
- Participating in formal and informal presentations and discussions of issues and ideas (6)

Mathematics

- Addition, subtractions, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations (1)
- Data analysis, probability and statistics (3)
- Patterns and relationships within and among functions and algebraic, geometric and trigonometric concepts(4)
- Mathematical systems (5)
- Discrete mathematics (6)

Enduring Understandings

- How to use something fun to learn and explain
- Logic can exist in the midst of creativity

3D Animation and Graphics (continued)

Essential Questions

- How do I design something visually appealing?

What skills and knowledge with the students gain as a result of this unit?

Students will know:	Students will be able to:
Visual design concepts Basics of animation	Create an Alice application Create a 3D still image and animation in 3DS Max Create a flash movie/game

Evidence and Learning Activities

- Alice assignments
- Flash movies
- 3D Images

Video Creation

Course Goals Covered

- Understand and be able to create computer generated animation and images
- Understand and be able to create multi-media projects (i.e. video, print, and web)

State Goals Covered

- Develop questions and ideas to initiate and refine research (1-1)
- Use technological tools and other resources to locate, select and organize information (1-4)
- Comprehend and evaluate written, visual and oral presentations and works (1-5)
- Discover and evaluation patterns and relationships in information, ideas and structures (1-6)
- Evaluate the accuracy of information and the reliability of its sources (1-7)
- Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation (1-8)
- Apply acquired information, ideas and skills to different contexts as students, workers, citizens and consumers (1-10)
- Plan and make written, oral and visual presentations for a variety of purposes and audiences (2-1)
- Review and revise communications to improve accuracy and clarity (2-2)
- Exchange information, questions and ideas while recognizing the perspectives of others (2-3)
- Perform or produce works in the fine and practical arts (2-5)
- Use technological tools to exchange information and ideas (2-7)
- Identify problems and define their scope and elements (3-1)
- Develop and apply strategies based on ways others have prevented or solved problems (3-2)
- Develop and apply strategies based on one's own experience in preventing or solving problems (3-3)
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- Reason inductively from a set of specific facts and deductively from general premises (3-5)
- Examine problems and proposed solutions from multiple perspectives (3-6)
- Evaluate the extent to which a strategy addresses the problem (3-7)
- Assess costs, benefits and other consequences of proposed solutions (3-8)
- Analyze the duties and responsibilities of individuals in societies (4-3)
- Recognize and practice honesty and integrity in academic work and in the workplace (4-4)
- Develop, monitor and revise plans of action to meet deadlines and accomplish goals (4-5)
- Identify tasks that require a coordinated effort and work with others to complete those tasks (4-6)

ShowMe Standards covered:

Communication Arts

- Speaking and writing standard English (1)
- Reading and evaluation nonfiction works and material (3)
- Writing formally (such as reports, narratives, essays) and informally (such as outlines, notes) (4)
- Comprehending and evaluating the content and artistic aspects of oral and visual presentations (such as story-telling, debates, lectures, and multi-media productions) (5)
- Participating in formal and informal presentations and discussions of issues and ideas (6)

Enduring Understandings

- What attracts one person may not attract another
- Video is an excellent tool for presenting information

Essential Questions

- How can I best attract someone's attention if I am not there to talk to them?

Video Creation (continued)

What skills and knowledge with the students gain as a result of this unit?

Students will know:	Students will be able to:
How to design a visually appealing video presentation How to present information in a video	Create a video to present information Create a video to attract and sell Create a video to highlight important items

Evidence and Learning Activities

- Student recognition night video
- CIS Program "advertisement" video
- Other videos that the students create

LEWIS AND CLARK CAREER CENTER

LEWIS & CLARK
CAREER CENTER

COMPUTER INFORMATION SYSTEMS PROGRAMMING COMPETENCY REPORT

STUDENT:

Rating Scale:

3	**Mastered**
2	**Requires Supervision**
1	**Not Covered**

3	2	1	A. Careers in Computing Technology
			1. Identify career opportunities in computing technology
			2. Identify certifications available in chosen career field
			3. Develop career plan for future studies

3	2	1	B. General Computer Concepts
			1. Use basic terminology of computing correctly
			2. Describe briefly the main points of the history of computers
			3. Demonstrate an understanding of the binary and hexadecimal number systems
			4. Identify and describe the function of and relationships between the components of a computer
			5. Describe the purpose and objectives of an operating system
			6. Demonstrate an awareness of basic system development techniques and concepts

3	2	1	C. Computer Programming Theory and Fundamentals
			1. Explain the purpose of computer programs
			2. Utilize the terminology and concepts of computer programming
			3. Write and compile simple computer programs
			4. Describe basic computer language data types
			5. Develop proper input prompts for program users
			6. Read input from various sources
			7. Do simple formatting of program output
			8. Write screen output
			9. Create and evaluate expressions used in computer programs
			10. Use relational expressions to test values in programs
			11. Design the sequential execution, and flow of decision-making, in a program
			12. Write programs that use loops to perform repetitive tasks
			13. Use basic debugging techniques to solve programming problems
			14. Use arrays and data structures for managing program data
			15. Write programs that use files to store and retrieve data
			16. Create effective user interfaces
			17. Create flow charts and pseudo-code documents
			18. Create effective video (both film and Flash) to inform
			19. Utilize, create, and modify effective images (both photographic and CG) in software applications
			20. Utilize, create, and modify effective audio for software applications
			21. Create images and video using proper video and photo techniques
			22. Create simple HTML web sites

Lewis and Clark Career Center
Computer Information Systems
Programming Competencies

3	2	1	D. Database Design and Administration
			1. Explain database normalization
			2. Design relational databases
			3. Administer and maintain a SQL Server database
			4. Understand the concepts behind SQL Server administration
			5. Backup SQL Server databases
			6. Create SQL Server databases
			7. SQL Language

3	2	1	E. C++ Programming Language
			1. List the basic elements of a C++ program
			2. Write and execute simple C++ programs
			3. Write programs using basic input, output, and error streams
			4. Declare variables, data types, and constants properly
			5. Write programs using simple data types
			6. Create appropriate user prompts
			7. Do simple formatting of program input and output
			8. Develop and test C++ expressions in programs
			9. Develop C++ statements using relational operators
			10. Develop C++ statements using if, if/else, if/else if, and nested if
			11. Develop C++ statements using logical operators
			12. Validate user input
			13. Develop C++ statements using conditional operators and switch statements
			14. Perform simple file read/write with C++
			15. Develop and test multiple functions and function calls in C++
			16. Develop C++ programs using the while loop
			17. Develop C++ programs using the do - while loop
			18. Develop C++ programs using functions
			19. Develop C++ programs that return values from functions
			20. Develop C++ programs with local, static local, and global variables
			21. Develop C++ programs that use overloaded functions
			22. Initialize arrays in C++
			23. Develop C++ programs using arrays
			24. Develop C++ programs using two-dimensional arrays
			25. Develop C++ programs using string arrays

3	2	1	F. Leadership Competencies and Employment Preparation
			1. Demonstrate an understanding of SkillsUSA, its structure and activities
			2. Demonstrate an understanding of one's personal values
			3. Perform tasks related to effective personal management skills
			4. Demonstrate interpersonal skills
			5. Demonstrate courtesy in dealing with people
			6. Demonstrate effectiveness in oral and written communication
			7. Develop and maintain a code of professional ethics
			8. Perform basic tasks related to securing employment
			9. Create design documentation
			10. Create user specification documents
			11. Creation of "inter-office" memos
			12. Prepare an informational CD with sample applications

State Goals

The skills and competencies from this class will relate to the Missouri state goals as follows. The italicized goals will not be accomplished in this curriculum.

GOAL 1: Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.

Students will demonstrate within and integrate across all content areas the ability to

1. Develop questions and ideas to initiate and refine research
    a. Creation of a new application (student's choice and approved by instructor)
    b. Development of specification documentation for the above project
    c. Robot creation and design
    d. Creation of 3D animation, images, and flash movies
    e. Video creation
2. Conduct research to answer questions and evaluate information and ideas
    a. Creation of a new application
    b. Writing of C++ and other language programs
    c. Robot creation and design
3. *Design and conduct field and laboratory investigations to study nature and society – NOT DONE IN THIS CIRRICULUM*
4. Use technological tools and other resources to locate, select and organize information
    a. Creation of a new application
    b. Finding information about a computer profession
    c. Robot creation and design
    d. Video creation
5. Comprehend and evaluate written, visual and oral presentations and works
    a. Presentation and specification plans for the student project
    b. Robot creation and design
    c. Creation of 3D animation, images, and flash movies
    d. Video creation
6. Discover and evaluate patterns and relationships in information, ideas and structures
    a. Creation of a new application
    b. Understanding databases and database structure
    c. Robot creation and design
    d. Creation of 3D animation, images, and flash movies
    e. Video creation
7. Evaluate the accuracy of information and the reliability of its sources
    a. Research on a computer profession
    b. Specification documentation
    c. Video creation
8. Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation
    a. Specification documentation
    b. Application design documentation
    c. User-Interface design guidelines
    d. Creation of 3D animation, images, and flash movies
    e. Video creation
9. *Identify, analyze and compare the institutions, traditions and art forms of past and present societies – NOT DONE IN THIS CURRICULUM*
10. 14
    a. Role of computer programmers and analysts in a business
    b. Role of learning in a business environment
    c. Video creation

GOAL 2: Students in Missouri public schools will acquire the knowledge and skills to communicate effectively within and beyond the classroom.

Students will demonstrate within and integrate across all content areas the ability to

1. Plan and make written, oral and visual presentations for a variety of purposes and audiences
    a. Application specifications and design documentation
    b. Application proposal
    c. Video creation
    d. Creation of 3D animation, images and flash movie

2. Review and revise communications to improve accuracy and clarity
    a. As above

3. Exchange information, questions and ideas while recognizing the perspectives of others
    a. Application team brainstorming sessions
    b. Application team design sessions
    c. Video creation
    d. Creation of 3D animation, images and flash movie
    e. Robot design and creation

4. *Present perceptions and ideas regarding works of the arts, humanities and sciences – NOT DONE IN THIS CURRICULUM*

5. Perform or produce works in the fine and practical arts
    a. Creation of the new application
    b. Video creation
    c. Creation of 3D animation, images and flash movie
    d. Robot design and creation

6. Apply communication techniques to the job search and to the workplace
    a. Development of a student resume
    b. Development of base cover-letters

7. Use technological tools to exchange information and ideas
    a. Creation of application
    b. Use of internet resources for job searching
    c. Video creation
    d. Creation of 3D animation, images and flash movie
    e. Robot design and creation

GOAL 3: Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.
Students will demonstrate within and integrate across all content areas the ability to

1. Identify problems and define their scope and elements
    a. Creation of C++ programs
    b. Creation of student application
    c. Design of student application
    d. Robot creation and design
    e. 3D animation, image, and flash movie creation
    f. Video creation

2. Develop and apply strategies based on ways others have prevented or solved problems
    a. As above
    b. Application team discussion "meetings"

3. Develop and apply strategies based on one's own experience in preventing or solving problems
    a. As above

4. Evaluate the processes used in recognizing and solving problems
    a. As above

5. Reason inductively from a set of specific facts and deductively from general premises
    a. As above

6. Examine problems and proposed solutions from multiple perspectives
    a. As above

7. Evaluate the extent to which a strategy addresses the problem
    a. As above

8. Assess costs, benefits and other consequences of proposed solutions
    a. As above

GOAL 4: Students in Missouri public schools will acquire the knowledge and skills to make decisions and act as responsible members of society.

Students will demonstrate within and integrate across all content areas the ability to

1. Explain reasoning and identify information used to support decisions
    a. Source code documentation
    b. Application design and specification documents
    c. 3D animation, image, and flash movie creation

2. *Understand and apply the rights and responsibilities of citizenship in Missouri and the United States – NOT DONE IN THIS CURRICULUM*

3. Analyze the duties and responsibilities of individuals in societies
    a. Discussion and research of job responsibilities of different application development roles
    b. Video creation

4. Recognize and practice honesty and integrity in academic work and in the workplace
    a. Assessments
    b. C++ program creation
    c. Student application creation
    d. Video creation
    e. 3D animation, image, and flash movie creation
    f. Robot creation and design

5. Develop, monitor and revise plans of action to meet deadlines and accomplish goals
    a. Application design specification documents
    b. Video creation
    c. 3D animation, image, and flash movie creation
    d. Robot creation and design

6. Identify tasks that require a coordinated effort and work with others to complete those tasks
    a. As above

7. *Identify and apply practices that preserve and enhance the safety and health of self and others – NOT DONE IN THIS CURRICULUM*

8. Explore, prepare for and seek educational and job opportunities
    a. Research on different roles of computer programmers
    b. Creation of student resume
    c. Creation of sample cover letters

Show Me Standards

These are the ShowMe Standards in communication arts and mathematics. The bolded items are the standards that will be covered in this class.

Communication Arts

In Communication Arts, students in Missouri public schools will acquire a solid foundation which includes knowledge of and proficiency in:

1. **speaking and writing standard English (including grammar, usage, punctuation, spelling, capitalization)**
    a. covered in article reviews and class/team reports
    b. covered in research assignments
2. reading and evaluating fiction, poetry, and drama
3. **reading and evaluating nonfiction works and material (such as biographies, newspapers, technical manuals)**
    a. covered in article reviews
4. **writing formally (such as reports, narratives, essays) and informally (such as outlines, notes)**
    a. covered in article reviews and class/team reports
    b. covered in design documentation
5. **comprehending and evaluating the content and artistic aspects of oral and visual presentations (such as story-telling, debates, lectures, multi-media productions)**
    a. covered in personal presentations and team presentations
    b. covered in video creation
    c. covered in classroom debates and discussions
    d. covered in website creation
6. **participating in formal and informal presentations and discussions of issues and ideas**
    a. covered in classroom debates and discussions
    b. covered in video creation
    c. covered in personal presentations
    d. covered in website creation
7. identifying and evaluating relationships between language and culture

Mathematics

In Mathematics, students in Missouri public schools will acquire a solid foundation which includes knowledge of:

1. **addition, subtraction, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations**
    a. covered in base conversion
    b. covered in basic C++ and HTML programming
2. **geometric and spatial sense involving measurement (including length, area, volume), trigonometry, and similarity and transformations of shapes**
    a. covered in 3D animation
3. **data analysis, probability and statistics**
    a. covered in basic programming
    b. covered in application design
4. **patterns and relationships within and among functions and algebraic, geometric and trigonometric concepts**
    a. covered in programming
    b. covered in application design
    c. covered in 3D animation
5. **mathematical systems (including real numbers, whole numbers, integers, fractions), geometry, and number theory (including primes, factors, multiples)**
    a. covered in base conversation
    b. covered in application design
    c. covered in programming
6. **discrete mathematics (such as graph theory, counting techniques, matrices)**
    a. covered in arrays in programming

St. Charles COMMUNITY COLLEGE

Certificate of Credit

MID RIVERS TECH PREP CONSORTIUM -- ARTICULATION AGREEMENT

This is to Certify that

As a student of _____ High School

_____ Student Name

_____ Social Security Number

_____ Actual High School Graduation Date

_____ Expiration Date for Articulated Credit (3 years)

Courses Completed at High School Level				Equivalent Course(s) at SCC*		
Course #	Course Title	Grade	Units	Course #	Course Title	Credit Hours

*College Credit will be granted once the criteria for articulation have been met. (See below.)

Distribution of copies: St. Charles Community College (white); high school student (canary); high school file (pink); Mid Rivers Tech Prep coordinator (goldenrod.)

Articulation Criteria

Student Instructions: To obtain credit for course work on the St. Charles Community College transcript, the following course work and procedures must be completed within three years of high school graduation:

1. All high school course work being articulated must be with a grade of B or better.
2. Identify yourself as a Tech Prep Articulation student to the college registrar and counselor or academic advisor
   a. Present your white copy of this Tech Prep Articulation Certificate.
   b. Complete St. Charles Community College application form and enroll.
   c. Request your high school to send your transcript to the Office of the Registrar at SCC.
3. These articulated credits have been designed for dual credit at your high school and for credit at SCC towards an Associate of Applied Science Degree and not for the Associate of Arts (transfer) Degree.
4. Should you wish to transfer any of these articulated credits from St. Charles Community College to another college or university, please check with a counselor/advisor at the transfer institution to make sure they will approve the transfer of these articulated credits at that transfer institution.
5. Next, complete 15 hours of credit courses towards an AAS Degree at St Charles Community College with a 2.5 or higher grade point average in these 15 hours at SCC.
6. Next, request the SCC Admissions' office to record the Articulated High School Course(s) to your SCC transcript in writing. (Be sure to include your name, SCC student number, social security number and high school from which you graduated for verification purposes.)

LINN STATE

Technical College

NETWORKING SYSTEMS

Articulation Agreement
Between

Linn State Technical College And Lewis and Clark

General Understanding:
Linn State Technical College seeks to expand educational opportunities to students through advanced and professional technical education. The program specifics outlined below provide a baseline of courses available for articulated credit. This agreement will be reviewed annually to validate changes to curriculum, which are anticipated frequently due to technology upgrading and modifications. Contact LSTC should course changes be required. Seed attached addendum for competency justification.
Refer to "Competency" listing LSTC program content and course description (following) for clarification of articulated course learning objectives.

PROGRAM SPECIFICS:

COURSES WHICH QUALIFY FOR ARTICULATED CREDIT				
COURSE DESCRIPTION	COURSE NO.	CREDIT HOURS	SECONDARY COURSES TITLE/DESCRIPTION	COURSE NO.
Introduction to Microcomputer Usage	CPP 101	3	Computer Information Systems	
Windows Programming	CPP 139	3	Computer Information Systems	
CREDIT EARNED		6		

SIGNATURES:
LSTC agrees to grant college credit to students based on the "Goals, Guidelines, Procedures and the program specific guidelines/amendments" provided in the agreement.
We have reviewed this agreement and the supporting instruments and agree to the terms of this articulation agreement.

LINN STATE TECHNICAL COLLEGE AND Lewis + Clark (School District)

Vice President of Academic Affairs, LSTC — Date: 6-24-99

Director — Date: 6/29/99

Department Coordinator, LSTC — Date: Jun 24, 99

Program Instructor — Date: 6/30/99

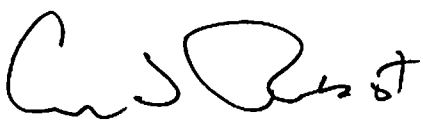
Linn State Technical College
Networking Systems Technology
One Technology Drive
Linn, MO 65051

ADDENDUM
June 24, 1999

1. Pertaining to the Articulation agreement between LSTC, Networking Systems and Lewis and Clark High School:

LSTC COURSE	AVTS COURSE	COMPETENCY JUSTIFICATION
Introduction to Micro computers	Computer Information Systems	Teaches Most current version of Microsoft Office
Windows Programming	C and C++, Java, Development of program	Louis and Clark students receive three semsters of programming.

2. Summary: Six credit hours will be awarded to a graduate of Lewis and Clark who have successfully completed the Computer Information Systems Course.



Cheryl S. Probst
Department Chair
Networking Systems Technology

Computer Information Systems
Lewis & Clark Career Center

Advisory Committee Meeting
October 15, 2008
Minutes

Members present: Martin Hanley, David Ray, Al Schroeder, Penny Frame, and Mark Madras

Meeting was called to order at 5:30 PM.
Martin gave a report on the SkillsUSA Nationals competition.
The group discussed this year's SkillsUSA competitions and the fact that we might have to come up with contests for the 2009-2010 SkillsUSA district level contests

The group discussed the outstanding student award interviews that were held last year. It was decided to hold those again this year.

During a discussion of the items covered in the program, it was the opinion of the committee that the instructor makes the following changes:

- Go from C++ to C#
- Cover JavaScript and CSS with 2nd year web students
- Use Office 2007 because it is required by articulation partners, but make sure that students maintain familiarity with Office XP/2003
- Security/logon protocols with the 2nd year students
- Team software with the 2nd year students
- .NET with all students (focus more on .NET than on base C++)

A discussion of end of course assessments/certification exams was held. It was suggested that we use brainbench or NOCTI exams and the group would be looking into possible additional certification exams that the students could choose to take.

The meeting was adjourned at 7:00 PM

Computer Information Systems
Lewis & Clark Career Center
Advisory Committee Meeting
April 21, 2008

Members present: Ross Baker, Al Schroeder, David Ray, Penny Frame, Tiffany Nelson, Martin Hanley

5:30 – Meeting was called to order
Brief visit in the CIS lab was held, then the committee recessed to travel to Applebee's
Meeting resumed at Applebees

Discussion of classroom equipment and requested software titles for the 2008-2009 school year was held. It was recommended that although Office 2007 will be required for articulation agreements, the class should still have exposure to Office 2005 and earlier as not all companies are moving to Office 2007. Some discussion of Open Office was held as well.

A discussion of the SkillsUSA contests was held. It was reported that 118 students participated in district level events with 72 earning medals. 71 went to state with 36 medals being earned. A discussion of the Trivia Night was held. Tiffany will be e-mailing some information that she has on trivia nights to Martin. It was also suggested that we approach the Chamber of Commerce for a list of business willing to donate items for the trivia night.

A discussion of the outstanding student was held. The committee will not be able to provide an additional award for the outstanding students, but will be conducting interviews on May 6th to help determine the outstanding students, to give the students a real life job interview experience, and for a grade. The committee will develop a standard set of questions to ask the students and Martin will develop a scoring guide to help keep the interviewing process impartial for grading purposes. Martin will e-mail the scoring guide to the committee for their review.

We need to build in C# learning for the students as the industry is moving this direction.

Meeting was adjourned at 7:30

Computer Information Systems
Instructional Methods

The computer information systems course uses a variety of instructional methods to accomplish the course goals.

The textbooks used in this class are at an upper secondary level and are designed to provide both practice and real world example problems for the students to use to expand their skill set. In addition to the textbook, students use Internet readings and other texts available in the classroom to enhance the information provided in the normal textbook. Text readings, lecture, demonstrations, and class discussion precede student assignments. The assignments vary between individual and team based projects based on the recommendations of the advisory committee. In addition to programming tasks, the students engage in article reviews, animation and robot creation and programming, video, CG art and still photography to help enhance their programming experiences.

Similar methods are used in all units of study throughout the course.

In summary, the following methods are used in this course:

Textbook reading

Supplement reading (Internet, magazine, and other texts)

Lectures and Power Point presentations

Classroom discussion and debate

Practice programs

Real-world application programs

Supplemental activities

Computer Information Systems
Alice 10 Scene Project

You need to create a 10 scene animation in Alice. You need to follow the following steps:

1. Create 10 storyboards
2. Create the text based list of instructions
3. Create the animation

You need to make sure that your animation is original. In other words, no copying from the ones that we have done in class or for other projects, nor can it be the same or similar to another student's animation. The same objects are allowed to be used; however, the overall concept must be different. The storyboard form is in your Z: drive and is named StoryboardForm.doc.

When you are finished, print out each of your storyboards, and your text based list and attach this document and turn it in. You should save your animation on your Z: drive using the name Alice10Scene

Below is the grading breakdown for this project. If you do not meet the requirements listed, you will receive 0 points in that category.

Name: _____

	Points Earned			
Task/Item	**1**	**2**	**3**	**4**
Number of unique storyboard scenes	5	6-7	8-9	10
Number of storyboard items missing from text based list	7-10	6-8	3-5	0-2
Number of different objects used throughout the 10 scenes	4-5	5-6	6-7	8+
Scenes flow logically				YES
Scenes are creative				YES

Total points: _____ out of 20

Comments

Computer Information Systems
Basics of Computing
Computing Data Types

Type	Information
Character	Stores: _____ Size: _____ Examples: _____
Byte	Size: _____
Boolean	Stores: _____ Size: _____
Integer	Min Value _____ Max Value _____ Other Info:
Double	Min Value _____ Max Value _____ Size _____
Long	Min Value _____ Max Value _____ Size _____
String	Stores: _____ Size: _____ Examples _____

ASCII
American _____ Code for _____ _____

Other Information about ASCII

EBCDIC
Extended _____ Coded _____ _____ Code

Other Information about EBCDIC

Computer Information System
Basics of Computing
Compiling and Linking

Steps of Compiling and Linking

1st : _____

2nd: _____

3rd: _____

4th: _____

5th: _____

Purpose of Syntax Checking

_____

Methods
Depends upon the _____
Some have a _____ checker
Some require _____ to do a syntax check

Purpose of Pre-compiling

C/C++ Pre-compiler directives
_____

_____

Purpose of Compiling

Purpose of Post-Compilation

Purpose of Linking

DLL
Definition : _____

Links to the _____ at _____not _____

Must be _____ with executable

LIB
Definition: _____

Links to the executable at _____.

Does not need to be _____with _____

Examples of DLLs

shell.dll _____

odbc32.dll _____

mapi.dll _____

Compiled Programs
Creates a _____

_____other programs _____ need to be installed

_____ _____ than Interpreted

Interpreted Programs
Does _____ typically create a _____

Requires some other _____ to be installed to run the program.

_____ _____ than Compiled/Linked

Usually found on _____ Generation or higher

Can be found on _____ Generation languages

Basics of Computing
Binary Number System

Convert to decimal:

Binary #	Decimal #	Binary #	Decimal #
101011		110011	
10		1111	
10011		1101101	
111111100		1100110111	
10000000001		101010101010	
1010101		110011	
1000100		11110000	

Convert to binary:

Decimal #	Binary #	Decimal #	Binary #
681		2347	
5		21	
42		119	
132		548	
2000		3100	
74		313	
210		257	

Add the following binary #'s

1000 + 10
10010 + 1010 + 10
1010 + 1111
101 + 1111
11+111+111

Multiply the following Binary #s

1001 x 10
1011 x 11
1000x100
1111x111
1X1
10101 x 11

Computer Information Systems
Unit 2: Computing Basics
Computing Hardware

Types of PCs

1. _____ 2. _____

3. _____ 4. _____

Other Types of Computers

1. _____ 2. _____

3. _____ 4. _____

5. _____ 6. _____

Stages of Computer Functioning

1. _____	2. _____
3. _____	4. _____

Components of a computer

1. _____	2 _____
3 _____	4 _____
5 _____	6 _____
7 _____	8 _____

Typical Components

1. _____	2 _____
3 _____	4 _____
5 _____	6 _____
7 _____	8 _____
9 _____	

Computer Information Systems
Logical Operators and Computer Logic
Basics of Computing

Terminology

Syntax	
Software	
Hardware	
ASCII	
Bit	
Bug	
Byte	
Kilobyte	
Meg/megabyte	
Gig/gigabyte	
Terabyte	
Memory	
Return Value	
API	
Library	
Compile	
4GL	
Portability	
Benchmark	
Alpha/Beta	

Types of Software

Operating System	
Desktop Publishing	
Groupware	
Spreadsheets	
Networking	
Word Processing	
Graphics	
Databases	
Browsers/Internet	
Games	
Financial	
Business	
Scientific	

Computer Information Systems
Basics of Computing
Order of Operations and C++ Operators

Order of Operations Rules

1. _____

2. _____

3. _____

4. _____

PEMDAS or Please Excuse My Dear Aunt Sally Means

P : _____ D: _____

E: _____ A: _____

M: _____ S: _____

C++ Order of Operations

Primary _____

Unary _____

Multiplicative _____

Additive _____

Shift _____

Relational testing _____

Equality _____

Logical AND _____

Logical XOR _____

Logical OR _____

Conditional AND _____

Conditional OR _____

Conditional Statement _____

Assignment _____

What the Different Operators Mean

Operator	What It Means	Operator	What It Means

Computer Information Systems
Logical Operators and Computer Logic
Basics of Computing

Logical AND

_____ - C++ Symbol

Syntax _____

First Value	2nd Value	Return Value
1	1	
1	0	
0	1	
0	0	

Examples:

Logical OR

_____ - Symbol in C++

Syntax: _____

First Value	2nd Value	Return Value
1	1	
1	0	
0	1	
0	0	

Examples

Logical Exclusive OR

_____ Other name for this

_____ - C++ Symbol

Syntax: _____

First Value	2nd Value	Return Value
1	1	
1	0	
0	1	
0	0	

Examples

Computer Logic

IF…THEN

Conditional AND

C++ Symbol _____

IF…THEN…ELSE

Conditional OR

C++ Symbol _____

Computer Information Systems
Hexadecimal to Decimal

Convert the following Decimal #s to Hexadecimal

Decimal	Hex	Decimal	Hex
456		19	
24		87	
64		32	
128		256	
8		15	
105		512	

Convert the following Hexadecimal #s to Decimal

Hex #	Decimal	Hex	Decimal
AF		1A	
BC		3D2	
10		C	
24		25E	
EEE		AAA	
ABCD		1234	
23ED		ED23	

Computer Information Systems
Basic Computing Concepts
Hardware Presentation

Name: _____

Scoring guide

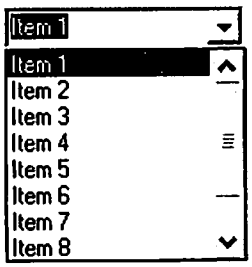
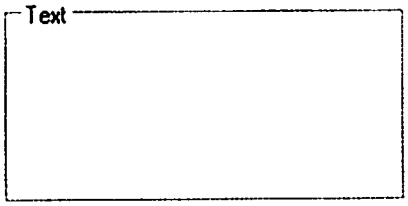
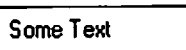
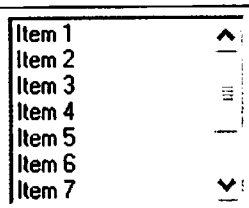
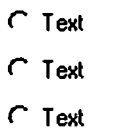
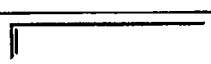
	Points Earned			
Item	**1**	**2**	**3**	**4**
Number of "PC" Types	1	2	3	4
Number of wearable computers	1	2		
Number of Super Computers	1	2		
Presented full information about the "PC" Types: cost, mfgr, specs	Only 1	2 of them	All of them	
Provided full info on wearables: Cost (if available), mfgr, details	Only 1	2 of them	All of them	
Provided full info about the super computers: mfgr, uses	Only 1	All of them		

Points earned _____ of 17 – Grade _____

Comments:

Computer Information Systems
Business Application Development
GUI Design

Windows Controls

Control Shape	Control Name	Control Uses
		
		
		
		
		
		
		
		

Terms

Modal - _____

Modeless - _____

Computer Information Systems
User Requirements Gathering Assignment

On your Z: drive is a document called UserReqList.doc. You will need to use this document for this assignment. You will interview each other in your team (AM Class – teams of 4, PM Class – 2 teams of 4, 1 team of 3) to get the details on each team member's "fantasy" application. You need to make sure that you have answered each of the questions listed in the UserReqList file. After your interviews, fill out one copy of the UserReqList file for each of your team members. You must create the name for the application, not your team members.

After you have completed the file for each member of your team, add each of the documents (using cut and paste) to this document. Save the combined file in your Z: drive using the name UserRequirementsAssignment.doc. DO NOT PRINT OUT the document. Mr. Hanley will handle printing as necessary. If you do not follow the directions, you will receive a 0 for this assignment.

Tips: Do not spend a significant amount of time joking around. Some of that does happen in user requirement interviews, but keep it to a minimum. You will need the time to get this assignment finished. Be thorough in your descriptions. It would help someone create the full design documents without needing to get the user involved multiple times.

Scoring Guide

	Requirements		
Item	**1**	**2**	**3**
Number of Team members without information		1	0
Number of questions not answered.	4-6	1-3	0
Spelling errors	4-6	1-3	0
Accuracy compared to other team responses (number of differences)	5-6	3-4	0-2
Completeness (instructor's choice)			

Total points: _____ out of 15

Computer Information Systems
GUI System Development

Working alone, create a multiform VisualBasic application to keep track of student information. You will need to have a form for the main menu, and then forms for each individual set of data that you might be collecting (students, parents, classes, etc). The informational forms need to be called from the main menu. Please name this program StudentInfoGUI.

Name: _____

	Points Possible		
Item	**1**	**2**	**3**
Number of Info Forms	2	3-4	5+
Use of shortcuts (number of items missed)	7-10	3-6	0-2
Appropriate use of screen area (instructor's choice)			
Consistency (number of inconsistent items)	6-8	3-5	0-2
Spelling errors	4-6	1-3	0
Capitalization errors	4-6	1-3	0
Number of forms that do not have close buttons	2	1	0
Creativity and attractiveness of GUI (instructor's choice)			

Total Points Earned: _____ of 24 Max

Computer Information Systems
Terminology List
Structured Code

Term	Meaning
Structure	
Sequence Structure	
Selection Structure	
Loop Structure	
Do while	
Do Until	
Block	
Nesting	
Case Structure	
Pretest Loop	
Posttest Loop	
Priming Read	

Computer Information Systems
Business Application Development
Principles of GUI Design

Objective	Gain a greater understanding of the components of GUI design
Terms - Reserved Icons - Reserved Words - Modal - Modeless - Control Types	
Bad GUI Design - Forgetting the User - Control - Too Many Features at Top Level - Example of Bad GUI (Why bad)	
Good GUI Design - Understand People - Be Careful of Different Perspectives - Reserved Icons - Design for Clarity - Reserved Words - Design for Consistency - Provide Visual Feedback - Provide Audible Feedback - Keep Text Clear - Provide Traceable Paths - Provide Keyboard Support - Watch Presentation Model - Modal vs. Modeless - Control Design - Example of Improved (Why better)	

Computer Information Systems
Accessibility Assignment

You need to research on the internet how to design for accessibility issues. You will be asked to create systems for users that could be blind, color blind, hearing impaired, or other disabilities. As a developer, you need to know how to develop applications for those situations. After you complete the research, you should write a short (1-2 pages) paper on how to develop applications for accessibility. You should cite the sources that you used and use proper format. Spelling and grammar do count in this assignment. After you have completed the paper, fill out this form and turn only this form in. Do not print out your paper.

Name : _____

Title of Research Paper: _____

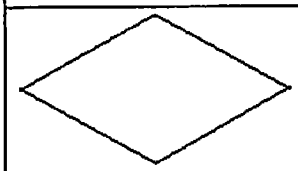
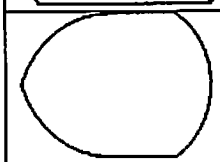
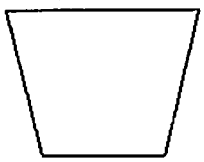
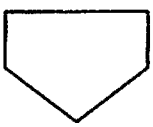
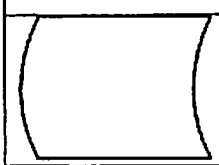
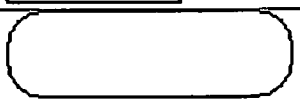
Where can the paper be found? _____

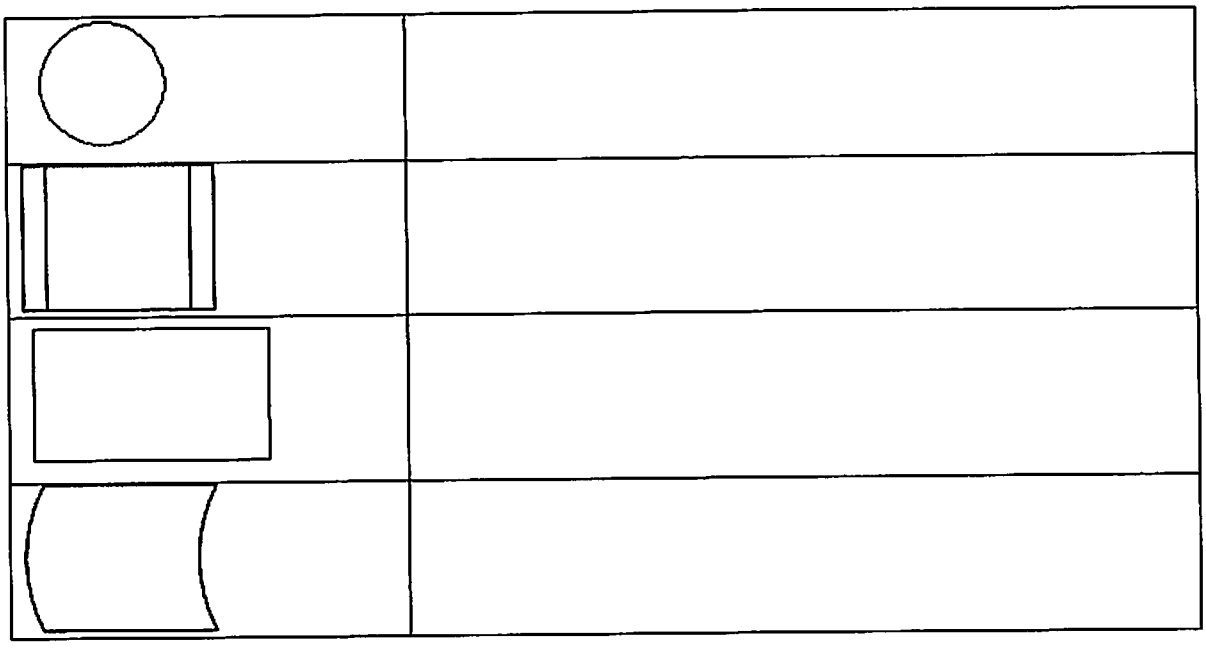
Scoring Guide

	Requirements		
Item	**1**	**2**	**3**
Spelling errors	4-6	1-3	0
Number of sources used and properly cited	2	3	4
Grammar errors	4-6	2-3	0-1
Number of pages (in 12 point font)		1 or 4+	2-3
Clear explanation of how to program for accessibility (instructor's choice)			

Total points: _____ out of 15

Computer Information Systems
Business Application Development
Flowcharting

Symbol	Meaning
	
	
	
	
	
	
	
	
	



Computer Information Systems
System Design

Each group will pick out a system to design. The system must include at least three large modules for minimum credit. The more large modules there are, the higher the number of points. A large module is defined as a flowchart of at least one page of roughly 40 symbols. There should be at least one loop and two if-then-else structures per major module. The system must also include one menu that calls the individual modules. You may use either a case structure or a nested if-then-else structure to select the different menu options.

Make sure that you pick a system that you are comfortable with as you will be using this system for a number of different assignments. After selecting the system you wish to use, you must get the concept (unless it is one of those listed below) approved by Mr. Hanley. Possible systems: **racing game, role playing game, high school sports tracking system, high school grade tracking system, retail sales system, or lawn mowing business system.**

There will be a confidential partner evaluation form that each team member MUST fill out before any points will be awarded. The eval form will be done via the examview test program. It is Flowcharting Team Eval and the password is cis2006. The team members should fill out the evaluation form before the scoring guide is turned in and they should fill out the form without letting the other team members see their responses. A copy of this scoring guide must be turned in for each team member.

Below is your scoring guide and there are items that you must fill out. If the items are incorrect or missing, you will not receive any points for that section.

Student Name	
Project Name	
Average # of loops	
Average # of selection structures	
Number of modules	

	Minimum requirements for points				
Item	**1**	**2**	**3**	**4**	**5**
Number of modules			3	4-5	6+
Number of main modules missed in the main menu	4	3	2	1	0
Average # of loops			1	2-3	4+
Average # of selection structures			2	3-4	5+
Creativity of the project (instructor's choice)					
Number of incorrect symbols used	9-10	7-8	5-6	3-4	0-2
Other errors in flow chart	9-10	7-8	5-6	3-4	0-2
Partner points	1	2	3	4	5

Total points possible: 40

Total points earned: _____

Percentage: _____

Computer Information Systems
Article Review
Graphics Chips Assignment

For this assignment, we will be reviewing an article from an issue of PC Magazine. The article is about graphics chips. Your review must include only two paragraphs. The first paragraph will be an article summary. The second paragraph is your opinion on the information presented. I want to know your thoughts on the information, do not just restate what the article says. Remember that a paragraph has no specific size, but it includes a statement and/or subject, a conclusion, and whatever is needed to support those two items.

You should save the review on your Z: drive using the name Article2Review. After you have saved the document, print it out and attach it to this document. This page will have your final score and how you were graded. If you had more errors than listed for the lowest entered category, you will receive zero points for that category.

Name: _____

Item	For 1 point	For 2 points	For 3 points
Proper in-line citation and reference list		Has one in proper format	Has both in proper format
Number of paragraphs			Has only 2 paragraphs
Grammatical errors	7+ errors	4-6 errors	0-3 errors
Spelling errors	4+ errors	1-3 errors	0 errors
Article summary	Misses 3-4 points	Misses 1-2 points in the article	Explains the whole article
Opinion section			Opinion clearly stated

Total points: _____ out of 15 possible

Article:

Case, Loyd. (2006, September 5). Graphics chips reloaded. *PC Magazine, 25(15),* 77.

Computer Information Systems
Personal Web Site Design Assignment

Using either FrontPage or Dreamweaver, create a website about yourself and your family. You will need to include the following items:

- Personal information about yourself
  - School
  - History
  - Future plans
- Information about your family
  - Parents
  - Siblings
  - Grandparents
- Your interests
  - Use pictures from the web or personal pictures
  - Include hobbies, music, etc
- Vacations
  - Include any vacations that you have taken

You may (and are encouraged to do so) add other sections to your web site. Remember to utilize the 8 rules of GUI design that were discussed in the video. After completion of the web page, fill out this document and turn in.

Name : _____

Title of Web Site : _____

Where is the web site stored _____

Website start file name _____

Scoring Guide

	Requirements		
Item	**1**	**2**	**3**
Number of items listed in personal information above not included	2	1	0
Includes a page about family			Yes
Spelling errors	4-6	1-3	0
Includes a section about interests			Yes
Includes a section about vacations			Yes
Other sections included	1	2-3	4+
Number of the 8 rules not followed	5-7	3-4	0-2
Creativity (instructor's choice)			

Total points: _____ out of 24

Computer Information Systems
Unit 1: Role of the Software Professional
Systems Analyst and Database Administrator
Internet Assignment

Name: _____

Go to this web site: http://www.bls.gov/oco/ocos042.htm

List 3 of the responsibilities of a Systems Analyst/Database Administrator

How many positions in total were held in 2002? _____

List 4 training items required for this type of position

What is the expected job outlook for these professions?

Fill in the following blanks for analysts:

Lowest Salary		Highest Salary	
Median Salary		Federal Government Salary	

List 4 related occupations

Computer Information Systems
Role of the Software Professional – Programmer
Programmer Information

Before reading the article entitled "Job Information Computer Programmers," place a √ next to those statements that you think are true. Then, during or after the reading change any that you wish by crossing through the checked ones you think not to be true, and by checking any new ones you now agree with. Be prepared to defend your interpretation by specific references in the text.

1. ____ A degree is not important to a computer programmer.
2. ____ CASE tools are the best things to use when developing software.
3. ____ Programmers will test and debug programs as long as the program is being used by someone.
4. ____ There are only two broad categories of programmers.
5. ____ Programmers must work with experts in the field to create functional programs.
6. ____ Programmers always work in an office environment.
7. ____ Programmers do not suffer from work related injuries like other professions.
8. ____ There are more self-employed/consultant programmers than there are programs who work for companies.
9. ____ Education is more important than experience to companies hiring programmers.
10. ____ Most programmers have a graduate degree.
11. ____ Employers want programmers who can communicate with other programmers, the ability to communicate with non-programmers is not important.
12. ____ If you are really good at C++ programming, you will be more likely to get a job at a company that uses C++ than someone who knows Java, Progress, C++ and VisualBasic but not as well as you know C++.

Computer Information Systems
Role of the Software Professional – Software Engineer
Software Engineer Information

Name:

Place either a *, a +, or a O on the left hand side of the column next to each item. The * indicates that you believe you are an expert on the item. The + indicates that you have heard of the item. A O indicates that you do not know the item. After reading and discussion, you will do the same to the right hand side.

	The difference between a software engineer and a programmer	
	The job outlook for software engineers	
	The pay for a software engineer	
	How the pay is different between a software engineer and a programmer	
	The types of jobs a software engineer might hold	
	The training required of a software engineer	
	The growth areas of a software engineer	

Describe in your own words the difference between a software engineer and a programmer.

Internet Based Assignment
Computer/Professional Ethics

http://www.templetons.com/brad/copymyths.html

Is copying and giving away software legal as long as no money is charged?

If you pirate over $_____worth of software it is a felony.

What are the 2 protection purposes of copyright?

http://www.is.cityu.edu.hk/research/resources/isworld/ethics/

What does professional ethics all about?

List 3 items from the Code of Ethics list of issues (the 3 that YOU think are most important)

List 3 advantages of a code of ethics

List 3 disadvantages of a code of ethics

In the AIS Code of Conduct, what are the three categories?

In the same code, for each category, list the item that you think is most important:

Category 1:

Category 2:

Category 3:

http://www.ethicsweb.ca/resources/computer/index.html

List 5 of the computer ethics institutes and organizations:

Scan through the list of institutes, pick 3 and give their views on censorship:
Institute 1: _____
Institute 2: _____
Institute 3: _____

http://csciwww.etsu.edu/gotterbarn/secepp/

What are the benefits of adopting the code of ethics?
What are the seven sections of the code of conduct?

List one item from each section that you think is important (do not list jus the number, but the text):

Section 1: _____

Section 2: _____

Section 3: _____

Section 4: _____

Section 5: _____

Section 6: _____

Section 7: _____

What is the organization from St. Louis that has adopted this code of conduct?

List 5 items from that organization's code of ethics.

Computer Information Systems
Role of the Software Professional
Equivalent Titles

Job Title	Equivalents
Systems Engineer	Network _____ _____ Administrator Systems _____ LAN _____ MCSE
Software Engineer	_____ Developer Software _____
Information Architect	Content _____ Copy _____ _____ writer
Data Architect	Database _____ Data warehouse _____ Database _____
Documentation Specialist	Technical _____
User Interface Designer	_____ designer Graphic _____
Helpdesk Analyst	Helpdesk _____ Helpdesk specialist _____ support Helpdesk level I/II
Mail Server Administrator	_____ administrator
PC Maintenance Technician	Desktop _____ Support guy _____
Quality assurance specialist	QA _____ Tester
Technical Trainer	_____
Telecommunications Analyst	Phone _____
Security Administrator	_____ Engineer
IT Project Manager	_____ manager Program _____ _____ Manager
Network architect	Network _____ Network _____
Development Manager	_____ Leader Supervisor IT _____

Computer Information Systems
Unit 1: The Role of the IS Professional – Computer Programmers
Areas of IS Employment with duties and skills

1. Skills/Abilities Needed
   a. Need to be _____
   b. Must like _____ with the computer
   c. Ready for _____
   d. _____
   e. Able to work both in a _____ and _____
   f. Able to handle _____
   g. Be able to create _____ that are _____, _____, _____
   h. Must be _____
   i. Must be _____
   j. Able to think _____ and _____
   k. Thorough and _____
   l. Have good _____ skills
   m. Willing to try _____
2. Duties
   a. _____, develop, _____, and debug all styles of applications
   b. Convert _____ and _____ into code
   c. _____ existing programs to find cause of errors and revise code as necessary
   d. Deliver _____ and useable code in a timely fashion
   e. Analyze, _____, and test upgrades of externally developed application programs
   f. _____ performance of programs after implementation to keep up-to-date on users' needs and possible software bugs
   g. _____ and _____ documentation that describes installation and operating procedures.
   h. Design and code _____, graphical user interfaces, printed outputs, and interfaces with other systems.
   i. _____ programs and correct errors detected n the compiling process.
   j. _____ with users to keep in touch with everyday problems and bugs that may be found by the users.
   k. Provide _____ by responding to inquiries regarding programming errors, problems, or questions.
   l. _____ user requirements/needs
   m. Convert needs to _____/design documents
   n. Attend _____
   o. _____ solutions

Computer Information Systems
Unit 1: The Role of the IS Professional
Internet Professional

1. Skills/Abilities Needed
   a. Able to do both _____and _____work
   b. _____
   c. Have a wide range of _____ knowledge
   d. Have good _____ skills
   e. Able to handle _____
   f. Have a wide range of _____ and _____
   g. Willing to try _____
   h. Able to visualize the _____
   i. Able to create things on-time and on-budget
   j. Ability to _____ new and evolving website technologies.
   k. Ability to utilize _____ word processing and internet software.
   l. _____and _____skills.
   m. Computer graphics and _____.
   n. Ability to create, _____, and edit written materials.
2. Job Duties
   a. Develop _____interfaces
   b. Integrate _____ applications
   c. Write or update _____ (server or client)
   d. Produce/optimize _____and _____
   e. _____available design technologies
   f. Conceptualize/plan new web site _____and _____presence
   g. Design site _____and _____
   h. Develop project _____
   i. Perform _____testing
   j. Administer/maintain _____
   k. _____ hardware problems
   l. Ensures that web sites are accessible from a variety of _____ environments.
   m. Ensures that pages are delivered to the viewer at sufficiently
      _____.

Computer Information Systems
Unit 1: The Role of the IS Professional
Areas of IS Employment - Analyst and DB Administrator

1. **Skills/Abilities Needed**
   a. _____ oriented
   b. Able to do both _____ and _____ work
   c. Answer questions _____
   d. _____
   e. Handle _____
   f. Have good _____ skills
   g. _____ & Quick thinking
   h. Willing to work _____ hours
2. **Duties**
   a. Meet with application _____ and _____
   b. Add new data _____ and modify existing ones
   c. Review changes in the DB _____ with end users and programmers
   d. _____ and _____ implementation of software
   e. Develop _____ specific program code
   f. _____ database performance
   g. Install _____ software
   h. Work with IT _____
   i. Admin database _____
   j. Create _____ as required by end users
   k. Test new _____ software upgrades
   l. Keep up-to-date on _____technology
   m. Keep up-to-date on _____
   n. Keep up-to-date on _____ trends
   o. Learn their _____

Computer Information Systems
Work Program Experience

At the present time, there is no formal work experience program for this class. That being said, the students work on projects for members of the community, businesses, and the school. This provides them with a real-world work simulation in the classroom. Additionally, summer internships are available at some companies after the students have completed this class and some additional post-secondary education.

Lewis Clark Career Center

2005 - 2006 Placement Summary

Hanley, Martin

Total Students:	25	
Total Placed:	24	96%
Total Placed Related:	15	60%
Positive MSIP Placement:	19	76%
Employed Related:	4	16%
Employed Not Related:	5	20%
Military Related:	0	0%
Military Not Related:	0	0%
Continuing Education Related:	11	44%
Continuing Education Not Related:	4	16%
Not Available:	0	0%
Not Placed:	1	4%
Status Unknown (Not Found):	0	0%

Lewis & Clark Career Center
CIS
PROGRAM
STANDARDS

CIS
PROGRAM IMPROVEMENT SUMMARY PROFILE

School _____

Date _____

	Number of Standards	Number Met
1. Resource	4	
2. Curriculum	3	
3. Instruction	7	
4. Career & Technical Student Organization	2	
5. Instructional Climate	1	
6. Guidance	3	
7. Professional Development	1	
8. Program Administration	6	
9. Facilities	1	
10. Performance	7	

Reviewers(s) _____

_____

CIS PROGRAM STANDARDS

RESOURCE STANDARDS

1. A The program offers a coherent sequence of units leading to occupational competence or higher educational credits.	**___ Met ___ Not Met**

	Yes	No
• The program offers at least 3 units.	☐	☐
• The program offers at least 3 units of credit.	☐	☐

1. B The teacher has a valid renewable teaching certificate for the program area.	**___ Met ___ Not Met**

• The district has on file a current teaching certificate for the teacher for the program area.	☐	☐
• The teacher maintains a file containing documentation of completion of the requirements for renewal of the teaching certificate.	☐	☐

1. C Course offerings are appropriate for meeting the needs of students and employers.	**___ Met ___ Not Met**

• Course offerings are based on enrollment trends, student interest surveys, and employment needs.	☐	☐

1. D Class size and equipment is appropriate for the program area.	**___ Met ___ Not Met**

• Class size does not exceed 28.	☐	☐
• Each student will have a functional computer and the full suite of software.	☐	☐

Comments on Resource Standards:	**Number of Standards Met: _____**

PROCESS STANDARDS

2. Curriculum

2. A The program has a written curriculum and services to meet the needs of students. The curriculum is congruent with the overall philosophy of the program.	**___ Met ___ Not Met**

	Yes	No
• The written curriculum is formally adopted by the board	☐	☐
• The written curriculum guide includes the following components:		
°rationale which relates the program goals to the district's mission and philosophy	☐	☐
°a general description of the content of the program	☐	☐
°general goals for graduates in the program area	☐	☐
°cross references to the knowledge (content), skills and competencies (process) students need to meet the goals established by the district and the Show Me Standards	☐	☐
• Curriculum and instructional strategies have been developed which integrate academic and career education competencies.	☐	☐

2. B The curriculum has been developed with appropriate input and is reviewed on an annual basis.	**___ Met ___ Not Met**

• The curriculum guide is utilized by staff planning the instructional program and in the delivery of educational services.	☐	☐
• Systematic procedures are in place to evaluate and revise the curriculum regularly based on actual student needs and indications of student mastery.	☐	☐
• The curriculum is articulated through grade levels and common subject areas to ensure continuity of learning..	☐	☐
• The curriculum is reviewed annually and revised as necessary to reflect changes occurring in industry, student needs, and instructional technology.	☐	☐
• Resources in the community are used to enrich the curriculum.	☐	☐

2. C Learner outcomes and competencies for each course are clearly stated.	**___ Met ___ Not Met**

• The curriculum for each course/program has identified competencies organized as units of instruction, with appropriate assessment methods and resources.	☐	☐

Comments on Curriculum Standards:	**Number of Standards Met: _____**

3. Instruction

3. A Classroom instruction is congruent with the written curriculum.	___ Met ___ Not Met

	Yes	No
• Daily lesson plans derived from the curriculum guide are used to direct the educational process.	☐	☐
• The teacher is instructed in the use of non-biased practices and language which has been reinforced by policies, procedures and/or on-going awareness training to recognize racial, cultural, gender, or disability bias in curriculum and instructional practices.	☐	☐

3. B The program provides students with assistance in the transition to the workplace and/or continued education.	___ Met ___ Not Met

• Worksite educational opportunities (job shadowing, experiential education, internships, etc.) are available.	☐	☐
• Articulation agreements have been implemented with postsecondary institutions and/or with other community resources, where applicable.	☐	☐

3. C Sufficient breadth and depth of instruction is provided in the classroom to meet the needs of all learners.	___ Met ___ Not Met

	Yes	No
• Varied instructional strategies are used to address all learning styles.	☐	☐
• Coordination procedures have been developed to insure appropriate instruction, review, and reinforcement for individual students served by special/support programs.	☐	☐
• Students are provided appropriate support services (including supplementary aids and accommodations, when needed) to enter and succeed in the career education program.	☐	☐
• The teacher is knowledgeable about special/support programs offered by the district, and actively participates in the Individual Education Plan/Career Education Plan process.	☐	☐

3. D The teacher monitors student progress toward course objectives and learner outcomes.	___ Met ___ Not Met

• Program and/or course objectives, assessment methods and performance expectations are shared with students and parents/guardians prior to instruction.	☐	☐
• An instructional management system exists for reporting student and class mastery of curriculum competencies.	☐	☐

3. E The teacher and students have access to resources to effectively implement the curriculum of the program.	___ Met ___ Not Met

• Resources in the community are utilized to enrich the curriculum.	☐	☐
• Procedures are in place for the periodic updating and replacement of instructional materials.	☐	☐

3. F Equipment for the program supports the curriculum and instructional process.	___ Met ___ Not Met

- Appropriate instructional technology is available for students and staff. ☐ ☐
- Equipment is in good repair and proper working order. ☐ ☐
- There are procedures for reporting and requesting repairs, and repairs are made promptly. ☐ ☐

Comments on Instruction Standards:	Number of Standards Met: _____

4. Career and Technical Student Organization

4. A Students are provided an opportunity to participate in SkillsUSA and/or other organizations as part of the program.	___ Met ___ Not Met

	Yes	No
• SkillsUSA is an integral part of the program operation.	☐	☐
• The administration provides recognition and support for SkillsUSA.	☐	☐
• Resources are provided for the students and the teacher to participate in SkillsUSA activities.	☐	☐

4. B There is a program of activities developed for the year which includes school and community service projects, leadership development activities, and the competitive events program.	___ Met ___ Not Met

	Yes	No
• A program of activities is developed annually by students and the teacher and is based upon the goals, objectives, and curriculum of the program.	☐	☐
• The program of activities includes a series of activities scheduled throughout the school year.	☐	☐

Comments on Career and Technical Student Organization Standards:	Number of Standards Met: _____

5. Instructional Climate

5. A The instructional climate for the program is conducive to learning and emphasizes the capabilities of each student and the worth of all students.	___ Met ___ Not Met

	Yes	No
• The teacher holds high expectations for teaching and student learning.	☐	☐
• Attendance by students and staff is high.	☐	☐
• The teacher accepts the responsibility of reducing student failure and promoting student success.	☐	☐
• Each student is given the opportunity to succeed in school.	☐	☐
• Student work is displayed in the classroom and the building.	☐	☐
• The classroom is orderly; standards of conduct are understood by everyone and enforced consistently.	☐	☐
• Classroom organization provides for optimum use of instructional time, equipment, and resources.	☐	☐

Comments on Instructional Climate Standards:	Number of Standards Met: _____

6. Guidance

6. A The program has sequential activities designed to assist students with making career and educational choices.	___ Met ___ Not Met

• Educational/career information resources are readily available to students.	☐	☐
• The counseling staff provides classroom instruction on career development topics.	☐	☐

6. B A recruitment plan is implemented for the program.	___ Met ___ Not Met

• Recruitment efforts are focused on the needs, interests, and career objectives of the students in response to the needs of the business community.	☐	☐
• The recruitment plan seeks to enroll students that are representative of the total school population.	☐	☐

6. C The admissions policy for the program adheres to the philosophy and goals of the school.	___ Met ___ Not Met

	Yes	No
• Students enrolled in the program have an interest in the career area and the ability to benefit from the program.	☐	☐
• The teacher obtains assistance from the guidance staff and others within the school for recruiting and selecting students.	☐	☐
• All students have equal access to the program and its activities.	☐	☐
• Program enrollment is representative of the total school population with respect to race, gender, and disability.	☐	☐

Comments on Guidance Standards:	Number of Standards Met: _____

7. Professional Development

7. A Professional growth is a continuous process of refining skills and keeping current with new developments in the fields of education and business.	___ Met ___ Not Met

• The teacher prepares and follows an annual plan for professional growth and development.	☐	☐
• The teacher participates in technical and professional activities to update knowledge and skills.	☐	☐
• Time is provided to staff as an encouragement to participate in staff development activities.	☐	☐
• The teacher has been trained, within the last three years, in recognizing the signs and symptoms of substance abuse and has been trained in implementing the district's intervention strategies.	☐	☐
• The teacher is encouraged to maintain membership in and participate in professional organizations.	☐	☐

Comments on Professional Development Standards:	Number of Standards Met: _____

8. Program Administration

8. A The program has a written statement of educational mission and overall goals.	___ Met ___ Not Met

	Yes	No
• The statement of mission and goals includes the purpose and goals established for the program area.	☐	☐
• Provisions are made for the periodic review and appropriate modification of the program goals to reflect current conditions with input from students, parents, and community representatives.	☐	☐
• The mission and goals reflect the needs of all students, the labor market and the community.	☐	☐

8. B There is a written plan to evaluate the effectiveness of the program.	___ Met ___ Not Met

• Measurable objectives identified for each career education program.	☐	☐
• Established performance measures for each measurable objective.	☐	☐
• An acceptable level of performance has been determined for each measure.	☐	☐
• An established procedure for gathering, analyzing, and reporting data relevant to each measure of performance.	☐	☐
• An established procedure for reporting the outcomes and corrective action (if necessary) for all measurable objectives for each career education program.	☐	☐

8. C There is a written set of policies and procedures which guide operations of the program.	___ Met ___ Not Met

• Written policies are in place for the program, and shared with students and parents.	☐	☐
• There is provision for periodic review of the policies by the teacher, administrators, and students.	☐	☐
• The program is in compliance with policies and standards established by state and federal education agencies.	☐	☐

8. D There are procedures in place to ensure efficient financial management and accountability.	___ Met ___ Not Met

• The teacher provides input for determining the program budget.	☐	☐
• An accounting system is in place to provide for the complete and systematic recording of all funds received and expended, and appropriate school accounts are utilized.	☐	☐
• An inventory of equipment purchased with state and/or federal funds is maintained for the program.	☐	☐

8. E An advisory committee provides community input and support for the program.	___ Met ___ Not Met

	Yes	No
• An advisory committee has been established and is active.	☐	☐
• The advisory committee has a written program of activities and a record of all meetings.	☐	☐
• The advisory committee membership is appropriate for the program area.	☐	☐

8. F The teacher systematically and frequently provides information to various groups about the activities of the program.	___ Met ___ Not Met

• A written plan provides guidance for providing information to various groups.	☐	☐
• The teacher maintains open communications with local media and school district public information staff.	☐	☐
• The teacher participates in local community organizations and activities.	☐	☐

Comments on Program Administration Standards:	Number of Standards Met: _____

9. Facilities

9. A Facilities are healthful, adequate in size, clean, well-maintained and appropriate to house the program.	___ Met ___ Not Met

• The program is housed in appropriate facilities.	☐	☐
• Adequate maintenance services are provided to maintain all educational facilities in a clean, safe and orderly state.	☐	☐
• All observed safety and emergency devices are in place and operational.	☐	☐
• Staff members and students are trained in the safe and proper use of all safety and emergency devices where applicable.	☐	☐

Comments on Facilities Standards:	Number of Standards Met: _____

PERFORMANCE STANDARDS

10. A All students enrolled in the program demonstrate mastery of at least eighty percent (80%) of the curriculum competencies identified by the program.	___ Met ___ Not Met
10. B All students enrolled in the program demonstrate mastery or gain in basic and advanced academic skills in mathematics, communication arts, science, and social studies.	___ Met ___ Not Met
10. C The placement rate for students completing the program into employment, further Education or training, or military training is at least eighty-five percent (85%).	___ Met ___ Not Met
10. D The placement rate for students completing the program into *related* employment or education is at least sixty-five percent (65%).	___ Met ___ Not Met
10. E The percent of school graduates who complete the program is at a high level or is increasing.	___ Met ___ Not Met
10. F The percent of students enrolled in the program who drop out of school is smaller than the drop out percent for the school in general.	___ Met ___ Not Met
10. G The percent of students enrolled in the program who are in regular daily attendance is higher than the percent for the school in general.	___ Met ___ Not Met

Comments on Performance Standards:	Number of Standards Met: _____

STRENGTHS: Summarize below the major strengths of the program, citing the related standard.

CONCERNS: Summarize below major concerns for the program, citing the related standard.

GENERAL COMMENTS OR SUGGESTIONS FOR PROGRAM IMPROVEMENT: