BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

CSCI 3 - Introduction to Computer Science **3 Unit(s)**

Prerequisite(s): NONE
Recommended Prep: Reading Level IV; English Level IV; Math Level III
Transfer Status: CSU
34 hours Lecture
51 hours Lab

In this course, students develop knowledge and skills of the fundamentals of Computer Science. Topics covered include number systems, computer hardware and software, computer networks, introductory programming and algorithms, file systems and databases, artificial intelligence and the theory of computation. Hardware overview covers computer memory, the control unit and Arithmetic Logic Unit (ALU), and computer Input/Output (I/O). Software overview covers operating systems, programming languages, applications, and software tools.

II. **OBJECTIVES**

Upon successful completion of this course, the student will be able to:

A. Identify data represented in various number bases.
B. Identify and describe the function of the control unit, ALU, and memory, and other computer hardware.
C. Identify and describe the functions of computer software including operating systems, programming languages, and various applications.
D. Define basic networking and database concepts.
E. Implement basic computer algorithms and design and implement basic applications using a modern computer programming language.
F. Solve basic problems in computational theory.
G. Identify the social, legal, and ethical issues of computer scientists and develop an understanding of the personal responsibilities of computer scientists.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics		Hours
1.	Introduction to Computer Science	3.00
2.	Data Representation and Data Storage	2.00
3.	Data Manipulation	2.00
4.	Operating Systems	3.00
5.	Networks	3.00
6.	Algorithms	4.00
7.	Programming Languages	5.00
8.	Software Engineering	2.00
9.	Data Structures	2.00
10.	File Structures	2.00
11.	Database Structures	2.00

12.	Artificial Intelligence	2.00
13.	Theory of Computation	2.00
Total Hours		34.00

Lab

Topics		Hours
1.	Introduction to Computer Science	3.00
2.	Data Representation and Data Storage	4.00
3.	Data Manipulation	4.00
4.	Operating Systems	4.00
5.	Networks	4.00
6.	Algorithms	6.00
7.	Programming Languages	10.00
8.	Software Engineering	3.00
9.	Data Structures	3.00
10.	File Structures	1.00
11.	Database Structures	4.00
12.	Artificial Intelligence	2.00
13.	Theory of Computation	3.00
Total Hours		51.00

IV. METHODS OF INSTRUCTION

A. Lecture
B. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
C. Demonstrations
D. Multimedia Presentations
E. Practical Exercises

V. METHODS OF EVALUATION

A. Lab Projects
B. Written Assignments
C. Written Examinations
D. Practical Examinations

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
B. Writing Assignments
C. Out-of-Class Assignments

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

A. Dale, Nell and Lewis, John. Computer Science Illuminated. 4th Edition. Jones and Bartlett, 2011.

Materials Other Than Textbooks:

A. Transportable storage such as a flash drive.

Created/Revised by: John Trolinger
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