Introduction to Computer Science Course Syllabus

I. College/School

College of Engineering and Computer Science
Department of Computer Science and Engineering

II. Course Information

Course Title: **Introduction to Computer Science**
Course Abbreviation and Number: **CS 1150**
Course Credit Hours: **Lecture: 3 credit hours, Laboratory: 1 credit hour**
Course Cross Listing(s) Abbreviation and Number: **none**
Check ("x") all applicable:

General Education Course___**X**___ Writing Intensive Course_____ Service Learning Course_____
Laboratory Course___**X** __ Ohio TAG (Transfer Assurance Guide) Course _____
Ohio Transfer Module Course_____ Others (specify)_____

III. Course Registration

Prerequisites: **none**
Co requisites: **none**
Restrictions: **none**
Other: **none**

IV. Student Learning Outcomes

6. Natural Science *Introductions to the scientific understanding of physical and biological phenomena*	a. Understand the nature of scientific inquiry b. Critically apply knowledge of scientific theory and methods of inquiry to evaluate information from a variety of sources c. Distinguish between science and technology and recognize their roles in society d. Demonstrate an awareness of theoretical, practical, creative and cultural dimensions of scientific inquiry e. Discuss fundamental theories underlying modern science

The students in the Introduction to Computer Science course will have an understanding of the nature of scientific inquiry and method. The students will use the scientific method as implemented in computer science as a problem-solving tool. Students will critically apply knowledge of scientific theory and methods of inquiry to evaluate information from a variety of sources. Students will be able to distinguish between science and technology and recognize their roles in society. Students will demonstrate an awareness of theoretical, practical, creative and cultural dimensions of scientific inquiry. Students will discuss fundamental theories and concepts underlying modern science and apply and extend the concepts in a laboratory setting. The concepts will include the advancement of science using computer simulations, how scientific discoveries have made computers smaller and faster and how new frontiers in physics and biology are being addressed using computer based techniques. Students will see the very close relationship that exists between the physical world and emerging science to better understand natural phenomena.

V. Suggested Course Materials (required and recommended)

Computer Science: An Overview, **10th edition, J. Glenn Brookshear, Pearson , 2008, ISBN 10: 0321524039 or later editions**

VI. Suggested Method of Instruction

Lecture and Laboratory

VII. Suggested Evaluation and Policy

The final grade is a combination of quizzes, exams, laboratory grades, research paper, and presentation grades.

VIII. Suggested Grading Policy

The grading scale is A: 100-90, B: less than 90-80, C: less than 80-70, D: less than 70-60, **F: less than 60-0.**.

IX. Suggested Assignments and Course Outline

1	**The role/science of algorithms, abstraction, and social repercussions/issues of data stored forever on social networks. The question of data truth is discussed.**
2	**Main & mass storage of data, data representations, numeral storage methods, data compression, and communication errors. The link to the physical properties of electromagnetism is made. Can data be stored differently?**
3	**Computer architectures, machine; assembly, high level languages; and other architectures. Recent scientific understanding which may fundamentally change today's computer architecture.**
4	**Historic evolution and architecture of operating systems, coordination of activities and processors, and security. Implications of the availability of more computing power.**
5	**Network fundamentals and protocols, the Internet and World Wide Web, security, and social issues.**
6	**Algorithm concepts, discovery, and representations, iterative and recursive structures, and efficiency and correctness.**
7	**The historical and implementation of programming languages, traditional, procedural, and object oriented languages, and concurrent and declarative programming. The scientific method, as a problem solving tool, as implemented in computer science is explore.**
8	**Review and midterm**
9	**Software engineering and life cycle, modularity and design methodologies, testing, documentation, and ownership and liability issues.**
10	**Fundamentals and implementation of data structures, custom data types, creation of real word objects as abstractions.**
11	**Fundamentals, object oriented databases, relational databases, traditional file structures, data mining. The unexpected/unwanted reuse/linking of data sources.**
12	**Intelligence and machines, understanding images, neural networks, genetic algorithms. The link to further knowledge in geology, physics, and biology.**
13	**Functions and their computation, movement of toward natural (voice, text, sensor), programming (, non computable problems, problem complexity, and security of data storage**
14	**Course Review and Evaluation**

X. Other Information

none