

CSC118 Information Technology and Society Summer 2016 C

Course Syllabus and Course Schedule

Course Description This course teaches a variety of topics on information technology and society through various course activities including reading papers, inspecting your machines, and visiting web pages. The topics covered include but not limited to: history of computing, hardware mechanisms, algorithms design, software development principles, software tools, security, and artificial intelligence.

Syllabus The course consists of eight modules: 1: This module covers a brief history of computing 2: This module covers the development of modern societies in light of the development in information technology 3: This module is an in-depth study of computer hardware 4: In this module we study the concept of algorithms, software, and software development 5: This module covers the productivity applications and computer graphics 6: In this module we study databases and how they are used in the modern societies, as well as studies computer crimes 7: This module covers the structure of the Internet and the World-wide Web 8: This module studies the applications of computation in businesses and education and examines the future of computing through artificial intelligence

Learning Outcomes

Module 1: After this module, the students will be able to:

- explain how the idea of mechanical computation evolved into the idea of electronic computation
- identify who the key figures in the evolution of computers are and what roles they played
- explain what von-Neumann type computers are
- identify what technological innovations took place to make computers more compact and more efficient

Module 2: After this module, the students will be able to:

- describe a brief history of the Internet revolution in terms of its phases
- evaluate, according to the phases of the revolution, how the way people have changed their interactions with computers
- recognize general categories of hardware (computers) and software, in terms of their size and purpose

Module 3: After this module, the students will be able to:

- identify the major components inside the “box” are and what functions they have
- explain how CPUs read the machine-level code in their memory
- identify types and functions of major peripheral devices of computers, and how they are connected to them
- explain the basic encoding schemes in computers

Module 4: After this module, the students will be able to:

- explain what algorithms are and why algorithms innovations are needed

- identify the processes involved in software development cycles and what those steps are intended for
- discuss how software is distributed through software packaging and what software packages are composed of
- identify what methods exist for managing files

Module 5: After this module, the students will be able to:

- identify the concept of desktop publishing and how modern computers made this kind of publishing possible
- discuss the types of media that can be processed using commercial/non-commercial software applications, in particular, text, music, photographs, videos, and email
- evaluate the nuts and bolts of computer graphics
- explain the concept of hypertext and why it is different from the standard texts
- discuss the concept of data compression and how it is accomplished

Module 6: After this module, the students will be able to:

- explain what databases are, how popular database constructs are, how one interacts with databases
- discuss where databases are used and for what purposes
- identify possible threats that large-scale online databases pose, and how those threats can be mitigated

Module 7: After this module, the students will be able to:

- discuss how the concept of Internet was born, how computers are physically connected, and how information is communicated from a computer to another
- identify the types of wired and wireless connections and their efficiency
- discuss how the concept of WWW was developed and what methods exist to study WWW
- explain how the search engine works

Module 8: After this module, the students will be able to:

- explain how organizational structures that large business and enterprises use to control their information technology
- identify the types of applications that are used in businesses and what purposes they serve
- discuss where in education computers are being used and what purposes they serve
- discuss the concept of artificial intelligence and the innovations the computer scientists have made

Course Schedule

Each module shall be worked over 10 days. The release dates of the modules are as follows:

1. Module 1: 5/16
2. Module 2: 5/26
3. Module 3: 6/5

4. Module 4: 6/15
5. Module 5: 6/25
6. Module 6: 7/5
7. Module 7: 7/15
8. Module 8: 7/25

Please try to finish your work before the release of your next module. Should you get behind the schedule, please drop a line to the instructor. There will be two exams, one after Module 4 and the other after Module 8.

Submission of Work

Some of the assignments ask you to submit a screen capture or a video. Please be advised that you may obtain permission from the instructor to turn in your assignment in a different format, e.g., a word file, should you find it difficult to produce work in the required format. Please be in touch with the instructor.

There will be a project whose deadline is at the end of course. The expected length for the project paper is 1,500 words, excluding references.