## TSYS School of Computer Science Turner College of Business and Computer Science Columbus State University

Course Title: CPSC 6105 – Fundamental Principles of Computer Science.

**Official Course Description:** Overview of basic concepts in computer science ranging from computer hardware components, interconnection network structures and communication protocols, analysis of computer algorithms to software systems and applications.

**Course Objective:** The aim of this course is to introduce students to the foundation of computer science concepts. In particular, students will demonstrate an understanding of basic concepts in algorithms, computer hardware, computer networks, software systems, and applications.

## **Course Outcomes:**

- Students will demonstrate knowledge of digital logic analysis and design
- Students will demonstrate knowledge of computer organization and architecture
- Students will demonstrate knowledge of operating systems principles
- Students will demonstrate knowledge of computer network concepts and protocols
- Students will demonstrate knowledge of complexity theory
- Students will demonstrate an understanding of computer algorithms
- Students will demonstrate knowledge of database analysis and design

### Textbook: None.

### **Course Outline:**

- Digital Logic Analysis and Design
- Computer Organization and Architecture
- Principles of Operating Systems
- Computer Network Concepts and Protocols
- Complexity Theory
- Analysis of Algorithms
- Database Analysis and Design

### **Class Format:**

- Instructional Delivery via D2L
- Online Course Materials
- Discussion Topics
- Assignments
- Final Exam

**Instructor:** Angkul Kongmunvattana, Ph.D. (Associate Professor of Computer Science) **Email:** Please use Email tool in D2L system for class related communications

# **Important Dates:**

- Last Add/Drop Date
- Deadline to Withdraw
- Fall Break
- Final Exam

### **Tentative Class Schedule**

August 16, 2013 September 6, 2013 October 7 - 8, 2013 December 4, 2013

Weeks	Subjects	Discussion Topics
1 (August 12 – 18)	Class Administration	Acknowledgement and Self Introduction
2 (August 19 – 25)	Digital Logic Circuit	Altera Quartus II Installation
3 (August 26 – September 1)	Computer Architecture	Functional and Timing Simulations
4 (September $2 - 8$ )	CPU Management	VM and Linux Installation
5 (September 9 – 15)	Synchronization & Deadlock	C and System Programming
6 (September 16 – 22)	Storage Management	Multithreaded Programming
7 (September 23 – 29)	OSI and Network Protocols	WireShark Installation
8 (September 30 – October 6)	Topologies and Routing	Socket Programming
9 (October 7 – 8)	Fall Break (No Class)	
10 (October 14 – 20)	Network Security	OpenSSL Installation
11 (October 21 – 27)	Analysis of Algorithms	Sorting and Searching Algorithms
12 (October 28 – November 3)	Complexity Theory	Heuristic Search Algorithms
13 (November 4 – 10)	Relational Model	MySQL and/or Oracle Installation
14 (November 11 – 17)	SQL	ODBC and JDBC
15 (November 18 – 24)	Research Topics in CS	Survey of CS Research Topics
16 (November 25 – Dec. 2)	Self-Study for Final Exam	Recap

# The points in this class will be distributed as follows:

•	Discussion Topics	30%
•	Assignments	40%
•	Final Exam	30%

# Final grades in this class will be determined as follows:

- A: 90 and above B: 80-89 C: 65-79
- D: 55-64
- F: <55

## Notes:

- Students are responsible to study all online materials, all assigned readings, and all information posted on class website in D2L, including any corrections or changes in due dates, assignments, exams, etc.
- Students are not permitted to submit extra work in an attempt to raise grade.
- No late submissions will be accepted except under the direst of circumstances.
- Partial credits are given to incomplete assignments with substantial details of thought process on the work carried out to obtain the answers.
- Requests for pre-grading or do-over of assignments will be ignored and discarded.

**Policy on academic integrity:** Students are encouraged to study together; however, each student must individually prepare his/her own submission. Cheating or plagiarism is not permitted and will be sanctioned according to the CSU policy on academic standards. You should carefully read the section on Academic Misconduct in the Student Handbook. Your enrollment in this course implies that you have read it, and that you subscribe to the principles stated therein.

"If you have a documented disability as described by the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, Section 504, you may be eligible to receive accommodations to assist in programmatic and/or physical accessibility. We recommend that you contact the Office of Disability Services located in Schuster Student Success Center, room 221, 706-507-8755 as soon as possible. The Office of Disability Services can assist you in formulating a reasonable accommodation plan and in providing support. Course requirements will not be waived but accommodations may be able to assist you to meet the requirements. Technical support may also be available to meet your specific need."