Dongseo University

Division of Computer Engineering

Introduction to Computer Engineering

Instructor(s): LEE, Young Sil / Ph.D.
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Classroom: TBD
Class Time: TBD
Office Hours: 09-18

Course Description:
This course is an introduction to the theoretical foundations of computer science. These form the basis for a more complete understanding of proficiency in computer science.

Course Goals & Objectives:
At the conclusion of this course, the successful (passing) students will be able to

- Understand the characteristics and methods of operation of component parts of computers
- Describe, explain and use various different methods of representing data for use in computer systems
- Comment critically on ethical issues arising from the use of computer solutions

Course Outline:

- **Week 1 Course Introduction**
  - Introduction & Syllabus overview

- **Week 2 Information representation**
  - Number representation
  - Images
  - Sound
  - Video
  - Compression techniques

- **Week 3 Communication and Internet technologies**
  - Networks
  - IP addressing
  - Client- and Server- side scripting

- **Week 4 Hardware**
  - Input, output and storage devices
  - Main memory

- Logic gates and logic circuits

- **Week 5 Processor fundamentals**
  - CPU architecture
  - The fetch-execute cycle
  - The processor's instruction set
  - Assembly language

- **Week 6 System software**
  - Operating system
  - Utility programs
  - Library programs
  - Language translators

- **Week 7 Security, privacy and data integrity**
  - Data security
  - Data integrity

- **Week 8** Mid-Term Week (mid-term exam)

- **Week 9 Ethics and ownership**
  - Ethics
  - Ownership

- **Week 10 Database and data modelling**
  - Database Management System (DBMS)
  - Relational database modelling
  - Data Definition Language (DDL) and Data Manipulation Language (DML)

- **Week 11 Algorithm design and problem – solving**
  - Algorithms
  - Structure chart
  - Corrective maintenance
  - Adaptive maintenance

- **Week 12 Data representation**
  - Data types
  - Arrays
  - Files

- **Week 13 Programming**
  - Programming basics
  - Transferable skills
  - Selection
  - Iteration
  - Built-in functions
  - Structured programming

- **Week 14 Software development**
  - Programming
  - Programming testing
  - Testing strategies

- **Week 15** Final Week

Textbook(s) – Course materials and announcements may be distributed in class, or posted on the course website.

- Required: TBD
- Recommended: TBD

Class Website: e-Class

Course Assignments & Grading:

- *Exams:*
  - There will be a mid-term exam, containing a set of questions, in week 8 of the lecture period (30% of final grade) and a final exam in week 15 (30% of final grade).The two exams count for 60% of the total final course grade.
  - Exam dates listed above are tentative and subject to change. Exact dates will be announced in class at least one week in advance. Make-up exams will not be given unless you notify me prior to the scheduled time and have a legitimate excuse for your absence. All exams will be closed-book, closed-notes, with no calculators allowed.

- *Attendance*:
  - Attendance is mandatory (see the Course policy)

- *Assignments*:
  - ✓ All assignments must be turned in on the due date. Late assignments will not be accepted.
  - ✓ All written assignments should be typed, double-spaced, using 12-point font. No hand-written assignments will be accepted.
  - ✓ We will use e-class on occasion for posting lecture announcements.

- *Grading Scale*:
  91-100% = A+
  81-90% = A
  71-80% = B+
  65-70% = B
  61-64% = C+
  55-60% = C
  50-54% = D

Grading Policies:
Your course grade will be based on the following breakdown:

Homework Assignments	30%
Attendances	10%
Midterm Exam (usually 8th week, in class)	30%
Final Exam (usually 15th week)	30%

Course Policies:

- Attendance: Events such as illness, injury, or job or graduate school interviews, are expected to occasionally prevent students from attending lectures. However, students who regularly fail to attend 3 lectures will be penalized (see the Grading policy). You are responsible for all material presented while you are absent.
- Academic Misconduct Policy