Subject Title : Information Technology Systems

Code : COMP111

Level : 1

Credit Value : 3.00

Offering Department : Department of Computing

Offering Semester : 2

Pre-requisite(s) : Nil

Co-requisite(s) : Nil

Exclusion(s) : Nil

Medium of Instruction : English

Contact Hours

Lecture : 28 hours
Laboratory : 28 hours
Total : 56 hours

Objectives

This subject provides the students with the foundations of information systems, and basic methods of problem-solving with computer-based tools. It can be taken with or without having taken COMP100. Students who intend to study information technology-related programmes are strongly recommended to take both COMP100 and COMP111.

Learning Outcomes

On successful completion of this subject, students are expected to be able to:
1. understand underlying principles of computer organization;
2. solve simple problems with computer-based tools involving programming, algorithms and other technologies; and
3. be able to control and be aware of the opportunities and limitations provided by ready-made tools and software.

Teaching and Learning Approach

Lectures for delivery of conceptual knowledge and problem solving techniques. Tutorials/Laboratory for discussions, hands-on programming and implementation of solutions.

Assessment Method

Coursework : 60%
Examination : 40%
Total : 100%

Keyword Syllabus

1. Fundamental Concepts
   Computer logic and organization, binary number representation and manipulation, modern computer architectures and trends, computer cluster, supercomputer, the computational grid.

2. System Software
   Operating system concepts, basic software development methods and tools, programming language, compiler, project management (Unix make file), debugger.

3. Basic Programming
   Basic C programming, simple data types, expression, control structure, structured data types, I/O, files.

4. Basic Algorithm and Problem Solving
   Problem solving procedure and tool, flowchart, pseudo-code, simple algorithms like linear search and bubble sort, implication on program execution time.

5. Data Communication, the Internet, and the World Wide Web
   Networking concepts; TCP/IP and Novell; features of Internet and Internet address, mobile computing.

6. Problem Solving with Computer-based Tools
   Integration of different computer-based technologies such as system software, application software, databases, networking, and mobile technologies to solve real-world problems.
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