Summary

Unit 1 System Fundamentals

Subject	Year	Start date	Duration
Computer Science	IB1	Week 1, September	8 weeks

Course Part

Description

This unit develops student's knowledge of how systems are planned and installed, focusing on users and providing various methods of backups. In addition, the methods of managing and releasing updates are introduced. This is followed on by understanding the basics of computer systems. Using the information students are introduced to system design and analysis, identifying constructing and discussing the impact of IT systems. Finally students focus on the range and methods of human interaction with an IT system taking into account moral, ethical, social and environmental implications of the interaction between humans and machines.

Inquiry & Purpose

Inquiry / Higher Order Questions

Type	Inquiry Questions
Content-based	Research and develop a list of discussion questions to find the aspects that must be considered in a specified problem.
Skills-based	Analyse a systems flowchart that represents a complete system.
Concept-based	Develop a list of methods and tools describing how programs can be tested and debugged. For each explain the advantages and disadvantages of each method.

Curriculum

Aims

Provide a body of knowledge, methods and techniques that characterize computer science

Enable students to apply and use a body of knowledge, methods and techniques that characterize computer science

Develop an appreciation of the possibilities and limitations associated with continued developments in IT systems and computer science

Objectives

Know and understand

appropriate methods and techniques

Apply and use

relevant design methods and techniques

terminology to communicate effectively

Construct, analyse, evaluate and formulate

success criteria, solution specifications including task outlines, designs and test plans

Syllabus Content

Core

Topic 1 - System fundamentals

1.1 Systems in organisations

Planning and system installation

1.1.1 Identify the context for which a new system is planned.

1.1.2 Describe the need for change management.

1.1.3 Outline compatibility issues resulting from situations including legacy systems or business mergers.

1.1.4 Compare the implementation of systems using a client's hardware with hosting systems remotely.

1.1.5 Evaluate alternative installation processes.

1.1.6 Discuss problems that may arise as a part of data migration.

1.1.7 Suggest various types of testing.

User focus

1.1.8 Describe the importance of user documentation.

1.1.9 Evaluate different methods of providing user documentation.

1.1.10 Evaluate different methods of delivering user training.

System backup

1.1.11 Identify a range of causes of data loss.

1.1.12 Outline the consequences of data loss in a specified situation.

1.1.13 Describe a range of methods that can be used to prevent data loss.

Software deployment

1.1.14 Describe strategies for managing releases and updates.

1.2 System design basics

Components of a computer system

1.2.1 Define the terms: hardware, software, peripheral, network, human resources.

1.2.2 Describe the roles that a computer can take in a networked world.

1.2.3 Discuss the social and ethical issues associated with a networked world.

System design and analysis

1.2.4 Identify the relevant stakeholders when planning a new system.

1.2.5 Describe methods of obtaining requirements from stakeholders.

1.2.6 Describe appropriate techniques for gathering the information needed to arrive at a workable solution.

1.2.7 Construct suitable representations to illustrate system requirements.

1.2.8 Describe the purpose of prototypes to demonstrate the proposed system to the client.

1.2.9 Discuss the importance of iteration during the design process.

1.2.10 Explain the possible consequences of failing to involve the end-user in the design process.

1.2.11 Discuss the social and ethical issues associated with the introduction of new IT systems.

Human interaction with the system

1.2.12 Define the term usability.

1.2.13 Identify a range of usability problems with commonly used digital devices

1.2.14 Identify methods that can be used to improve the accessibility of systems.

1.2.15 Identify a range of usability problems that can occur in a system.

1.2.16 Discuss the moral, ethical, social, economic and environmental implications of the interaction between humans and machines.

ATL Skills

Approaches to Learning

Thinking

- In this unit, we will

  give students time to think through their answers before asking them for a response

  ask open questions

  build on a specific prior task

  require students to take an unfamiliar viewpoint into account when formulating arguments

Self-management

- In this unit, we will

  require students to revise and improve on work previously submitted

  practise or discuss strategies to increase concentration

  help students to learn from failures or mistakes

Research

- In this unit, we will

  require students to formulate/construct a focused research question (either in class or in a homework assignment)

  require students to practise effective online search skills (for example, use of Booleans and search limiters)

Developing IB Learners

Learner Profile

Inquirers

Knowledgeable

Thinkers

Reflective