Student_____

System Development

Date: _____

Detailed System Design

Phase 5: The Detailed System Design

- Presentation Part I
  - Learning Objectives
  - System Output Design
  - System Input Design
  - System Process Design
  - System Database Design
- Presentation Part II
  - Designing System Controls
  - System Network Design
  - Designing the Computer Architecture

Part I Objectives

- Discuss the need for high-quality and usable information and identify the system design component that controls it the most.
- Explain important differences between reports
- Explain design considerations and trade-offs between user interface options
- Discuss the three-dimensions of *process design*

Part II Objectives

- Identify threats to information systems
- Explain the input-controls can filter out invalid data.
- Explain the use and importance of an audit trail
- Discuss destructive software and how to protect a system from having it enter the system
- Discuss real-time and batch processing controls
- Preview the Network Design topics that will be studied in the second year of IBCS
- Discuss Computer Architecture designs and how IT professionals evaluate and acquire computer architectures.

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Date: _____

System Output Design

What design component controls the detailed systems design? Why?

What is high-quality information?

What is the difference between data and information?

System Input Design

What is the purpose of a menu interface?

Key Concepts

What is usability?

Identify a range of usability problems with commonly used digital devices

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Identify a range of *usability* problems that occur in a system.

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

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

System Process Design

What is a real-time process?

What is a batch process?

What is the difference between a batch process and a real-time process?

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Date: _____

System Database Design

What is Database Design?

Describe Traditional (Flat-File) systems

What is a database management system (DMBS) ?

What is a relational database system?

Compare and contrast File-file systems with DMBS systems

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Date: _____

Presentation Detailed Systems Design Part II

Designing System Controls

Objectives

- Controlling the data integrity of data entering the system
- Guarding against unreliable software
- Controlling the data integrity of data stored in the system
- Controlling the data integrity of data leaving the system
- Protecting the database
- Protecting the hardware
- Controlling database access

Describe three main categories of systems controls:

1.

2.

3.

Describe ways to control the integrity of **system input:**

Describe three levels of access controls

1.

2.

3.

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Date: _____

System Development

System Network Design

Objectives

- Network Design Steps
- Networking Elements
- Type of Transmission Cables
- Designing LANs
- Designing WANs/MANs
- Designing Wireless networks

We will cover these topics next year, apply standards and protocols, learn about hardware and software components. We'll use the The OSI Model to discuss information traveling throughout a network.

Designing the Computer Architecture

Objectives

- Discuss using computer is architecture design
- Discuss how systems professionals evaluate and acquire computer architectures

Vocabulary

Benchmark tests	Cooperative-based architecture	Downsizing
Insouring	Interoperabe	Request for Proposal (RFP)
Lease	Purchase	Outsourcing

Checklist for Computer Architecture Design

1. Understand functions of mainframes, minicomputers, microcomputers, network/cloud computers
2. Configure computers, storage media, and other peripherals is a cooperative design
3. Prepare RFP to send to vendors
4. Evaluate proposals for cost-effective solutions
5. Consider outsourcing versus insourcing alternatives
6. Acquire selected compute architecture through lease or purchase.