UNIVERSITY OF NAIROBI
Department of Computing & Informatics

CSC212: Systems Analysis and Design

Lecturers: Selina Ochukut & Christopher Moturi

Purpose

- To impart knowledge and skills that enable students carry out investigation, analysis and design of information systems

Expected Learning Outcomes

At the end of the course, learners should be able to:

1. Describe the types of business needs addressed using information technology-based solutions
2. Demonstrate understanding to approaches to systems development
3. Demonstrate concepts of investigating and modelling system requirements using Structured/Traditional Approached and Object-Oriented Approaches
4. Describe evaluation of alternatives for requirements, environment and implementation
5. Demonstrate the design of systems using Traditional and Object-Oriented Approaches
6. Describe and compare different approaches for making systems operational

Mode of Delivery

- Lectures
- Active Learning and Discussions
- Case Studies
- Group Projects and Presentations

Prerequisites: CSC 122-Database systems

Course Content

Part 1: Systems Analysis Fundamentals

1. Systems, Roles, and Development Methodologies
2. Understanding and Modeling Organizational Systems
3. Project Management

Part 2: Information Requirements Analysis

4. Information Gathering: Interactive Methods
5. Information Gathering: Unobtrusive Methods
6. Agile Modeling, Prototyping, and Scrum

Part 3: The Analysis Process

7. Using Data Flow Diagrams
8. Analyzing Systems Using Data Dictionaries
9. Process Specifications and Structured Decisions
10. Object-Oriented Systems Analysis and Design Using UML

Part 4: The Essentials of Design

11. Designing Effective Output
12. Designing Effective Input
13. Designing Databases
14. Human-Computer Interaction and U X Design

Part 5: Quality Assurance and Implementation

15. Designing Accurate Data Entry Procedures
16. Quality Assurance and Implementation

Aligning Learning Outcomes to Topics

Expected Learning Outcomes	Topic
1. Describe the types of business needs addressed using information technology-based solutions	Topic 1: Demonstrate understanding to approaches to systems development Topic 2: Understanding and Modeling Organizational Systems
2. Demonstrate understanding to approaches to systems development	Topic 1: Demonstrate understanding to approaches to systems development Topic 2: Understanding and Modeling Organizational Systems Topic 3: Project Management
3. Demonstrate concepts of investigating and modelling system requirements using Structured/Traditional Approached and Object-Oriented Approaches	Topic 4: Information Gathering: Interactive Methods Topic 5: Information Gathering: Unobtrusive Methods Topic 8: Analyzing Systems Using Data Dictionaries
4. Describe evaluation of alternatives for requirements, environment and implementation	Topic 6: Agile Modeling, Prototyping, and Scrum Topic 7: Using Data Flow Diagrams Topic 8: Analyzing Systems Using Data Dictionaries Topic 9: Process Specifications and Structured Decisions Topic 10: Object-Oriented Systems Analysis and Design Using UML
5. Demonstrate the design of systems using Traditional and Object-Oriented Approaches	Topic 6: Agile Modeling, Prototyping, and Scrum Topic 7: Using Data Flow Diagrams Topic 9: Process Specifications and Structured Decisions Topic 10: Object-Oriented Systems Analysis and Design Using UML Topic 11: Designing Effective Output Topic 12: Designing Effective Input Topic 13: Designing Databases Topic 14: Human-Computer Interaction and U X Design
6. Describe and compare different approaches for making systems operational	Topic 11: Designing Effective Output Topic 12: Designing Effective Input Topic 13: Designing Databases Topic 14: Human-Computer Interaction and U X Design Topic 15: Designing Accurate Data Entry Procedures Topic 16: Quality Assurance and Implementation

Schedule

Week	Topic
1	Topic 1 Systems, Roles, and Development Methodologies
2	Topic 2 Understanding and Modeling Organizational Systems Topic 3 Project Management {covered in CSC321}
3	Topic 4 Information Gathering: Interactive Methods Topic 5 Information Gathering: Unobtrusive Methods
4	Topic 6 Agile Modeling, Prototyping, and Scrum Project Presentation
5	Topic 7 Using Data Flow Diagrams Topic 8 Analyzing Systems Using Data Dictionaries
6	Topic 9 Process Specifications and Structured Decisions Project Presentation
7	Topic 10 Object-Oriented Systems Analysis and Design Using UML Project Presentation
8	Topic 11 Designing Effective Output Project Presentation
9	Topic 12 Designing Effective Input Project Presentation
10	Topic 13 Designing Databases {covered in CSC122} Topic 14 Human-Computer Interaction and U X Design {covered in CSC313} Project Presentation
11	Topic 15 Designing Accurate Data Entry Procedures Project Presentation
12	Topic 16 Quality Assurance and Implementation
13	Project Presentation
14/15	University Exam

Instructional Materials

- Google Classroom
- E-Class
- PPTs
- University Management Information Systems
- Corporate Websites of Listings at Nairobi Securities Exchange

Student Obligation: To qualify to sit for the final examination a student shall:

- Attend at least two thirds of the lecture sessions
- Undertake and submit all projects
- Participate in group work and discussions

Lecturer Obligation: The lecturer shall:

- Offer lectures as scheduled
- Provide all required teaching material
- Set and assess coursework
- Set and assess the final examination

Course Evaluation

The course will be assessed by group projects (50%) and a 2-hour written exam (50%).

Grading

A	70% - 100%	D	40% - 49%
B	60% - 69%	F	below 40%
C	50% - 59%		

Core Reading Materials

- Kendall, K. E., & Kendall, J. E. (2019). Systems Analysis and Design, 10th Edition, Pearson.
- Satzinger, J. W., Jackson, R. B., & Burd, S. D. (2015). Systems Analysis and Design in a Changing World, 7th Edition, Cengage Learning.
- Valacich, J. S., George, J. F., (2020). Modern Systems Analysis and Design, 9th Edition, Pearson.