ACSC 483

ACSC 483 Course Outline

- **Prerequisite**: ACSC 381 & COSC 381, COSC 332 & ACSC 333
- **Course Purpose**: The course enables the student to apply software development knowledge and skills by undertaking a project in a preferred research area.
- **Expected Learning Outcomes**

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

i. Design, plan and carry out a successful investigative study or project.

ii. Write the results of his/her work in the form of a project document.

iii. Make an oral presentation of his/her results in the front of an informed audience.

iv. Demonstrate practical experience in the use of research techniques and methodology.

- **Course Content**

Student specify and design a "real world" project. Designed system should be some identified problem in the society. Student develops the idea and presents a proposal, a systems requirements document and design specification in this first semester.

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- ACSC 483 / COSC 482 comprises the following:
  1. Project topic identification
  2. Development of the project proposal
  3. The system investigation, analysis and requirements definition
  4. The System Design

ACSC 483 PROJECT REPORT

- ✓ **COVER PAGE**
- ✓ **TABLE OF CONTENTS**
- ✓ **LIST OF TABLES**
- ✓ **LIST OF FIGURES**
- **CHAPTER 1: INTRODUCTION**
  - Introduction
  - Background to the Study
  - Problem Statement
  - Proposed Solution
    - Aim
    - Objectives
  - Significance of Project
  - Expected Outcomes / deliverables
  - Keywords
- **CHAPTER 2: LITERATURE REVIEW**
- **CHAPTER 3: METHODOLOGY**
- **CHAPTER 4: SYSTEM INVESTIGATION, ANALYSIS AND REQUIREMENTS DEFINITION**
- **CHAPTER 5: SYSTEM DESIGN**
- **APPENDICES:**
  - ✓ **APPENDIX A:RESOURCES REQUIRED / BUDGET**
  - ✓ **APPENDIX B: TIME PLAN (Gantt Chart)**
  - ✓ **APPENDIX n: ANY OTHER**
- ✓ **REFERENCES (APA)**

CHUKA [University Logo] UNIVERSITY

FACULTY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

Title: Design and Implementation of xyz

Name:

Registration Number:

Degree: Bachelor of Science in Applied Computer Science/ Computer Science

Course Code:

Course Name:

Project Coordinator:

Submitted in partial fulfillment of the requirements for the award of the degree

Date: December 2025

Aim

- A broad statement of intent that identifies your project's purpose.
- Example:

  The aim of this project is to evaluate artificial intelligence techniques for modelling weather patterns.

Objectives

- Objectives identify specific, measurable, achievements you hope to make that builds towards the ultimate aim of your project. They are quantitative and qualitative measures by which completion of the project will be judged. Examples:
  1. To identify existing weather pattern modelling techniques.
  2. To evaluate existing weather pattern modelling techniques.
  3. To identify artificial intelligence approaches suitable for modelling weather patterns.
  4. To develop an artificial intelligent system for modelling weather patterns.
  5. To evaluate the artificial intelligent system with other existing approaches for modelling weather patterns.

FORMATTING GUIDELINES

- **Font type:** Times New Roman
- **Font size:** 12
- **Alignment:** Main Headings (Centered); Rest of document (Justified)
- **Line spacing**: 1.15
- **Font color:** Black
- **All tables and diagrams named / labeled and where referenced cited appropriately**
- **Each chapter to begin on a new page**
- **Page Numbering - centered and bottom of the page numbered**
- **Spell and grammar check**
- **Referencing format: APA Referencing Style**
- **Single Page Printing**
- **Document Spiral Bound with front cover clear**

ACSC 483 EXAM

- Students are expected to take the COSC 482 / ACSC 483 exam which is in the following format:
  1. Oral presentation of the project before an examining panel (30%)
  2. Project Report Documentation (70%)

System Analysis

- System analysis involves examining and evaluating the components, operations, and workflows of a system to understand how they function together. It helps identify inefficiencies, define requirements, and propose improvements.

System Analysis

- Requirement Gathering and Clarification
  - ✓Analysts work with stakeholders to understand what the system must do.
  - ✓They translate business needs into technical specifications.
- Feasibility Study
  - ✓Evaluates whether the proposed system is technically, economically, and operationally viable.
- System Design Support
  - ✓Provides input for designing system architecture, data flow, and user interfaces.
  - ✓Ensures the design meets both functional and non-functional requirements.
- Problem Identification and Resolution
  - ✓Detects flaws in existing systems and suggests enhancements.
  - ✓Helps avoid costly errors during development by identifying issues early.
- Documentation and Standards
  - ✓Produces detailed documentation that guides development and future maintenance.
  - ✓Promotes consistency and quality across the project lifecycle.

System Design

- The system, design phase is where abstract requirements are transformed into a structured blueprint for implementation.
- Translate requirements (from the analysis phase) into a technical plan
- E.g.

✓System Architecture Design- Define components, their responsibilities, and how they interact.

✓Interface Design- Specifies how users and other systems will interact with the software e.g. User Interfaces

✓Database Design- Defines data models, relationships, normalization, and storage mechanisms.

✓Security Design- Plan for authentication, authorization, data protection, and threat mitigation.

System Design

- Deliverables include:
  - UML diagrams (class, sequence, activity, etc.)
  - Wireframes or UI mockups
  - Database schema
  - Prototypes
  - Design documents

System Design

- Tools include:
  - Microsoft Visio
  - StarUML
  - Draw.io
  - Lucidchart
  - Figma
  - Adobe XD
  - Balsamiq
  - Axure RP