MAJOR PROJECT BRIEF
Faculty of Information and Communications Technology
Bachelor of Science Information Technology
BITOS2111
OPERATING SYSTEMS
Year 02,Trimester: 02
From July 2024 to Nov 2024

BITOS4111
OPERATING SYSTEMS

MODULE DETAILS

	Weight
	20 %

Course Location	:	**Eswatini, MBABANE**
Examiner	:	**Mr. Ndumiso E. Khumalo**
Commence Date	:	**Week 3**
Submission Date	:	**Week 12**

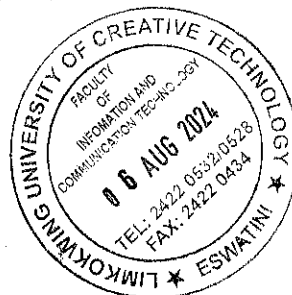| Prepared by:	**Ndumiso E. Khumalo** (Lecturer -In-Charge)	Checked by:	MARTIN MASEKO
Signature:		Signature:	
Date:	02/08/2024	Date:	06/08/24

This document comprises the following:

- Assignment Title
- Learning Outcomes of Project (connected to Learning Outcomes of Module)
- Project Overview
- Project Specification
- Project Requirements
- Expected Outcome
- Submission Requirements
- Assessment Criteria
- Marking Scheme

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1.0 ASSIGNMENT TITLE

[OPERATING SYSTEMS PROJECT]

2.0 LEARNING OUTCOMES OF THE PROJECT

After the completion of this outcome, students will be able to:
- Design a program to implement operating system concepts

3.0 PROJECT OVERVIEW

This project is designed to allow students to carry out a significant, individual piece of work, relevant to their programme of study using the knowledge gained in Operating Systems and its pre-requisites. The student can achieve this by creating programs to demonstrate concepts learned in the course.

The aims of the project are to:
1. To develop a student's ability to self-manage a significant piece of work through planning, organising and working independently on a selected problem.
2. To extend the student's ability to apply practical and analytical skills present in their programme of study.
3. To create an environment for synthesis of information, ideas and practices to provide a quality solution together with an evaluation of that solution.
4. Allow students to show that their project meets a real need in a wider context.
5. To provide the student with the opportunity to show understanding of how to specify, design, implement and test a product to an appropriate level of professional competence.
6. Give opportunity for students to show innovation and creativity.

4.0 PROJECT SPECIFICATION

The student is tasked in developing and implementing a unique Task Scheduler, System Monitor, and a File System. For each of these three tasks, the student must write down a unique algorithm and a unique program in one these programming languages (C++, Java, Python, and C#) to demonstrate the Task Scheduler, System Monitor, and a File System. The descriptions for each of these tasks are given below:

Task Scheduler
In this task, the student should design a program to implement a basic task scheduler that manages the execution of multiple tasks or processes on a single-core system. In the program, implement the following scheduling algorithms to allocate CPU time to different tasks.
- First-Come, First Serve
- Shortest Job First
- Round Robin
- Priority Scheduling

File Manager
In this task, the student should build a graphical file manager application for navigating and managing files and directories on a computer's file system. For this task, you need to learn about file operations such as creation, deletion, and modification.

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System Monitor

In this task, the student must develop a basic system monitoring tool that displays information about system resources such as CPU usage, memory utilization, and disk activity. The student must explore system APIs to gather data and present it in a user-friendly interface.

5.0 PROJECT REQUIREMENTS

This project is intended to assess and test the students' capability to plan, design and implement a software solution to implement/demonstrate operating system concepts.

6.0 EXPECTED OUTCOME

Students will utilize available tools to design and implement an operating systems concepts demonstrating program.

7.0 SUBMISSION REQUIREMENTS

Students are expected to hand in:
* *A program file containing the algorithm and working code. The algorithm must be written just before the code for each task, as a comment*

8.0 ASSESSMENT CRITERIA

This assignment carries 100 marks, which contributes **20%** to total mark of the final assessment of BITOS4111

9.0 MARKING SCHEME

The project will be given marks based on the following scheme:

Criteria	Marks
Algorithm	30
Unique Code	60
Presentation	10
Total	**100**