

# **ChronoSwarm: A Multi-Swarm Particle Swarm Optimization Solution for the University Course Timetabling Problem**

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## **I. Introduction**

### **A. Background of the Study**

- i. University Course Timetabling Problem (UCTP)**
- ii. Swarm Intelligence**
  - I. Particle Swarm Optimization (PSO)**
  - II. Multi-Swarm PSO (MSPSO)**

## **II. Related Works**

- A. Non Swarm Approach**
- B. Single Swarm Approach**
- C. Multi Swarm Approach**

## **III. Statement of the Problem**

## **IV. Objectives of the Study**

- A. General Objective**
- B. Specific Objectives**

## **V. Scope and Limitations**

## **VI. Significance of the Study**

## **VII. Theoretical and Conceptual Framework**

## **VIII. Methodology**

### **A. Data**

### **B. Data Processing**

### **C. MSPSO For UCTP**

- i. Initialization Phase**
- ii. Optimization Phase**

### **D. Evaluation Details of the MSPSO Solver**

### **E. Deployment Details**

## **IX. Results**

### **A. Preliminary Findings**

## **X. Schedule of Activities**

- A. 2024**
- B. 2025**