Copilot

IE305 - Operations Research Project

University: Central Technical University

Course Duration: Fall 2023

Instructor: Dr. Emily Carter

Contact Information: emily.carter@ctu.edu

Office Hours: Tuesdays and Thursdays, 2:00 PM - 4:00 PM

Course Description

This course focuses on applying operations research techniques to real-world problems. Students work in teams to tackle a project that involves formulating, solving, and analyzing an operations research problem. The course emphasizes hands-on experience with optimization, simulation, and decision analysis.

Learning Outcomes

By the end of this course, students will be able to:

1. Formulate operations research models for real-world problems.
2. Apply optimization techniques to solve these models.
3. Use simulation tools to analyze complex systems.
4. Perform decision analysis to evaluate different solutions.
5. Work effectively in teams to complete a project.
6. Communicate project results through written reports and oral presentations.

Course Timeline and Deliverables

Date	Deliverable	Description	Weight
September 5, 2023	Team Formation and Project Proposal	Teams form and submit a proposal outlining the project scope and objectives.	10%
September 26, 2023	Problem Formulation Report	Detailed formulation of the operations research problem.	15%
October 17, 2023	Optimization Model and Solution	Development and solution of the optimization model.	20%
November 7, 2023	Simulation Analysis Report	Analysis of the problem using simulation techniques.	20%
November 28, 2023	Decision Analysis Report	Evaluation of different solutions using decision analysis.	15%

Date	Deliverable	Description	Weight
December 12, 2023	Final Presentation and Report	Final presentation and comprehensive report on the project.	20%

Grading Breakdown

- Team Formation and Project Proposal: 10%
- Problem Formulation Report: 15%
- Optimization Model and Solution: 20%
- Simulation Analysis Report: 20%
- Decision Analysis Report: 15%
- Final Presentation and Report: 20%

Total: 100%

Course Policies

- **Attendance:** Regular attendance is required. More than three unexcused absences may result in a lower grade.
- **Late Submissions:** Assignments submitted late will incur a penalty of 5% per day, up to a maximum of 25%.
- **Academic Integrity:** All students are expected to adhere to the university's academic integrity policy. Plagiarism or cheating will result in disciplinary action.

Required Materials

- Textbook: "Introduction to Operations Research" by Frederick S. Hillier and Gerald J. Lieberman
- Access to optimization and simulation software (e.g., LINGO, Arena)
- Prototyping materials (to be specified based on project requirements)

Additional Resources

- University Library
- Operations Research Lab
- Online tutorials and workshops

This syllabus provides a comprehensive overview of the IE305 course, including key elements such as learning outcomes, a detailed timeline with deliverables, and their respective weights. If you need any further details or adjustments, feel free to ask!