



### Course Outlines of BSCS Degree Program

<b>Course Instructor</b>	Muhammad Amjad	<b>Semester</b>	Spring
<b>Batch/Section(s)</b>	Juniors & Seniors/ Batch 2021	<b>Year</b>	2023
<b>Course Title</b>	MT4031 – Operations Research	<b>Credit Hours</b>	3
<b>Prerequisite(s)</b>	Linear Algebra, Differential Equations, Probability and Statistics	<b>Course TA</b>	

#### Text Book(s)

<b>Title of book</b>	Operations Research – An introduction		
<b>Author(s)</b>	Hamdy A Taha	<b>Publisher</b>	Prentice – Hall

#### Reference Book(s)

Introduction to Management Sciences 11 <sup>th</sup> Edition		
D.R. Anderson, D.J. Sweeney and T.A. Williams	Publisher	
Introduction to Operations Research 9 <sup>th</sup> Edition		

CLO	Course Learning Outcome (CLO)	Domain	Taxonomy Level	Tools
01	Learn the characteristics of different types of decision making environments, appropriate decision making approaches and tools to be used in each type.	Cognitive		M1, F
02	Solve the Transportation Models and Assignment Models.	Cognitive		A1, Q1, M1, F
03	Understand the basic methodology for the solution of linear programs and integer programs.	Cognitive		M1, M2, A2,,F

#### Tentative Weekly Lectures Schedule:

Week	Contents/Topics	CLO's	Tools
Week 1	Introduction to Operations Research	01	A1,M1,F
Week 2	Modeling with Linear Programming	01	
Week 3	Graphical Method	03	
Week 4	The Simplex Method	03	
Week 5	Duality Analysis	03	
Week 6	<b>1<sup>st</sup> Mid Term Exam</b>		A2,M2,F
Week 7	Sensitivity Analysis	03	
Week 8	Transportation Models and its Variants	02	
Week 9	Assignment Models	02	
Week 10	Networking Models and Analysis, PERT and CPM, Shortest Route Problem /Integer Programming	02	A3,F
Week 11	<b>2<sup>nd</sup> Mid Term Exam</b>		
Week 12	Replacement Model	02	
Week 13	Markov Chains, Analysis of Transient and Absorbing State	03	
Week 14	Decision Analysis and Game Theory	01	
Week 15	Inventory Control , Dynamic EOQ Models	02	
Week 16	<b>Final Exam</b>		

### Grading Criteria:

### Marks Distribution:

Particulars	% Marks
1. Assignments	8
2. Report/presentation	6
3. First Mid Exam	15
4. Second Mid Exam	15
5. Quizzes	6
6. Final Exam	50
<b>Total:</b>	<b>100</b>

### Important Instructions to be followed for this Course

- Be in classroom on time. Any student who arrives more than 5 minutes late in the class would be marked LATE. Anybody coming to class more than 15 minutes late will be marked ABSENT.
- Turn off your cell phones or any other electronic devices before entering the class.
- Maintain the decorum of the class room all the time.
- Avoid a conversation with your classmates while lecture is in progress.
- Submit your assignments on time, no assignment will be accepted after the deadline.

### Instructions / Suggestions for satisfactory progress in this course:

- On average, most students find at least three hours outside of class for each class hour necessary for satisfactory learning.
- Chapters should be read and homework should be attempted before class.
- Do not get behind. You are encouraged to work with other students. Plus, I am always available during office hours to help you.
- The homework assigned is a minimum. You may always work extra hours on your own.
- Use the few minutes you usually have before the start of each class to review the prior meetings' notes and homework. This will save us valuable in-class time to work on new material.
- Develop a learning habit rather than memorizing.
- Work in groups, whenever appropriate.

- Apply the learned principles and gained knowledge.
- Be creative in thinking, but stick to the topic assigned for discussions, assignments and presentations.
- Always bring your book/notes with you in the class.

**Note:** Students are welcome all the time to get help from the Teacher.

Signature: \_\_\_\_\_