Assessment Type: Assignment # 3	**Course Name / Code:** Linear Algebra II / ES-304
Section: ES205 and ES304	**Instructor:** Dr. Babar Zaman
Semester: Fall 2023	**Weightage: 2%**

Concerned CLOs:

- Be able to solve systems of linear equations, perform important matrix algebra operations and demonstrate associated understanding. (PLO1 -Engineering Knowledge) (Bloom's Taxonomy Level: C2 = Application)
- Be able to demonstrate understanding of vector spaces and solve problems related to vector spaces, including eigenspace and its associated parameters. (PLO1 -Engineering Knowledge) (Bloom's Taxonomy Level: C2 = Application)

Instructions:

- Assignment questions are from the **relevant sections of the textbook book covered in the class**. Please see the course handout to identify **the correct textbook edition.**
- Each assignment will be followed by a quiz and doing the assignment questions yourself will help you perform well in the **quizzes, and both carry significant weightage.**
- Thus, please make sure to **do the assignment yourself and in a manner such that the solutions for your questions are easily understood by the instructor**. These points will be considered in the marking of the assignment.
- Both, the **plagiarism policy as well as the late submission policy will be applied**, as follows:
    - **Plagiarism policy**: Any copying found in the assignment will be deemed plagiarism and **zero marks will be allocated to both/all the involved parties for the whole assignment.** Repeated violations may result in a more severe penalty.
    - **Late submission policy: (**Same day but late: -25%, One day late: -50%, More than 1 day late: -100%)
- The due date for this assignment is Friday**, October 27, 2023**. **Please submit your assignments solutions in the class/quiz on the due date**.

Assignment Tasks:

- Read book sections **Chapter 2** (2.3 to 2.7), **Chapter 3** and **Chapter 4** (4.1)
- Solve the following end-problems from the book

Sr. No.	Section No. and title	Problems
1	2.3 – Characterizations of Invertible Matrices	7, 14, 21, 23, 26, 35, 42, 45
2	2.4 – Partitioned Matrices	7, 10, 14, 17, 19, 23
3	2.5 – Matrix Factorizations	6, 16, 20, 26

5	2.7 – Applications to Computer Graphics	2, 4, 5, 8, 10, 15
6	3.1 – Introduction to Determinants	14, 23, 28, 40, 43 and 45
7	3.2 – Properties of Determinants	4,10, 14, 19, 22, 26, 28, 39, 46e, 48 and 52
8	3.3 – Cramer's Rule, Volume and Linear Transformations	6, 16, 22, 24, 27, 34 and 36
9	4.1 – Vector Spaces and Subspaces	1, 6, 10, 13, 18, 22 and 27