MATH 201 (Linear Algebra and Vector Geometry)

Project Guidelines

Description

Linear algebra plays a vital role in modeling real-world applications in engineering and science fields. You are required to do a collaborative project with your colleagues. The project should demonstrate your understanding of a particular application and the mathematical concepts and techniques to write a program to explore the application under consideration.

Project Topics

It is highly preferred to select an application of linear algebra in natural sciences, engineering, statistics, economics, etc. Some of the projects' ideas may include, but **not restricted** to, the following ones:

1. Large mechanical systems
2. Large electrical circuits
3. Large network analysis
4. Economic Models
5. Population Models
6. Control systems
7. Information Theory
8. Image Processing/compression
9. Audio Processing/compression

Team Members

Number of members per team: **3 to 5**.

Note: Large groups are expected to explore more challenging ideas and deliver high quality outcomes.

Project Format

The final project delivery must include the following components:

1. A 15-minute presentation (pptx).
2. A 5–10-page report (docx or pdf).
3. Source code (e.g. MATLAB, PYTHON, …).

Important Dates and Submission

1. **ONLY** team leaders have to fill the "Project Abstract and Team Members" **form** on Google classroom by **Saturday Dec. 13, 2025**.
2. The due date for the submission of the **presentation**, **report** and **source code** is **Wednesday Dec. 31, 2025**.
3. The **project evaluation** will be on **Thursday Jan. 1, 2026**. Exact time slots will be determined one week before.

Evaluation

The project is worth 15% of the course grade that will be distributed according to the following rubrics,

Rubric	Weight
1. Teamwork	3%
2. Organization of report (well-structured, representative, informative, presenting good results and analysis)	4%
3. Organization of presentation (well-structured, has clear snapshots and logical flow, clear to the audience, representative and attractive)	4%
4. Demonstration and discussion	4%

All the best

Dr. Hatem Fayed

Dr. Ahmed Ragab