

General Information:

Name of the Course: **Strength of Materials “1”**
Course Code: **MSE402AN-GY**

Semester: 2nd
Number of Credits: -
Allotment of Hours Per week: (1 Lecture + 1 Practice)/ Week

Evaluation: Midterm + 2nd Midterm

Prerequisites: Statics and Mechanics

Instructor: **Mohamad AL MAWALI, Assistant Lecturer**
Office: 7624 Hungary, Pécs, Boszorkány u.2. Office N^o B303
Email: eng.moe.al.mawali@gmail.com

Introduction, Learning Outcomes:

The Strength of Materials course will provide to students the understanding of the concepts of Stresses and its types, then a closer more accurate view to the structural-understanding. All in order to help them in the future in their structural design courses.

Upon successful completion of this course, the student will be able to know and understand:

- 1- The Moment of Inertia, and the general inertia concept of a section
- 2- Geometrical Properties of a section, Section's Shape factor
- 3- Types of Stresses and their calculation
- 4- The Concept of Strain
- 5- Hawk's Law and the Elasticity Modulus
- 6- Axial Stresses, Shear Stresses, Bending Stresses, Torsion Stresses
- 7- Eccentric axial actions & the concept of Buckling
- 8- Bi-axial Bending Actions
- 9- Deflections and Deformations

Requirements for Completion: This course will include about 14 Lessons of the previous mentioned points.

Slides and documents will be provided for students, however it's important for a student to write down in the lecture and take his own notes and follow up with the lecturer, And at the end of the course.

The materials of the course will be the documents from the instructor, and some handmade calculations by him as well and the official Eurocodes Standards.

In order to take this course, you must: Follow up with the teacher and write down your notes and prepare a final notebook at the semester so you can use it for your exams as a reference. You have to have a calculator and skills in mathematics as well.

You will also need to complete a graded **Midterm Test** and a **Second Midterm Test**.

In case of improvement needed for the mark: there could be a **Final (Retake) Test**, but it will include the whole semester's topics

Schedule:

This course measures students' progress in meeting the above objectives by requiring them to:

- Follow up with the class's solved examples and their solutions, and keep up with the weekly homework that will be given to them

Lectures Titles:

- 1- Week-1: Course Introduction and Syllabus's Explaining
- 2- Week-2: Statics and Mechanics General Review, Bending Moments, Shear, and Axial actions diagrams
- 3- Week-3: Inertia, and other advanced Geometrical Properties of Sections
- 4- Week-4: Concepts of Stresses. Axial Stresses and Strains, Hawk's Law, Elasticity Modulus
- 5- Week-5: Examples Solving
- 6- Week-6: Examples Solving (2)
- 7- Week-7: Bending Stresses, Shear Stresses, Torsion Stresses. Example Solving
- 8- Week-8: Eccentric Actions & Buckling. Examples Solving
- 9- Week-9: Midterm Test
- 10- Week-10: Spring Break
- 11- Week-11: Deflections and Deformations. Example Solving
- 12- Week-12: Biaxial Bending. Example Solving
- 13- Week-13: Full Review of the Course
- 14- Week-14: Second Midterm
- 15- Week-15: Final Retakes if needed

Continuous learning of students is controlled two times during the semester. Therefore, two parts is distinguished and controlled:

- **First Part** of the semester content is eight lectures, starting from the first week until the eight, this part will be ended by a midterm test in the ninth week including the topics of the first seven weeks only
- **Second Part** of the semester starts from the 11th week until the 13th, it will be ended in the 14th week with a second midterm, and the retake will be in the 15th week ONLY IF NEEDED, and the topics of the retakes will be the whole course

Methodology:

The course is based on individual computational skills with regular consultations and presentations.

Studio Culture:

The course is based on through collaboration, participation and discussions trough lessons. This is an interaction between Students and Faculty; used the teaching methods like 'Problem-based learning' and 'learning-by-doing'. The communication and work should be reflect a respect for fellow students and their desire to work with regard to noise levels, noxious fumes, etc – from each site of participants.

Attendance:

Attending is required all classes, and will impact the grade (max. 10%). Unexcused absences will adversely affect the grade, and in case of absence from more than 30% of the total number of lesson will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

Evaluation and Grading:

Grading will follow the course structure with the following weight:

- Attendance & Participation = 20%
- 1st Midterm = 40%
- Oral Test and an Interview along with the design project = 40%

And in case of a Retake Exam, its mark will be a replacement mark for both of the previous mentioned midterms.

Grading Scale:

Numeric Grade:	5	4	3	2	1
Evaluation in points:	89% - 100%	77% - 88%	66% - 76%	55% - 65%	0% - 54%

5. Outstanding work. Execution of work is thoroughly complete and demonstrates a superior level of achievement overall with a clear attention to detail in the production of drawings, models and other forms of representation. The student is able to synthesize the course material with new concepts and ideas in a thoughtful manner, and is able to communicate and articulate those ideas in an exemplary fashion in.

4. High quality work. Student work demonstrates a high level of craft, consistency, and thoroughness throughout drawing and modelling work. The student demonstrates a level of thoughtfulness in addressing concepts and ideas, and participates in group discussions. Work may demonstrate excellence but less consistently than an '5' student.

3. Satisfactory work. Student work addresses all of the project and assignment objectives with few minor or major problems. Graphics and models are complete and satisfactory, exhibiting minor problems in craft and detail.

2. Less than satisfactory work. Graphic and modelling work is substandard, incomplete in significant ways, and lacks craft and attention to detail.

1. Unsatisfactory work. Work exhibits several major and minor problems with basic conceptual premise, lacking both intention and resolution. Physical representation in drawing and models is severely lacking, and is weak in clarity, craft and completeness.

Students with Special Needs:

Students with a disability and needs to request special accommodations, please, notify the Deans Office. Proper documentation of disability will be required. All attempts to provide an equal learning environment for all will be made.

Readings and Reference Materials:

- Advance Mechanics of Materials/ Arthur P. Boresi & Richard J. Schmidt/ Sixth Edition
- Mechanics of Materials/ James M. Gere/ Sixth Edition