# course syllabus and course requirements academic year 23/24 semester fall

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| Course title | Mechanics I (Statics) |
| **Course Code** | **MSB112AN** |
| **Hours/Week: le/pr/lab** | **1/3/0** |
| **ECTS** | **5** |
| **Degree Programme** | **Architecture BSc | Architecture OTM** |
| **Study Mode** | **Full-time, in-person** |
| **Requirements** | **Exam** |
| **Teaching Period** | **23/24 Fall** |
| **Prerequisites** | **N/A** |
| **Department(s)**  **Course Director** | **Department of Civil Engineering** |
| **Teaching Staff** | **Tamas Juhasz | juhasz.tamas@mik.pte.hu** |
| **Schedule** |  |
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# course description

In this course, students examine principles of statics, studies of vectors and moments, force systems, and their resultants. It also covers force systems in equilibrium, static friction, and introduces section properties, and shear and moment diagrams.

# syllabus

## **goals and objectives**

Specific, measurable student behavioral learning objectives.

Students should acquire an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. Upon completion of the course, the student must be able to,

- Describe force and moment systems and identify all unknown loads as applied to statically determinate rigid bodies.

- Analyse statically determinate beams, trusses, frames, machines, and systems with friction forces.

- Introduce section properties.

- Draw shear and moment diagrams for statically determinate beams under given loads.

## **course content**

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|  | TOPICS |
| LECTURE, PRATICE, LAB | 1. *Force Systems* 2. *Equilibrium* 3. *Trusses and frames* 4. *Machines* 5. *Internal force diagrams 6. Properties of sections* |

### **DETAILED SYLLABUS AND COURSE SCHEDULE, TENTATIVE**

### *UNFORESEEABLE CIRCUMSTANCES MIGHT AFFECT THE SCHEDULE BELOW.*

*ACADEMIC HOLIDAYS INCLUDED*

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| LECTURE | | | | |
| week | **Topic** | **Compulsory reading** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1st | Introduction | [1] Chapter 1 |  |  |
| 3rd | Forces and Force Systems | [1] Chapter 1 |  |  |
| 5th | Analysis of Statically Determinate Trusses | [2] Chapter 3 [1] Chapter 6 |  |  |
| 7th | Internal Forces Developed in Structural Members | [2] Chapter 4 [1] Chapter 7 |  |  |
| 9th | Compound Structures and Machines | Lecture notes |  |  |
| 11th | Loads and Load Combinations | Lecture notes |  |  |
| 13th | Section Properties | [1] Chapters 9-10 |  |  |

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| PRACTICE | | | | |
| week | **Topic** | **Compulsory reading** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1st | Registration |  |  |  |
| 2nd | Operation with Vectors | [1] Chapter 2 |  |  |
| 3rd | Result Force of Concurrent and Parallel Force Systems | [1] Chapter 2 |  |  |
| 4th | Result Force and Equilibrium of General Force Systems, Moment of Forces | [1] Chapter 2 [1] Chapter 3 |  |  |
| 5th | Solving Statically Determinate Trusses Method of Joints, Shears, and Moments | [2] Chapter 3 |  |  |
| 6th | Solving Statically Determinate Trusses Method of Joints, Shears, and Moments | [2] Chapter 3 [1] Chapter 6 |  |  |
| 7th | 1st Test |  | Manual calculation test. | 90-minute test, due at the end of the class. Submission on engineering paper. |
| 8th | Internal Forces Developed in Structural Members I | [2] Chapter 4 [1] Chapter 7 |  |  |
| 9th | Internal Forces Developed in Structural Members II | [2] Chapter 4 [1] Chapter 7 |  |  |
| 10th | Compound Structures and Machines, Three Hinged Frames | Lecture notes |  |  |
| 11th | Compound Structures and Machines Gerber Beams | Lecture notes |  |  |
| 12th | Section Properties | [1] Chapters 9- 10 |  |  |
| 13th | 2nd Test |  | Manual calculation test. | 90-minute test, due at the end of the class. Submission on engineering paper. |

## **assessment and evaluation**

##### **Attendance**

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description. Online attendance is not available.

***Method for monitoring attendance***

*Attendance lists will monitor attendance. All relevant university regulations apply.*

##### **Assessment**

*There will be two 120-minute midterm tests. Preliminary dates 7th and 13th week. The exact dates are to be announced no later than 14 days prior.*

*No tests scored below 40% can be accepted and must be repeated.*

*Midterm test results cannot be combined.*

*A make-up test is available on the 15th week.*

*Neatness is part of the grade for all student work.*

**Mid-term assessments, performance evaluation, and their weighting as a pre-requisite for taking the final exam**

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| --- | --- | --- |
| Type | Assessment | Weighting as a proportion of the pre-requisite for taking the exam |
| 1. *Test 1* | *max 100 points* | *40 %* |
| 1. *Test 2* | *max 100 points* | *40 %* |

**Requirements for the end-of-semester signature**

* Each semester test must score 40 points or beyond.
* Regular attendance as per the Code of Studies.

**Re-takes for the end-of-semester signature**

* *A make-up test is available on the 1st week of the examination term.*

***Type of examination spoken***

***The exam is successful if the result is a minimum of 40%***

**Calculation of the grade** (TVSz 47§ (3))

The mid-term performance accounts for 50%, and the performance at the exam accounts for 50% of the final grade calculation.

**Calculation of the final grade based on aggregate performance in percentage.**

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| **Course grade** | **Performance in %** |
| excellent (5) | 85 % … |
| good (4) | 70 % ... 85 % |
| satisfactory (3) | 55 % ... 70 % |
| pass (2) | 40 % ... 55 % |
| fail (1) | below 40 % |

The lower limit given at each grade belongs to that grade.

## **Specified literature**

##### **compulsory reading and availability**

[1.] R.C. Hibbeler Engineering Mechanics: Statics (12th Edition) ISBN 978-0136077909

[2.] R. C. Hibbeler, Structural Analysis, ninth edition ISBN 978-0-13-394284-2