Cable and Tensile Membrane Structures - BMEEOTMDTV1

I. Subject Specification

1. Basic Data

1.1 Title

Cable and Tensile Membrane Structures

1.2 Code

BMEEOTMDTV1

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Lecture	2

1.5 Evaluation

Exam

1.6 Credits

3

1.7 Coordinator

name	Dr. Hincz Krisztián Gyula
academic rank	Associate professor
email	hincz.krisztian@emk.bme.hu

1.8 Department

Department of Structural Mechanics

1.9 Website

https://epito.bme.hu/BMEEOTMDTV1
https://fiek2.mywire.org/course/view.php?id=2560

1.10 Language of instruction

hungarian and english

1.11 Curriculum requirements

Ph.D.

1.12 Prerequisites

1.13 Effective date

1 September 2022

2. Objectives and learning outcomes

2.1 Objectives

The aim of the subject is to introduce the fundamental concepts of the design and analysis of tensile structures. The main structural types, the different materials, and the most often used numerical methods are introduced. The formfinding methods, the cutting pattern generation, and the structural analysis of membrane structures are presented in detail.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. knows the main structural groups of tensile structures
2. knows the advantages and disadvantages of the different tensile structures
3. knows the main steps of the design and analysis of tensile structures
4. knows the most often used numerical methods for the analysis of tensile structures
5. knows the main properties of the membrane materials

B. Skills

1. can design basic membrane structures

C. Attitudes

1. aims at accurate and flawless problem solving

D. Autonomy and Responsibility

1. is able to individually think over structural design problems of tensile structures and to solve them using the given resources

2.3 Methods

Lectures with theoretical knowledge and computational examples, written and oral communication, use of IT devices and techniques, optional practice problems solved individually.

2.4 Course outline

Hét	Előadások és gyakorlatok témaköre
1.	Tensile structures, Introduction
2.	Cables, cable nets
3.	Membrane structures, Inflated structures
4.	Tensile membrane structures, design steps
5.	Formfinding, numerical methods
6.	Cutting pattern generation
7.	Static analysis
8.	Wind load, wind tunnel tests
9.	Wind load, CFD
10.	Membrane materials
11.	Membrane materials
12.	Model making
13.	Model making
14.	Preliminary examination

The above programme is tentative and subject to changes due to calendar variations and other reasons specific to the actual semester. Consult the effective detailed course schedule of the course on the subject website.

2.5 Study materials

2.6 Other information

2.7 Consultation

The instructor is available for consultation during office hours, as advertised on the department website. Special appointments can be requested via e-mail: hincz.krisztian@emk.bme.hu

This Subject Datasheet is valid for:

Inactive courses

II. Subject requirements

Assessment and evaluation of the learning outcomes

3.1 General rules

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
Oral exam	V	A.1-A.5; B.1; C.1; D.1

The dates of deadlines of assignments/homework can be found in the detailed course schedule on the subject's website.

3.3 Evaluation system

Abbreviation	Score
V	100%
Sum	**100%**

3.4 Requirements and validity of signature

3.5 Grading system

Grade	Points
excellent (5)	80-100
good (4)	70-79
satisfactory (3)	60-69
passed (2)	50-59
failed (1)	0-49

3.6 Retake and repeat

3.7 Estimated workload

Activity	Hours/semester
contact lessons	28
preparation for the exam	28
Sum	**56**

3.8 Effective date

1 September 2022

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