TUB Faculty of Architecture	Department of Mechanics, Materials and Structures					
Subject: **FUNDAMENTALS OF STRUCTURES**		Code	Credit points	Date:	Semester:	Year:
Lecturer: Dr András Draskóczy	Practical lessons: Rita Vajk	BME EPSTG201	0	13/14	2nd	Gen. Course

TOPICS SCHEDULE

Week	Date	**L E C T U R E S** **Thursdays 15.15-17.00 K221**	Date	**P R A C T I C A L S** **Tuesdays 12.15-14.00 K221**
1.	13.02	1. Introduction: **Forces and loads**	11.02.	B1. Introduction, formal requirements, dimensions and units.
2.	20.	2. 1st site visit: an existing, functioning building. The Central Building of the TUB. **Parts of buildings**	18.	B2. Calculation of load intensities
3.	27.	3.. Discussion of experiences of the 1st site visit. **Requirements** of the built environment. Load-bearing requirements	25.	B3. The vector character of forces. Sum of vectors, components of vectors, trigonometric functions.
4.	06.03.	4. 2nd visit: **laboratory testing** of structural materials (timber, steel, brickwork, concrete). Loads and responses when being loaded.	04.03..	B4. Resultant of distributed loads. Resultant and equilibrium of a concurrent, planar force system.
5.	13.	5. Discussion of experiences of the 2nd site visit:. Characteristics of structural materials. **Statistical evaluation of** measurement data: **material strength**. The notion of safety.	11.	**MP1. Components of forces. Resultant and equilibrium of concurrent force systems**
6.	20.	6. 3rd site visit: a **construction site**. Load-bearing parts of buildings	18.	**Test 1: Resultant and equilibrium of parallel or concurrent planar force systems**
7.	27.	7. Discussion of experiences of the 3rd site visit (I). **Structural modelling**, the static model of load-bearing structures. Functions and requirements	25.	B5. The moment of a concentrated force about a point. The couple of forces. Resultant and equilibrium of a parallel planar force system.
8.	03. 04.	8. Discussion of experiences of the 3rd site visit (II). Responses of load-bearing structures when loaded. **Limit states.** Fundamental laws of structural analysis	01.04.	B6. Resultant and equilibrium of a general coplanar force system. 1.
9.	10.	9.. **Film projection** (loads, behaviour of structural materials	08.	B7. Resultant and equilibrium of a general coplanar force system. 2.
10.	17.	10. 4th site visit: a **project bureau**	15.	B8. Support reaction forces of simple beams (cantilever, simple supported beam, simple-supported beam with cantilever).
11.	24.	11.. Discussion of experiences of the 4th site visit (I). The **process of creation**. Parties contributing to design and realization of works of art of architecture.	22.	**MP2: General coplanar force systems**
12.	01.05.	Holiday	29.	**Test 2: General coplanar force systems, simple structures**
13.	08.	12**.** Discussion of experiences of the 4th site visit (II). Parts and kinds of **documentations of buildings**. Scales and graphical symbols. Structural projects	06.05.	Summary of problems treated in the course
14.	15.	13. Brief **history** of the developments **of structural analysis and design**	13.	**Test repetition**

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REQUIREMENTS

Conditions of inscription:	-Registration of the subject Fundamentals of Structures
Character of the lessons:	Lectures and practical lessons in small groups, laboratory and site visits. Types of practical lessons: B: blackboard exercise, problems are solved at the blackboard by the practical teacher MP: marked practical, work done by help of the teacher T: test, individual work (no aids can be used, only the calculator)
Prescriptions for presence:	Presence on practical lessons and lectures is **obligatory** and regularly checked.
Mid-semester controls (dates as given in topics schedule):	Two 90 Minutes tests (T), max. 120 points each, 0 point in case of absence. Theory and problem solution of tests will be valuing 33 and 67% respectively. For supplying one missing test or improving the worse test one occasion will be given at the end of the semester. Theme of this test will range the whole material of the semester. Its points will substitute that of the missed/improved test. **There is no other possibility to improve the test results.** Two 90 minutes marked practical exercises (MP), valuing 12 points max. each, 0 point in case of absence. **There is no possibility for supplying or improving MP-s**.
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Conditions of signature:	1. Presence on at least 70% of practical lessons and lectures (max. 3+3 absences) 2. 60 points mean of the test results 3. Achievement of at least 120 points from the total of 240 points that can be given as maximum for the term work, as given below: 0,9xΣTwo test results + ΣMP results
Mid-semester mark:	Min. 50% of the total of. 240 points should be achieved. Final mark: 0-119 points fail (1) 120-144 points pass (2) 145-169 points satisfactory (3) 170-194 points good (4) 195-240 points excellent (5)

Recommended literature (copies available at the copying room of the Department K261):

A.J. Francis: Introducing structures pp. 1-28, pp221-259, pp278-285

Daniel L. Schodeck: Structures pp 3-120, pp. 472-534

H.S. Howard: Structure, an architects′ approach, Mc Graw Hill Co. 1966 pp. 3-43, pp 204-233, pp. 275-286

Information available on the homepage of the Department of Mechanics and Structures: www.szt.bme.hu/English courses/Fundamentals of Structures/2014:

-Topics schedule and requirements of the subject

-Lecture notes

-Solution of some selected problems