

BUTE Faculty of Architecture		Department of Mechanics, Materials and Structures				
Subject: FUNDAMENTALS OF STRUCTURES		Code	Credit points	Date:	Semester:	Year:
Tuesdays lessons: Baranyai Tamás	Thursdays lessons: Dr András Draskóczy	BME EPSTG201	0	17/18	2 nd	Gen. Course

TOPICS SCHEDULE

Educ. week	Date	Tuesdays 12.15-14.00 K221	Date	Thursdays 15.15-17.00 K221
1.	6.02	B1. Dimensions. Functions: slope of a function, area under a function 1. Kinematics	8.02.	1. Introduction The Central Building of the TUB
2.	13.02.	B2. Kinematics II.	15.02.	2.1st site visit: an existing, functioning building: the Central Building of the TUB. Parts of buildings
3.	20.02.	B3. Scalars - vectors. Scalar product, vector product, trigonometry	22.02.	3. Discussion of experiences of the 1st site visit. Requirements of the built environment. Buildings and loads
4.	27.02.	B4. Newtonian principles of mechanics. Gravit., Mass and weight. Forces in 2D (acting on a point mass).	1.03.	4. Responses of the structural materials when being loaded. The notion of stresses and deformations. 2nd visit: laboratory testing of structural materials (timber, steel, concrete).
5.	6.03.	B51. Resultant of forces in 2D (acting on a point mass)	8.03.	5. Discussion of experiences of the 2nd visit: mechanical characteristics of structural materials. Statistical evaluation of measurement data: material strength . The notion of safety.
6.	13.03.	B6.. Equilibrium of forces in 2D (acting on a point mass)	15.03.	National holiday, day off
7.	20.03.	Preliminary project week (no lessons)	22.03.	Preliminary project week (no lessons)
8.	27.03.	MP1. Components of forces. Resultant and equilibrium of forces in 2D (acting on a point mass)	29.03.	Test 1: Components of forces. Resultant and equilibrium of forces in 2D (acting on a point mass)
	3.04.	Spring holiday	5.04.	Spring holiday
9..	10.04.	B7. Moment, couple of forces	12.04.	6. 3rd site visit: a construction site . Load-bearing parts of buildings
10.	17.04.	B8. Resultant and equilibrium of general coplanar force systems	19.04.	7. Discussion of experiences of the 3rd site visit. Structural modelling , the static model of load-bearing structures. Functions of structures, requirements
11.	24.04.	B9. Dynamics, circular motion	26.04.	8. Responses of load-bearing structures when loaded. Fundamental laws of structural analysis
12.	1.05.	Holiday	3.05.	9. The process of creation in architecture . Parties contributing to design and realization of architectural projects
13.	8.05.	B10. Energy and power. Variational view of mechanics	10.05.	MP2: General coplanar force systems, energy and power
14.	15.05.	Consultation	17.05.	Test 2: General coplanar force systems, dynamics, energy and power
	22.05.	1st test repetition	24.05.	2nd test repetition

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REQUIREMENTS

Conditions of inscription:	-Registration of the subject Fundamentals of Structures
Character of the lessons:	Lectures and solution of problems in small groups, laboratory and site visits. Types of lessons with problem solution: B: blackboard exercise, problems are solved at the blackboard 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 lessons is obligatory and will be 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. Points given for theory and problem solution of tests will be valuing 33 and 67% respectively. For supplying missing tests or improving the test results one occasion will be given at the end of the semester for both tests. Theme of these tests will range the material of the supplied/improved test. 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.
Conditions of signature:	1. Presence on at least 70% of the lessons max 6 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, determined as given below: $0,9 \times \Sigma T + \Sigma MP$ 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 pp3-120, pp472-534

H.S. Howard: Structure, an architects' approach, Mc Graw Hill Co. 1966 pp3-43, pp204-233, pp275-286

Information available on the homepage of the Department of Mechanics and Structures:
[www.szt.bme.hu/Downloads/English courses/Fundamentals of Structures/2018](http://www.szt.bme.hu/Downloads/English%20courses/Fundamentals%20of%20Structures/2018)

- Topics schedule and requirements of the subject
- Lecture notes
- Solution of some selected problems

In the course we also use the online Q&A platform piazza (piazza.com). For enrolment send an email to baranyai@sztt.bme.hu, include your name and email address. (During registration you will receive an activation code.)