

BUTE Faculty of Architecture		Department of Mechanics, Materials and Structures				
Subject: FUNDAMENTALS OF STRUCTURES		Code	Credit points	Date:	Semester:	Year:
Tuesdays lessons: Dr András Draskóczy	Thursdays lessons: Dr András Sipos	BME EPSTG201	0	15/16	2 nd	Gen. Course

TOPICS SCHEDULE

Week	Date	Tuesdays 12.15-14.00 K221	Date	Thursdays 15.15-17.00 K221
1.	16.02	1. Introduction The Central Building of the TUB	18.02.	B1. Dimensions. Basic properties of functions. Kinematics I.
2.	23.02.	2.1st site visit: an existing, functioning building: the Central Building of the TUB. Parts of buildings	25.02.	B2. Real numbers. Slope of a function. Kinematics II.
3.	01.03.	3. Discussion of experiences of the 1st site visit. Requirements of the built environment. Load-bearing requirements	03.03.	B3. Scalars - vectors. Newtonian principles of mechanics. Force.
4.	08.03.	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).	10.03.	B4. Trigonometry. Newtonian principles of mechanics II.
5.	15.03.	National holiday	17.03.	B5. Equilibrium of forces in 2D.
6.	22.03.	5. Discussion of experiences of the 2nd visit: mechanical characteristics of structural materials. Statistical evaluation of measurement data: material strength. The notion of safety.	24.03.	MP1. Components of forces. Resultant and equilibrium of forces in 2D.
7.	29.03.	6. Film projection (loads, behaviour of structural materials) Distribution of MP1, discussion of typical problems	31.03.	Test 1: Components of forces. Resultant and equilibrium of forces in 2D.
8.	05.04.	7. 3rd site visit: a construction site . Load-bearing parts of buildings	02.04.	B6. Gravity. Mass and weight. Loads.
9.	12.04.	8. Discussion of experiences of the 3rd site visit (I). Structural modelling , the static model of load-bearing structures. Functions of structures, requirements.	09.04.	B7. Circular motion.
10.	19.04.	9. 4th site visit: a project bureau	16.04.	B8. Vector product. Moment. Couple of forces.
11.	26.04.	10. Discussion of experiences of the 3rd site visit (II). Responses of load-bearing structures when loaded. Limit states. Fundamental laws of structural analysis.	28.04.	B9. Area under a function. Energy and power. Variational view of mechanics.
12.	03.05.	11. Discussion of experiences of the 4th site visit (I). The process of creation . Parties contributing to design and realization of architectural projects.	05.05.	MP2: General coplanar force systems
13.	10.05.	12. Discussion of experiences of the 4th site visit (II). Parts and kinds of documentations of buildings . Scales and graphical symbols. Structural projects. Distribution of MP2, discussion of typical problems	12.05.	Test 2: General coplanar force systems.
14.	17.05.	13. Consultation for the test repetition. Solution of problems.	19.05.	Test repetition

BUTE Faculty of Architecture		Department of Mechanics, Materials and Structures				
Subject: FUNDAMENTALS OF STRUCTURES		Code	Credit points	Date:	Semester:	Year:
Tuesdays lessons: Dr András Draskóczy	Thursdays lessons: Dr András Sipos	BME EPSTG201	0	14/15	2 nd	Gen. Course

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 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 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.
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: $0,9 \times \Sigma \text{Two test results} + \Sigma \text{MP results}$
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/English/courses/Fundamentals of Structures/2016](http://www.szt.bme.hu/English/courses/Fundamentals%20of%20Structures/2016)

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

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