Metal Structures

Lectures, design exercises, laboratories, consultations - general rules

Tomasz Michałowski PhD

footbridge.pl/stud/

(not www.footbridge.pl/stud/)

general information, materials, bibliography

tmichal@pk.edu.pl

(please not via Teams)

Metal Structures - ECTS points;

Subject	Winter semester (5^{th})	Summer semester (6^{th})
Structural Mechanics	6	
Metal Structures	3	4
Concrete Structures	4	3
Bridge Structures		4
...	...	...
Σ	30	30

3 subjects with the highest number of points.

INITIAL REQUIREMENTS

Knowledge of Mathematics (1st - 2nd semester);

Knowledge of Theoretical Mechanics (2nd - 3rd semester);

Knowledge of Strength of Materials (3rd - 4th semester);

Knowledge of Structural Mechanics (4th semester);

Knowledge of Introduction to Construction Design (4th semester);

COURSE OBJECTIVE'S

Presentation of general guidelines for the design of steel structures
(Lectures 1-8, 22, Laboratories 3-6);
Presentation of calculation procedures for steel structure elements
(Lectures 9-13, Laboratories 1,2, Projects 1-3);
Presentation of calculation procedures for joints in steel structures
(Lectures 14-21, Projects 1-3).

	Winter semester	Summer semester
Lectures	1-15 (13)	(14) 16-23
Laboratories	1-6	
Design Projects	1	2, 3
Exam	*For volunteers*	Obligatory for everybody

LECTURES

Every weeek, 90 minutes

Wednesday, 9:14-10:45, room 405

LECTURES

7 X	Introduction
14 X	Mechanical characteristisc
21 X	Eurocodes
28 X	Cross-section classes
4 XI	Global instability
18 XI	Imperfecrions
25 XI	Corrosion, Fire
2 XII	General rules for steel structures
9 XII	Trusses
16 XII	Bracings
13 I	Hot-rolled beams
20 I	Welded beams
27 I	Columns
?	Joints, part I
?	Joints, part II

DESIGN EXERCISES

Every other weeek, 90 minutes

EVEN weeks

Wednesday, 11:00 – 12:30, 12:45 – 14:15

Room 418

1 exercisie in semester

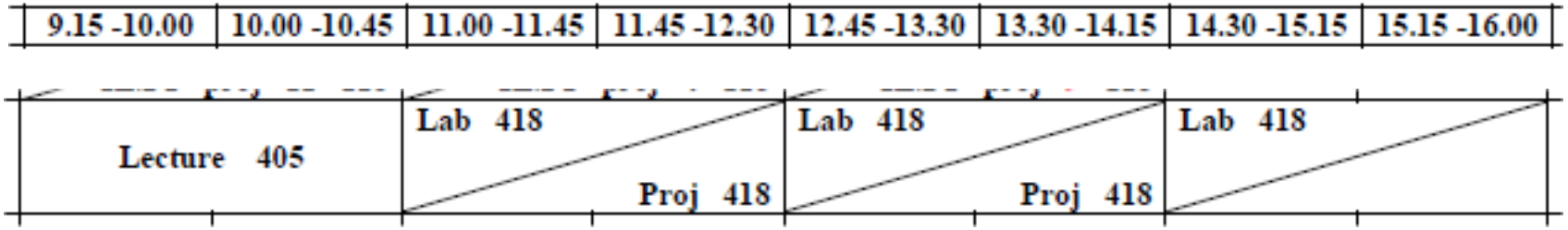

Photo: Author

DESIGN EXERCISES

#	1	2	3	4	5	6	7
Data	**7 X**	**21 X**	**4 XI**	**18 XI**	**16 XII**	**13 I**	**27 I**
Topic	**Ist project – general present.**	**Example of calc. part I** **Cons.**	**Example of calc. part II** **Cons.**	**Cons.**	**Cons.**	**Cons.** **DEADLINE**	**Test**

According to the decision of the Department Head, the completion of **Projects** and **Laboratories** must end with a uniform test.

This will be a short multiple choice test covering the theoretical foundations of the project and the laboratories.

IInd term – additional meeting 29 I 2026, 9:00

LABORATORIES

Every other weeek, 90 minutes

ODD weeks

Wednesday, 11:00 – 12:30, 12:45 – 14:15, 14:30 – 16:00

room 418 (1, 2, 3, 5, 6, …)

or 18 IBMS (4)

5 exercisies in semester

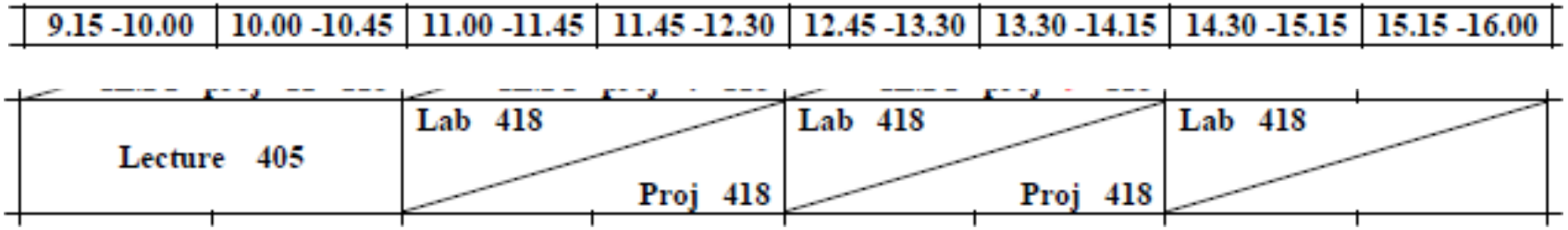

Photo: Author

LABORATORIES

#	1	2	3	4	5	6	
Data	**14 X**	**28 X**	**25 XI**	**2 XII**	**9 XII**	**20 I**	**27 I**
Topic	**Identification $L_{1,1}$ geometry $L_{1,2}$ (418) Obligatory**	**Welced I-beams L_2 (418)**	**UTS, statistic $L_{3-4,1}$ (418)**	**UTS $L_{3-4,2}$ (18 IBMS) obligatory**	**Microscope L_5 (418) obligatory**	**Non Destructive Tests L_6 (418)**	**Test (during Project)**
Deadline	**25 XI**	**2 XII**	**9 XII**	**20 I**	**27 I**	**25 XI**	

CONSULTATIONS

(intended for discussing students' assignments and credits awarded for them)

Wednesday, 9:15-10:45, room 230

Thursday, 11:00-14:15, room 230

e-mail, ZOOM

On exercisies after explanation of topic

Formal requirements:

- Participations in 1st, 4th and 5th laboratory are obligatory;
- Absences on other classes don’t affected on grades;
- The attendance list is checked for the Dean's Office

All laboratories and design projects assignment must be handed in (electronic version, pdf) and awarded no later than

28 I 2026

There will be no consultations and credits of design projects between

28 I 2026 and 22 II 2026

Final Grade

Part	Execution	Test or exam
Lab I part I: measurement report	3	30
Lab I part II: calculation of geometrical characteristics	8	
Lab II: calculation of geometrical characteristics	8	
Lab III-IV part I: statistic analysis	4	
Lab III-IV part II: research report	2	
Lab V: report of microscopic observations	2	
Lab VI: production category analysis	3	
Design Proj: roof steel truss	10	
Exam		*30*
TOTAL	**100**	

There are three Student Science Clubs operating at the Chair

KNKMPK.blogspot.com

Photo: L3

Koło Naukowe Konstrukcji Metalowych
SKN METALOWCY
KKMMD

KORNIKI
SKN KONSTRUKCJI DREWNIANYCH

Photo: dziennikolski24.pl

Photo: metaalbewerking-info.be

Photo: hospitaldesignhub.com

Extra points for club activities

	Giving a paper at a Club meeting	Giving a paper at a Faculty or inter-Faculty Session of Clubs	Presentation of a paper at an Inter-university (national or international) Session of Clubs
KNKMPK.blogspot.com	3	5	8
Koło Naukowe Konstrukcji Metalowych SKN METALOWICY KKMMD	5	10	15
KORNIKI SKN KONSTRUKCJI DREWNIANYCH	3	5	8

Photo: L3

Sum of point	Grade
< 51,0 < 5,0 from Lab I / part II < 5,0 from Lab II < 6,0 from Project < 16,0 from Test	2,0 F
51,1 – 60,0	3,0 E
60,1 – 70,0	3,5 D
70,1 – 80,0	4,0 C
80,1 – 90,0	4,5 B
90,1 – 100,0	5,0 A

Thank you for attention

tmichal@pk.edu.pl