

**SINGLE MASTER
STUDY PROGRAMME
ARCHITECTURE**

University of Ljubljana
Faculty of Architecture

Univerza
v Ljubljani Fakulteta
za arhitekturo



2018–2019





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FACULTY OF ARCHITECTURE LJUBLJANA, 2018

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UNIVERSITY OF LJUBLJANA

FACULTY OF ARCHITECTURE

The Faculty

- » The Faculty of Architecture in Ljubljana is generally considered one of the best Central European schools of architecture. Confirmation of its quality comes from numerous successful students and graduates, often achieving enviable results domestically and abroad.«
P. Gabrijelčič

Organisational Units

Department of Architectural Design
Department of Presentation Techniques
Department of Urbanism
Department of Composition and Design
Department of Structures
Department of Organisation, Technology,
Management, Computer Science
Department of History and Theory
Institute of Architecture and Space



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**ENOVITI MAGISTRSKI
ŠTUDIJSKI PROGRAM
ARHITEKTURA**

**Presentation of the Study Programme
2018—2019**



1 INFORMATION ABOUT THE STUDY PROGRAMME:

The single masters study programme Architecture takes 5 years (10 semesters) and amounts to 300 credit points.

The study programme includes elective modules A and B. The professional title bestowed on the graduate is:

- Master engineer of architecture (abb. mag. eng. arch.)

2 INTERNATIONAL COMPARABILITY OF THE STUDY PROGRAMME

All compared foreign programmes are appropriately accredited or recognized in the countries where they are provided.

- 1 Technische Universität Graz TU Graz. Faculty of Architecture. Gradec, Avstrija.
http://portal.tugraz.at/portal/page/portal/TU_Graz
- 2 Universitat Politècnica de Catalunya. BarcelonaTech UPC. Barcelona School of Architecture ETSAB. Barcelona, Španija.
www.etsab.upc.edu
- 3 Leibniz Universität Hannover. Faculty of Architecture and Landscape Sciences. Hannover, Nemčija.
www.archland.uni-hannover.de

1 Graz University of Technology (TU Graz)

Faculty of Architecture

Architecture forms an arch between art and technology. Architectural design consists of identifying, defining and reflecting on complex problems of living space and refers to the creation, change and preservation of a safe and aesthetically appealing environment worth living in.

The study programmes at the Faculty of Architecture have a generalist character and promote a holistic way of working and thinking due to project-oriented teaching. The university teachers, some of whom come from all around the world, can boast of a wealth of practical experience. Graduates of the Faculty of Architecture in Graz have gained a good reputation on

the national and international level due to their ability to think in a critical and innovative way and their professional competence, which extends beyond the traditional fields of activity.

2 Universitat Politècnica de Catalunya

Barcelona School of Architecture (ETSAB)

dates back over 100 years to 1875. The ETSAB has trained thousands of students in the areas of architectural design, urban planning and building construction. Its teaching staff includes prestigious academics and renowned professionals who have made a major contribution to Barcelona's current fame in the field of architecture. The School is respected worldwide and receives many applications for admission from foreign students. Degree in Architecture
Students acquire a solid technical and legal specialisation that allows them to work in the design and management of building construction and restoration projects and in the fields of urban and spatial planning. Other career prospects include those related to landscaping and the environment; land and property management; interior, furniture and object design; exhibition and set design; health and safety projects; and graphic design.

3 Leibniz Universität Hannover

Faculty of Architecture and Landscape Sciences

Engineer, artist, historian or sociologist? Good architects and landscape architects are a bit of everything. But at the heart of it are people and their built environment. This is why one of the focuses of the faculty is on urban planning and cultural landscape aspects in design and planning. Leibniz Universität Hannover is the only university in the North of Germany offering training and research in landscape architecture and environmental planning.

Study Guide Architecture: An Architect Does More than Build Houses

An architect plays a role in town and landscape design, and is a historian and a trend analyst rolled into one. If you want to study architecture, you should have an inquisitive mind and plenty of staying power, enjoy designing and have good spatial powers of imagination. Studies are based on professional practice i.e. planning, construction and renovation of buildings,

settlements and towns. Other areas or architecture such as history, creative design or the latest computer methods are also covered.

3 BASIC PROGRAMME GOALS AND GENERAL COMPETENCE

Basic goals: The programme education profile is for the architect — generalist. The basic goal is to train experts for responsible tasks concerning architectural design and planning, as well as spatial management. The responsibility of architects stems from the significance of architectural design, building quality, their harmony with the environment and respect for natural and urban landscapes, which are of public interest. Public interest granted to quality of physical environment is safeguarded by Slovene as well as European laws. The Slovene law stipulates conditions for architects - designers, reviewers of planned spatial interventions, spatial planners, responsible project leaders of proposals of spatial acts, municipal urbanists, researchers etc. The European law determines minimal criteria for qualified architects for automatic recognition of professional qualifications in all European countries. The profile of an architect is very complex since the architect has to be capable of thinking about people and their spatial issues in very varied scales: from the regional planning scale to the architectural detail and vice versa. It has to grow from contemporary theoretical and technological findings, supersede them, strive for balance between functional-technical and artistic components of architectural creativity. The educational profile of architects joins technical, social and humanistic sciences into a capability for managing and designing space or buildings. The results of architectural creativity can be socially recognised as works of art.

- **General Competences:**

- Mastering of research methods, procedures and processes, development of critical and self-critical reflection;
- Capability of practical use of knowledge;

- Autonomous operation in professional work;
- Development of communication capacities and skills, especially visual communication;
- Ethical reflection and dedication to professional ethics;
- Cooperativeness, working in teams (and in the international environment).

4 REQUIREMENTS FOR ENROLMENT AND SELECTION CRITERIA FOR CURTAILED ENROLMENT

- **The Single Masters Study Programme Architecture Can be Entered by:**

- a Whoever graduated and was granted a high school diploma;
- b Whoever completed a vocational school and was granted a diploma in any high school programme and exam within the diploma subjects mathematics and foreign language, if mathematics was part of the vocational diploma;
- c Whoever completed any four-year high school programme before June 1st, 1995.
All candidates have to undertake an entrance exam confirming capability to study architecture.

- **When Decisions About Limited Enrolment are Taken**

- if more candidates provide proof of adequate high school qualifications needed for study of architecture, than there are enrolment places) candidates are selected by the following criteria:
- Success in the capability test 80% of points,
 - General success in the high school diploma, vocational diploma or closing exam 10% of points General success in the 3rd and 4'h grade 10% of points.

- **Capability Test**

The capability test for enrolment in the study programme architecture assesses: sense for artistic perception and expression, spatial perception and expression, and architectural issues.



- **Part Time Study**


Candidates for the part time study have to comply to all the enrolment conditions. The entrance fee is determined according to the valid price list.

5 CRITERIA FOR ACKNOWLEDGMENT OF KNOWLEDGE AND SKILLS GAINED BEFORE ENROLMENT IN THE PROGRAMME

- **Conditions for Advancing from Year to Year**

To progress from Year 1 to Year 2, a student is required to pass the following courses: Design Studio 1, Architectural Design 1, Materials and Forms, and earn a minimum of 48 credits from Year 1.

To progress from Year 2 to Year 3, a student is required to pass all Year 1 examinations, courses Design Studio 2, Architectural Design 2, and earn a minimum of 48 credits from Year 2.



To progress from Year 3 to Year 4, a student is required to pass all Year 1 and Year 2 examinations, courses Design Studio 3, Architectural Design 3, and earn a minimum of 48 credits from Year 3.

To progress from Year 4 to Year 5, a student is required to pass all Year 1, Year 2, and Year 3 examinations, course Design Studio 4, and earn a minimum of 48 credits from Year 4.

- **Conditions for Repeating a Year**

A student may repeat a year only provided that the student passed at least half of the requirements in the relevant year of study and earned a minimum of 30 ECTS. A student may repeat a year of study only once during his or her studies. Approval for exceptional enrolment is granted by the Academic Affairs Commission.

7 CONDITIONS FOR STUDY COMPLETION

Study completion implies that the student has completed all the required tasks in all the enrolled subjects, prepared a final work and defended it successfully.

8 TRANSITION BETWEEN STUDY PROGRAMMES

- **Conditions for Transferring between Programmes**

The term transferring means that the student ceases to study in the study programme he/she originally enrolled in, and continues the education in the Master's University Study Programme in Architecture, where all or part of study obligations from the student's original (first) study programme are recognised as completed obligations (Criteria for Transferring Between Study Programmes (Official Gazette of the RS, No. 95/2010, amendments Official Gazette of the RS, No. 17/2011)).

In the European higher education area, programmatic diversity is obvious, while the responsibility in dealing with space has become the common goal of all countries. In spatial management and design, architecture is the only regulated profession, hence any transferring from other programmes to architecture, rather than vice versa, is subject to strict checking. The conditions for transferring are a constituent part of such programmes.

- **Transferring between Study Programmes Leading to a University Degree**

In the academic year 2007/2008, the Long-cycle Master's Study Programme in Architecture was introduced in line with the European directive on regulated professions (Professional Qualifications Directive). The graduates who were awarded the title "univerzitetni diplomirani irfienir arhitekture" (university diploma in architecture) prior to the introduction of the new programme, may, under certain

conditions, upgrade their studies, and are thus awarded a diploma compliant with the Directive 2005/36/EC.

- **The Transfer is Approved by The Academic Affairs Commission.**
 - The conditions for transferring between the old and the new programmes are also taken into account in the case of completed studies. By passing the specified bridging exams, the university graduate engineers in architecture can obtain the title master engineer in architecture.
- **Transfers Between Study Programmes:**

For the purpose of transfer, the faculty can issue the necessary certificates of completed obligations. The criteria are determined by the institution responsible for the delivery of the programme, to which the student wishes to transfer.

9 EVALUATION METHOD

Knowledge is evaluated by oral and written examination. Assessment of knowledge in disciplinary subjects is predominantly by drawings - plans: the oral exam can be defence of a graphic presentation; the written exam can also be the written statement of such a presentation.

The grades for most subjects, meaning those that are conducted as lectures and exercises, consist of two parts: one part is the grade for the (theoretical) exam; the other represents the graded exercises, the latter varying from subject to subject. The subject Design 1 has a single grade; the subjects Design 2, 3, 4 and 5 have dual grades (individual work, exercises). Elective subjects are graded with a single (examination) grade. The 1 to 10 grading scale is applied (1-5: fail, 6-10: sufficient, good, very good, excellent).

In accordance with the University of Ljubljana statute for grading, the following grading scale and grades are used:

- 10 – 91–100%: excellent: outstanding performance with minor errors),
- 9 – 81–90%: very good: above average knowledge, but with some errors),
- 8 – 71–80%: good: solid results),
- 7 – 61–70%: satisfactory: fair knowledge but with significant shortcomings),
- 6 – 51–60%: sufficient: knowledge meets minimum criteria),
- < 5 – 50% and less: unsatisfactory: knowledge does not meet minimal criteria.

The candidate successfully passes the exam if the grade he receives is in the satisfactory (6) to excellent (10) range.

Year 1, 1st semester

Subj. no.

Subj. no.	Subject	Lecturer	Contact hours					Total hours	Credits
			lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
1.2	Architectural Design 1	Prof. Maruša Zorec Prof. Tadej Glažar, M.Sc.	15	30	15	90	150	5	
1.3	Mathematics	Assoc. Prof. Mitja Lakner, Ph.D.	30	15	45	90	3	3	
1.4	Descriptive Geometry	Assist. Prof. Domen Kušar, Ph.D.	15	30	45	90	3	3	
1.5	Statics	Prof. Vojko Kilar, Ph.D.	30	15	75	120	4	4	
1.6	Representation Techniques 1	Assoc. Prof. Jaka Bonča, Ph.D. Assist. Prof. Špela Hudnik, Ph.D.	60	30	120	210	7	7	
1.7	Representation Techniques 2	Assist. Prof. Tomaž Novljan, Ph.D. Assist. Prof. Leon Belušič	15	30	45	90	3	3	
1.9	Materials and Rorms	Assist. Prof. Mitja Zorc	30	30	90	150	5	5	
Total			135	180	75	510	900	30	
Percentage			15	20	8	57	100		

Year 1, 2nd semester

Subj. no.

Subject	Lecturer	Contact hours					Total hours	ECTS
		Lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
1.1 Design Studio 1	**	30	60	45	165	270	9	
1.3 Mathematics	Assoc. Prof. Mitja Lakner, Ph.D.	15	30	15	75	120	4	
1.4 Descriptive Geometry	Assist. Prof. Domen Kušar, Ph.D.	30	30	30	75	120	4	
1.5 Statics	Prof. Vojko Kilar, Ph.D.	15	30	30	60	120	4	
1.7 Representation Techniques 2	Assoc. Prof. Leon Belušič	30	30	30	90	150	5	
1.8 Digital Methods and Representations	Assoc. Prof. Or Ettlinger, Ph.D.	120	165	75	540	900	30	
Total		14	18	8	60	100		
Percentage								

Year 2, 1st semester

Subj. no.	Subject	Lecturer	Contact hours					Total hours	ects
			lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
2.1	Design Studio 2	**	15	60	45	135	240	10	
2.2	Architectural Design 2	Prof. Miloš Florjančič	30	30	15	90	150	5	
2.5	Building Physics	Prof. Sašo Medved, Ph.D.	30	15		75	120	4	
2.7	History and Theory of Architecture 1	Assoc. Prof. Petra Čeferin, Ph.D., Ph.D.	30	30		90	150	5	
2.8	Structures 1	Assist. Prof. Tomaž Slak, Ph.D.	30	30		90	150	5	
Total			105	165	60	480	810	29	
Percentage			13	20	7	60	100		

Year 2, 2nd semester

Subj. no.	Subject	Lecturer	Contact hours					Total hours	Credits
			lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
2.1	Design Studio 2	**	15	60	60	120	240	7	
2.4	Use of Colours and Colour Metrics in Arch.	Assist. Prof. Tomaž Novljan, Ph.D.	30	60	15	60	90	3	
2.3	Structures and Dimensioning	Prof. Vojko Kilar, Ph.D.	15	30	15	90	150	5	
2.6	Introduction to Urbanism	Assoc. Prof. Tadeja Zupančič, Ph.D.	30	15	15	75	120	4	
2.9	Introduction to Art Theory	Assoc. Prof. Jaka Bonča, Ph.D.	15	15	30	60	120	2	
2.10	Architectural Workshop 1	**	90	180	150	570	990	30	
2.11	Study Practice 1	Assist. Prof. Tomaž Slak, Ph.D.	9	18	15	58	100		
Total			90	180	150	570	990	30	
Percentage			9	18	15	58	100		

Year 3, 1st semester

20

Subj. no.	Subject	Lecturer	Contact hours					Total hours	ects
			lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
3.1	Design Studio 3	**	15	60	45	135	240	8	
3.2	Architectural Design 3	Assist. Prof. Tomaž Krušec, M.Sc.	30	30	15	90	150	5	
3.4	Structures 2	Assist. Prof. Matej Blenkuš, Ph.D.	30	30	30	90	150	5	
3.8	History and Theory of Architecture 2	Assist. Prof. Mihael Dešman	30	30	30	90	150	5	
3.9	Utility Technologies	Prof. Sašo Medved, Ph.D.	30	30	30	60	120	4	
3.11	Elective Subject	***A	30	(15)	(15)	60	90	3	
			120	180	60	540	900	30	
			Total (105)	(195)					
			Percentage (12)	(21)	7	60	100		

Year 3, 2nd semester

21

Subj. no.	Subject	Lecturer	Contact hours					Total hours	Credits
			lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
3.1	Projektiranje 3	**			60	45	135	240	8
3.3	Building Mechanics	Prof. Vojko Kilar, Ph.D.	30		30		90	150	5
3.5	Building Technology and Materials	Prof. Martina Zbašnik Senegačnik, Ph.D.	30		30		90	150	5
3.6	Urban design	doc. Polona Filipič	30		30		90	150	5
3.7	Representation Techniques 3	Assist. Prof. Jurij Sadar			30	30	90	150	5
3.10	Architectural Workshop 2	**			15	15	30	60	2
Total			90		195	90	525	900	30
Percentage			10		22	10	58	100	

Year 4, 1st semester

Subj. no.	Subject	Lecturer	Contact hours					Total hours	Credits
			Lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
4.1	DesignStudio 4	**	15	60	45	75	180	6	
4.2	Architectural Design 4	Assoc. Prof. Aleš Prinčič, M.Sc.	15	30	15	90	150	5	
4.3	Development of Urbanism	Assoc. Prof. Lucija Ažman Momirski, Ph.D.	60			90	150	5	
4.7	History and Theory of Architecture 3	Prof. Aleš Vodopivec, Ph.D.	30	30		90	150	5	
4.8	Management in Architecture	Assist. Prof. Domen Župančič, Ph.D.	30			60	90	3	
4.11	Elective subject	***A	30 (15)			60	90	3	
4.12	Elective subject	***B	30 (15)			60	90	3	
Total			195 (165)	120 (150)	60	525	900	30	
Percentage			22 (18)	13 (17)	7	58	100		

Year 4, 2nd semester

23

Subj. no.	Subject	Lecturer	Contact hours					Total hours	Credits
			lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
4.1	Design Studio 3	**			60	60	180	300	10
4.4	Landscape Architecture	Assist. Prof. Mojca Gregorski,	30		30		90	150	5
4.5	Urban Planning	Assist. Prof. Ilka Čerpes, Ph.D	30		30		90	150	5
4.6	Architectural Renewal and Conservation	Prof. Maruša Zorec	30		30		90	150	5
4.9	Façade and Façade Technologies	Assoc. Prof. Vasa J. Perovič, M.Sc.			30	15	45	90	3
4.10	Architectural Workshop 3	**			15	15	30	60	2
Total			90		195	90	525	900	30
Percentage			10		22	10	58	100	

Year 5, 1st semester

Subj. no.	Subject	Lecturer	Contact hours					Total hours	ECTS
			Lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
5.1	Design Studio 5	**		135	75	120	330	12	
5.2	Urban Sociology	Assoc. Prof. Marjan Hočvar, Ph.D.	30			60	90	3	
5.3	Building and Planning Legislation	Assoc. Prof. Tadeja Zupančič, Ph.D.	30			60	90	3	
5.4	General Safety	Assist. Prof. Domen Kušar, Ph.D.	30			60	90	3	
5.5	Elective Subject	****A	30 (15)	(15)		60	90	3	
5.6	Elective Subject	****B	30 (15)	(15)		60	90	3	
5.7	Study Practice 2	Assoc. Prof. Anja Planišček, Ph.D. Assist. Prof. Rok Žnidaršič	30			60	90	3	
			150 Total (120)	135 (165)	120	495	900	30	
			17 Percentage (14)	15 (18)	13	55	100		

Year 5, 2nd semester

25

Subj. no.

Subject	Lecturer	Contact hours					Total hours	ECTS
		lectures	Seminar	Exercises	Other for. of study	Indep. work of student		
5.8 Master Degree	*	90		195	345	555	300	30
		Total	90	195	345	555	900	30
		Percentage			28	62	100	

ID – v skladu s sprejetim akreditiranim programom Enovitega magistrskega študija FA izvaja individualno delo v obsegu, kot je razviden iz tabel.

In the first year students are designated to mentors by the study committee. From the second year onwards the students chooses their mentor independently. The list of mentors is approved by the Study committee. Subject leaders of Design 1 -5, Architectural Workshop 1-3 and the diploma supervisors are all architects that also conduct one of the other subjects and can present adequate professional references.

*** Study Practice 1: on a construction site; 2 in an architectural (design) office.

*** In the 3rd, 4th and 5th year the student selects a subject each from group Apt, in the 4th and 5th year the student selects a subject each from group The requirement for a subject course to be held is at least 5 students/applicants.

A Elective subjects, group »A«:

A1

- 1 Residential Buildings *Assoc. Prof. Anja Planišček, Ph.D.*
- 2 Public Buildings *Prof. Tadej Glažar, M.Sc.*
- 3 Industrial Buildings *Assist. Prof. Sonja Ifko, Ph.D.*
- 4 Recreational Buildings *Assist. Prof. Domen Zupančič, Ph.D.*
- 5 Church Buildings *Assist. Prof. Leon Debevec, Ph.D.*
- 6 Interior Design *Assist. Prof. Aleš Prinčič, M.Sc.*

A2

- 1 20th Century Slovene Architecture
Assist. Prof. Nataša Koselj, Ph.D.
- 2 Architectural Theory and Critique
Assoc. Prof. Petra Čeferin, Ph.D., Ph.D.
- 3 Architectural Anthropology...
- 4 Architectural Analogies *Assoc. Prof. Lucija Ažman Momirski, Ph.D.*
- 5 Introduction to Research in Architecture
and Urbanism *Assoc. Prof. Tadeja Zupančič, Ph.D.,
Assist. Prof. Ljubo Lah, Ph.D.*
- 6 Ecological Building Principles
Prof. Martina Zbašnik Senegačnik, Ph.D.
- 7 Analysis of Contemporary Architecture
Assoc. Prof. Petra Čeferin, Ph.D., Ph.D.
- 8 Heritage Interpretation *Assist. Prof. Sonja Ifko, Ph.D.*

A3

- 1 Theory of Physical and Regional Planning...
- 2 Communal and Housing Economy
Assoc. Prof. Maruška Šubic Kovač, Ph.D.
- 3 Land Policy and Property Evaluation
Assoc. Prof. Maruška Šubic Kovač, Ph.D.
- 4 Rurism and Rural Architecture *Assoc. Prof. Alenka Fikfak, Ph.D.*
- 5 Action Planning and Strategic Assessment
Assoc. Prof. Ažman Momirski, Ph.D.
- 6 Urban Brownfield Adaptive Reuse
Assist. Prof. Primož Hočevar, Ph.D.

B Elective subjects, group »B«

B1

- 1 Vernacular Architecture *Assist. Prof. Domen Zupančič, Ph.D.*
- 2 Design of Objects *Assist. Prof. Leon Belušič*
- 3 Design Concepts *Assoc. Prof. Jaka Bonča, Ph.D.*
- 4 Light in Architecture *Assist. Prof. Tomaž Novljan, Ph.D.*
- 5 Design of Green Surfaces *Prof. Davorin Gazvoda, Ph.D.*
- 6 Settlement Culture *Assoc. Prof. Alenka Fikfak, Ph.D.*

- 7 Space and Recreation *Assist. Prof. Mojca Gregorski*
8 Parametric Design and GIS in Achitecture
Assoc. Prof. Lucija Ažman Momirski, Ph.D.

B2

- 1 Art History...
2 Spatial Idiomatics *Prof. Maruša Zorec*
3 Elements of Classical Composition
Assist. Prof. Leon Debevec, Ph.D.
4 Environmental Psychology *Prof. Matija Svetina, Ph.D.*
5 Theory of Architectural Design...
6 Measurement Standardisation...
7 Artistic Expression *Assist. Prof. Peter Marolt, Ph.D.*
8 Creative Design *Assist. Prof. Primož Jeza*
9 History and Theory of Architecture 4
Prof. Aleš Vodopivec, Ph.D.
10 On the Nature of Materials: History, Theory, and
Transformation *Assist. Prof. Paul O. Robinson*

B3


- 1 Comprehensive Preservation of Built Heritage
Prof. Maruša Zorec
2 Renewal and Adaptation *Prof. Maruša Zorec*
3 Integral Renewal *Assist. Prof. Ljubo Lah, Ph.D.*
4 Preservation of Contemporary Architectural heritage
Assist. Prof. Sonja Ifko, Ph.D.
5 Architecture and Archeology
Assoc. Prof. Lucija Ažman Momirski, Ph.D.

B4

- 1 Graphics for Architects *Assoc. Prof. Boštjan Botas Kenda*
2 Space and Media *Assoc. Prof. Tadeja Zupančič, Ph.D.*
3 Computer Supported Architecture *Prof. Žiga Turk, Ph.D.*
4 Architecture of Virtual Space *Assist. Prof. Or Ettliger, Ph.D.*
5 Freehand Drawing *Assist. Prof. Leon Belušič*
6 Approaches to Creativity *doc. dr. Or Ettliger*
7 Digital Modelling and Production *izr. prof. Juruj Sadar*
8 Basics of Computer Programming *doc. dr. Simon Petrovčič*

B5

- 1 Building Prefabrication *Assist. Prof. Domen Kušar, Ph.D.*
2 Concepts of Structures *Prof. Vojko Kilar, Ph.D.*
3 Structural Systems *Prof. Vojko Kilar, Ph.D.*
4 Structures of Industrial Buildings
Assoc. Prof. Matej Blenkuš, Ph.D.
5 The Detail in Architectural Composition
Assoc. Prof. Jurij Sadar

- 
- 6 The Detail in the Interior *Assist. Prof. Peter Marolt, Ph.D.*
- 7 Spatial Acoustics ...
- 8 Energy and Ecological Assessment of Buildings
Prof. Sašo Medved, Ph.D.
- 9 Modeling of Façade Envelope
Prof. Martina Zbašnik Senegačnik, Ph.D.

B6

Subjects hosted by other faculties of the University of Ljubljana approved by the Study Committee of FA following by the hosting faculty — party.

10 SUMMARY OF POSSIBILITIES FOR ELECTIVE SUBJECTS AND MOBILITY

Relation between required and elective subjects:

Required subjects	76,7 %	Elective subjects	23,3 %
Subjects with required content All subjects not specifically stated in this table	73 ects	Subjects with elective content The student selects the subject leader 2.10 Architectural Workshop 1 2.11 Study Practice 1 3.10 Architectural Workshop 2 4.10 Architectural Workshop 3 5.7 Study Practice 2 Master Degree	73 ects 55 ects
Subjects with required content The student selects the subject leader 2.1 Design Studio 2 3.1 Design Studio 3 4.1 Design Studio 4 5.1 Design Studio 5	49 ects	Elective subjects group A The student selects subjects from any of group A modules	9 ects
		Elective subjects group B The student selects subjects from any of group's modules <i>If a subject from module B6 is selected, it has to be approved by the study committee following concordance by the executing institution.</i>	6 ects

Mobility: the student can use the possibility of half or one—year course abroad when in the framework of the Erasmus programme from (including) the third year onwards.

11 SHORT DESCRIPTION OF THE COURSES

1.1 Design Studio 1 9 ects

The student completes a project for a small-scale building in a given layout with a simpler programme and simple structure, using timber, brick or stone materials and a programme disposition suited to the sites constraints. The mentor guides the student's work together with lecturers of technical subjects. The project is completed with a public presentation and exhibition.

1.2 Architectural Design 1 5 ects

Basics of architectural design: architecture as an idea, theory and materialisation. Characteristics of spaces and objects: dimension, form, size, position. Man as the measure and criterion.

1.3 Mathematics 7 ects

Mathematical tools and their use: mathematical logic, vectors, systems, linear equations, real numbers, infinity, series and sequences, elementary functions, limits and linearity, calculus, integral, curves and surfaces in space.

1.4 Descriptive Geometry 7 ects

The axiomatic of design and descriptive geometry, projection principles, types of projections, basics of design geometry: projectivity, perspective, affinity, co-lineation, 2D and 3D structures etc.; parallel projections, axonometric projections, central projection.

1.5 Statics 8 ects

Basics of technical mechanics (forces, momentum, balance, deformation, tension, mechanical properties of materials, bending, elastic and plastic behaviour of materials, dimensioning). Working of simple statically determined and undetermined systems.

1.6 Representation Techniques 1 7 ects

Expressing architectural ideas by drawings and models. Sketch, design, model. Drawing tools. Technical and artistic properties of architectural objects. Elements of a plan: scale, projection. Drawing linear geometrical objects.

1.7 Representation Techniques 2 7 ects

Free hand drawing: transformation of spatial ideas into drawings. Drawing on a model (geometrical bodies, furniture, machines, architectural models and landscapes); drawing from memory (analysis of an object into composition units) and drawing from imagination.

1.8 Digital Methods and Representations 5 ects

Logical and effective use of digital media capabilities - hardware and software needed for successful work for use in multimedia digital technologies; internet multimedia technologies, multimedia databases in the field of architecture.

1.9 Materials and Forms 5 ects

Interdependency of materials and form, architecture and materials; basics of tectonic logic; unity of content, structure and form; technical, aesthetic and humane issues of spatial design in centuries of historical development unto systemic solutions in design, architecture and spatial planning.

2.1 Design Studio 2 18 ects


The subject continues from Design 1. In year 2 the student has to complete a project for a larger multi-floor building with more complex programme (concrete structure), layout and dimensioning, building technology and utilities design. The selected mentor guides the student's work in cooperation with lecturers of technical subjects. The project is completed with a public presentation and exhibition.

2.2 Architectural Design 2 5 ects

Dealing with architectural space by using the layout and section and composing particular elements of the architectural language in to spatial compositions and their dialogue and placement in various spaces. Analysis and decomposition of a given architectural composition and consequent reassembly into a sensible architectural composition in a different space. Layouts of simpler buildings.

2.3 Structures and Dimensioning 5 ects

Concepts of load-bearing structures and choice of dimensions pertaining to particular structural fields and materials in accordance to stipulations of common



European standards; designing and dimensioning earthquake safe structures; determining measures by using load-bearing capacity tables; choice of dimensions with standard integers and choice of dimensions with proportional relations.

2.4 Use of Colour and Colours Metrics in Architecture 3 ects

Basic physical properties of colour; the effect of colour on man; the influence of colour on spatial perception; shadows, reflection and absorption; colour in the exterior and interior; technical quantities in colour; additive and subtractive mixing of colour, colour as a message bearer; mistakes in colour application; future use of colour.

2.5 Building Physics 4 ects

Mechanisms and physical fundamentals of transmission of heat in built structures; passage of short- and long wavelength emissions; accumulation of heat and calming temperature amplitudes; vapour diffusion, condensation in built structures, vapour barrier and drainage plane; passage of light in buildings; passage of sound in the exterior and in built structures; noise reduction; heating and environmental properties of buildings, assessment methods.

2.6 Introduction to Urbanism 5 ects

Understanding the relation between urban-settlement space and project procedures under real ecological conditions ('urban design'); interdependency of the material spatial culture with nature and society in time with experiential emphasis on the micro-level by checking with abstract, deductive patterns; methodology of objective and subjective assessment of the condition, spatial communication, structures and forms, sustaining life in settlements, real measures and norms.

2.7 History and Theory of Architecture 1 5 ects

Histories and theories of the most ancient periods: prehistoric, Egypt, Mesopotamia, Persia, Asia Minor and Aegean cultures, Greece, Rome and the influences of antiquity on later architecture.

2.8 Structures 1 5 ects

Knowledge about plans and representations of structural (load-bearing) materials in architecture



and civil engineering; layout and design of structural elements in tall buildings and engineering; mechanical load-bearing properties of materials for static and dynamic loads; behaviour of various materials and their properties, foundations, vertical load-bearing elements, horizontal load-bearing elements, wooden roof frames, basics of reinforced concrete, steel, timber structures bracing, drawing and annotating structures in plans and the specifics of drawing in the ACAD environment.

2.9 Introduction to Art Theory 4 ects

Introduction to art theory: the relation between visual and artistic; art as a form of communication; artistic morphology; artistic (measurements) composition; proportions in nature and fine arts...

2.10 Architectural Workshop 1 2 ects

One-week intensive fieldwork tied to a real task or architectural theme. Guided by a tutor, students working in small groups produce a project (anticipated cooperation with the local community).

2.10 Study Practice 1 4 ects

One-month of work on a construction site represents complementary work within the subject Design 1 and practical knowledge with training to complement the theoretical basics of the subject Structures 1. The student learns about the procedure of undertaking an architectural project in real space.

3.1 Design Studio 3 16 ects

The subject continues from Design 2. In year 3 the student has to undertake a project for a large building in the urban environment, with a more complex mixed-use programme (demanding structure): project definition, modular project arrangement, structural layout and dimensioning, building technology, utilities design, fire safety considerations. The selected mentor guides the student's work in cooperation with lecturers of technical subjects. The project is completed with a public presentation and exhibition.

3.2 Architectural Design 3 5 ects

Planar spatial concepts; the relation between interior and exterior; the section in the vertical layout of public space; open vertical passage of space; the Façade as

representation and understanding of the building's structural concept.

3.3 Building Mechanics 5 ects

Behaviour of reinforced concrete, steel and masonry structures; earthquake resistant building; criteria for selecting dimensions of structural elements.

3.4 Structures 2 5 ects

The concept of the relationship between construction and architecture. The principles of structural aesthetics. Fundamentals of selection and use of materials in structures. The principle of primary and secondary structure, prefabricated building, bridges, skeleton structures, massive structures, principles of designing tall buildings and other architectural typologies.

3.5 Building Technology and Materials 5 ects

Historical development of materials, criteria for selection of materials and a systematic overview of their properties; issues in building finalisation, composition of envelope structures and surface treatment on the architectural design level.

3.6 Urban Design 5 ects

Learning about the theoretical background and operative tools for researching and interpretation of various urban circumstances in the context of the contemporary city (models of compact and dispersed city).

3.7 Representation Techniques 3 5 ects

Analytical architectural sketching - continuation and elaboration of knowledge about architectural drawing and artistic expression (architectural analysis by drawing).

3.8 History and Theory of Architecture 2 5 ects

As part of cultural history following antiquity: the middle ages, renaissance, baroque, enlightenment...; general development principles of architecture-settlements-buildings-landscape under various global, European and Slovene conditions; development of architectural space in the European and Slovene environment; typological architectural groups: settlements, fortresses, church architecture, public buildings, housing, and their linkage to periods

of characteristics styles in European, Slovene and comparative non-European space.

3.9 Utility Technologies 4 *ects*

Technology of building utilities for ensuring adequate living and working environments by sparing use of energy and minimal effects of the building on the environment, heating systems, ventilation systems, sanitary fittings, intelligent fittings and control systems...

3.10 Architectural Workshop 2 *ects*

One-week intensive fieldwork tied to a real task or architectural theme. Guided by a tutor, students working in small groups produce a project (anticipated cooperation with the local community).

4.1 Design Studio 4 *6 ects*

Upgraded subject Design from previous years. A demanding project task is devised by the mentor and student according to the studio's focus. The selected mentor guides the student's work in cooperation with lecturers of technical subjects. The project is completed with a public presentation and exhibition.

4.2 Architectural Design 4 *5 ects*

Composition of buildings, structural experiences transformed into architecture, distinction between load-bearing and partition layers; the relation between the building and the city; the relation between old and new; the relation between the building and the environment; the model for harmonising the old and the new.

4.3 Development of Urbanism 5 *ects*

Natural, cultural and urban landscape; typological and morphological analysis of cultural landscape; analysis of cultural landscape factors; development of content and methods of spatial planning documents; sustainable and balanced spatial planning.

4.4 Landscape Architecture 5 *ects*

Natural, cultural and urban landscape; typological and morphological analysis of cultural landscape; analysis of cultural landscape factors; development of content and methods of spatial planning documents; sustainable and balanced spatial planning.

4.5 Urban Planning 5 ects

The planning process on a real example with various analytical and operative methods and techniques for distributing land use, organisation of functions, management of networks and patterns in the city's physical structure.

4.6 Architectural Renewal and Conservation 5 ects

Documentation issues, criteria for preservation and renewal, methods in project production, conservation projects, presentation, renewal, management...

4.7 History and Theory of Architecture 3 5 ects

As part of cultural history in the 19th and 20th century.

4.8 Management in Architecture 3 ects

Broader social aspects and processes (investment and management) that accompany architectural work from the first drafts, project and implementation to use and operation; principles of learning about economic and financial aspects that influence well-organised, rational and quality architecture.

4.9 Façade and Façade Technologies 3 ects

Architectural potential of the Façade, Façade technologies, Glazing systems, Typology of the façade cladding, Passive house standard and very low-energy standard, Calculation of energy balances, Calculation of daylight factor

4.10 Architectural Workshop 3 2 ects

One-week intensive fieldwork tied to a real task or architectural theme. Guided by a tutor, students working in small groups produce a project (anticipated cooperation with the local community).

5.1 Design Studio 5 11 ects

Continuation of the subject Design 4 and simultaneous preparation for the diploma A demanding project task is devised by the mentor and student according to the studio's focus.

5.2 Urban Sociology 3 ects

The social character, significance and function of space; the roots and reasons for the emergence of urban sociology; location and accessibility in space; public opinions in perception of spatial phenomena; development of information and communication

technologies and their spatial effects; urban culture, the sociological approach to urban planning.

5.3 Building and Planning Legislation 3 *ects*

Spatial order, spatial management, rules in spatial management; level of normative cover; relation between legal and ethical norms; legislature in spatial planning and design in Slovenia, relations in neighbouring and comparable countries; directives and recommendations on the EU level.

5.4 General Safety 3 *ects*

Systematic research of hazards in built spaces and possible built protection measures against them: fire protection, safety at work, safety from pollution.

5.7 Study Practice 2 4 *ects*

The one-month work experience in a design/ architectural office upgrades the simulated architectural office in the subjects Design 1-5 with real practical architectural office experience.

Elective subjects, group »A«

A 1.1 Residential Buildings 3 *ects*

Functional and typological analysis of residence and housing; the place of the concept in residential architecture; housing economy; standards and norms; technological and organisational systems in housing construction; humane living environments; homes for underprivileged groups and minorities.

A 1.2 Public Buildings 3 *ects*

The relation building-city: size, scale, compactness, building line; typologies of public buildings; basic architectural tasks in historical periods; the relation between old and new.

A 1.3 Industrial Buildings 3 *ects*

Cultural aspects of designing industrial buildings; the location theory, development of industry in Slovenia; architectural characteristics of the design of industrial buildings; issues in security and design of industry.

A 1.4 Recreational Buildings 3 *ects*

Architecture and typology of sports and recreational buildings - the role and function of leisure, tourism, recreation, sports, in the modern world; the role of modern technology in the design of sports and

recreational buildings; sports and recreation areas in the natural and urban environment.

A 1.5 Church Buildings 3 ects

The historical development of liturgical space and the variety of their architectural interpretations; the principles of specific intertwining of architectural creativity with other fine arts disciplines; the starting points of the destined relationship architecture - user.

A 1.6 Interior Design 3 ects

Analysis of function, significance and aesthetics of interior design; historical, designed and technical components of interior design; detailing, unique design; structure, colour and light in space.

A 2.1 20th Century Slovene Architecture 3 ects

The sources and concepts of modern architecture, major works, their authors; analysis of common characteristics and differences in domestic and worldwide pre-war and post-war modernism; the phenomenon and characteristics of the Architectural school of Ljubljana in the 20th century, its guiding principles and influential areas; evaluation and guidelines for preservation and protection.

A 2.2 Architectural Theory and Critique 3 ects

Basic terms; codes and styles, Vitruvius' editing of ancient heritage; deconstruction of Vitruvius' biography; Alberti's reinterpretation of Vitruvius; from tractates to manifestos; 19th century: die Stilfrage; 20th century functionalism; development of architectural theory in Slovenia; critical analysis.

A 2.3 Architectural Anthropology 3 ects

Introduction to primary principles of interaction, interdependency and the anthropogenic in the material-physical environment; the human as „animal symbolicum“, biophysical-symbolic creature; basic terms of semiotics and the information theory; the origin of architecture and the origin of city; the interdisciplinary structure of architectural anthropology.

A 2.4 Architectural Analogies 3 ects

Critical responsiveness to pending contents of the architectural discipline; use of analogies - the method enabling conclusions from the particular on the

particular; opening different and new understanding and interpretation of phenomena that emerge in (apparently) similar circumstances.

A 2.5 Introduction to Research in Architecture and Urbanism

3 ects

Research methods and techniques: between individual creativity and team creativity; gaining information and effective communication; methods of research and planning work; passages to designing architectural ideas and concepts; the psychology of creativity; devising the architectural programme and project tasks; representation, interpretation and explanation of research/project results.

A 2.6 Ecological Building Principles 3 ects

Analysis of materials and structures according to ecological principles based on valid regulation and recommendations; learning about relevant technologies in particular planning approaches on renown examples of the specific practice abroad; integrating principles of ecological building into the concept of building and settlement.

A 2.7 Analysis of Contemporary Architecture 3 ects

The objective of the course is to introduce to students some of the significant developments, tendencies and orientations within contemporary architectural production, as well as to encourage and develop their aptitude for critical assessment and critical reflection of these developments and tendencies.

A 2.8 Heritage Interpretation 3 ects

Role of heritage in contemporary society: heritage as indicator of cultural identity and as a spatial and economic-developmental potential. Developmental characteristic of natural and cultural heritage preservation with history of presentation methods and techniques. Theory and philosophy of conservation: presentation of different categories of natural and cultural heritage, basis of museological theory and contemporary preservation and interpretation approaches. Presentation of actual case studies in the field of heritage interpretation.

A 3.1 Theory of Physical and Regional Planning 3 ects

Historical overview of the development of spatial planning and regional sciences; basics of spatial planning legislature, documentation and governance; informational support in spatial planning, GIS and their use; methodological ground for planning primary uses in space, planning the secondary and tertiary sectors; synthesis in the spatial plan, synthesis methods and examples of best practices.

A 3.2 Communal and Housing Economy 3 ects

The term, significance and role of communal activities and communal economy, organisational-management models of undertaking communal activities; types of investment; investment models and accumulation of fixed communal funds; the aspect of cost in execution of communal activities; the significance and role of amortisation in communal economy, forming prices in communal economy.

A 3.3 Land Policy and Property Evaluation 3 ects

Aspects of managing building land; property assessment: purchasing land for the public domain, developing, leasing and selling building land; the subject of assessment and value, methods and standards of property and investment project appraisal.

A 3.4 Rurism and Rural Architecture 3 ects

Countryside culture and identity; the genesis of the countryside with emphasis on the development of agriculture as the formative element of the traditional countryside cultural landscape; the countryside's spatial composition; social-economic changes and transformation processes in the countryside; agrarian operations as the instrument for management of agrarian space and settlements; renewal and development of countryside settlements; modern forms of spatial development of the countryside; traditional rural architecture and its renewal.

A 3.5 Action Planning and Strategic Assessment 3 ects

Understanding informal/non-authoritarian planning forms that run parallel to planning for real and analytical planning; motives, solutions, use of solutions or their summaries in daily life of local urbanists and the local planning authority.

A 3.6 Urban Brownfield Adaptive Reuse 3 ects

Vacant or deserted construction land, empty and deserted buildings, suspended and deserted construction sites serve as the basic source for sustainable transformation and an important asset in preventing the expansion of construction to the periphery of cities and towns. According to their characteristics and their impact on the functioning and development of cities, such areas are classified as urban brownfields (UB). The city redevelopment process should be primarily focused on the transformation of these (weakest) points in the city into the promotional poles which can foster the process of sustainable transformation of the city.

Elective subjects, group »B«

B 1.1 Vernacular Architecture 3 ects

Comprehensive issues of vernacular architecture, from theoretical concepts to yesterday's solutions.

B 1.2 Design of Objects 3 ects

Conceptual and design aspects of small architecture, which isn't necessarily a part of larger interiors or concepts; the term style; issues of national identity in architecture and design; aspects of international and domestic achievements; technology and details.

B 1.3 Design Concepts 3 ects

The contour and form; understanding form; weight and modelling; study of special forms; approaching technology; relations; texture...

B 1.4 Light in Architecture 3 ects

Physical properties of light; the relation between natural and artificial light; shadows, reflection and absorption; interior lighting; exterior lighting; quality and quantity of lighting; lighting technology...

B 1.5 Design of Green Surfaces 3 ects

Origins of landscape architecture (the profession, division into specialised branches, expert terms); landscape structure (emergence of landscape patterns); garden art; types of open space; conceptualising the landscape; city parks; European practice; American practice; plaza, Chinese garden art and contemporary design, living culture; housing estate; water in the city; the concept of nature in landscape architecture.

B 1.6 Settlement Culture 3 ects

The space of architecture, the form of the house and living culture; building elements in the sense of "understanding, spatial imagination"; contemporary examples of organised housing development in the countryside, new dwelling, new forms, experimental patterns...

B 1.7 Space and Recreation 3 ects

The importance and the role of the subject as a value of quality of life during the course of the study and professional career; effects of recreational activities and recreational space on the overall physical, mental and social health of students, recreational activities such as preventive, promotional activity to maintain health, recreation as a way of life and guideline of a healthy lifestyle.

B 1.8 Parametric Design and GIS in Achitecture 3 ects

The theoretical framework of parametric design (definition, development, and analog and digital models); parametric design in contemporary architectural practice; use of parametric software tools in architecture; design of dynamic and complex parametric models; integration of GIS with parametric design tools.

B 2.1 Art History 3 ects

The concept of art in relation to natural and cultural heritage; various artistic disciplines: painting, sculpture, architecture, with a wider array of artistic practices, such as urbanism, landscape architecture, industrial and graphic design, photography, artistic crafts etc.; historical overview of art phenomena from prehistoric times till the present; learning about fundamental artistic terms, especially architectural elements and their composition.

B 2.2 Spatial Idiomatics 3 ects

Man and space, construction as the criterion for architectural expression (from the renaissance till de-constructivism); bewitching the social into the spatial order; Traum and Wirklichkeit (Vienna Austria); Golden Prague (What is genius loci?); as put by Dickens: The tale of two cities (London versus Paris); new tendencies; what is de-constructivism?

B 2.3 Elements of Classical Composition 3 ects

The lore of architectural composition; definition of terms; the main characteristics of classical and modern architecture; principles of classical composition (tectonics, three-part structure, axial structure, symmetry, balance, rhythm, proportions).

B 2.4 Environmental Psychology 3 ects

Theory of social sciences and methods derived from human relations and the wide variety of environments; theories of behavioural sciences and methods in relation to mutual effects of individuals in the living and working environment.

B 2.5 Theory of Architectural Design 3 ects

Design as a preparatory inter-subject, interdisciplinary, multi-phase creative process of spatial intervention; design as communication, agreement, coordination, integration of contributions; design aspects, types and phases; the role of regulations and norms; basic design methodology and technology; basic general and particular methods and techniques and comparison of methods; systemic methods in design and issues of specialisation.

B 2.6 Measurement Standardisation 3 ects

Theoretical and methodological principles of measurement standardisation in civil engineering; anthropometrics, Vitruvius' models, renaissance partes, development of industrial standardisation...

B 2.7 Artistic Expression 3 ects

Knowledge of artistic composition, composition methods and principles that can help us solve architectural composition tasks and spatial design.

B 2.8 Creative Design 3 ects

The course is made up of lectures on a variety of projects that led to creative architectural solutions by incorporating different technologies. This is done through a broad range of examples from interior design to architectural landscape design projects.

B 2.9 History and Theory of Architecture 4 3 ects

An insight into modern architecture and architectural thinking in relation with the social sciences, philosophy, science, technology and arts. The trends and dynamics in modern architecture are addressed

through main topics of lectures: critical regionalism; application of new technologies and emergence of new materials; impact of modern art and film; unfinished modernism project; social responsibility of architecture; impact of globalisation and emergence of iconic architecture; ecological functionalism, etc. Theoretical thinking and creative strategies are presented through work of the most notable architects at the turn of the millennium.

B 2.10 On the Nature of Materials: History, Theory, and Transformation 3 ects

A course for the student who is interested in a critical review of the history, theory and technical use of materials in programming architectural space. The course is presented through lectures and includes a workshop wherein the student will experiment with different types of material characteristics as a means to program and build spatial constructions with an emphasis on tectonics, mold making and casting.

B 3.1 Comprehensive Preservation of Built Heritage 3 ects

Value-oriented and normative starting points; comprehensive preservation and renewal, as a method within the framework of physical planning, design of settlements and places.

B 3.2 Renewal and Adaptation 3 ects

Preservation and upgrading extant architecture and space; settlement principles; the genesis and behaviour of buildings, their architecture and structural elements; interventions on extant buildings; renewal and adaptation methods.

B 3.3 Integral Renewal 3 ects

Composition principles in renewal and adaptation of settlement and architectural space; the significance of historical research and integration of archeological sites into compositions of the newly designed in extant places; tectonics in renewal and adaptation of buildings; conservation interventions, methods and concepts for planning renewal; interdisciplinary and team work; management and architectural heritage.

B 3.4 Preservation of Contemporary Architectural heritage

3 ects

Preservation and interpretation of the most recent categories of architectural heritage: modernist, engineering and architectural heritage; philosophy of preservation approaches, complexity of renewal and interdisciplinary work, analysis of good practices and integration of renewal into urban revitalisation processes.

B 3.5 Architecture and Archeology 3 ects

Learning about architecture and archaeology within the framework of theory (measurements and interpretation) and practice (transformation); dealing with the period from the renaissance till the present: architects that use antique architecture and use it as the groundwork for their theories; quasi measurements and fantasised reconstructions; first attempts at scientific, systematic archaeology; controversies about antique architecture in the 18th and 19th century; the shift in the second half of the 19th century; the role of architects within the framework of archaeology in the 20th century.

B 4.1 Graphics for Architects 3 ects

The meeting point and symbiosis of visual communications and architecture; morphology of lettering: structuring, writing and printing; the concepts of geometrical, optical and organic; point, line and plane: rhythm, integral design, sign in the architectural environment.

B 4.2 Space and Media 3 ects

Upgrading of knowledge about various architectural representation techniques with state-of-the-art results of studies about processes of spatial cognition and interpretation and considerations about their usefulness in the process of architectural and urban design.

B 4.3 Computer Supported Architecture 3 ects

The communication revolution; basics of computer technology; the computer as mediator - representation of architectural information, basic computer modelling in building; the computer as a communication tool - networks, internet, hypertext, portals, distance working, virtual ateliers, mobile environments.

B 4.4 Architecture of Virtual Space 3 ects

The virtual space theory. Expressions 'virtual' and 'virtual space'. Architectural content in the pictorial arts.

B 4.5 Freehand Drawing 3 ects

Lectures and drawing in the 'studio' from the model, body tectonics, anatomy, body movement, dressed figure, visual interpretation for creating and shaping of artistic expression, emotional experience and rational perception.

B 4.6 Approaches to Creativity 3 ects

This course presents different approaches to creativity as seen from the perspectives of the fields of art, design, science, and the humanities. Simultaneously, it encourages students to discover, experience, expand, and master their own creative abilities. It is designed to be a supportive tool for students in their studies and professional lives, providing them with a range of creative skills and training them to flexibly select the most suitable for any given task.

B 4.7 Digital Modelling and Production 3 ects

A theoretical introduction to the application of digital technologies in the context of prototype production in the creative process of architectural planning with a focus on addressing the current design and architecture related challenges of the urban environment. Students are introduced to the basics of digital model production, while being prepared for the use of digitally-guided tools (laser cutting, 3D-printing, robotic arm, etc). The course also includes a critical reflection on products from the aspect of their significance for the public space and the society.

B 4.8 Basics of Computer Programming 3 ects

The course introduces students to basic techniques of modern computer programming with a focus on creative development of simple apps for application in design practice. Students will learn the basic concepts for the production of computer algorithms and software. At tutorials and as a part of their exam students will produce simple apps in scripting languages (e.g. VBA, Rhino Grasshopper, Wolfram Mathematica). They will also gain a broad insight into future developments in the field of IT, machine

learning, AI, chainblock and dispersed records, and learn about potential application of these concepts in design and engineering processes.

B 5.1 Building Prefabrication 3 ects

The system of closed prefabricated building; systems of open prefabricated building; modular coordination and measurement standardisation of prefabricated components; structural systems, properties of prefabricated components; joints and joiners in prefabricated elements, the action radius, permanence of the construction season.

B 5.2 Concepts of Structures 3 ects

The concept and choice of load-bearing structures; determining the structure's material, design of structures and bridges, defining initial dimensions, designing earthquake-resistant buildings according to EC8, presentation of recently completed buildings; distance studying and designing.

B 5.3 Structural Systems 3 ects

Overview of historical structural solutions, elements, systems, concepts and dimensioning; overview of building with timber, from the oldest log-buildings to the most recent timber structural systems; the skeleton structure of the Slovene hayrack; example of an optimised section of a hewed timber beam; choice of optimal proportions for the section of a timber beam with consideration of particular loads and choice of optimal proportions in a combination of bending and sagging when considering the origins of the »golden section« proportion.

B 5.4 Structures of Industrial Buildings 3 ects

Review of specific issues in factory building; heavy foundations, structural systems, components and typical details; general study of construction materials and methods; review of the building procedure.

B 5.5 The Detail in Architectural Composition 3 ects

The concept and design of details with more demanding and complex materials; assembling various materials into new compositions: metal and glass, wood and concrete, stone and concrete, metal and wood,... or even more complicated and complex:

concrete, metal and glass, concrete, metal and wood, metal, wood and glass etc.

B 5.6 The Detail in the Interior 3 ects

Concepts and design of details in various materials, principles of designing details at the joints and assembly of different materials; principles of architectural composition: addition, subtraction, axis, repetition, rhythm...

B 5.7 Spatial Acoustics 3 ects

Theoretical foundations of sound (noise). Superposition of sound waves in space and static waves. Translation of sound waves thorough air, structures and manifestations. The effects of rigidity, resonance, mass and coincidence on translation of losses in panels.

B 5.8 Energy and Ecological Assessment of Buildings 3 ects

Familiarisation with the EU and national regulatory requirements in the field of verification of indicators of energy and environmental assessment of buildings. Introduction of methods of verification and practical application in a case study of a building or residential neighborhood planned in scope of a seminar or master thesis.

B 5.9 Modeling of Façade Envelope 3 ects

Technological innovations in the façade envelope. The key parameters in the design. Digital design: ornamental Façade, media façade, interactive façade, intelligent façade, biomirnetic in architecture. Surface treatment of the façade. Modeling of particular components and production with robots. Active, passive, plus energy façade envelope, Digital technology of detail. BIM technology. CAD-CAM technology.