The first study cycle

PROGRAMME/CURRICULUM
ECTS credit system

Sarajevo, 2023.

Contents:

About The Study

The first three-year study cycle leads to the title **Bakalaureat/bachelor Engineer of Architecture.**

The second two-year study cycle leads to the title **Master of Architecture - Graduate of Architectural Engineering.**

The third three-year study cycle leads to the title **Doctor of Technical Sciences in the Field of Architecture.**

The first three-year cycle confers **180** ECTS credits.

The second two-year study cycle confers **120** ECTS credits.

The third three-year study cycle confers **180** ECTS credits.

The teaching process is organised in semesters. At the end of the semester, a student receives the final grade for each subject, containing the grades they earned in class for every subject, which includes grades the student earned in class, as well as grades earned at the final exam. Teaching that includes obligatory and elective subjects is conducted through lectures, practical classes, seminars and consultations.

Enrolment to each individual cycle is performed thorough a public competition, which defines the enrolment conditions and criteria.

Learning outcomes for the first study cycle means the acquisition of a qualification that enables the enrolment to the second cycle of architecture and urbanism studies, provided that the required conditions are fulfilled, as well as entrance into the labour market in the field and levels of architectural and urban services that are in accordance with the acquired knowledge and skills.

Organisation of the faculty

Organisation units of the faculty are departments. Teaching, scientific research and professional activities of the faculty are conducted within departments. Departments contain congenial subjects in the sole competence of the specialised scientific disciplines.

Departments

Departments are organisation units for teaching, scientific-research and professional activities. Department members are professors and associates engaged in subjects of the department. The department is presided by head of the department appointed by the scientific and teaching council for the period of four years.

Main tasks of the department are:

- to organise and conduct the teaching process and scientific-research activities in accordance with the curricula,
- to initiate guest lectures and study visits of both professors and associates,
- to propose measures of fulfilling vacancies,
- to provide opinion on the leave of professors and associates and to organise substitutes,
- to provide for other affairs related to teaching, scientific-research activities, as well as professional development of professors and associates.

Departments that encompass subjects in the sole competence of the Faculty of Architecture are:

01.01.00	DEPARTMENT FOR SPATIAL AND GRAPHICAL VISUALISATION
01.02.00	DEPARTMENT FOR THEORY AND HISTORY OF ARCHITECTURE AND PROTECTION OF ARCHITECTURAL HERITAGE
01.03.00	DEPARTMENT FOR ARCHITECTURAL DESIGN
01.04.00	DEPARTMENT FOR URBANISM AND SPATIAL PLANNING
01.05.00	DEPARTMENT FOR ARCHITECTURALSTRUCTURES AND BUILDING TECHNOLOGY
01.07.00	GENERAL STUDIES

An overview of subjects through semesters

The structure of the study of architecture at the Faculty of Architecture in Sarajevo consists of obligatory and elective subjects. Elective graduate modules are distributed in the third semester of the second study cycle of architecture.

The first study cycle – Bachelor

1st SEMESTER

CODE OF THE SUBJECT	NAME OF THE SUBJECT	CONTACT HOURS (L+PC)	ECTS
01.05.01	ARCHITECTURAL STRUCTURES 1	3(1+2)	4
01.07.16	MATHEMATICS	2(2+0)	4
01.01.17	FUNDAMENTALS OF DESCRIPTIVE GEOMETRY WITH TECHNICAL AND COMPUTER GRAPHICS	3(2+1)	6
01.07.12	FUNDAMENTALS OF URBAN ECOLOGY	2(2+0)	2
01.03.61	DESIGN FOUNDATIONS 1	4(2+2)	5
01.01.01	FREEHAND DRAWING 1	3(1+2)	2
01.06.01	STATICS OF ARCHITECTURAL CONSTRUCTIONS 1	3(2+1)	3
01.02.03	THEORY AND HISTORY OF ARCHITECTURE 1	3(2+1)	4

2nd SEMESTER

CODE OF THE SUBJECT	NAME OF THE SUBJECT	CONTACT HOURS (L+PC)	ECTS
01.03.15	ARCHITECTURAL COMPOSITIONS 1	3(1+2)	4
01.05.02	ARCHITECTURAL STRUCTURES 2	3(1+2)	4
01.01.18	DESCRIPTIVE GEOMETRY WITH PERSPECTIVE IN ARCHITECTURE	4(2+2)	5
01.03.02	DESIGN FOUNDATIONS 2	3(1+2)	4
01.01.02	FREEHAND DRAWING 2	3(1+2)	2
01.06.02	STATICS OF ARCHITECTURAL CONSTRUCTIONS 2	3(2+1)	3
01.02.04	THEORY AND HISTORY OF ARCHITECTURE 2	3(2+1)	4
01.02.40	HISTORY OF ART	2(2+0)	4

3rd SEMESTER

CODE OF THE SUBJECT	NAME OF THE SUBJECT	CONTACT HOURS (L+PC)	ECTS
01.03.16	ARCHITECTURAL COMPOSITIONS 2	3(1+2)	4
01.05.42	ARCHITECTURAL CONSTRUCTIONS 3	4(1+3)	5
01.03.03	DESIGN FOUNDATIONS 3	3(1+2)	4
01.05.43	CONSTRUCTION SITE MANAGEMENT	4(2+2)	4
01.01.03	FREEHAND DRAWING 3	3(1+2)	2
01.06.03	STATICS OF ARCHITECTURAL STRUCTURES 3	3(2+1)	2
01.02.41	THEORY AND HISTORY OF ARCHITECTURE 3	4(3+1)	6
01.01.19	THREE-DIMENSIONAL TECHNICAL VISUALISATION OF SPACE IN ARCHITECTURE	3(1+2)	3

4th SEMESTER

CODE OF THE SUBJECT	NAME OF THE SUBJECT	CONTACT HOURS (L+PC)	ECTS
01.05.04	ARCHITECTURAL CONSTRUCTIONS 4	3(1+2)	4
01.07.11	ENGINEERING ENCYCLOPAEDIA	2(2+0)	2
01.03.05	DESIGN 1 AND THEORY AND METHODOLOGY OF DESIGN	4(2+2)	6
01.03.62	DESIGN 2	3(1+2)	4
01.05.44	BUILDING INSTALLATION SYSTEMS	3(2+1)	4
01.01.04	FREEHAND DRAWING 4	3(1+2)	2
01.06.04	STATICS OF ARCHITECTURAL STRUCTURES 4	2(1+1)	2
01.04.46	URBAN DESIGN	6(2+4)	6

5TH SEMESTER

CODE OF THE SUBJECT	NAME OF THE SUBJECT	CONTACT HOURS (L+PC)	ECTS
01.05.06	ARCHITECTURAL PHYSICS 1	2(1+1)	2
01.05.05	ARCHITECTURAL CONSTRUCTIONS 5	3(1+2)	4
01.06.21	REINFORCED CONCRETE STRUCTURES	4(2+2)	4
01.03.07	DESIGN 3	4(1+3)	6
01.03.09	DESIGN 5	2(1+1)	3
01.05.45	BUILDING CONSTRUCTION TECHNOLOGY AND MATERIALS	5(3+2)	4
01.04.08	URBAN PLANNING 1	2(2+0)	2
01.03.68	INTERIORS AND DESIGN 1	2(1+1)	3

6TH SEMESTER

CODE OF THE SUBJECT	NAME OF THE SUBJECT	CONTACT HOURS (L+PC)	ECTS
01.05.22	ARCHITECTURAL CONSTRUCTIONS 6	4(1+3)	5
01.06.22	WOODEN AND METAL STRUCTURES	3(2+1)	3
01.02.07	RESTORATION BASICS	1(1+0)	1
01.03.08	DESIGN 4	2(1+1)	3
01.03.10	DESIGN 6	6(2+4)	6
01.03.12	DESIGN 8 – PARKING GARAGE	3(1+2)	3
01.04.47	URBAN DESIGN 3	6(2+4)	6
	ELECTIVE SUBJECTS		3

CODE OF THE SUBJECT	*ELECTIVE SUBJECTS	CONTACT HOURS (L+PC)	ECTS
01.02.30	ANALYSIS OF PROCESSES AND APPROACHES IN CONTEMPORARY ARCHITECTURE – THA5	2(2+0)	3
01.03.48	ARCHITECTURAL COMPETITIONS	1(1+0)	3
01.01.24	DYNAMIC GEOMETRIC CONCEPTS AND PARAMETRIC DESIGN	2(1+1)	3
01.01.21	PHOTOGRAPHY IN ARCHITECTURE	3(1+2)	3
01.02.12	RESEARCH AND DOCUMENTATION OF HISTORICAL CIVIL ENGINEERING IN BOSNIA AND HERZEGOVINA	2(1+1)	3
01.03.57	SPACIAL CONCEPTS IN ARCHITECTURE AND ART	3(1+2)	3
01.03.66	DESIGNING THE MINIMUM	2(1+1)	3
01.06.26	PREFABRICATED LOAD-BERING STRUCTURES	2(2+0)	3
01.05.46	TRANSFORMATION OF THE EXISTING ARCHITECTURE AS A CONSEQUENCE OF ENERGY EFFICIENCY	3(2+1)	3

SYLLABUS OF THE FIRST YEAR, 1st SEMESTER

Course Code: 01.05.01.	**Course Title: ARCHITECTURAL STRUCTURES 1**		
Cycle: 1st	**Year: 1st**	**Semester: 1st**	**ECTS Points:** 4
Status: MANDATORY		**Total hours: 45** Lectures 15 Practical classes 30	

Teaching participants	**Teachers and associates from the field of the study/subject**
Enrollment requirements:	none
Course objective(s):	Introducing students to basic principles of architectural structures as well as elements of structures, and their integration into a whole. In graphic terms, mastering the drawing of the building and its parts in the appropriate scale.
Thematic units: *(if necessary, the weekly performance plan can be determined by taking into account the specificities of the organizational units)*	First week: Architectural decision and its realization; Second and third week: Material and technical requirements in the design and construction of buildings; Fourth and Fifth week: Spatial-planning documentation; Sixth and Seventh week: Structural elements; Eight, ninth, tenth and eleventh week: Structural systems and building modes; Twelfth week: Modular coordination; Thirteenth and Fourteenth week: Horizontal Elements of Structural Systems - Foundations; Fifteenth week: Protecting buildings from moisture and water from the ground.
Learning outcomes:	Knowledge: Mastering the basic terminology and information on the components of the structure of the building, in order to be able to access the design process. Understanding and acquiring knowledge about the interaction of the components of the system of the building and thus the established synergy of the parts - the possibility of applying depending on the type and characteristics of the component elements. Skills: Basic skills related to the application of constructive logic in simple building's drawings. Competencies: Applying the basic principles of architectural structures and their individual elements when designing safe structural solutions for simple houses. In graphic terms, mastering drawing of the building and its constitutional parts at the conceptual level.
Teaching methods:	Theoretical lectures in accordance with the thematic units, as well as fieldwork conducted through site visits. Graphic exercises, performed in sequences, rely on a previous theoretical basis. The exercises are performed as independent work under supervision and consultation. The tasks are group and individual. The exercises are done on an hourly basis with the previous instructions

	and prepared backgrounds, and, if necessary, they are completed independently outside of class and submitted within the deadlines.
Knowledge assessment methods with grading structure[1]:	The course grade is based on the following: • Attending lectures, attentiveness and engagement 5 points (5%), • Attendance, attentiveness, engagement and quality of the exercises 45 points (45%), • Partial tests 2x25 points (2x25%), • Final (integrated) test 50 points (50%). Partial and integral assessment is done in writing/drawing with the possibility of an additional oral examination at the boundary results.
Literature[2]:	Obligatory: • Bijedić, Dž. (2016). *Osnove arhitektonskih konstrukcija*. Sarajevo: Univerzitet u Sarajevu, Arhitektonski fakultet. Additional: • Bijedić, Dž. (2012). *ARHITEKTURA: Holizam umjesto optimalizacije - Integralni pristup u arhitektonskom stvaralaštvu*, Sarajevo: Univerzitet u Sarajevu, Arhitektonski fakultet. • Federalno ministarstvo prostornog uređenja i zaštite okoliša & IMG. (1999). Priručnik o tehničkim i obligacionim uvjetima za projektovanje i izvođenje radova na izgradnji, rekonstrukciji, sanaciji adaptaciji građevina visokogradnje. Sarajevo: Rabic. • Mittag. M. (2003). *Građevne konstrukcije*. Beograd: Građevinska knjiga. • Peulić, Đ. (2002). *Konstruktivni elementi zgrada.* Zagreb: Croatiaknjiga. • Popović, Ž. (2007). *Zgradarstvo*. Belgrade: AGM knjiga. • Trbojević, R. (2003). A*rhitektonsle konstrukcije – masivni konstruktivni sklop*. Beograd: Boron Art.

[1] The structure of the points and the scoring criterion for each teaching subject is determined by the councils of the organizational unit before the beginning of the academic year in which teaching in the teaching subject is carried out in accordance with Article 64, paragraph 6 of the Law on Higher Education of the Sarajevo Canton

[2]The Senate of the higher education institution as the institution or council of the organizational unit of the higher education institution as a public institution determines the obligatory and recommended textbooks and manuals as well as other recommended literature on the basis of which it prepares and takes the exam with a special decision that it obligatory publishes on its website before the beginning of the academic year in in accordance with Article 56, paragraph 3 of the Law on Higher Education of Canton Sarajevo

Code: 01.07.16	**Title of the subject: Mathematics**		
Cycle: I	**Year of the study: I**	**Semester: I**	**Number of ECTS credits:** 4
Status: Obligatory		**Total number of hours: 2** Lectures: 2 Exercises: 0	

Teaching staff	Teachers and associates elected in the field to which the subject belongs
Prerequisites:	-
Aim (aims) of the subject:	To introduce students with the operations over vectors, basics of analytical geometry, limits of functions, and with the basics of differential and integral calculus of real functions of one real variable.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Determinants. Vectors, scalar and crossed products. Plane and straight line equations. Sequences: monotonicity, boundedness, limits. Limits and continuity of real functions of a real variable. Differentiability of real functions of a real variable. L'Hospital's rule. Extrema, convexity, graphs of functions. Indefinite integral. Riemann integral. Applications of definite integrals. Improper integrals.
Learning outcomes:	Knowledge: Student obtains knowledge in the basics of linear algebra and mathematical analysis Skills: Student commands with scalar and crossed products of vectors, with finding the limits of functions as well as with basic techniques of finding derivatives and integrals of functions. Competences: Student is competent in solving problems which may be mathematically formulated via learned methods.
Teaching methods:	Lectures and exercises

Assessment methods including grading structure :	Two in-class written exams, each of which worths 50 points. If in total student obtains at least 55 points, the final mark is formed in accordance with the Law of higher education. Otherwise, student takes an integral written exam (50 points) and the mark is formed in the following way: 50% of points obtained on in-class exams + points obtaned on an integral exam.
Bibliography:	Obligatory: Đ. Takači, S. Radenović: Matematika 1, Beograd, 2002. Additional: B. P. Demidovič: Zadaci iz više matematike za tehničke nauke, Zagreb 1986.

Code: **01.01.17**	**Title of the subject:**	**FUNDAMENTALS OF DESCRIPTIVE GEOMETRY WITH TECHNICAL AND COMPUTER GRAPHICS**	
Cycle: 1st	**Year of the study: 1st**	**Semester: 1st**	**Number of ECTS credits:** 6
Status: OBLIGATORY		**Total number of hours: 45 (2+1)** Lectures 30 Exercises. 15	

Teaching staff	**Teachers and associates elected in the field to which the subject belongs** - Spatial and graphic representation
Prerequisites:	-
Aim (aims) of the subject:	Mastering theoretical principles and constructive procedures of the technical graphical presentation of space in different projection systems and different media. Development of spatial vision and conceptual spatial cognition with the aid of theoretical principles and methods of geometrical projections of descriptive geometry.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	1. Geometric conceptualization of space, geometric modeling and graphic methods of technical representation of space 2. Technical drawing and descriptive geometry, basis of geometric projection, Coordinate triedar and Monge's method of projections; The basic geometric elements and shapes, orthogonal and axonometric projection; 3. Basics of geometric projection, projection of a point and line in different positions and mutual relations 4. Projections of planes, planes in different positions and their mutual relations 5. Geometric transformations in projections, metric relations with transformation, geometric rotation in projections, metric relations with rotation 6. Geometric solids in projections ; regular polyhedra; angled and curved solids 7. Plane intersections of geometrical surfaces with angular and curved solids 8. Complete and incomplete intersections of angular solids. 9. Intersections of curved bodies 10. Recapitulation of lectures and knowledge tests 11. Computer graphics and technical graphic presentation of space - development of computer graphics and CAD techniques. 12. Geometric modeling with the help of computer techniques - basics of 2d and 3d modeling. 13. Software solutions for 2d and 3D computer modeling and graphics - examples of 14. 3D computer modeling and BIM techniques. 15. Recapitulation of lectures and knowledge testing.
Learning outcomes:	Knowledge: Understanding graphic technical expression in different media, from the classic technical graphic to computer graphics, through the application of geometric modeling and different geometric projection methods. Skills: Presentation of three-dimensional spatial forms at two-dimensional level, with precise technical determination of spatial relations.

	Reading of drawings, as means of architectural technical communication, in orthogonal projections and axonometry. Competences: The developed ability of graphic representation of elementary and more complex spatial elements, based on geometric conceptualization and modeling of space. Ability to apply theoretical knowledge of geometric projection and practical methods of descriptive geometry in the graphic representation of various simple and complex spatial figures and solid forms, as well as their basic spatial relationships.
Teaching methods:	Lectures - multimedia presentations and practical exercises that relate to thematic lecture units. Exercises are performed as graphic exercises through self-directed work under supervision and consultation. Exercises are worked with previous instructions and prepared materials and beside working in classroom, they should be completed out of teaching hours and submitted within the required deadlines.
Assessment methods including grading structure :	The grade of the subject is done from 45% of graphical exercises, theoretical knowledge exam through a one semester test of 35% and an additional test for the students who pass the first test carrying 15%, and through student activities 5%. For students who do not pass the preliminary test exams, the final exam carries 45% of the grade.
Bibliography:	Obligatory: Rada Čahtarević, Geometrijsko prostorno modeliranje i reprezentacija, Od nacrtne geometrije do računarske grafike, priručnik i udžbenik u pripremi, Arhitektonski fakultet Sarajevo, 2019. Dušan Jovanović, Poluprogramirani kurs deskriptive, priručnik, Arh.fakultet, Sarajevo, Samir Lemeš, Računarska grafika i geometrijsko modeliranje, Politehnički fakultet Univerziteta u Zenici 2017. Additional: Petar Anagnosti, Nacrtna geometrija, Naučna knjiga, Beograd, 1984. Vilko Niče, Deskriptivna geometrija, Školska knjiga, Zagreb, 1992. V., Đurović, Nacrtna geometrija, jedanaesto izdanje, Naučna knjiga, Beograd, 1985. K., Horvatić-Baldasar, I., Babić, Nacrtna geometrija, SAND d.o.o., Zagreb, 2004. Rizvić, S. (2004). Kompjuterska grafika i multimedija. Sarajevo: Arka Press. Moss, E. (2011). Autodesk AutoCAD Architecture 2015 Fundamentals. Mission, KS: SDC Publications.

Code: 01.07.12.	Subject title: FUNDAMENTALS OF URBAN ECOLOGY		
Cycle: 1st	**Year: 1st**	**Semester: 1st**	**Number of credits: 2** (according to ECTS)
Status: MANDATORY		**Total hours: 30 (2/week)** Optional distributin of hours by type: Lectures Exercises Seminar Field work Laboratory exercises Practice Concert activities ...	
Teaching staff	Teachers and associates engaged in the scientific field "Urbanism and Spatial planning"		
Enrolment requirements:	-		
Subject objective(s):	Introduction to the basic causes of one of the greatest problems of today's world: the degradation of human environment, ecological consequences of the development of cities and settlements, as well as introduction of the professional methods and practical principles aimed at solving the problem, including the implementation of the cohesive policy principle – methodology for a sustainable urban development.		
Content: *(if necessary, the weekly performance plan can be determined by considering the specificities of organizational units)*	Definitions, division and the basic characteristics of key terms; Sustainable development: urban sustainability, environmental sustainability, energy sustainability, social sustainability; Policies and strategies of sustainable (urban) development in international documents: declarations, agendas, charters, protocols; Ecological consequences of the development of settlements and cities / changes in the urban ecosystems (natural environment degradation) caused by agricultural, industrial and IT revolution; Principles of sustainable – bioclimatic urbanism: urban ecosystem cycles; Ecological principles in urban planning / green and brown agendas; Integrative components of urban ecology; The sustainable city – the basic characteristics; Ecologically-responsible construction; Ecological advantages of (active) and passive solar systems; Principles of planning, design and construction of passive objects; Urban infrastructural systems (water-supply, sewage, electric energy); The basic characteristics and division of transport systems as generative elements of the urban form and a healthy environment; Urban greenery; Sustainable management of the (municipal) waste.		
Learning outcomes:	Knowledge: Students are expected to adopt certain knowledge that will contribute to the correct understanding and inventive implementation of the sustainable (urban) development concept, in which the priority needs to be placed on human beings as the primary environmental factor, that is, on the ecologically responsible planning, design and construction as preconditions of the desired harmony in the urban area which, with all its natural and created characteristics, is the most valuable resource available. Skills: Basic skills needed for work in multidisciplinary teams dealing with a sustainable approach to urban planning and design. Competencies: Collaborator, under guidance and supervision, on the development of spatial planning documents with a focus on sustainable development.		

Teaching methods:	To present, through the inductive and deductive method, the basic principles, factors and components of urban ecology as well as directions of further activity aimed to achieve a sustainable and ecologically responsible urban development
Knowledge assessment methods with grading structure[3]:	The grade from the course is based on teaching activities (attendance at lectures and participation in the discussion 49%), partial and final exam - 51%.
Literature[4]:	Obligatory: • *Excerpts from readings - summary of related materials* Additionaal: • Aalborška povelja (usvojena od strane sudionika Evropske konferencije o održivim gradovima i mjestima koja je održana 27. 05. 1994. u Aalborgu, Danska). • Branzi, A. (2010). The Weak Metropolis. Harvard. • Campbell S. (1998). Green Cities, Growing Cities, Just Cities? Journal of the American Planning Association, 62(3). 296 – 312. • Đukanović, M. (1994). Ekologija, ekourbologija i nauka o životnoj sredini. Ekologica, 2/94. • Hahn, J. (1996). The Ecological Paradigm in Architecture. Architectural Research, 8(1). 85 – 92. • Hall, P., Pfeiffer, U. (2000). Urban future 21 – a Global Agenda for XXI Century Cities. London: E & FN Spon. • Herzog, T. (1996). Solar Energy in Architecture and Urban Planing. Munich: Prestel Pub. • Istanbul + 5. (2001). Declaration on Cities and other Settlements in the New Millenium. New York: Habitat Agenda. • Leithmann, J. (1999). Sustaining cities – environmental planning in urban design. New York: McGraw-Hill. • Madanipour, A. (1996). Design of Urban Space. Hobeken, NJ: Wiley. • Miller, T. G. (2004). Living in Environment. Pacific Grove, CA: Brooks/Cole-Thompson Learning. • Milutinović, S. (2006). Urbanizacija i održivi razvoj. Niš: Fakultet zaštite na radu. • Mutnjaković, A. (1982). Biourbanizam. Rijeka: Izdavački centar. • Neidhardt, V. (1997). Čovjek u prostoru. Zagreb: Školska knjiga. • Norberg-Schulz, C. (1990). Stanovanje- stanište, urbani prostor, kuća (O. M. N. Karapešić, Transl.). Belgrade: Građevinska knjiga. • Pucar, M. (2006). Bioklimatska arhitektura. Belgrade: Grafolik. • Radosavljević, J. (2009). Urboekologija. Niš. • Riddell, R. (2004). Sustainable urban planning. Oxford: Blackwell. • Vresk, M. (2002). Grad i urbanizacija. Zagreb: Školska knjiga. • Western Cape Provincial Development Council. (2000). Berlin Declaration on the Urban Future. Berlin: Western Cape Provincial Development Council.

[3] The structure of the points and the scoring criterion for each teaching subject is determined by the councils of the organizational unit before the beginning of the academic year in which teaching in the teaching subject is carried out in accordance with Article 64, paragraph 6 of the Law on Higher Education of the Sarajevo Canton

[4] The Senate of the higher education institution as the institution or council of the organizational unit of the higher education institution as a public institution determines the obligatory and recommended textbooks and manuals as well as other recommended literature on the basis of which it prepares and takes the exam with a special decision that it obligatory publishes on its website before the beginning of the academic year in in accordance with Article 56, paragraph 3 of the Law on Higher Education of Canton Sarajevo

Code: 01.03.61	**Title of the subject: DESIGN FOUNDATIONS 1**		
Cycle: 1st	**Year of the study: 1st**	**Semester: 1st**	**Number of ECTS credits: 5**
Status: obligatory		**Total number of hours: 60** Lectures 30 Exercises 28 Field work 2	

Teaching staff	Teachers and associates elected in the field/Department of architectural design
Prerequisites:	/
Aim (aims) of the subject:	Introducing students to architectural graphics, architectural drawings and architectural graphical symbols. Introduction to spatial dimensions in the surroundings and to the basic principles of the influence of physical environment to architectural design. Introduction to the architectural analysis and a presentation of possibilities of architectural expression and effects achieved by the application of certain ways of graphical presentation. Introduction to the basic topics in architectural design, which deal with the fundamental principles of architectural creation. Characteristic themes, the basic means and limitations are revealed through architectural design as a cognitive process. Architectural determinants are comprehended: space, construction, function, position, light, measure, materials. Introducing students to the notion of space through studying architectural grammar and the basic functional and aesthetic-design elements in space, their significance and means of application. Positioning of architecture as a discipline in the society, time and culture.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Architectural graphics: elements of architectural drawings and plans; creation elements of form and space; Spatial dimensions – human figure in a still position and movement; basics of anthropology and ergonomics; Introduction of proportions in architecture and Le Corbusier's modulor; Introduction to the grammar of architectural design: visual perception, measurement, rhythm and characteristics of objects; Harmonization of relations in space and architectural sequences and its composition; Climate and influence of the physical environment: wind, daylight and insolation.

Learning outcomes:	Knowledge: Mastering architectural graphics, understanding and application of architectural drawings in different proportions Skills: Autonomous analysis and application of architectural parameters for creating specific spatial segments with adequate graphical-visual presentation. Competences: Creation of a closed and open space with an analysis of the existing and the creation of new relationships.
Teaching methods:	The teaching process includes a theoretical segment, presented through lectures and individual consultations, as well as a practical segment, that is, a preliminary design realised as a project in practical classes during the semester, which entails graphical and conceptual solution to the issues the subject treats.
Assessment methods including grading structure [5]:	The score of the subject is based on three thematic exercises (15%+20%+20%) and one theoretical test (45%). Each exercise need to be submitted on a regular deadline (with two terms), determined by the dynamics of subject work, which students receive at the beginning of the year (in accordance with the current academic calendar). Student who has two of the three scheduled exercises both completed on a regular deadline and positively graded, are eligible for the additional deadline for submitting the exercise, as well as the negatively graded exercises. The exam (45%) is taken only within the regular exam periods. Student has a right to approach to the exam only if has completed all exercises (positively graded and submitted on a regular or additional deadline) - which is a requirement for obtaining a second signature in the index. The student is exempted from the exam if has passed the test and has completed all exercises (positively graded and submitted on a regular or additional deadline).
Bibliography[6]:	Obligatory: Ugljen Ademović, Nina: Arhitektura i osnove arhitektonskog projektiranja, AFS, Sarajevo, 2018 Antal-Kušnir-Slamen, J.A.-L.K.-I.S., Arhitektonska grafika, Tehnička knjiga, Zagreb, 1971

[5] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[6] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

	Nojfert, E.N., Elementi arhitektonskog projektiranja, Golden marketing, 2002 Panero-Zelnik,J.P.-M.Z., Antropološke mere i enterijer, Građevinska knjiga, Beograd, 1987 Stržić, Z.S., Arhitektonsko projektiranje I i II Tvarovski, M.T., Sunce u arhitekturi, Građevinska knjiga, Beograd, 1969 Additional: Bogdanović-Petrović, B.B.-Z.P.,Tragajući za arhitekturom, Građevinska knjiga, Beograd, 1991 Milenković, B.M., Uvod u arhitektonsku analizu, Građevinska knjiga, Beograd, 2009 Martinović,U.M.,Svet arhitekture, Beograd, 1980

Code: 01.01.01.	**Title of the subject: FREEHAND DRAWING 1**		
Cycle: 1st	**Year of the study: 1st**	**Semester:** 1st	**Number of ECTS credits:** 2
Status: Obligatory		**Total number of hours:** 45 Lectures 15, Exercises 30; Classes are integral – lectures and practical lessons are conducted simultaneously	
Teaching staff	Teachers and associates elected in the field to which the subject belongs - DEPARTMENT FOR SPATIAL AND GRAPHICAL VISUALISATION		
Prerequisites:	None.		
Aim (aims) of the subject:	To develop a feeling for perspective and foreshortening, proportions, the relationship of one object towards the other and towards the environment in the prescribed composition.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	- The introductory lesson focuses on the central perspective and arrangement of the composition; - Arrangement of the basic models of solids where one side is placed to a horizontal plane, focusing on cubes; - Arrangement of the basic models of geometric solids where one edge is placed to a horizontal plane, focusing on cubes; - Arrangement of the basic models of geometric solids where the apex is placed to the horizontal plane, focusing on cubes; - Arrangement of the basic models of geometric solids where one side is placed to the horizontal plane, focusing on spheres; - Arrangement of the basic models of geometric solids inclining to a horizontal plane, focusing on spheres; - Mid-term exam; - Movables – a furniture model (e.g. chairs, household items, etc.) set on a horizontal plane; - Movables – a furniture model (e.g. chair, household items, etc.) where an edge is placed on a horizontal plane; - Movables – a furniture model (e.g. chair, household items, etc.) where an apex is placed on the horizontal plane; - Movables – a furniture model, a composition of two or more elements;		

	- Movables – a furniture model, a composition of two or more elements; - Movables – a furniture model, a composition of two or more elements; - Movables – a furniture model, a composition of two or more elements; - End-term exam.
Learning outcomes:	Knowledge: Understanding the rules of central perspective and perspective shortenings; Skills: Realization of acquired knowledge about central perspective through the drawing of simpler compositions made of geometric bodies and furniture elements; Competences: After completing the course, the student is able to solve the simpler arrangements of the basic models.
Teaching methods:	Classes are integral – lectures and practical lessons are conducted simultaneously. Lectures are followed by a practical demonstration in accordance with the individual approach of the professor. All assignments are conducted and completed in classes, with individual approach to every student, under supervision and consultations.
Assessment methods including grading structure [7]:	The final grade consists of passing grades obtained at two or three exams taken during the semester. In case a student fails one of the exams, he/she is obliged to take the final exam. Grade obtained from in-class participation is also a part of the final grade. The distribution is as follows: practical classes 50% preliminary exams 40% in-class participation 10%
Bibliography[8]:	Obligatory: - Arnheim, R. (1971) Umjetnost i vizuelno zapažanje (psihologija stvaralačkog gledanja), Beograd: Umetnička akademija - Arnheim, R. (1981) Umjetnost i vizuelno zapažanje (psihologija stvaralačkog gledanja) (V. Stojić, Transl.), Beograd: Univerzitet umjetnosti - Arnheim, R. (1985) Vizuelno mišljenje (jedinstvo slike i pojma) (V. Stojić, Transl.), Beograd: Univerzitet umjetnosti

[7] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[8] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

	Additional: - Bangal, B. (1999) Priručnik "Falken": Crtanje i slikanje, Beograd: Jugoslovenska knjiga - D'Amelio, J. (1964) Perspective drawing handbook, New York - Leon Amiel, Dodson, B. (1990) Keys to Drawing, Cincinnati, NorhtLight Books - Ilatovskaya, T. (1996) Master Drawings Rediscovered - Treasures from prewar German Collections, New York - Harry N. Abrams, Nicodemi, G. B. (1983) Come Disegnare Natura Morta – Paesaggio – Figurh, Milano, Ottawa: Il Ccastello

Code: 01.06.01	**Title of the subject: STATICS OF ARCHITECTURAL STRUCTURES 1**		
Cycle: 1st	**Year of the study: 1st**	**Semester: 1st**	**Number of ECTS credits: 3**
Status: Obligatory		**Total number of hours: 45** Optionally elaborate the distribution of hours per type: Lectures Exercises Seminar Field work Laboratory exercises Praxis Concert activities …	

Teaching staff	Teachers and associates elected in the field/Department for construction systems.
Prerequisites:	Elementary mathematics and physics skills.
Aim (aims) of the subject:	Introducing students to the role and tasks of the load-bearing capacity of architectural objects. An integrated overview of a section of the construction phase in architectural projects: determining conditions for a steady balance of the constructive elements.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	The notion of balance – force, the main axioms of statics, static moment, resultant force on a plane. The same notions applied in space. The resultant force of the concurrent and arbitrarily distributed systems of forces. The notion of the resultant force and torque; its balancing conditions. Types and the role of links. The notion and main kinds of friction; chain systems as constructive elements, geometric and static characteristics of intersections, conditions for formation and functioning of simple and complex spatial truss girders.
Learning outcomes:	Knowledge: Upon completion of the course, students will be able to find the resultant force for different systems of force on a plane and in space, as well as to determine reactions on the binding sites of those systems by conducting certain analysis, as well as ways of formation and analysis of truss girders. Students will develop critical thinking, as well as skills necessary for the formation of a certain approach for the purpose of solving the aforementioned problems, interpretation of data, ability to create new information or reach new conclusions on the basis of the achieved results. Skills: Competences:

Teaching methods:	Lectures: oral and presentational; conversational method, practical presentations, deliberations. Practical classes: presentations and consultations.
Assessment methods including grading structure [9]:	Students are assessed through two tests (theory and practical assignments) that take place in the middle and at the end of the semester, as well as through an oral exam. Candidates who fail the tests need to take the final exam, which encompasses theory and practical assignments. The final grade consists of grades achieved in tests and the final exam, as well as of the grade achieved in practical assignments. Students who have the second signature in their indexes, as prescribed by the Statute, are entitled to take the final exam. The final exam is prepared through lectures and practical classes, as well as through the use of literature recommended by the professor at the beginning of the semester. TEST 1 + TEST 2 = 67% of grade; Final exam: 25% of grade; Seminar assignment: 8% of grade. **POINTS** / **GRADE** TEST 1 — max. 33,5 points — 99-100 — 10 TEST 2 — max. 33,5 points — 85-94 — 9 SEMINAR ASSIGNMENT — max. 8 points — 75-84 — 8 FINAL EXAM — max. 25 points — 65-74 — 7 55-64 — 6 TOTAL: — max. 100 points — 0-54 — 5
Bibliography[10]:	Obligatory: Bogunović, S. (1981). Statika konstrukcija I. Sarajevo: Univerzitet u Sarajevu. Čaušević, A., Zbirka zadataka – Statika arhitektonskih konstrukcija (separati). Sarajevo: Arhitektonski fakultet. Additional: Hadžimusić, E., Čaušević A. Separati predavanja. Sarajevo: Arhitektonski faultet. Mujčić, H., Terzić, N.. (2000). Mehanika I – Statika. Sarajevo: Građevinski fakultet. Pašić, H. (1988). Statika. Sarajevo: Svjetlost. Supplementary: In consultation with the subject professor individually in relation to the specificity of the topic of each individual candidate.

[9] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

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Code of subject: 01.02.03	Name of subject: THEORY AND HISTORY OF ARCHITECTURE 1		
Cycle: 1st	Year: 1st	Semester: 1st	Number of ETCS credits: 4
Status: OBLIGATORY		Total number of hours: 45 (30+15) Optional distribution of hours by type: **Lectures 2** **Exeminiation 1**	

Participants	**Teachers and associates elected in the domain to which the subject belongs** Field of theory and history of architecture and preservation of cultural heritage
Pre-requisite for enrollment	-
Goal (objectives) of the course:	Historical context: Acquiring knowledge about the development of construction activity starting from Prahistorie to the Old Ages, or until the age of 330. Theoretical context: It is important to study the development of building activity in an integral way to evaluate and evaluate key historical moments and phenomena, other arts that have evolved in parallel and point to the most significant architectural achievements in certain historical epochs. Practical context: Through the teaching process, unique skills are gained that enable modular examination of the problem and drawing manually at a given scale that is achieved through exercises.
Thematic units: *(if necessary, the performance plan per week is determined by talking into account the specificities of the organizational units)*	1. Introduction lectures; 2.Phistory - the beginnings of architectural creation; 3.Architecture in Egypt; 4. Architecture in Egypt; 5. Architecture of Mesopotamia; 6.Architecture of Persia; 7. Comparison of tectonic and stereotomic constructions; 8. Architecture in the Aegean area (Crete, Mycenae and Asia Minor); 9. Construction traditions of Tectonic and stereotomic constructions - auditory exercises; 10. Architecture in Greece; 11. Architecture in Greece; 12. Greek styles; 13. Roman architecture; 14. Roman architecture, comparison of Greece and Rome; 15. An integral overview of developments and conclusions;

Exercises - practical work (week exercise plan)	1. Practical exercises (Tectonic and stereotomic constructions) 2. Division of tasks, instructions on how to make a module 3. Practical Exercises (Stylish rows) 4. Module, item composition on paper, tha1, sc. God, name and surname, enthazis 5. DORY stylistic order - item module, construction of cannels 6. DORY STYLE ROW - CANELES AND POSTS 7. Doric stylistic order - details 8. Making clauses - oral (Stylistic lines - auditory lectures of assistant assistants and tectonic and stereotomic constructions - lectures by Prof. Dr. Lemja Chabbouh Akshamija) 9. Practical Exercises (Styles) 10. Ionic styling red - construction of volute 11. Ionic styles of red - volute 12. Ionic styles - details 13. Corinthian style line - module and network 14. Corinthian style order Shadows and graphics - auditory exercises
Learning outcomes:	**Knowledge:** Acquiring knowledge from the old age **Skills:** Students in exercises adopt the skills of manual drawing and creating a virtual image from a template. **Competencies:** Acquiring theoretical knowledge for design. architectural monuments, as well as the importance of understanding traditional techniques and materials as well as graphic representation of traditional elements.
Methods of teaching:	Lectures and analysis of architecture, archetypes and traditional structure through PPT projections. Students process monuments from the old age through graphic work and take a colloquium on exercises.
Knowledge testing methods with a rating structure[11]:	As part of the exercises, students take a colloquium exclusively in the course of teaching, literally / verbally, 10% (Tectonic and stereotomic constructions and Greek stylistic lines). Graphic work 40% I partial exam 25%, II partial exam 25%, final exam 50%.
Literature[12]:	**Required**:

[11] The structure of the points and the scoring criterion for each teaching subject is determined by the councils of the organizational unit before the beginning of the academic year in which teaching in the teaching subject is carried out in accordance with Article 64, paragraph 6 of the Law on Higher Education of the Sarajevo Canton

[12] The Senate of the higher education institution as the institution or council of the organizational unit of the higher education institution as a public institution determines the obligatory and recommended textbooks and manuals as well as other

	Fletcher, B, A History of Architecture on the Comparative Method, 1996 Kostof, S, History of Architecture-Settings and Ritua.l, 1995 Muller,W, i Gunther V, Atlas arhitekture, Opći dio povjest graditeljstva od Mesopotamije do Bizanta, 1999 Nestorović, B., Arhitektura Starog veka, 1974 Redžić, H., Historija arhitektura Stari vijek, Sarajevo, 1969 Stierlin, H, The Roman Empire, Volume 1, 1996 Stierlin, H, Greece from Mycenae to the Parthenon, 1996 Vitruvius, M, Deset knjiga o arhitekturi, Svjetlost Sarajevo, 1990 Wildung, D, Egypt from Prehistory to the Romans, 2001 www.infiarch.ba **Supplementary**: In consultation with the subject professor individually in relation to the specificity of the topic of each individual candidate.

recommended literature on the basis of which it prepares and takes the exam with a special decision that it obligatory publishes on its website before the beginning of the academic year in in accordance with Article 56, paragraph 3 of the Law on Higher Education of Canton Sarajevo

SYLLABUS OF THE FIRST YEAR, 2nd SEMESTER

Code: 01.03.15	**Title of the subject: ARCHITECTURAL COMPOSITIONS 1**		
Cycle: 1st	**Year: 1st**	**Semester: 2nd**	**Number of ECTS credits: 4**
Status: Obligatory		**Total number of contact hours: 45** Lectures 15 Practical classes 30	

Teaching staff	Teachers and associates elected in the field- Department for Architectural Design
Prerequisites:	None
Aim (aims) of the subject:	Gradual introduction to the complex and layered matter of architectural design through the cognitive analytical-synthetic approach. Students are introduced to a complex creative process of composing an architectural content, encompassing all components, from the function, the construction, to materialization. The purpose of architectural composition is seen in the modelling that is the result of rational influential factors, as well as factors of superstructure – the "added value", which is why we perceive architecture as a creative discipline, not only as mere construction.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Introduction to architectural compositions: the nature and aim of the subject. Postulates of architectural composition, elements and principles of the composition (means and procedures). Order, structure, consonance and harmony, proportional systems and proportions observed on the examples of classical architecture, modernist architecture, postmodern concepts and contemporary conceptualisms. Organization and shaping of architectural content from the system, hierarchal and typologically-morphological stance.
Learning outcomes:	Knowledge: Students gain knowledge in the field of architectural compositions as they define principles and elements that create them. Through analytical and synthesis process students understand and gain knowledge about the basic aspects of forming architectural compositions. Skills: In the practical field of education students plan, organize and create processes, actions and techniques of forming and conceptualizing architectural composite principles while working on their tasks. Competences:

	Students are able to recognize and independently analyse architectural composite principles and elements on real objects, with a critical reflection to the sense of the established relations.
Teaching methods:	Lectures followed by presentations, comparative analysis, supervised work, individual work with corrections, study visits.
Assessment methods includinggrading structure[13]:	Assessment of graphics (40 - 65% of the grade), tests and exams (15 - 30% of the grade) as well as participation of students (up to 5% of the grade). During the semester, students take one test and if they pass it, they are not required to take the exam. The exam carries the same number of points as the test (15-30%), but it is taken in regular exam periods, after the positively assessed exercises. A precondition for the second signature in the index book are positive grades obtained in all practical exercises/in-semester assignment after which students are allowed to take the final exam.
Bibliography[14]:	**Obligatory:** _ Arnheim, R. (1990). Dinamika arhitektonske forme (G. Vuković, Transl.). Beograd: Univerzitet umjetnosti. _ Ching, F.D.K. (2007). Architecture (Form, Space & Order). New Jersey: John Wiley and Sons, Inc. _ Clark, R.H., Pause, M. (2005). Precedence in Architecture (Analytic diagrams, Formative Ideas and Partis). New Jersey: Van Nostrand. _ Hanlon, D. (2009). Compositions in Architecture. Chichester: John Wiley and Sons, Ltd. _ Krier, R. (2010). Architectural composition. London: Everbest Printing Company, Ltd. _ Simitch, A., Warke, V. (2014). The language of architecture. Beverly: Rockport. _Unwin, S. (1997). Analysing architecture. London: Routledge. **Aditional:** _ Gropius, W.(1961). Sinteza u arhitekturi (S.Gvozdanović, Transl.). Zagreb: Tehnička knjiga. _ Hauffe, T. (1998). Design (A concise history). London: Laurence King Publishing. _ Lawson, B. (2001). The language of space. Oxford: Architectural press. _ Milenković, B. (1988). Uvod u arhitektonsku analizu. Beograd: Građevinska knjiga.

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	_ Neidhardt, J. Grabrijan D. (1957). Arhitektura Bosne i put u savremeno. Ljubljana: Državna založba Slovenije. _ Norberg-Schulz, C.(1975). Egzistencija, prostor i arhitektura (M.J. Maksimović,Transl.). Beograd: Građevinska knjiga. _ Salihović, H. (2002). Arhitekt i umjetnost graditeljstva. Sarajevo: Arhitektonski fakultet. _ Štraus, I. (1998). Arhitektura Bosne I Hercegovine od 1945. do 1995., Sarajevo.

Course Code: 01.05.02.	**Course Title: ARCHITECTURAL STRUCTURES 2**		
Cycle: 1st	**Year: 1st**	**Semester: 2nd**	**ECTS Points:** 4
Status: MANDATORY		**Total hours: 45** Lectures 15 Practical classes 30	
Teaching participants	**Teachers and associates from the field of the study/subject**		
Enrollment requirements:	Completed course of the Architectural Structures 1		
Course objective(s):	Introduction to the basic principles of structures, constraints and possibilities of elements and structures, and their integration into a whole. In graphic terms, mastering the layout of the building in the scale of 1:50 and its parts in scale 1:20.		
Thematic units: *(if necessary, the weekly performance plan can be determined by taking into account the specificities of the organizational units)*	First week: Horizontal elements of structural systems – an overview; Second and Third week: Horizontal Elements of Structural Systems - Ceiling Structures; Fourth week: Flooring of the buildings; Fifth week: Ceiling in the buildings; Sixth and Seventh week: Vertical structural building elements - walls and pillars; Eighth week: Partition walls in the buildings; Ninth week: Facade walls of the buildings; Tenth weeks: Interior wall coverings; Eleventh week: outer facades of facade walls; Twelfth week: Covers above openings in buildings, and on façade walls; Thirteenth week: Problematic of open parts of floors: balconies, terraces; Fourteenth week: Dilatation of buildings - processing and protection of dividers; Fifteenth week: External and internal impacts on buildings		
Learning outcomes:	Knowledge: Mastering the basic knowledge and techniques of building structure in order to be able to access the building design process. Understanding and acquiring knowledge about the interactions of the constituent elements of the system of the building, their application in order to establish the synergy of parts on integral principles. Skills: Technical skills related to the drawing and understanding architectural designs, as well as other relevant technical documentation needed for buildings' constructing. Competencies: Application of the basic principles of architectural structures and individual elements in the design of stable structural solutions for simple houses. In graphic terms, mastering the view of the building and its parts in 1:50 and larger, in accordance with the constructive detail to be shown.		
Teaching methods:	Theoretical lectures in accordance with the thematic units, as well as fieldwork conducted through site visits. Graphic exercises, performed in sequences, rely on a previous theoretical basis. The exercises are performed as independent work under		

	supervision and consultation. The tasks are group and individual. The exercises are done on an hourly basis with the previous instructions and prepared backgrounds, and, if necessary, they are completed independently outside of class and submitted within the deadlines.
Knowledge assessment methods with grading structure[15]:	The course grade is based on the following: • Attending lectures, attentiveness and engagement 5 points (5%), • Attendance, attentiveness, engagement and quality of the exercises 45 points (45%), • Partial tests 2x25 points (2x25%), • Final (integrated) test 50 points (50%). Partial and integral assessment is done in writing/drawing with the possibility of an additional oral examination at the boundary results.
Literature[16]:	Obligatory: • Bijedić, Dž. (2016). *Osnove arhitektonskih konstrukcija*. Sarajevo: Univerzitet u Sarajevu, Arhitektonski fakultet. Additional: • Bijedić, Dž. (2012). *ARHITEKTURA: Holizam umjesto optimalizacije - Integralni pristup u arhitektonskom stvaralaštvu*, Sarajevo: Univerzitet u Sarajevu, Arhitektonski fakultet. • Mittag. M. (2003). *Građevne konstrukcije*. Beograd: Građevinska knjiga. • Peulić, Đ. (2002). *Konstruktivni elementi zgrada.* Zagreb: Croatiaknjiga. • Popović, Ž. (2007). *Zgradarstvo*. Belgrade: AGM knjiga. • Trbojević, R. (2003). A*rhitektonsle konstrukcije – masivni konstruktivni sklop*. Beograd: Boron Art.

[15] **[1]The structure of the points and the scoring criterion for each teaching subject is determined by the councils of the organizational unit before the beginning of the academic year in which teaching in the teaching subject is carried out in accordance with Article 64, paragraph 6 of the Law on Higher Education of the Sarajevo Canton**

[16] **[2]The Senate of the higher education institution as the institution or council of the organizational unit of the higher education institution as a public institution determines the obligatory and recommended textbooks and manuals as well as other recommended literature on the basis of which it prepares and takes the exam with a special decision that it obligatory publishes on its website before the beginning of the academic year in in accordance with Article 56, paragraph 3 of the Law on Higher Education of Canton Sarajevo**

Code: 01.01.18	Title of the subject: DESCRIPTIVE GEOMETRY WITH PERSPECTIVE IN ARCHITECTURE		
Cycle: 1st	Year of the study: 1st	Semester: 2nd	Number of ECTS credits: 5
Status: Obligatory		Total number of hours: 60 (2+2) Lectures 30 Exercises 30	

Teaching staff	Teachers and associates elected in the field to which the subject belongs - Spatial and graphic representation
Prerequisites:	-
Aim (aims) of the subject:	Mastering theoretical laws and constructive methods of technical graphical spatial representation in specific spatial problems related to the field of architecture in different projection systems applied in the constructive aspects of the representation of architectural objects and space.
Content:	1. Perspective representation of space. Geometric principles of central geometric projection. 2. Geometric methods for the construction of a perspective image; constructive method with the penetration of visible rays; perspective net. 3. Geometric methods for the construction of a perspective image; method using a coordinate system; Frontal perspective position, vanishing point, diagonal and distant point; 4. Perspective from the angle, the setting of the basic elements of the picture, vanishing points, proportional points, the transposition of sizes 5. Different specific constructive aspects in the method of the coordinate system, the outline and lowered bases, the construction of inclined surfaces and more complex spatial assemblies. 6. Geometry of light and shadows in different projections, parallel light in axonometric and orthogonal projection 7. Geometry of shadows in central projection, light sources, central and parallel illumination, different positions of light source 8. The role of shadows in the graphic representation of spatial forms with examples. 9. Recapitulation and testing of knowledge 10. Elevated projection; Geometric elements in the elevated projection – the point, the line, the surface, the slope and normal, calibration of the line; isohypse of the plane, topographic surfaces; 11. Construction of the line of cuttings and embankments on the topographic terrain; flat plateau and road, inclined road 12.Classical roof forms, simple and complex roofs in projections; 13. Constructive solving of equal and unequal roof spans over the given base; Roofs with unequal overhangs; Generated geometrical surfaces; 14. Curved surfaces of revolution; Helix and helicoid, spiral stair geometry. rotational hyperboloid, hyperbolic paraboloid, application in architecture; 15. Recapitulation and knowledge testing
Learning outcomes:	Knowledge: Ability to apply theoretical knowledge and practical methods of descriptive geometry and methods of projection in graphic

	representation of the specific architectural spatial assemblies and their relations. Skills: Ability to read drawings as means of architectural technical communication, in orthogonal, axonometric and central projection and their interconnections. Competences: Ability to graphical modeling and representation of the specific, more complex geometrical forms and spatial assemblies related to the field of architecture.
Teaching methods:	Lectures - multimedia presentations and practical exercises that relate to thematic lecture units. Exercises are performed as graphic exercises through self-directed work under supervision and consultation. Exercises are worked with previous instructions and prepared materials and beside working in classroom, they should be completed out of teaching hours and submitted within the required deadlines.
Assessment methods including grading structure :	The grade of the subject is done from 45% of graphical exercises, theoretical knowledge exam through a one semester test of 35% and an additional test for the students who pass the first test carrying 15%, and through student activities 5%. For students who do not pass the preliminary test exams, the final exam carries 45% of the grade.
Bibliography:	Obligatory: Rada Čahtarević, Perspektiva u klasičnom i digitalnom formatu, Arhitektonski fakultet Sarajevo, 2009. D. Jovanović, Poluprogramirani kurs perspektive, priručnik, Arh.fakultet Sarajevo, 2003/4 Dušan Jovanović, Poluprogramirani kurs deskriptive, priručnik, Arh.fakultet, Sarajevo Additional: Petar Anagnosti, Nacrtna geometrija, Naučna knjiga, Beograd, 1984. Vilko Niče, Deskriptivna geometrija, Školska knjiga, Zagreb, 1992. V., Đurović, Nacrtna geometrija, jedanaesto izdanje, Naučna knjiga, Beograd, 1985. K., Horvatić-Baldasar, I., Babić, Nacrtna geometrija, SAND d.o.o., Zagreb, 2004.

Code: 01.03.02	Title of the subject: DESIGN FOUNDATIONS 2		
Cycle: 1st	**Year of the study: 1st**	**Semester: 2nd**	**Number of ECTS credits: 4**
Status: obligatory		**Total number of hours: 45** Lectures 15 Exercises 30	

Teaching staff	Teachers and associates elected in the field/Department of architectural design
Prerequisites:	Completed exam in Design foundations 1
Aim (aims) of the subject:	Introducing students to elements of an architectural assembly on examples of the living space. Understanding the basic ways of formation and organisation of a living space. Students develop ability of division into spatial units and connecting the units into assemblies, with full understanding of space, context, function, construction, aesthetic design. Students also develop the skill of presenting an architectural idea.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Elements and function of space (analysis and creation of an assembly): common, individual, service and communication areas. Practical classes contain a survey of one's own living space and analysis of possible adaptation, as well as a development of a conceptual solution for three functional groups within an individual residential object: a living room area, a kitchen area and individual area.
Learning outcomes:	Knowledge: Understanding spatial relations, understanding and implementation of a contemporary, rational organisation of an apartment. Skills: Application and valorization of spatial, functional and design parameters in the creation of the segment of residental spaces, through drawings and models; developing the visualization skills of architectural ideas. Competences: Functional and aesthetic binding of the living space elements.
Teaching methods:	The teaching process includes a theoretical segment, presented through lectures and individual consultations, as well as a practical segment as part of practical classes, where students produce a preliminary design, which entails both graphical and conceptual solving of design issues.

Assessment methods including grading structure [17]:	The score of the subject is based on exercise/semester assignment (55%) and one theoretical test (45%). Exercise is determined by the dynamics of subject work, which students receive at the beginning of the year (in accordance with the current academic calendar) and need to be submitted on the last exercise (15th week of teaching). The negatively graded exercise need to be submitted on additional deadline -5 days before the 1st regular exam period. The exam (45%) is taken only within the regular exam periods. Student has a right to approach to the exam only if has completed exercise (positively graded and submitted on a regular or additional deadline) - which is a requirement for obtaining a second signature in the index. The student is exempted from the exam if has passed the test and has completed exercise (positively graded and submitted on a regular or additional deadline).
Bibliography[18]:	Obligatory: Biondić, Lj., Uvod u projektiranje stambenih zgrada, Golden marketing, AFS, Zagreb, 2011. Ching, F.C., Architecture Form, Space and Order, Van Nostrand Reinhold, 1996. Nojfert, E.N., Elementi arhitektonskog projektiranja, Golden marketing, 2002. Panero-Zelnik,J.P.-M.Z., Antropološke mere i enterijer, Građevinska knjiga, Beograd, 1987. Turkušić, E.T., Formiranje prostora za dnevni boravak kao elementa stambene arhitekture-studija slučaja: područje Bosne i Hercegovine od XVI st. do danas,magistarski rad, Sarajevo, 2010. Ugljen - Ademović, N., Arhitektura i osnove arhitektonskog projektiranja, AFS Sarajevu, 2018. Ugljen - Ademović, N., Elementi i funkcije stambenog prostora s osvrtom na razvitak obiteljske kuće, Arhitektonski fakultet Univerziteta u Sarajevu, 2018. Additional: Knežević-Kordić, G.K.-I.K, Stambene i javne zgrade; Tehnička knjiga Zagreb, 1987. Milenković, B.M., Uvod u arhitektonsku analizu, Građevinska knjiga, Beograd, 2009.

[17] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

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	Strižić, Z.S., Arhitektonsko projektiranje I i II

Code: 01.01.02.	**Title of the subject: FREEHAND DRAWING 2**		
Cycle: 1st	**Year of the study: 1st**	**Semester: 2nd**	**Number of ECTS credits:** 2
Status: Obligatory		**Total number of hours:** 45 Lectures 15, Exercises 30, (+Field work); Classes are integral – lectures and practical lessons are conducted simultaneously	
Teaching staff	Teachers and associates elected in the field to which the subject belongs - DEPARTMENT FOR SPATIAL AND GRAPHICAL VISUALISATION		
Prerequisites:	Completed course, accepted assignments and completed exam in Freehand drawing 1.		
Aim (aims) of the subject:	An upgrade in visual art through development of the feeling for perspective and perspective shortening, proportions, the relationship between one spatial element and the other within the prescribed composition and in relation to the environment.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	- Groups comprising of the elements of different forms (e.g. architectural forms), linear drawing; - Groups comprising of the elements of different forms (e.g. architectural forms), linear drawing; - Groups comprising of the elements of different forms (e.g. architectural forms), linear drawing; - Groups comprising of the elements of different forms (e.g. architectural forms), linear drawing; - Groups comprising of the elements of different forms (e.g. architectural forms), linear drawing; - Groups comprising of the elements of different forms (e.g. architectural forms), linear drawing; - Preliminary exam; - Complex setting of models and groups; combination of different textures and materials; - Complex setting of models and groups; combination of different textures and materials; - Complex setting of models and groups; combination of different textures and materials; - Complex setting of models and groups; combination of different textures and materials; - Exterior drawing, linear drawing; - Exterior drawing, linear drawing; - Preliminary exam.		

Learning outcomes:	Knowledge: Understanding the rules of the central perspective on more complex compositions of elements and theoretical introduction to the way of presentation of different materials and textures; Skills: To overcome the central perspective problems by working on more complex compositions and improvement of line and texture quality; Competences: After completing the course, the student is able to solve more complex arrangements of the models linearly, complex forms and different textures and materials.
Teaching methods:	Classes are integral – lectures and practical lessons are conducted simultaneously. Lectures are followed by a practical demonstration in accordance with the individual approach of the professor. All assignments are conducted and completed in classes, with individual approach to every student, under supervision and consultations. Due to a systematic teaching approach and depending on the need, notwithstanding the complexity of an assignment, certain segments of the assignment will be completed by students independently, and the assignments will be handed in within the proposed deadline. The segment of the assignment concerning the exterior is completed individually and is handed in within the proposed deadline.
Assessment methods including grading structure [19]:	The final grade consists of passing grades obtained at two or three exams taken during the semester. In case a student fails one of the exams, he/she is obliged to take the final exam. Grade obtained from in-class participation is also a part of the final grade. The distribution is as follows: practical classes 50% preliminary exams 40% in-class participation 10%
Bibliography[20]:	Obligatory:

[19] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

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- Arnheim, R. (1971) Umjetnost i vizuelno zapažanje (psihologija stvaralačkog gledanja), Beograd: Umetnička akademija
- Arnheim, R. (1981) Umjetnost i vizuelno zapažanje (psihologija stvaralačkog gledanja) (V. Stojić, Transl.), Beograd: Univerzitet umjetnosti
- Arnheim, R. (1985) Vizuelno mišljenje (jedinstvo slike i pojma) (V. Stojić, Transl.), Beograd: Univerzitet umjetnosti

Additional:
- Bangal, B. (1999) Priručnik "Falken": Crtanje i slikanje, Beograd: Jugoslovenska knjiga
- D'Amelio, J. (1964) Perspective drawing handbook, New York
- Leon Amiel, Dodson, B. (1990) Keys to Drawing, Cincinnati, NorhtLight Books
- Ilatovskaya, T. (1996) Master Drawings Rediscovered - Treasures from prewar German Collections, New York
- Harry N. Abrams, Nicodemi, G. B. (1983) Come Disegnare Natura Morta – Paesaggio – Figurh, Milano, Ottawa: Il Ccastello

Code: 01.06.02	**Title of the subject: STATICS OF ARCHITECTURAL STRUCTURES 2**		
Cycle: 1st	**Year of the study: 1st**	**Semester: 2nd**	**Number of ECTS credits: 3**
Status: Obligatory		**Total number of hours: 45** Lectures 30 Practical classes 15	

Teaching staff	Teachers and associates elected in the field/Department for construction systems.
Prerequisites:	Signed index book for the subject Statics of architectural constructions 1.
Aim (aims) of the subject:	Introducing students with the role and tasks of the load-bearing structure in an architectural objects. An overview of a section of the construction phase of architectural projects: determining conditions of a stabile balance of constructive elements. Understanding the distribution of the load in load-bearing assemblies and transmission of the load by load-bearing assemblies.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	I-beam girders; classification, notion and kinds of structural load; determining reactions and static size of sections for different types of the beams: the simple beam, overhanging beam, cantilever beam, the Gerber beam, three-hinged arch; determining reactions and static size of sections in a truss girder; combined girders; influence lines.
Learning outcomes:	Knowledge: Introducing students to the basic elements of the load-bearing constructions most frequently used in civil engineering practice, that is, with the elements of statics and strength of materials. This subject is aimed for the students to comprehend the conditions that need to be fulfilled by the load-bearing constructions; to learn of, recognise, differentiate, understand, adopt and master the principal mechanical characteristics of materials in civil engineering; to adopt the specific terminology; to be able to use structural analysis and dimensioning of the simple systems of architectural constructions and thus examine the essence of the stability of buildings that they will design or construct; develop an attitude towards a sustainable way of constructing and environment preservation; form the working, moral and aesthetical values, develop a sense of personal responsibility, strengthen self-confidence and importance of cooperation, as well as group work.

<table>
<tr><td></td><td>Skills:
Competences:</td></tr>
<tr><td>Teaching methods:</td><td>Lectures: oral and presentational; conversational method, practical presentations, deliberations.
Practical classes: presentations and consultations.</td></tr>
<tr><td>Assessment methods including grading structure [21]:</td><td>Students are assessed through two tests (theory and practical assignments) that take place in the middle and at the end of the semester, as well as through an oral exam. Candidates who fail the tests need to take the final exam, which encompasses theory and practical assignments. The final grade consists of grades achieved in tests and the final exam, as well as of the grade achieved in practical assignments. Students who have the second signature in their indexes , as prescribed by the Statute, are entitled to take the final exam. The final exam is prepared through lectures and practical classes, as well as through the use of literature recommended by the professor at the beginning of the semester.

TEST 1 + TEST 2 = 67% of grade; Final exam: 25% of grade; Seminar assignment: 8% of grade.

<table>
<tr><th></th><th></th><th>POINTS</th><th>GRADE</th></tr>
<tr><td>TEST 1</td><td>max. 33,5 points</td><td>99-100</td><td>10</td></tr>
<tr><td>TEST 2</td><td>max. 33,5 points</td><td>85-94</td><td>9</td></tr>
<tr><td>SEMINAR ASSIGNMENT</td><td>max. 8 points</td><td>75-84</td><td>8</td></tr>
<tr><td>FINAL EXAM</td><td>max. 25 points</td><td>65-74</td><td>7</td></tr>
<tr><td></td><td></td><td>55-64</td><td>6</td></tr>
<tr><td>TOTAL:</td><td>max. 100 points</td><td>0-54</td><td>5</td></tr>
</table>
</td></tr>
<tr><td>Bibliography[22]:</td><td>Obligatory:
Bogunović, S. (1981). Statika konstrukcija I. Sarajevo: Univerzitet u Sarajevu.
Čaušević, A., Zbirka zadataka – Statika arhitektonskih konstrukcija (separati). Sarajevo: Arhitektonski fakultet.
Additional:
Hadžimusić, E., Čaušević A. Separati predavanja. Sarajevo: Arhitektonski faultet.
Mujčić, H., Terzić, N. (2000). Mehanika I – Statika. Sarajevo: Građevinski fakultet.
Pašić, H. (1988). Statika. Sarajevo: Svjetlost.
Supplementary: In consultation with the subject professor individually in relation to the specificity of the topic of each individual candidate.</td></tr>
</table>

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Code: 01.02.04	Title of the subject: THEORY AND HISTORY OF ARCHITECTURE 2		
Cycle: 1st	Year of the study: 1st	Semester: 2nd	Number of ECTS credits: 4
Status: OBLIGATORY		Total number of hours: 45 (30 +15) Lectures 30 Exercises 15	

Teaching staff	**Teachers and associates elected in the field of** Department for Theory and History of Architecture and Protection of Architectural Heritage
Prerequisites:	Completed course Theory and history of architecture 1.
Aim (aims) of the subject:	1. Learning about the development of architecture in Medieval times (Early Christian, Byzantine and Islamic , Romanesque, Gothic architecture. 2. Learning about the principles of construction and dependence of architectural shapes, construction materials and traditions in different places and in different periods.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	1. Introductory lecture – an overview of mediaeval architecture; 2. Early Christian architecture; 3. Byzantine architecture: the Hagia Sophia, Pantocrator, Ravenna; 4.The Hagia Sophia, construction, ways of building and composition, materials and details, a video presentation of the object; 5. Byzantine architecture of Russia, churches and monasteries in Serbia and Kosovo;6. Islamic architecture: the development of regional styles, the development of different types of objects in different historical periods and areas; 7. Islamic architecture (Middle and near east, south of Spain); (.Islamic architecture (Ottoman architecture, Safavid and Moghul); 9. Architecture in the Far East; 10. Romanesque architecture – stylistic elements and characteristics of construction; 11. Romanesque architecture – the most important monuments (the Aachen chapel, the Pisa complex); 12.Constructive elements of the Romanesque and Gothic architecture – a comparison and examples; 13.Gothic architecture – the development (Chartres – a video presentation) France, Germany; 14. Gothic architecture – England; 15.An integrated lecture – a comparison and concluding remarks.

Learning outcomes:	Knowledge: Learning about the medieval architecture, gaining theoretical, as well as knowledge related to the development of constructions and building typologies. Skills: By studying the most important individual architectural objects through history, as well as by analysing their stylistic and artistic values, students will learn about their specific characteristics through a comparison of similar and different objects, and will also be able to recognise them, and use the knowledge in analytical phases of projects. Competences: The general principles and logic of construction, as well as elements of composition of historical buildings are a starting point for contemporary architecture – practice and research.
Teaching methods:	Lectures accompanied by presentations and theoretical representation of the flows of architectural development. 1. Measuring and outlining the details of valuable historical objects 2D. 2. Drawing axonometric projections of important objects from a period, in accordance with the templates provided. In that way, a student simultaneously develops two-dimensional and three-dimensional perception and logic of the space.
Assessment methods including grading structure [23]:	Grade structure: Graphic exercizes 50%: First exercise min.10 - 20 points. Second exercise min. 15 - 30 points. During the semester, students are required to regularly adhere to the rhythm of the exercises and to be active, as a prerequisite for positive assesment/signature. For the second signature it is necessary to have both exercises positively evaluated. Written exam 50% e (points),with the possibility of an additional oral exam for boundary results. The exam consists of two proficiency tests min. 15 - 25 points. All parts of the exam must be passed.
Bibliography[24]:	Obligatory: Bošković, Đ(1975). Arhitektura srednjeg vijeka. Belgrade: Naučna knjiga.

[23] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

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	Hoag, J. D. (1977). Islamic Architecture. New York: Harry N. Abrams, Inc. Kostof, S. (1991). The City Shaped: Urban Patterns and Meanings Through History. London: Bulfinch. Kostof, S. (1985). A History of Architecture. New York: Oxford University Press. Kostof, S. (1992). The City Ensembled. London: Thames and Hudson Ltd. + Draft manuscript notes and presentations to be provided by the lecturer. Additional: Kuban, D. (1996). Istanbul, an Urban History: Byzantion, Constantinopolis, Istanbul. Istanbul: Economic and Social History Foundation of Turkey. Gunay, R. (1998). Sinan: The Architect and His Works. Istanbul: YEM Publishing. Muller, W., Gunther, V. (1999). Atlas arhitekture, Opći dio povjest graditeljstva od Mesopotamije do Bizanta (M. Pelc, Transl.). Zagreb: Golden marketing. Mumford, L. (1968). Grad u istoriji. Zagreb: Naprijed.

Code: 01.02.40	Title of the subject: HISTORY OF ART		
Cycle: 1st	Year of the study: 1st	Semester: 2nd	Number of ECTS credits: 4
Status: OBLIGATORY		Total number of hours: 30 Lectures 30	

Teaching staff	**Teachers and associates elected in the field of** Department for Theory and History of Architecture and Protection of Architectural Heritage
Prerequisites:	-
Aim (aims) of the subject:	The course offers an introductory overview of the history of Western and some Non-Western art from the Late Antiquity to present. It most covers works in painting and sculpture. A special attention is given to masterpieces of each period. The course is compatible with *Theory and history of architecture 1-4.*
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Art of Egypt, Mesopotamia, Persia, Ancient Greece and Rome, Early Christian Art, Art of Early Middle Ages, Byzantine Art, Islamic Art, Romanesque, Gothic, Renaissance, Baroque, Mannerism, Neoclassicism, Romanticism, Realism and Academism, Impressionism, Symbolism, Expressionism, Arts and Crafts, Art Nouveau (Secession, Jugend Style, Art Deco), Fauvism, Die Brücke, Der Blaue Reiter, Cubism, Purism, Futurism, Dada, Neu Sachlichkeit, Art in the First Half of the 20th Century (De Stijl, Bauhaus, Modern Sculpture, American Regionalism), Art and Revolution, Russian avant-garde (Suprematism, Constructivism), Enformel and Tachism, Post-war Modernism (Abstract Expressionism, Op Art, Minimalism, Fluxus, Düsseldorf & Arte Povera, Conceptual Art & Earthworks), Pop Art, Performance, Body Art, Photorealism and Hyperrealism, Feminist Art, Neo-Expressionism, Postmodernism, New Media Art: New Media Art, Video Art), 20th Century Sculpture, Art of Bosnia and Herzegovina (Paleolithic, Neolithic, Classical Antiquity, Late Antiquity, Early Christian Art, Medieval art, Ottoman period, Austro-Hungarian period, Art between the Two World Wars, Art of the Second Half of the 20th century and Contemporary Art in Bosnia and Herzegovina)
Learning outcomes:	Knowledge: To gain awareness of the major artistic movements. Skills: Comprehension of the progress of art as fluid development of a series of styles and trends that overlap and react to each other as well as to historical events. Competences: Develop a curiosity about the History of Art, the ability to think critically about it and use that knowledge in

	architectural practice.
Teaching methods:	Analytical and comparative method, PowerPoint presentations with elaboration of phenomenon through theory.
Assessment methods including grading structure[25]:	Attendance and participation 10%, Final exam 90% (Final exam = 1st Midterm exam + 2nd Midterm exam).
Bibliography[26]:	1. Janson, H. W. i Janson,D. J.. *Istorija umetnosti* (Beorad, Izdavački zavod Jugoslavije, 1975) (other editions) 2. *Umjetničko blago Bosne i Hercegovine*, ur. Đuro Basler (Sarajevo, Svjetlost, 1987) 3. Selected texts and visual materials

SYLLABUS OF THE SECOND YEAR, 3rd SEMESTER

Code: 01.03.16	**Title of the subject: ARCHITECTURAL COMPOSITIONS 2**		
Cycle: 1st	**Year: 2nd**	**Semester: 3rd**	**Number of ECTS credits: 4**
Status: Obligatory		**Total number of contact hours: 45** Lectures 15 Practical classes 30	

Teaching staff	Teachers and associates elected in the field- Department for Architectural Design
Prerequisites:	Fulfilled obligations prescribed at Architectural compositions 1, verified by the second signature in the index.
Aim (aims) of the subject:	Gaining additional knowledge acquired at Architectural constructions 1, in the sense of understanding the role of architectural composition as the basis of every logical architectural concept. Architectural synthesis: influential factors (inputs) decisive for a quality approach to the issues of design, as well as the issue of complexity of the relationship between the perception and evaluation of space as the final result of architectural interventions.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	The role of architects in defining the living space. Analysis of influential factors to architectural conceptualisation; architectural spatial composition in "a dialogue" with ambience; Architectural composite dictionary in the matters of architectural design; ecological and humane issues of design; the role of materialisation (duality: the constructive and the designed) in the process of creation; Architectural identity; Originality and trends; Architectural composition from the perspective of the relationship between the traditional and the contemporary; the value of the local architectural tradition and its contribution to architectural heritage; the role of Juraj Neidhart and his followers; understanding architectural essence and the formalist approach; the influence of financial aspects to architectural composition.
Learning outcomes:	Knowledge: Students develop gained knowledge in the field of architectural compositions as they define principles and elements that create them. Through analytical and synthesis process students understand and gain knowledge about the basic aspects of forming architectural compositions.

	Skills: Creating quality working preconditions in the domain of architectural design. Competences: Students are able to recognize and independently analyse architectural composite principles and elements on real objects, with a critical reflection to the sense of the established relations.
Teaching methods:	Lectures followed by presentations, comparative analysis, supervised work, individual work with corrections, study visits.
Assessment methods includinggrading structure[25]:	Assessment of graphics (40 - 65% of the grade), tests and exams (15 - 30% of the grade) as well as participation of students (up to 5% of the grade). During the semester, students take one test and if they pass it, they are not required to take the exam. The exam carries the same number of points as the test (15-30%), but it is taken in regular exam periods, after the positively assessed exercises. A precondition for the second signature in the index book are positive grades obtained in all practical exercises/in-semester assignment after which students are allowed to take the final exam.
Bibliography[26]:	**Obligatory:** _ Arnheim, R. (1990). Dinamika arhitektonske forme (G. Vuković, Transl.). Beograd: Univerzitet umjetnosti. _ Ching, F.D.K. (2007). Architecture (Form, Space & Order). New Jersey: John Wiley and Sons, Inc. _ Clark, R.H., Pause, M. (2005). Precedence in Architecture (Analytic diagrams, Formative Ideas and Partis). New Jersey: Van Nostrand. _ Hanlon, D. (2009). Compositions in Architecture. Chichester: John Wiley and Sons, Ltd. _ Krier, R. (2010). Architectural composition. London: Everbest Printing Company, Ltd. _ Simitch, A., Warke, V. (2014). The language of architecture. Beverly: Rockport. _Unwin, S. (1997). Analysing architecture. London: Routledge. **Aditional:** _ Gropius, W.(1961). Sinteza u arhitekturi (S.Gvozdanović, Transl.). Zagreb: Tehnička knjiga.

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	_ Hauffe, T. (1998). Design (A concise history). London: Laurence King Publishing. _ Lawson, B. (2001). The language of space. Oxford: Architectural press. _ Milenković, B. (1988). Uvod u arhitektonsku analizu. Beograd: Građevinska knjiga. _ Neidhardt, J. Grabrijan D. (1957). Arhitektura Bosne i put u savremeno. Ljubljana: Državna založba Slovenije. _ Norberg-Schulz, C.(1975). Egzistencija, prostor i arhitektura (M.J. Maksimović,Transl.). Beograd: Građevinska knjiga. _ Salihović, H. (2002). Arhitekt i umjetnost graditeljstva. Sarajevo: Arhitektonski fakultet. _ Štraus, I. (1998). Arhitektura Bosne I Hercegovine od 1945. do 1995., Sarajevo.

Code: 01.05.42	**Title of the subject: ARCHITECTURAL CONSTRUCTION 3**		
Cycle: 1st	**Year of the study: 2nd**	**Semester: 3rd**	**Number of ECTS credits:** 5
Status: OBLIGATORY		**Total number of hours:** 60 Lectures: 15 Practical classes: 45	
Teaching staff	Teachers and associates elected in the field: Architectural Construction and Building Technology		
Prerequisites:	Fulfilled obligations at Architectural Construction 1 and Architectural Construction 2, verified by the second signature in the index.		
Aim (aims) of the subject:	Introducing the specific elements of architectural load-bearing structures (vertical communications - pedestrian and mechanical) and architectural enclosure elements and partitions (windows and doors). Basic design principles, joinery details and the construction of structural elements into architectural assemblies and buildings, as well as elaboration of architectural details related to vertical communications and architectural openings – joinery (windows and doors).		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Anthropometrics and Ergonomics; Communication spaces, accesses, vertical communications; Pedestrian walkways: staircases, dimensioning and construction; Staircase typology according to spatial position, shape, slope and materials; Reinforced concrete staircases; Prefabricated and semi-prefabricated staircases; Wooden staircases; Metal staircases; Suspended and glass staircases; Mechanical communication systems: moving ramps, elevators and escalators; Architectural openings, joinery: windows and doors (by shape, size, structure, material, typology, joinery details, architectural windows and doors schemes); Glazing types according to thermal, acoustic and solar protection, and safety of building occupants.		
Learning outcomes:	Knowledge: Mastering the basic knowledge and techniques of designing, constructing and materializing the architectural elements of vertical communications (stairways, ramps, elevators, escalators) that serve to overcome the height differences in a building. Introducing to the principles of designing architectural elements of enclosing and space partitioning, installation and development of joinery schemes. Skills: Students through the practical classes and acquired basic knowledge explore and learn the process and techniques of designing, constructing and materializing architectural elements of the building such as: vertical, pedestrian and		

	mechanized communications, elements of enclosing and space partitioning, installation and production of joinery schemes (doors and windows). Competences: In addition to mastering the principles and various aspects of the design process, students produce and graphically present designs, constructive solutions and construction details at the level of technical documentation.
Teaching methods:	Lectures - multimedia presentations and discussions. Lectures include thematic units and successively are followed by practical classes. Practical classes involve individual and independent work on assignments for the semester under supervision and followed by consultations.
Assessment methods including grading structure [27]:	Student's course grade is based on class participation: – work and engagement, quality of assignments (33%-60%) – results achieved at the semester tests: test 1 (11%-20%) and test 2 (11%-20%), or the final examination (22%-40%)
Bibliography[28]:	Obligatory: Ilić, S. (2000). Drvena vrata, prozori, podovi, lamperija, stepeništa. Beograd: Građevinska knjiga. Ilić, S. (2003). Klasični drveni krovovi, potkrovlja. Beograd: Građevinska knjiga. Jahić, E. (2013). Arhitektonske konstrukcije: principi,sistemi i materijali. Sarajevo: Internacionalni Univerzitet Sarajevo. Neidhardt, T. (2001). Građevinske konstrukcije. Sarajevo: Svjetlost. Mittag, M. (2003). Građevne konstrukcije. Beograd: Građevinska knjiga. Muraj, I. (2012). Predavanja, Tematska jedinica: Lagana stubišta, osnove. Zagreb: Arhitektonski fakultet. Peulić, Đ. (2002). Konstruktivni elementi zgrada. Zagreb: Croatia knjiga. Popović, Ž. (2007). Zgradarstvo. Beograd: AGM knjiga. Reitmayer, U. (1994). Holztreppen in handwerklicher Konstruktion. Stuttgart: Hoffmann. Smiljanić. D. (1967). Arhitektonske konstrukcije II. Sarajevo: Univerzitet u Sarajevu.

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	Salihbegović, A. (2019). Transparentne ovojnice i materijali u arhitekturi. Sarajevo: Arhitektonski fakultet Univerziteta u Sarajevu. Additional: Baus, U., & Siegele, K. (2001). Holztreppen: Konstruktion, Gestaltung, Beispiele. Stuttgart: Dt. Verlag-Anst. Natterer, J., Herzog, T., & Volz, M. (1991). Holzbau Atlas Zwei. München: Institut für internationale Architektur-Dokumentation. Habermann, J. K. (2003). Staircases, Design and Construction. Basel: Birkhäuser. Tardozzi, B. (2006). Predavanja kolegija Arhitektonske konstrukcije 2, Uvod u arhitektonske konstrukcije stubišta: Osnovni pojmovi, Čelična stubišta, Drvena stubišta; Masivna stubišta. Zagreb: Arhitektonski fakultet.

Code: 01.03.03	Title of the subject: DESIGN FOUNDATIONS 3		
Cycle: 1st	**Year of the study: 2nd**	**Semester: 3rd**	**Number of ECTS credits: 4**
Status: obligatory		**Total number of hours: 45** Lectures 15 Exercises 30	

Teaching staff	Teachers and associates elected in the field/Department of architectural design
Prerequisites:	Completed exam in Design foundations 1 and 2
Aim (aims) of the subject:	The main theories of architectural form and its significance in the contemporary architectural moment. Introducing students to the examples of housing in different historical environment and ambience, from the first dwellings until today, placing an emphasis to the development of individual housing.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Origin of architectural form, its characteristics, principles and transformations – from conceptualisation to implementation. Historical development of the housing area in different kinds of ambience. Instructions for the development of project programme and project legislation. Practical classes encompass analyses and evaluation of the introduced forms (on the basis of templates) into a logical architectural form; development of a preliminary design for a summer house – an architectural assembly in a certain area; as well as a production of a programme for the preliminary design of an individual housing object.
Learning outcomes:	Knowledge: Adoption of a thought-out, analytical approach to the architectural form design. Skills: Application and valorisation of architectural-urbanistic parameters in the creation of housing space, through drawings and models; developing the visualization skills of architectural ideas. Competences: Conceptual consideration of the entirety of architectural issues with emphasis to housing within different natural and urban environments, through application of a contemporary architectural vocabulary.
Teaching methods:	The teaching process includes a theoretical section, implemented through lectures and individual consultations, as well as a practical segment, implemented in practical classes, encompassing the creation of a preliminary design as a project to be completed during the

	semester, which entails graphical and conceptual solving of issues proposed in this subject.
Assessment methods including grading structure [29]:	The score of the subject is based on exercise/semester assignment (55%) and one theoretical test (45%). Exercise is determined by the dynamics of subject work, which students receive at the beginning of the year (in accordance with the current academic calendar) and need to be submitted on the last exercise (15th week of teaching). The negatively graded exercise has to be submitted on additional deadline -5 days before the 1st regular exam period. The exam (45%) is taken only within the regular exam periods. Student has a right to approach to the exam only if has completed exercise (positively graded and submitted on a regular or additional deadline) - which is a requirement for obtaining a second signature in the index. The student is exempted from the exam if has passed the test and has completed exercise (positively graded and submitted on a regular or additional deadline).
Bibliography[30]:	Obligatory: Biondić, Lj.B, Uvod u projektiranje stambenih zgrada, Golden marketing, AFS, Zagreb, 2011. Turkušić, E.., Formiranje prostora za dnevni boravak kao elementa stambene arhitekture-studija slučaja: područje Bosne i Hercegovine od XVI st. do danas,magistarski rad, Sarajevo, 2010 Ugljen-Ademović, N., Vrednovanje starog i novog - sistematično proučavanje starog da bi se moglo izraditi kreativno novo - magistarski rad. Ljubljana, 2002. Ugljen-Ademović, N., Kritika - stimulans arhitektonskoj ideji, Dobra knjiga d.o.o, Sarajevo, 2012. Ugljen - Ademović, N., Arhitektura i osnove arhitektonskog projektiranja, AFS, Sarajevu, 2018. Ugljen - Ademović, N., Elementi i funkcije stambenog prostora s osvrtom na razvitak obiteljske kuće, AFS, 2018 Additional: Frampton, K.F., Moderna arhitektura - kritička povijest, Globus zakladni zavod, Zagreb, 1992. Giedion, S., Prostor, vrijeme, arhitektura, Građevinska knjiga, Beograd, 1969. Knežević-Kordić, G.K.-I.K, Stambene i javne zgrade; Tehnička knjiga Zagreb, 1987.

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	Norberg-Shulz, C.N-S., Stanovanje- stanište, urbani prostor, kuća, Građevinska knjiga, Beograd, 1990 Stržić, Z.S., Arhitektonskoprojektiranje I i II architectural magazines

Code: 01.05.43	**Title of the subject: CONSTRUCTION SITE MANAGEMENT**		
Cycle: 1	**Year of the study: 2**	**Semester: IV**	**Number of ECTS credits: 4**
Status: OBLIGATORY		**Total number of hours: 4 hours per week / 60 hours per semester** Lectures 2 hours per week / 30 hours per semester Exercises 2 hour3 per week / 30 hours per semester	
Teaching staff	**Teachers and associates elected in the field to which the subject belongs**: **Department of architectural structures and building technology**		
Prerequisites:	None.		
Aim (aims) of the subject:	Introducing theoretical principles of planning and organisation of construction and construction site management. The aim is to enable future architects to actively partake in the process of construction of an object, quality control of the completed works, activities related to the organisation of a construction site, designing the necessary content of the construction site and executing the rough work in construction – the load bearing constructions of a building. The aim is to enable future architects to actively partake in the process of creating static and dynamic plans for realisation of a building.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Development of construction organization; Scientific development of organization in the 20th century; Characteristics of civil engineering production, Types of production; A comparison of production types; Production methods – characteristics, advantages and disadvantages; Construction management program; Classification of buildings and construction works; The area of construction organization; Site preparation; Urban site planning; Staking out surveys; Temporary fencing and entrances to construction sites; Traffic and access to the construction site; Earthworks, foundation pit excavations; Temporary and auxiliary facilities at a construction site; Temporary access roads for construction sites; Energy sources and installations for construction sites; Temporary fabrication plants and workshops; Landfills; Internal horizontal and vertical transportation; Essential machinery at a construction site, Dimensioning and positioning principles; Other content at a construction site; Technical report on the construction site preparation; Analysis and discussion of construction preparation schemes; Improvement of the production – rationalization.		

	Introduction to planning; The notion, goal, subject and principles of planning; Classification of plans; Methodological approach to planning and programing; Engineering-economic analysis; Input data for planning; Phases and the basic principles of planning; Organisational classification of buildings for the purpose of planning; Order of the execution of works – production scheme; Analysis of spatial parameters and characteristic activities; Planning methods in civil engineering; Method statement for static plans; Dynamic planning methods; Gantt chart; Diagrams, graphs, histograms; Orthogonal plans; Cyclogram; Grid plan; Characteristics of civil engineering production; Work protection measures; Collective measures and means of protection at work; Individual measures and means of work protection; Technical protection measures analysis.
Learning outcomes:	Knowledge: Gaining an insight into issues of organisational design in the entire investment cycle. Skills: Construction site organization and management. Competences: Completing technical report of construction site and drawing the construction site organisation scheme. Making the static and dynamic plan for building construction process.
Teaching methods:	Lectures accompanied by PowerPoint presentations and activities at practical classes.
Assessment methods including grading structure [31]:	Assessment is done by assigning points for each form of activity and knowledge checking during the semester as well as on the final exam that determines the final grade. Testing knowledge through two written tests in the semester. Each test carries 35% of the points in the rating structure, and the exercises carry 30% of the points in the rating structure. The student can take the final written exam if he / she did not score the minimum number of points on each test and the exam carries a maximum of 70% of points in the rating structure. The student has the right to test knowledge at the final exam only if he / she has obtained a minimum 50% of the points for the exercises. 10 (A) - (outstanding success, with no mistakes or with minor defects), carries 95-100 points, 9 (B) - (above the average, with a few mistakes), carries 85-94 points, 8 (C) - (average, with noticeable mistakes), carries 75-84 points,

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	7 (D) - (generally good but with significant disadvantages), carries 65-74 points, 6 (E) - (meets the minimum criteria), carries 55-64 points, 5 (F, FX) - (does not meet the minimum criteria), less than 55 points.
Bibliography[32]:	Obligatory: Mladen Radujković i saradnici (2015). Organizacija građenja, Sveučilište u Zagrebu, Građevinski fakultet. Dreca, Š. (2002). *Građenje.* Sarajevo: Arhitektonski fakultet. Dreca, Š. (2008). *Organizacija građevinske proizvodnje, skripta.* Sarajevo: Arhitektonski fakultet. Dreca, Š. (2008). *Organizacija, upravljanje proizvodnjom i racionalizacija, skripta.* Sarajevo: Arhitektonski fakultet. Dreca, Š. (2008). *Planiranje i programiranje građenja, skripta.* Sarajevo: Arhitektonski fakultet. Dreca,Š. (2008). *Tehnička zaštita na radu, skripta*. Sarajevo: Arhitektonski fakultet. Additional: Marušić, J. (1994). *Organizacija građenja*. Zagreb: FS. Žabčić, B. (1987). *Programiranje, planiranje i analiza građenja*. Sarajevo: Svjetlost. *Normativi i standardi rada u građevinarstvu*-visokogradnja Validlegislation, rules and regulation in the field of building structures

32 **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.01.03.	**Title of the subject: FREEHAND DRAWING 3**		
Cycle: 1st	**Year of the study: 2nd**	**Semester:** 3rd	**Number of ECTS credits:** 2
Status: Obligatory		**Total number of hours:** 45 Lectures 15, Exercises 30; Classes are integral – lectures and practical lessons are conducted simultaneously	
Teaching staff	Teachers and associates elected in the field to which the subject belongs - DEPARTMENT FOR SPATIAL AND GRAPHICAL VISUALISATION		
Prerequisites:	Completed course, accepted assignments and exams passed in Freehand drawing 1 and Freehand drawing 2.		
Aim (aims) of the subject:	Gaining a further insight into the matter and production of drawings in accordance with individual abilities of students, with introduction of polychromatic quality.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	- Development of elements of art through positioning of more complex models and groups, lead pencil/coloured pencil; - Development of elements of art through positioning of more complex models and groups, lead pencil/coloured pencil; - Development of elements of art through positioning of more complex models and groups, lead pencil/coloured pencil; - Development of elements of art through positioning of more complex models and groups, lead pencil/coloured pencil; - Development of elements of art through positioning of more complex models and groups, lead pencil/coloured pencil; - Development of elements of art through positioning of more complex models and groups, lead pencil/coloured pencil; - Development of elements of art through positioning of more complex models and groups, lead pencil/coloured pencil; - Mid-term exam; - More complex models and groups of elements, shadows, textures and materials; lead pencil/coloured pencils; - More complex models and groups of elements, shadows, textures and materials; lead pencil/coloured pencils;		

	- More complex models and groups of elements, shadows, textures and materials; lead pencil/coloured pencils; - More complex models and groups of elements, shadows, textures and materials; lead pencil/coloured pencils; - More complex models and groups of elements, shadows, textures and materials; lead pencil/coloured pencils; - More complex models and groups of elements, shadows, textures and materials; lead pencil/coloured pencils; - End-term exam.
Learning outcomes:	Knowledge: Understanding the rules of the central perspective on more complex compositions elements and theoretical introduction to the illumination problem in the composition; Skills: Addressing central perspective problems by working on more complex compositions by introducing light; Competences: After completing the course, the student is able to solve more complex arrangements of the basic models monodimensionaly by presenting them by using the light and shadow.
Teaching methods:	Classes are integral – lectures and practical lessons are conducted simultaneously. Lectures are followed by a practical demonstration in accordance with the individual approach of the professor. All assignments are conducted and completed in classes, with individual approach to every student, under supervision and consultations. Due to a systematic teaching approach and depending on the need, notwithstanding the complexity of an assignment, certain segments of the assignment will be completed by students independently, and the assignments will be handed in within the proposed deadline.
Assessment methods including grading structure [33]:	The final grade consists of passing grades obtained at two or three exams taken during the semester. In case a student fails one of the exams, he/she is obliged to take the final exam. Grade obtained from in-class participation is also a part of the final grade. The distribution is as follows: practical classes 50% preliminary exams 40% in-class participation 10%

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Bibliography[34]:	Obligatory: - Arnheim, R. (1971) Umjetnost i vizuelno zapažanje (psihologija stvaralačkog gledanja), Beograd: Umetnička akademija - Arnheim, R. (1981) Umjetnost i vizuelno zapažanje (psihologija stvaralačkog gledanja) (V. Stojić, Transl.), Beograd: Univerzitet umjetnosti - Arnheim, R. (1985) Vizuelno mišljenje (jedinstvo slike i pojma) (V. Stojić, Transl.), Beograd: Univerzitet umjetnosti Additional: - Bangal, B. (1999) Priručnik "Falken": Crtanje i slikanje, Beograd: Jugoslovenska knjiga - D'Amelio, J. (1964) Perspective drawing handbook, New York - Leon Amiel, Dodson, B. (1990) Keys to Drawing, Cincinnati, NorhtLight Books - Ilatovskaya, T. (1996) Master Drawings Rediscovered - Treasures from prewar German Collections, New York - Harry N. Abrams, Nicodemi, G. B. (1983) Come Disegnare Natura Morta – Paesaggio – Figurh, Milano, Ottawa: Il Ccastello

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Code: 01.06.03	Title of the subject: STATICS OF ARCHITECTURAL STRUCTURES 3		
Cycle: 1st	Year of the study: 2nd	Semester: 3rd	Number of ECTS credits: 2
Status: Obligatory		Total number of hours: 45 Lectures 30 Practical classes 15	

Teaching staff	Teachers and associates elected in the field/Department for construction systems.
Prerequisites:	Exams passed in Statics of architectural constructions 1 and 2.
Aim (aims) of the subject:	By understanding the matter and elements presented in this subject, students are enabled to independently analyse the distribution and tension in the I-beam cross-section, to perform examination and measurements in order to observe the deformations.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	A historical overview; tension – components and analysis; kinds of deformations; relationships between tension and deformations; I-beam girders; axial strain; shear stress; torsion; bending; bending caused by transverse load; unsymmetrical bending; eccentric pressure; a common case of complex strain; stress concentration; the basic yield line analysis; examination of construction elements' stability.
Learning outcomes:	Knowledge: To introduce students to the basics of the most frequently used load-bearing constructions in civil engineering, that is, with the basics of statics and resilience of materials. In this course, students will: learn about the conditions that need to be fulfilled by the load-bearing constructions; learn of, recognise, differentiate, understand, adopt and master the principal mechanical characteristics of materials in civil engineering; adopt the specific terminology, be able to use structural analysis and dimensioning of the simple systems of architectural constructions for the purpose of examining the stability of buildings that they will design or construct, develop an attitude towards a sustainable way of constructing and environment preservation; form the working, moral and aesthetical values develop a sense of personal responsibility, strengthen self-confidence and importance of cooperation, as well group work. Skills: Competences:
Teaching methods:	Lectures: oral and presentational; conversational method, practical presentations, deliberations.

<table>
<tr><td></td><td>Practical classes: presentations and consultations.</td></tr>
<tr><td>Assessment methods including grading structure [35]:</td><td>Students are assessed through two tests (theory and practical assignments) that take place in the middle and at the end of the semester, as well as through an oral exam. Candidates who fail the tests need to take the final exam, which encompasses theory and practical assignments. The final grade consists of grades achieved in tests and the final exam, as well as of the grade achieved in practical assignments. Students who have the second signature in their indexes , as prescribed by the Statute, are entitled to take the final exam. The final exam is prepared through lectures and practical classes, as well as through the use of literature recommended by the professor at the beginning of the semester.

TEST 1 + TEST 2 = 67% of grade; Final exam: 25% of grade; Seminar assignment: 8% of grade.

<table>
<tr><th></th><th></th><th>POINTS</th><th>GRADE</th></tr>
<tr><td>TEST 1</td><td>max. 33,5 points</td><td>99-100</td><td>10</td></tr>
<tr><td>TEST 2</td><td>max. 33,5 points</td><td>85-94</td><td>9</td></tr>
<tr><td>SEMINAR ASSIGNMENT</td><td>max. 8 points</td><td>75-84</td><td>8</td></tr>
<tr><td>FINAL EXAM</td><td>max. 25 points</td><td>65-74</td><td>7</td></tr>
<tr><td></td><td></td><td>55-64</td><td>6</td></tr>
<tr><td>TOTAL:</td><td>max. 100 points</td><td>0-54</td><td>5</td></tr>
</table>
</td></tr>
<tr><td>Bibliography[36]:</td><td>Obligatory:
Bogunović, S. (1986). Statika konstrukcija II. Sarajevo: Univerzitet u Sarajevu.
Hrnjić, H., Čaušević, A. ,Skoko, M.,(2012). Otpornost materijala (J. Hiltičjev, Transl.). Sarajevo: Arhitektonski fakultet.
Šimić, V. (1992). Otpornost materijala I & II. Zagreb: Školska knjiga.
Additional:
Bazjanac, D. (1973). Nauka o čvrstoći. Zagreb: Tehnička knjiga.
Timošenko, S. (1966). Otpornost materijala. Belgrade: Građevinska knjiga.
Verbić, B. (1986). Otpornost materijala. Sarajevo: Građevinski fakultet.
Supplementary: In consultation with the subject professor individually in relation to the specificity of the topic of each individual candidate.</td></tr>
</table>

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Code: 01.02.41	**Title of the subject: THEORY AND HISTORY OF ARCHITECTURE 3**		
Cycle: 1st	**Year of the study: 2nd**	**Semester: 3rd**	**Number of ECTS credits:** 6
Status: OBLIGATORY		**Total number of hours: 60 (3+1)** **Lectures 3 (45)** **Seminar 1 (15)**	
Teaching staff	**Teachers and associates elected at the** Department for Theory and History of Architecture and Protection of Architectural Heritage		
Prerequisites:	Enrolled to THA1 and THA2 in the first year		
Aim (aims) of the subject:	Introducing students to the historical development of architecture (with connection to urban evolution, constructions and materials, architectural typologies) and the most significant theoretical frameworks in the period from the Renaissance to the Contemporary Architecture of the XXI century. Encourage students to interactive participation and critical thinking and analysis and synthesis of knowledge through seminar work (essays, presentations and discussions).		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	**1. Renaissance.** Characteristics of Renaissance architecture, early, mature and late Renaissance (15-16th century), creators: Filippo Brunelleschi, Leon Battista Alberti to Andrea Palladio. Theory: Venustas, Firmitas, Utilitas – revival of ancient models. Discussion: Humanism, proportion and static nature of renaissance, intellectualism in the creation of Renaissance art? **2. Baroque and Rococo** (17th-18th century) Characteristics of Baroque architecture, creators: G. Lorenzo Bernini, Francesco Borromini and other key figures. Terms: dynamics and theatricality, emotion in creation. Activity: Analyze and compare designs of baroque squares and garden arrangements through sketches. **3. Enlightenment and Neoclassicism, Romanticism and Neohistoricism** (18th and 19th centuries) Enlightenment ideals in architecture, Characteristics of neoclassical and neohistorical architecture Key figures: L.E.Boulle, Ledoux, Jefferson and others. Theories: Truth and the Sublime in Architecture, Laughlier. Video presentation Salt mines, Ledoux. Discussion: How did the American and French revolutions influence neoclassical architecture? **4.Industrial Revolution, Transformation of the city, Early studies of typology**, Notable persons Pugin, Durand, M. A. Laugier, Q. de Quincy Activity essays and discussions:		

	the origin and essence of typology First typology and idealism, J. Ruskin, W. Morris - among new materials and romanticism. Transformation of urban areas. Book Lewis Mumford City in History **5. Secession Movement, new materials and constructions**, Secession in Vienna Wagner, Olbrich, Brussels Hotel Tassel, Antonio Gaudi Casa Mila - video presentation, Adolf Loos. Emergence of new structures, the Crystal Palace. Terms: Secession movement versus Academism, Essays and discussions: A. Loos architecture and "Ornament and Crime". **6. Modern Movement and International Style** (early 20th century) Characteristics of modern architecture Key figures: Walter Gropius, Le Corbusier, Mies van der Rohe, FL Wright and others. Weissenhof settlement, Bauhaus video projection Pomovi: Functionalism, minimalism, other typology - standardization. Discussion: How did the modern movement challenge traditional architectural ideas? Book presentations: "Towards a New Architecture" (1923) by Le Corbusier, "The International Style" (1932) by Henry-Russell Hitchcock and Philip Johnson. **7. Late Modernism and Brutalism, Metabolism,** (mid-20th century) Characteristics of late modernism, new monumentality and brutalism, Architects: Eero Saarinen, Louis Kahn, Jorn Utzorn, Kenzo Tange,. Terms: expression of structure and material. Activity: Analyze the aesthetics and functionality of Brutalist buildings - presentation. **8. Postmodernism** Characteristics of postmodern architecture, Key figures: Robert Venturi, Charles Moore and Michael Graves, Archigram, Theory / presentations: Robert Venturi and Denise Scott Brown Learning from Las Vegas, Complexity and Contradiction: Venturi and Scott Brown - a more inclusive and democratic approach to architecture. They questioned the elitist tendencies of modern architecture and analyzed the commercial and everyday aspects of the built environment. Video projection Center Pompidour. **9. Deconstructivism** MoMA Exhibition, Characteristics of deconstructivist architecture, Key figures: Frank Gehry, Daniel Libeskind and Zaha Hadid. Theory: Jacques Derrida - Although he was a philosopher, his ideas about deconstruction had a significant impact on architectural theory. Deconstructivist architects such as Peter Eisenman, Bernard Tschumi and Frank Gehry drew inspiration from Derrida's ideas, which focus on breaking and questioning established rules. Activity: Create/sketch a deconstructed building model using unconventional materials.

	10. Sustainable, High tech and Icons in Architecture (late 20th - early 21st century) Principles of sustainable architecture Key figures: Renzo Piano; Foster and Lacaton and Vassal, conversion and repurposing of buildings. Theories: Manfredo Tafuri - Tafuri's work explores the relationship between architecture, ideology and history. He criticizes the limitations of the modernist movement and its inability to address social and political issues. Discussion: Book Charles Jencks Iconic Building, Architecture 2000 Predictions and Methods. How can architects balance sustainability, ethics with aesthetic aspects? **11. New Minimalism,** Spain, Portugal, South America. Key features and principles of new minimalism. Architects and projects: Álvaro Siza, Eduardo Souto de Moura, Aires Mateus Architects, RCR, Alberto Campo Baeza Activity: Presentations of architects of the new minimalism. Presentation Book: S. Unwin Analyzing Architecture. **12. Scandinavian and Japanese architecture**, characteristics, connection with tradition, connection with nature, high level of development Scandinavian and Japanese style and sustainable design Famous architects Alvar Aalto, Reiulf Ramstad, Bjarke Ingels and Snøhetta, SANAA, Toyo Ito. Video presentations of Toyo Ito Sendai Mediatheque. Discussion: How does Scandinavian/Japanese design manage to balance aspects of contemporary architecture and connection with its own heritage, what are the elements, examples? **13. Architects of Phenomenology, Avant-garde and Re-invention.** Architects P. Zumthor, S. Holl, F. Roche, Odille Decq and Rem Koolhaas. Video projection of Thermae of Stone, Zumthor. Books: presentation through essays by students.: S. Holl, J. Pallasmaa and A. Perez-Gomez, "Questions of Perception, Phenomenology of Architecture," San Francisco, 2006. Rem Koolhaas, Delirious New York (1978) , Junkspace (2006), P. Zumthor, Atmospheres, Basel: Birkhauser, 2006. **14. Neo-regionalism** Old means New effects – creative transposition (Aires Mateus, Munsila&Tunon) Neo vernacular (RIBA awards, studio Granda,) Diebedo Kere, Wang Shu, A. Aravena, Sarah Wiggleworth. Small Interventions with Big Effects RCR, Theory: K. Frampton, "Towards a Critical Regionalism. Six Points for an Architecture of Resistance," in Essays on Postmodern Culture (1983). C. N Shulz, Genius Loci (1979). V. Canizzaro, Architectural Regionalism: Collected Writings on Place, Identity, Modernity and Tradition (2007). **15. Contemporary Tendencies in Architecture and**

	Theory, overview, and presentation of current topics related to contemporary architectural achievements and theoretical thought that would be changeable, with the possibility of inviting external guests and lecturers with discussion and final presentations from students. Possible topics for discussion Books such as Jimenez *Lai Citizens of No Place (2012), Venice biennale topic etc.*
Learning outcomes:	**Knowledge:** Knowledge of architectural styles and structures that shaped European and world architecture and cities as we know them today. This course offers a comprehensive survey of the history of architecture from the Renaissance to the present, with a focus on engaging students in an interactive teaching experience. **Skills:** Through an analysis of major architectural movements, styles and innovations, students will gain a deep understanding of the cultural, social and technological forces that have shaped the built environment over time and the skill to identify key phenomena, critically reflect on architecture today. **Competences:** Through knowledge of the subject matter and appreciation/recognition of the value of architectural cultural heritage, this subject acquires the foundations for future action and design in a historical context.
Teaching methods:	The course includes various interactive activities, discussions and multimedia resources, video projections, 3d models, VR to create a dynamic and engaging learning environment, encouraging critical thinking, along with lectures, and independent student work.
Assessment methods including grading structure [37]:	Presentations on Architecture during semester: 25 Presentations on Theory during semester: 25 Essays with discussion: 30 Active and mandatory in class/discussions: 20 Total 100 For final exam it is possible to do the Essays 30 points.
Bibliography[38]:	Obligatory: All necessary literature, texts and PPT presentations will be provided to students through the platform (Teams), mentioned within the teaching units/lectures.

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[38] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

1. Kostof, S, The City Shaped: Urban Patterns and Meanings Through History, Thames and Hudson Ltd., London, 1991.
2. Kostof, S, A History of Architecture, Oxford University Press, New York, 1985..
3. Millon, H, Key Monuments of the History of Architecture, Prentice-Hall, Inc., New York,1964.
4. Nestorović B, Arhitektura Novog veka, Naučna knjiga, Beograd, 1964.
5. Fazio,Moffet, M, A World History of Architecture,Laurnce and King Publishing, 3rd Edition, 2014.
6. Tachen: Arhitektura 20. Stoljeća ,2007.

Additional:

1. Giedion,S, Prostor, Vreme, Arhitektura, Građevinska knjiga, Beograd, 1969.
2. Canizaro BV, Architectural Regionalism; Collected Writings On Place, Identity, Modernity, And Tradition. Princeton Architectural Press, N , 2007.
3. Kenneth, F, Towards a Critical Regionalism, Six Points for an Architecture of Resistance, In The Anti-Aesthetic: Essays
4. Norberg-Schulz, C, *Intencije u arhitekturi*, Zagreb: Naklada Jesenski i Turk,2009.
5. Norberg-Schulz, C, *Genius loci*, London: AE, 1979
6. Nouvel, J&J. Boudillard, Singularni objekti – Arhitektura i filozofija, Zagreb: AGM, 2008 .

Tschumi, Bernard (2004), *Arhitektura i disjunkcija*, Zagreb: AGM, 2004.

Code: 01.01.19	**Title of the subject: THREE-DIMENSIONAL TECHNICAL VISUALISATION OF SPACE IN ARCHITECTURE**		
Cycle: 1st	**Year of the study: 2nd**	**Semester: 3rd**	**Number of ECTS credits:** 3
Status: Obligatory		**Total number of hours: 45 (1+2)** Lectures. 15 Exercises 30	

Teaching staff	Teachers and associates elected in the field to which the subject belongs - Spatial and graphic representation
Prerequisites:	Course Required- Basics of Descriptive Geometry with Computer Graphics and Descriptive Geometry with a Perspective in Architecture
Aim (aims) of the subject:	Application of theoretical knowledge and practical methods in technical visualisation of different factual three-dimensional architectural spatial assemblies.
Content:	1. Definition, development and application of technical three-dimensional and perspective visualization; Different examples of three-dimensional visualization of arch. exterior and interior. 2. Perspective representation of the architectural project, graphics and image processing techniques; 3. Geometry of perspective representation, analysis and control of spatial visibility 4. Selection of motives, plans and modes of representation, techniques of production and level of abstraction. Format and image proportions. 5. Three-dimensional visualization in digital technique, different software solutions 6. Computer graphics and the basis of three-dimensional modeling. 7. Geometric parameters of three-dimensional image in digital technology - camera control 8. Modeling of the light effects and shadows. 9. Modeling the textures and materials. 10. Dynamic image parameters and animation 11. Rendering in digital format and postproduction of the image 12. Virtual and augmented reality. 13. Practical examples - architectural visualization in different media 14. Post-digital aspects of architectural visualization - materiality in digital format 15. Recapitulation and testing of knowledge
Learning outcomes:	Knowledge: Connecting visual experience and technical spatial visualization and representation with understanding of the impact of technology on different aspects of spatial representation. Skills:

	Managing the theoretical foundations and constructive methods of technical graphical spatial representation in different media with the emphasis on modern digital techniques. Competences: The ability to independently evaluate the appropriate approach (position and methods), as well as control and correction of spatial vision in three-dimensional technical visualization of an architectural object / space that can be applied both in classical and in the modern digitized computer media.
Teaching methods:	Lectures - multimedia presentations and practical exercises that relate to thematic lecture units. Exercises are performed as graphic exercises, in different techniques, with emphasis on digital representations of architectural design, through self-directed work under supervision and consultation.
Assessment methods including grading structure :	The grade of the subject is done from 40% of graphical exercises, theoretical knowledge exam through a one semester test of 20% and an additional test for the students who pass the first test carrying 30 %, and through student activities 10%. For students who do not pass the preliminary test exams, the final exam carries 45% of the grade.
Bibliography:	Obligatory: Rada Čahtarević, Perspektiva u klasičnom i digitalnom formatu, Arhitektonski fakultet Sarajevo, 2009. D. Jovanović, Poluprogramirani kurs perspektive, priručnik, Arh.fakultet Sarajevo, 2003/4 Samir Lemeš, Računarska grafika i geometrijsko modeliranje, Politehnički fakultet Univerziteta u Zenici 2017. Additional: Rizvić, S. (2004). Kompjuterska grafika i multimedija. Sarajevo: Arka Press. Alexander, C. Schreyer, Architectural Design with SketchUp: 3D Modeling, Extensions, BIM, Rendering, Making, and Scripting,Wiley; 2 edition (October 26, 2015) Markus Kuhlo Enrico Eggert, Architectural Rendering with 3ds Max and V-Ray, Photorealistic Visualization, Elsevier, 2010 Ciro Cardoso, Lumion 3D best practices, Pact publishing 2015.

SYLLABUS OF THE SECOND YEAR, 4th SEMESTER

Code: 01.05.04	**Title of the subject: ARCHITECTURAL CONSTRUCTION 4**		
Cycle: 1st	**Year of the study: 2nd**	**Semester: 4th**	**Number of ECTS credits:** 4
Status: OBLIGATORY		**Total number of hours:** 45 Lectures: 15 Practical classes: 30	

Teaching staff	Teachers and associates elected in the field: Architectural Construction and Building Technology
Prerequisites:	Fulfilled obligations at Architectural Construction 1, Architectural Construction 2 and Architectural Construction 3 verified by the second signature in the index.
Aim (aims) of the subject:	Introducing the specific elements of architectural load-bearing structures: classical wooden pitched and flat roofs, their integration into architectural assemblies and wholes. Elaboration of architectural details related to classical wooden pitched and flat roofs; types, constructive systems, materialisation, thermal and technical characteristics of pitched roofs, and types of roof shingles; typology, thermal and technical characteristics and specific details related to flat roofs.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	The basic principles, functions, typology and technical demands for designing wooden structures of the classical pitched roofs; "Empty" roofs: simple roofs, roofs with spacers; Roofs with major purlins; Roofs with double side purlins; Roofs with hangers; Construction of hip roofs; Complex and mansard roofs; Traditional shingles; Roof tile; Fibre cement roofing sheets and flat roofing sheets; Glass roofing panels and PVC roofing; The basic principles, functions, typology, thermal and technical conditions for designing flat roofs; Classical "warm" walkable and unwalkable flat roofs; "Cold" ventilating flat roofs; Green roofs.
Learning outcomes:	Knowledge: Acquiring the basic knowledge and mastering the techniques of construction of architectural elements, with a special emphasis on the construction of pitched (classical wooden) and flat roofs, accompanied by an analysis and solving of the relevant details of these constructive systems. Skills: Through the acquired basic knowledge and practical classes students explore and become acquainted with the principles

	and constructive assemblies of classical, wooden roofs, flat roofs and roof shell materialization of an residential attic. Competences: Students, along with mastering the principles and analysing different aspects of the architectural process, also produce, sketches, drawings and design solutions, construction details of pitched and flat roofs at the level of technical documentation.
Teaching methods:	Lectures - multimedia presentations and discussions. Lectures include thematic units and are successively followed by practical classes. Practical classes involve individual and independent work on assignments for the semester under supervision and followed by consultations.
Assessment methods including grading structure [39]:	Student's course grade is based on class participation: – work and engagement, quality of assignments (33%–60%), – results achieved at the semester tests: test 1(11%-20%) and test 2 (11%-20%), or the final examination (22 %– 40%)
Bibliography[40]:	Obligatory: Basarić, L. (1985). Građevinske konstrukcije objekata visokogradnje. Beograd: Naučna knjiga. Brennecke, W., Folkerts, H., Haferland, F., & Hart, F. (1990). Atlas krovnih konstrukcija: kosi krovovi. Beograd: Građevinska knjiga. Ilić, S. (2003). Klasični drveni krovovi, potkrovlja. Beograd: Građevinska knjiga. Jahić, E. (2017). Projektovanje krovova. Sarajevo: Dobra knjiga. Jahić, E. (2013). Arhitektonske konstrukcije: principi, sistemi i materijali, Sarajevo: Internacionalni Univerzitet u Sarajevu. Additional: Mittag, M. (2003). Građevne konstrukcije. Beograd: Građevinska knjiga. Peulić, Đ. (2002). Konstruktivni elementi zgrada. Zagreb: Croatia knjiga. Popović, Ž. (2007). Zgradarstvo. Beograd: AGM knjiga.

[39] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

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Code: 01.07.11	Title of the subject: ENGINEERING ENCYCLOPAEDIA		
Cycle: 1st	Year: 2nd	Semester: 4th	Number of ECTS credits: 2
Status: Obligatory		Total number of hours: 30 Lectures 30	
Teaching staff	Teachers elected in the field to which the subject belongs- The field of Technical sciences (Architecture and Civil Engineering). In addition, guest lecturers from specialized engineering fields (Geodesy, Geology, Geotechnical Engineering, and Water Resources & Hydraulics Engineering) are invited to share their expertise and give lectures.		
Prerequisites:	Students regularly enrolled in the second year of the First-Cycle Degree program.		
Aim (aims) of the subject:	Acquiring the basic knowledge and adopting the terminology of basic engineering terms from the field of Architecture and various specific engineering fields (*Geodesy, Geology, Geotechnical Engineering, and Water Resources & Hydraulics Engineering*) closely related to architecture in the process of designing, building, and maintaining architectural objects.		
Content:	**An Introduction to Engineering** (Historical development of engineering, Engineering branches, Recent development and latest advancements in engineering, The future of engineering development); **General Information About the Project** (Project definition, Phases of the project, Risks in the implementation of the project, Project manager, Participants in the implementation of the project, Preparation of tender documentation and announcement of tenders for the selection of contractors, Selection of contractors, and signing of Construction Agreement, Types of contracts, Mandatory documentation on the construction site, Handover of completed works); **Coordination Between Engineers from Different Science Fields**; **Project Documentation** (Preparation of documentation for architectural competition, Conceptual design phase and obtaining the necessary documentation; Detailed project (Architectural project, Construction project, Hydro installation project, Electrical installation project, Mechanical project), Control of technical documentation, Building construction and supervision at the construction site);		

	Conditions for Connecting Architectural Buildings to Service Infrastructure (Water supply, Wastewater disposal-sewage system, Power supply, Natural Gas supply, Thermal energy supply, Telecommunication and cable TV systems, Connections to road infrastructure); **The Relationship Between Architectural and Structural Form** (Defining the basic terms "architectural" and "structural form", Synthesis of architectural and structural form, Contemporary conceptual design of structures); **Basic Principles of Geodesy** (Definition of geodesy and surveying *(basic concepts in geodesy, geodesy tasks);* Basics of geodetic surveying *(geodetic grids, coordinate systems, metrology, assessment of measurement quality, impaling)*, Cadaster (basic legal terms, types of cadaster, cadaster database), Application of geoinformation systems for the purposes of designing and building architectural structures *(data models, data visualization, simple operations on data)*); **Basic Principles of Geology** (*Geology and Civil Engineering, Engineering properties of soil, Rocks, Occurrence and impact of underground water, Engineering geological research*); **Basic Principles of Geotechnical Engineering** (Geotechnical investigation site works, Structural foundations, Protection of construction pits, Remediation of landslides); **Basic Principals of Hydraulic and Environmental Engineering** (Design and construction of facilities for the purpose of water use, protection against the harmful effects of water and water protection); **Fundamentals of Structural Engineering** (Familiarization with Eurocodes (EN 0-9), Selection a load-bearing structural system for buildings based on investigative works); Technical acceptance of the building, Obtaining Approval for the building usage, Guarantee period, and Elimination of faults within the guarantee period.
Learning outcomes:	**Knowledge:** Upon completing this course successfully, students will have a comprehensive understanding of basic engineering terminology used in architecture, civil engineering, and geology (t**hese disciplines participate in designing and constructing architectural structures). In addition, students will gain the basic theoretical and practical knowledge necessary for developing and** preparing technical project documentation. By the end of the course, students will better understand how architects work with other engineers throughout the different phases of a project, from the conceptual design to the final construction of the facilities.

	Skills: Students possess the skills to effectively communicate, collaborate, and solve complex technical problems with engineers involved in designing and constructing architectural structures. **Competences:** After completing the duties of the course, which involve fully understanding the lecture material, the student will have gained proficiency in the key terminology used across multiple engineering disciplines, enabling them to communicate effectively with other engineers in a technically accurate manner while designing and constructing diverse architectural structures. As a result of this course, the student is able to work in practice, develop and prepare the required documentation for an architectural project, and create proposals for the basic design of the structures based on the necessary technical knowledge for its implementation.
Teaching methods:	During lectures, theoretical and practical examples relevant to engineering fields will be presented using analysis, synthesis, and comparison methods with interactive communication between students and teachers. In addition, this course will host guest speakers who specialize in various engineering fields and industry experts. Additional consultations with students necessary to solve problems related to the subject topic of lectures are carried out individually in terms defined according to the consultation schedule or in groups according to the agreement with the student representative.
Assessment methods including grading structure [41]:	Verification of students' knowledge is based on activities in the teaching process and discussions (10%), knowledge verification through a Mid-Term Exam during the semester (40%), and the Final Exam (50%). Students must achieve at least 55% of the total points to pass the Mid-Term exam. Students who did not pass the Mid-Term Exam can retake it during the Final Exam. To pass the Final Exam, students must achieve at least 55% of the total points available. The final grade is formed based on the Mid-Term and Final Exam, considering the students' class activity (10%). Students who fulfill the requirements outlined in the Statute are granted access to the Final Exam and can obtain a second signature in the Index. To prepare for the exam, students should attend the lectures and use the recommended literature provided by the teacher at the beginning of the semester.

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Bibliography[42]:	**Obligatory literature:** Charleson, A. (2015). *Structure As Architecture – A Source Book for Architects and Structural Engineers.* Routledge Macdonald, A.J. (2018). *Structures and Architecture.* Routledge. Maksimović, M.M. (2008). *Mehanika tla*, AGM knjiga Beograd Mihalić, S. (2007). *Skripta "Osnove inžinjerske geologije",* Sveučilište u Zagrebu, Rudarsko-geološkp-naftni fakultet Moaveni, S. (2010). *Engineering Fundamentals-an Introduction to Engineering*, CENGAGE Learning Mulahusić, A., Topoljak, J., Tuno, N. (2017). *Geodezija za građevinske inžinjere*, Univerzitet u Zenici Pribičević, B., Medek, D. (2003). Geodezija u građevinarstvu, V.B.Z. d.o.o. Zagreb Vukovic, Ž. (1996). *Osnovi hidrotehnike, prvi dio - prva i druga knjiga*, Zagreb **Additional literature:** Garrison, E. G. (1999). A History of Engineering and Technology – Artful Methods, CRC Press Podhorsky, R. i saradnici (1963-97) *Tehnička enciklopedija*, Leksikon zavoda Miroslav Krleža Whitehead, R. (2019). *Structures by Design – Thinking, Making, Breaking*. Routledge

[42] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.03.05	**Title of the subject: DESIGN 1 AND THEORY AND METHODOLOGY OF DESIGN**		
Cycle: 1	**Year of the study: 2**	**Semester: 4**	**Number of ECTS credits: 6**
Status: obligatory		**Total number of hours: 4** Optionally elaborate the distribution of hours per type: Lectures 30 Exercises 28 Seminar Field work 2 Laboratory exercises Praxis Concert activities …	

Teaching staff	Teachers and associates elected in the field/Department of architectural design
Prerequisites:	Completed exam in Design foundations 1, 2 and 3
Aim (aims) of the subject:	Introducing students to the examples of living spaces in different historical environment and ambience from the beginning of the 20th century to this day, focusing on the development of villas and implementation of the findings into a concrete project. Introducing students to the approaches and methods in solving the issues that concern architectural design, in theory and practice.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	An overview of the development of housing space and influential factors from the beginning of the 20th century to this day; The importance of theory and methodology in architectural design; Problems in design and methods of their solving; Classical designing process and new designing methods. Practical classes contain the development of preliminary design of an individual housing object as an architectural assembly within an urban or suburban surrounding, with a detailed analytical approach to each phase of work.
Learning outcomes:	Knowledge: Understanding and adoption of different approaches to the design of individual housing objects. Understanding the essence of architectural theory and methodology of design, as well as the development of contemporary and critical architectural thought. Skills: A comprehensive understanding of architectural issues related to individual housing objects within the existing urban or suburban surrounding, keeping in mind

	the appreciation of the existing constructed surrounding, as well as the spirit of the place and *Zeitgeist*. Competences: Ability to independently master the preliminary design of an individual residential building and to present achieved results of work professionally.
Teaching methods:	The teaching process includes a theoretical segment, presented through lectures and individual consultations, as well as a practical segment as part of practical classes, where students develop a preliminary design, as an in-semester project, which entails both graphical and conceptual solving of the design issues.
Assessment methods including grading structure [43]:	The score of the subject is based on exercise/semester assignment (55%) and one theoretical test (45%). Exercise is determined by the dynamics of subject work, which students receive at the beginning of the year (in accordance with the current academic calendar) and need to be submitted on the last exercise (15th week of teaching). The negatively graded exercise has to be submitted on additional deadline -5 days before the 1st regular exam period. The exam (45%) is taken only within the regular exam periods. Student has a right to approach to the exam only if has completed exercise (positively graded and submitted on a regular or additional deadline) - which is a requirement for obtaining a second signature in the index. The student is exempted from the exam if has passed the test and has completed exercise (positively graded and submitted on a regular or additional deadline).
Bibliography[44]:	Obligatory: Frampton, K.F. Modern Architecture: Critical History. Globus zakladni zavod, Zagreb, 1992 Giedion, S.G., Prostor, vrijeme, arhitektura (Naslov originala: Raum, Zeit, Architektur). Građevinska knjiga, Beograd, 1969 Jencks, C.J., Moderni pokreti u arhitekturi, Građevinska knjiga, Beograd, 1986 Knežević-Kordić, G.K.-I.K, Stambene i javne zgrade; Tehnička knjiga Zagreb, 1987

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	Ugljen-Ademović, N., Dvojnost pristupa problemu integriranja novog u postojeće u arhitektonskom oblikovanju, 2007 Ugljen-Ademović, N., Kritika - stimulans arhitektonskoj ideji, Dobra knjiga d.o.o, Sarajevo, 2012. Ugljen - Ademović, N., Elementi i funkcije stambenog prostora s osvrtom na razvitak obiteljske kuće, Arhitektonski fakultet Univerziteta u Sarajevu, 2018 Additional: Jencks, C.J., Architecture2000 and Beyond. Wiley- Academy, West Sussex, 2000 Norberg-Shulz, C.N-S., Stanovanje- stanište, urbani prostor, kuća, Građevinska knjiga, Beograd, 1990 Radović, R.R. , Savremena arhitektura – između stalnosti i promena ideja i oblika. "Stylos", Novi Sad, 1998 Strižić, Z.S., Arhitektonskoprojektiranje I i II architectural magazines

Code: 01.03.62	Title of the subject: DESIGN 2		
Cycle: 1st	Year of the study: 2nd	Semester: 4th	Number of ECTS credits: 4
Status: Obligatory		Total number of hours: 45 Lectures 15 Exercises 30	

Teaching staff	**Teachers and associates elected in the field – Department of Architectural Design**
Prerequisites:	-
Aim (aims) of the subject:	Development of critical thinking about the relationship between social, economical and culturological aspect in the sphere of housing; addressing the issues related to housing in the transitional residential space and multi-apartment objects in lectures and practical classes, focusing on the relationship between the man and the housing space in such objects; introducing students to the transitional housing typology of the low-rise buildings (semi-detached objects, rows and various groupings, comb architecture, terrace construction) and with the multi-storey building typology (platform apartments, gallery and corridor apartments, skyscrapers…) and elements of their organisation, spatial standards and the connection between a flat and its immediate surrounding.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Human needs and individual housing. Context (cultural-historical, socio-political, economic and natural factors). The current socio-political surrounding of the housing architecture and multifamily housing. Transitional housing typology – collectivisation of individual housing – advantages and disadvantages. Typological analysis of the grouping of individual housing – semi-detached atrium buildings, sequences, comb architecture – examples from practice. Terraced buildings – typology and examples from practice. A comparative analysis of individual family housing and multifamily housing in a multi-flat building from socio-psychological and economic aspect. Typology of a multi-flat building according to the type of construction (individual, high-rise, tower-block…) Multi-flat construction typology compared with the communication system (buildings with base apartments – 1, 2, 3, 4 flats on the base and the position of the staircase in relation to the number of flats with a single staircase). Buildings with apartments on galleries, buildings with corridor flats, plan views and examples from practice. Typology of corner buildings – the position of staircase in the cornered bases. Apartment towers – skyscrapers. Apartments – organisation principles, usability – evaluation elements – criteria – analysis of schemes and examples. Flexibility (variability) and adaptability in apartment organisation, schemes and examples from practice.
Learning outcomes:	Knowledge: By successfully mastering the content of this subject, students gain theoretical and practical knowledge about designing transition types of housing. Skills: Students adopt design skills, project planning and organization, and presentation and communication skills. Competences: By successfully mastering these issues, students acquire some general (instrumental, interpersonal system) and partly professional

	competences, which require mastering the basic understanding of the field of housing, and which are a precondition for understanding the subject Design 3.
Teaching methods:	Understanding these issues is a precondition to the work on the integral project in the 5th semester. Lectures are obligatory and are organised as a combination of informative and interactive classes for which students need to pre-prepare during the week. During lectures and practical classes, students are tested (oral exams, announced and unannounced tests). Aside from lectures, students are obliged to complete four methodological graphical exercises (exclusively at the faculty, during practical classes) that deal with the issues treated at lectures. Students are obliged to actively attend lectures and practical classes, in the amount of 80% of the total number of teaching hours.
Assessment methods including grading structure [45]:	The course is assessed according to the following structure: Attendance (max. 10 points); clause 1 (max. 15 points); clause 2 (max. 15 points); semester work (max. 15 points); final presentation / exam (max. 45 points). Students qualify for a passing grade (6) when they score 55 points in total. If students submit sufficient quality work in the term of the semester work, with all the contributions required for the final presentation, the semester work grade can be adopted as the final presentation / exam grade, provided that all previous work submissions are positively evaluated.
Bibliography[46]:	Obligatory: Mandić,R.: Skripte iz predmeta Projektovanje 2 / I i II dio/ Zbirka tekstova raznih autora, Sarajevo 2010/11 Bajlon, M. (1981). Stanovanje: Organizacija stana. Belgrade: Arhitektonski fakultet. Bajlon, M. (1981). Stanovanje: Stan-kuća. Belgrade: Arhitektonski fakultet. Bajlon, M. (1986). Upotrebna vrijednost stana. Belgrade: Arhitektonski fakultet. Additional: Geisendorf, C. E., Schuepp, J. R., Stanescu, A., & Tonshoff, H. (1983). Dichte Individualle Wohnbauformen. Zurich: Verlag. Klein, R. (1978). Sudjelovanje korisnika u oblikovanju stana. Subotica: Građevinski fakultet. Knežević, G. (1986). Višestambene zgrade. Zagreb: Liber. Knežević, G. (1994). Fleksibilnost i participacija u stanogradnji. Zagreb: Tehnička knjiga. Knežević, G., Kordiš, I. (1987). Stambene i javne zgrade. Zagreb: Tehnička knjiga. Mandić, R. (2010/2011). A collection of texts for the subject Design 2 /1st and 2nd part/; A collection of texts by various authors. Sarajevo: Faculty of Architecture. Roaf, S., Fuentes, M., & Thomas, S. (2001). Ecohouse: A Design Guide. Oxford: Architectural Press.

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Course Code: 01.05.44	Subject title: BUILDING INSTALLATION SYSTEMS		
Cycle: I	**Year: II**	**Semester: IV**	**Number of credits: 4** (according to ECTS)
Status: MANDATORY		**Total hours: 45 (3/week)** Lectures: 30 (2/week) Exercises: 15 (1/week) Seminar: optional Field work – site or laboratory visit, once in semester	
Teaching staff:	Teachers and associates in the scientific field "Architectural Structures and Building Technologies", as well as practitioners and teachers from the Faculty of Mechanical Engineering, Electrial Engineering and Civil Engineering, UNSA (on call, max. 30%).		
Enrolment requirements:	-		
Subject objective(s):	Introducing students to: • The requirements of hydro-technical installations (plumbing fixtures) in architectural design, the importance of knowledge of matter and the impact on disposition solutions within the building. the process of designing and creating a design team of different professional titles. • The basic requirements of high and low current installations and lightning conductors in a building (electrical installation). • Basic thermo-technical installations of buildings (heating, wind and air-conditioning – HVAC)), modern HVAC concepts, directives and regulations. Acquiring basic knowledge, so that each architect can responsibly direct, supervise and integrate all installations' solutions with the architectural design, in order to produce and integrated building document.		
Content: *(if necessary, the weekly performance plan can be determined by considering the specificities of organizational units)*	First week: Theoretical background; Second and Third Week: Water Supply, Resources, Consumption; Sanitary equipment; Fourth week: Plumbing systems (PS); Dimensioning PS; Fifth week: Pollution, Conditioning, Analysis of PS&SwS, Technical Documentation; Sixth week: Sewage systems, Dimensioning SwS elements; Seventh week: Wastewater Disposal, Septic tanks, Bio-aeration devices; Eight week: Electrical Installation, General, Electrical Installation in Buildings;		

	Ninth week: Thermo-technical installations and requirements of indoor and outdoor environment; Tenth week: Global and Local Context; Effects of buildings on different domains of the natural environment; Environmental impacts, according to: • the environmental impact indicators • the health consequences; Eleventh week: Thermodynamics - Fundamentals; Thermodynamic processes; Thermodynamic systems Twelfth week: Analysis of the Technical Documentation - Mechanical Installation Study ('HVAC' elaborate); Microclimate inside the building; Thirteenth week: Conventional solutions in creating a comfortable microclimate within buildings; Fourteenth week: Energy savings; Energy efficiency and regulations. Fifteenth week: Standards.
Learning outcomes:	Knowledge: Acquiring knowledge about technological procedures and types of construction and craft works and the relationship between construction technology and architecturally constructive specificity of construction related to the installations (hydrotechnical, electrical and thermo-technical) buildings. Knowledge is gained in the field of designing hydro-technical installations, which are necessary for competent design and contracting practice with modern possibilities of execution and finalization. Basic information is obtained from the field of electrical installations in a building, necessary for architects to properly understand the requirements of this phase of technical documentation in the phase of design, construction and use of buildings. We gain insight into the processes in the field of design of thermo-technical installations, which are necessary for competent design and contracting practice with modern possibilities of execution and finalization. Understanding and need for thermo-technical installations in the building industry. Influence on structural elements of buildings and erection possibilities. Finding the necessary space to keep all the necessary components of the building's thermo-technical system. Skills: Technical skills related to the design drawing of plumbing and sewerage network and distribution in buildings; understanding of technical norms and standards.

	Technical skills related to and understanding of the electrical installation drawings of the building as a whole of technical studies designed for the purpose of building / reconstruction of buildings, in accordance with technical norms and standards. Technical skills related to understanding the design of thermo-technical installations as a whole of technical studies that are made for the purpose of building / reconstruction of buildings, in accordance with technical norms and standards. Competencies: Preparation of ViK study as part of the technical documentation required for the building structures. Collaboration with electrical engineers in the design of high and low power and lightning rod building studies. Collaboration with mechanical engineers in the design, construction and use of the GHKV building system.
Teaching methods:	Lectures and interactive discussions, and site visits.
Knowledge assessment methods with grading structure[47]:	The course grade is based on the following: • Attending lectures, working and engaging 5 points (5%), • Attendance, work, engagement and quality of exercise 35 points (45%), • Partial knowledge assessment 2x30 points (2x30%), • Integral knowledge test 60 points (60%). Partial and integral knowledge assessment is done in writing with the possibility of an additional oral examination for boundary results.
Literature[48]:	Obligatory: • Izvodi iz literature – sažetak relevantne građe (skripta) Additional: • Radonić, M. (2003). Vodovod i kanalizacija u zgradama. Zagreb: Croatiaknjiga. • Agroskin, I. I. (1964). Hidraulika. Zagreb: Tehnička knjiga. • Kurpjel, B. (1978). Hidrotehnika. Sarajevo: Arhitektonski fakultet. • Legislation and technical requirements (rulebooks, norms and BAS standards)

[1] **The structure of the points and the scoring criterion for each teaching subject is determined by the councils of the organizational unit before the beginning of the academic year in which teaching in the teaching subject is carried out in accordance with Article 64, paragraph 6 of the Law on Higher Education of the Sarajevo Canton**

[48] The Senate of the higher education institution as the institution or council of the organizational unit of the higher education institution as a public institution determines the obligatory and recommended textbooks and manuals, as well as other

- Petrić, N., vojnović, I., Martinović, V.. (2007). Tehnička termodinamika.. Split: Kemijsko-tehnološki fakultet u Splitu.
- Bode, E., Bogner, M., (2007.), CO2 ugljen dioksid, proizvodnja, distribucija i primjene, ETA Beograd, Beograd, ISBN: 86-85361-08-7
- Bogner, M., Miladinović, M., (2009.), Površinsko grejanje i hlađenje, ETA Beograd, Beograd, ISBN: 978-86-85361-20-3
- Henning, M., H., (2004)., Solar-Assisted Air-Conditioning in Buildings, Spreinger-Verlag Wien New York, Wien, ISBN: 978-3-211-730959
- Smith, P.F., (2005.), Architecture in a Climate of Change, A guide to sustainable design, Architectural Press, drugo izdatanje, Oxford, ISBN: 0 7506 65440

recommended literature on the basis of which it prepares and takes the exam with a special decision that it mandatory publishes on its website

Code: 01.01.04.	**Title of the subject: FREEHAND DRAWING 4**		
Cycle: 1st	**Year of the study: 2nd**	**Semester: 4th**	**Number of ECTS credits:** 2
Status: Obligatory		**Total number of hours:** 3 Lectures 1, Exercises 2, (+ Field work); Classes are integral – lectures and practical lessons are conducted simultaneously	
Teaching staff	Teachers and associates elected in the field to which the subject belongs - DEPARTMENT FOR SPATIAL AND GRAPHICAL VISUALISATION		
Prerequisites:	Completed course, accepted assignments and exams passed in Freehand drawing 1, Freehand drawing 2 and Freehand drawing 3		
Aim (aims) of the subject:	Development of a drawing in accordance with individual abilities of students, with an enhancement of polychromatic quality with regards to colour and technique.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	- Introduction to colouring techniques (e.g. aquarelle, ink, ink lavee, crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - Mid-term exam;		

	- A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; positioning of models and groups in the colourist technique (e.g. aquarelle, ink, ink lavee, Crayola marker pens, coloured pencils, pastel colours…); - A polychromatic approach; (interior or exterior arrangements, colourist technique, drawing sketches… field trips; - End-term exam.
Learning outcomes:	Knowledge: Understanding the specificity of the given painting techniques in making architectural drawing both in interior and exterior; Skills: Overcoming different techniques with individual approach from sketch to study drawing; Competences: After completing the course, the student is able to express himself/herself in visual-art terms in the context of each architectural space.
Teaching methods:	Classes are integral – lectures and practical lessons are conducted simultaneously. Lectures are followed by a practical demonstration in accordance with the individual approach of the professor. All assignments are conducted and completed in classes, with individual approach to every student, under supervision and consultations. Due to a systematic teaching approach and depending on the need, notwithstanding the complexity of an assignment, certain segments of the assignment will be

	completed by students independently and will hand in the assignments within the proposed deadline. If possible, study trips will be organised for several days at a location that concerns the theme of architecture of cities, villages, and historical centres. The segment of the assignment that concerns the exterior is completed individually and is handed in within the proposed deadline.
Assessment methods including grading structure [49]:	The final grade consists of passing grades obtained at two or three exams taken during the semester. In case a student fails one of the exams, he/she is obliged to take the final exam. Grade obtained from in-class participation is also a part of the final grade. The distribution is as follows: practical classes 50% preliminary exams 40% in-class participation 10%
Bibliography[50]:	Obligatory: - Arnheim, R. (1971) Umjetnost i vizuelno zapažanje (psihologija stvaralačkog gledanja), Beograd: Umetnička akademija - Arnheim, R. (1981) Umjetnost i vizuelno zapažanje (psihologija stvaralačkog gledanja) (V. Stojić, Transl.), Beograd: Univerzitet umjetnosti - Arnheim, R. (1985) Vizuelno mišljenje (jedinstvo slike i pojma) (V. Stojić, Transl.), Beograd: Univerzitet umjetnosti Additional: - Bangal, B. (1999) Priručnik "Falken": Crtanje i slikanje, Beograd: Jugoslovenska knjiga - D'Amelio, J. (1964) Perspective drawing handbook, New York - Leon Amiel, Dodson, B. (1990) Keys to Drawing, Cincinnati, NorhtLight Books - Ilatovskaya, T. (1996) Master Drawings Rediscovered - Treasures from prewar German Collections, New York - Harry N. Abrams, Nicodemi, G. B. (1983) Come Disegnare Natura Morta – Paesaggio – Figurh, Milano, Ottawa: Il Ccastello

[49] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[50] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.06.04	**Title of the subject: STATICS OF ARCHITECTURAL STRUCTURES 4**		
Cycle: 1st	**Year of the study: 2nd**	**Semester: 4th**	**Number of ECTS credits: 2**
Status: Obligatory		**Total number of hours: 45** Lectures 30 Practical classes 15	

Teaching staff	Teachers and associates elected in the field/Department for construction systems.
Prerequisites:	Exams passed in Statics of architectural structures 1 and 2 and a signed index for the subject Statics of architectural constructions 3.
Aim (aims) of the subject:	Introducing students with the methods of calculation verification of statically undefined systems.
Content:	Statically undefined constructions; slide estimate; force method, deformity method; final element method.
Learning outcomes:	Knowledge: Introducing students to the basic elements of the load-bearing constructions most frequently used in civil engineering practice, that is, with the elements of statics and resilience of materials. This subject is aimed for the students to comprehend the conditions that need to be fulfilled by the load-bearing constructions; to learn of, recognise, differentiate, understand, adopt and master the principal mechanical characteristics of materials in civil engineering; to adopt the specific terminology; to be able to use structural analysis and dimensioning of the simple systems of architectural structures and thus examine the essence of the stability of buildings that they will design or construct; develop an attitude towards a sustainable way of constructing and environment preservation; form the working, moral and aesthetical values, develop a sense of personal responsibility, strengthen self-confidence and importance of cooperation, as well as group work. Skills: Competences:
Teaching methods:	Lectures: oral and presentational; conversational method, practical presentations, deliberations. Practical classes: presentations and consultations.

<table>
<tr><td>Assessment methods including grading structure [51]:</td><td>Students are assessed through two tests (theory and practical assignments) that take place in the middle and at the end of the semester, as well as through an oral exam. Candidates who fail the tests need to take the final exam, which encompasses theory and practical assignments. The final grade consists of grades achieved in tests and the final exam, as well as of the grade achieved in practical assignments. Students who have the second signature in their indexes , as prescribed by the Statute, are entitled to take the final exam. The final exam is prepared through lectures and practical classes, as well as through the use of literature recommended by the professor at the beginning of the semester.

TEST 1 + TEST 2 = 67% of grade; Final exam: 25% of grade; Seminar assignment: 8% of grade.

<table>
<tr><th></th><th></th><th>POINTS</th><th>GRADE</th></tr>
<tr><td>TEST 1</td><td>max. 33,5 points</td><td>99-100</td><td>10</td></tr>
<tr><td>TEST 2</td><td>max. 33,5 points</td><td>85-94</td><td>9</td></tr>
<tr><td>SEMINAR ASSIGNMENT</td><td>max. 8 points</td><td>75-84</td><td>8</td></tr>
<tr><td>FINAL EXAM</td><td>max. 25 points</td><td>65-74</td><td>7</td></tr>
<tr><td></td><td></td><td>55-64</td><td>6</td></tr>
<tr><td>TOTAL:</td><td>max. 100 points</td><td>0-54</td><td>5</td></tr>
</table></td></tr>
<tr><td>Bibliography[52]:</td><td>Obligatory:
Bogunović ,S. (1986). Statika konstrukcija II. Sarajevo: Univerzitet u Sarajevu.
Đurić, M. (1972). Teorija okvirnih konstrukcija. Belgrade: Građevinska knjiga.
Additional:
Hrnjić H. Metod konačnih elemenata (separat).
Jokanović, O. (1991). Teorija linijskih nosača. Sarajevo: Svjetlost.
Pašić, H. (1980). Metod konačnih elemenata. Sarajevo: Mašinski fakultet.
Solovjev, Đ. (1981). Statika neodređenih konstrukcija. Sarajevo: Građevinski fakultet.
Supplementary: In consultation with the subject professor individually in relation to the specificity of the topic of each individual candidate.</td></tr>
</table>

[51] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[52] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.04.46	**Title of the subject: URBAN DESIGN**		
Cycle: 1st	**Year: 2nd**	**Semester: 4th**	**Number of ECTS credits: 6**
Status: OBLIGATORY		**Total number of hours: 90** **Lectures: 30** **Exercises: 60**	
Teaching staff	Teachers and associates engaged in the scientific field „Urbanism and Spatial Planning“		
Prerequisites:	No		
Aim (aims) of the subject:	A comprehensive and structured understanding of urbanism and the basic elements of urban planning as a multidisciplinary activity that has, as its primary goal, the creation of an artificial environment in which the entire spectrum of theoretical and practical sciences participates.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Urbanism: definitions, tasks, goals, features; Urbanization: concept and content-chronological division; Ecological and sociological approach to spatial arrangement; Urban infrastructure and urban superstructure; Criteria for defining a settlement-city; The genesis of the origin and development of cities; Urban decentralization/urban reconstruction; Natural conditions (analysis I); Natural conditions (analysis II); Conditions (manmade); Norms and standards in urban planning; Economic aspects of spatial arrangement; Basic elements of city traffic; Basic elements of urban greenery; Basic elements of the town square. Spatial structure of the city, concept and types; Morphological structure of the city; Functional structure of the city; Social structure of the city; Functions of the city and land use: Basic city areas; Spatial dominants in the city: Elements of urban design of cities; Streets; Building block: definition, form, construction system, function, content; Type and purpose of city roads; Stationary Traffic /parking; Markets: concept, functions and design elements; Urban greenery; Urban equipment.		
Learning outcomes:	Knowledge: Students are expected to adopt knowledge necessary for a correct understanding and inventive application of principles, normative and standards in urban design. Skills: Mastering basic termiology and technical skills in urban design. Competencies: Small scale urban design project of a less dense residential neighborhood		
Teaching methods:	Informative teaching method accompanied by adequate examples from practice, analysed and discussed in practical		

	classes as an introduction and as an informative base for the development of a plan for a small scale residential block.
Assessment methods including grading structure [53]:	The course grade is based on class activities (attendance at lectures and exercises 10%, successfully completed exercises 40%), and the grade from the partial and final knowledge assessment - through a test and/or oral defense - 50%.
Bibliography[54]:	Obligatory: Excerpts from readings - summary of related materials Additional: Giedion, S. (1969). Prostor, vrijeme, arhitektura. (R. Trbojević, M. Radonić, Transl.). Belgrade: Građevinska knjiga. Jenks, M. (2000). The Compact City, a Sustainable Urban Form? Nondon, New York: E & FN Spoon Press. Le Corbusier, C. J. (1974). Način razmišljanja o urbanizmu (T. Maksimović, Transl.). Belgrade: Građevinska knjiga. Lynch, K. (1974). Slika jednog grada. Belgrade: Građevinska knjiga. Marinović – Uzelac, A. (1986). Naselja, gradovi, prostori. Zagreb: Tehnička knjiga. Milinović, V. (2000). Separati. Sarajevo: Arhitektonski fakultet. Mumford, L. (1988). Grad u historiji (V. Ivir, Transl.). Zagreb: ITRO "Naprijed". Norber-Schulz, C. (1990). Stanovanje. Stanište, urbani prostor, kuća (M. J. Maksimović, Transl.). Belgrade: Građevinska knjiga. Rapoport, A. (1977). Human Aspects of Urban Form. Oxford: Pergamon Press. Pegan, S. (2007). Urbanizam – uvod u detaljno urbanističko planiranje. Zagreb: ITG, d.o.o. Vresk, M. (1977). Osnovi urbane geografije. Zagreb: Školska knjiga. Vresk, M. (2002). Grad i urbanizacija. Zagreb: Školska knjiga.

[53] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[54] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

SYLLABUS OF THE THIRD YEAR, 5th SEMESTER

Code: 01.05.06	**Title of the subject: ARCHITECTURAL PHISICS 1**		
Cycle: 1st	**Year: 3rd**	**Semester: 5th**	**Number of ECTS credits: 2**
Status: OBLIGATORY		**Total number of hours: 15 + 15 = 30** Lectures Exercises Field work	

Teaching staff	
Prerequisites:	
Aim (aims) of the subject:	Explaining the essence of architectural physics as a scientific component of architecture; encouraging students to look for solutions in architecture (disposition and materialisation) validity of which can be scientifically evaluated.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	According to the content of bligatory textbooks: Hadrović, A. (2010). *Architectural Physics, Second Edition*. Sarajevo: Faculty of Architecture of the University of Sarajevo. WEEKS 1-3: ENVIRONMENT (definition of environment, natural and social circles). Natural environment (Earth, atmosphere, climate, climatic factors and climatic elements). Examples of autochthonous architecture from various parts of the world ("architecture without architects"). WEEKS 4-7: MAN (man - natural and social being; comfort area = define area from the aspect of thermodynamics, light, sound). WEEKS 8-15: GRANTS (concept of SYSTEM, system size, concept of system boundaries, transport of matter and energy across system boundaries). Arithmetic thermodynamics (basic postulate of thermodynamics, energy, heat, temperature). Transportation of energy (heat) through ADP boundaries (heat expansion, heat conductivity coefficient, heat transfer coefficient, calculation methods, thermal losses, standard-regulations). Temperature dilatation and temperature strain. Thermal stability in summer and winter. Parodifusion (basic sizes and units, parodifusion budget, steam damages, recommendations, standards). Exposure (light technical size and their units, conditions of good illumination, light color temperature, light temperature, light generation, lamps, basic calculations). Architectural acoustics (sound, sound effects, resonance, interference, storm waves, Doppler effect, directed sound source characteristics, sound tracking, sound room acoustics, echo, horizontal and vertical room plan, sound absorber - types and tasks) . Noise, sources and

	noise flows, noise representation, noise barrier, standard fault, recommendations, standards - regulations.
Learning outcomes:	Knowledge: The student should be able to see architecture as the unity of its artistic and exemplary-empirical components. Skills: With the use of the appropriate soware, the student is able to create a budget for securing the required performance of the architectural space in terms of ensuring the comfort of the people in them. Competencies: With the admission of an appropriate exam conducted by a national community or an appropriate domestic or foreign institution (licensing), the student is able to gain access to this exam without further training.
Teaching methods:	Lectures with projections that follow the subject matter. Exercises are being worked on to develop a student's own project from the aspect of the content of this subject.
Assessment methods including grading structure [55]:	Lecture and exercise monitoring 5% Individual assignment (exercises) 30% Teamwork (in Group - Exercise) 10% Announced, written part of the print 55% Final exam for those who have not collected enough credits.
Bibliography[56]:	Required: Hadrović, A. (2010). Architectural Physics, Second Edition. Sarajevo: Faculty of Architecture of the University of Sarajevo. Hadrović, A. (2008). Bioclimatic Architecture, Searching for a Path to Heaven. North Charleston, SC: Booksurge. Supplementary: Goscle, K., Schule, W. (1978). *Zvuk, toplota, vlaga*. Belgrade: Gradjevinska knjiga. Milosavljević, M. (1985). *Klimatologija*. Belgrade: Naučna knjiga. Granjean, E. (1972). *Vohnpysiologee*. Zurich: Artemis. Moritz, K. (1975). *Pravilno i pogrešno*. Belgrade: Gradjevinska knjiga. Matić, M. (1988). *Energija i arhitekura*. Zagreb: Školska knjiga. Podlipnik, P. (1978). *Svjetlotehnički priručnik*. Maribor: Elektrokovina.

[55] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[56] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.05.05	Title of the subject: ARCHITECTURAL CONSTRUCTIONS 5 (CONSTRUCTIVE SYSTEMS IN ARCHITECTURE)		
Cycle: 1st	**Year: 3rd**	**Semester: 5th**	**Number of ECTS credits: 4**
Status: OBLIGATORY		**Total number of hours: 15 + 30 = 45** Lectures Exercises Field work	

Teaching staff	Teachers and associates engaged in the scientific field "Department of architectural construction and building technology"
Prerequisites:	
Aim (aims) of the subject:	Involve the student to understand the interdependence of the architectural program and the constructive system in the dimensions of function, aesthetics, economy = optimum.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	According to the content of compulsory textbooks: Hadrović, A. (2009). *Structural systems in architecture*. Sarajevo: Faculty of Architecture. WEEK 1: Concept of constructive system, definition, tasks within ADP, history development - review. WEEK 2: Systematization; Linear k. systems (line = rod, force and bending moment, column, beam, console, line grids, spatial grid carriers); WEEK 3: The frame (column + beam), the plane frame, the space frames (raster, horizontal and vertical plan), spatially overruled (seismic and wind acceptance). WEEK 4: Arch (forms, static schemas, horizontal forces problem, horizontal and vertical plan, materialization); WEEK 5: Surface constructive systems. WEEKS 6-7: Spatial grid forms, spatial-height relation, materialization, known examples; WEEK 8: Nabori (definition, cross-section - transverse and longitudinal, height-range relationship, diaphragm, materialization, best known examples). WEEK 9: Cylindrical scales (cross section, straight-to-height ratio, diaphragm, short and long shells, known examples); Konoids and cones; WEEK 10: Double curved surfaces, translational and rotational shapes: wrinkled arches, HP scales, torsos, hyperboloids, paraboloids, ellipsoids, combinations. Known realizations; WEEK 11: Kablovski k. systems (rope-performance, single-layer and two-layer cables, ranges, basis forms, known realizations); WEEK 12: Tensegrity-Structures; WEEK 13: Versatile network and canvas (concept, patterns in traditional solutions, materials, forms, known examples);

	WEEK 14: Pneumatic k. systems (concept, principles of construction, materials, elements, known realizations); WEEK 15: Lifts (types and elements); Fire protection (significance, horizontal and vertical plan of object design, fire load, fire sectors, fireproof aperture elements).
Learning outcomes:	Knowledge: Students will, in a systematic way, be familiar with all the well-known constructive systems in architecture today. Constructive systems will be presented through analysis of the most famous architectural objects, throughout the history of architecture, to date. Skills: Students should acquire skills by mastering space, both horizontally and vertically. Competencies: Students should be able to see architecture as the unity of its artistic and exemplary-empirical components.
Teaching methods:	Lectures with projections that follow the subject matter. Exercises are used to design objects according to a given constructive system. Exercises are performed in teams of 4 students in the group.
Assessment methods including grading structure [57]:	Lecture and exercise monitoring 5% Individual assignment (exercises) 30% Teamwork (in Group - Exercise) 10% Announced, written part of the print 55% Final exam for those who have not collected enough credits.
Bibliography[58]:	Required: Hadrović, A. (2009). *Structural Systems in Architecture*. North Charleston, SC: Booksurge, LLC. Supplementary: Fisher, R. E. (1964). *New structures*. New York: McGraw Book Company. Hart, F., Henn, W., & Sontag H. (1991). *Atlas čeličnih konstrukcija,* Belgrade: Građevinska knjiga. Michelis, P. A. (1973). *Estetika arhitekture armiranog betona* (T. Maksimović, M. Maksimović, Transl.). Belgrade: Građevinska knjiga. Ruhle, H. et al. (1977). *Prostorne krovne konstrukcije, njihove pojedinosti, njihove izodese*. Belgrade: Građevinska knjiga. Sigel, C. (1960). *Strukturformen der modernen Architektur*. Munich: Verlag Georg D.W. Callwey. Journals (thematic editions on the new constructions): *The Japan Architect*, *164.*; *Techniwues & Architecture, 291.*; *Detail, DBZ*.

[57] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[58] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.06.21	Title of the subject: REINFORCED CONCRETE STRUCTURES		
Cycle: 1st	Year of the study: 3rd	Semester: 5th	Number of ECTS credits: 4
Status: Obligatory		Total number of hours: 60 Lectures 30 Exercises 30	

Teaching staff	Teachers and associates elected in the field to which the subject belongs - Department of Structural Systems
Prerequisites:	None.
Aim (aims) of the subject:	Acquiring basic knowledge on the material properties, principal methods of calculating and dimensioning of reinforced concrete sections and the application of reinforced concrete in architectural structures in accordance with the Eurocode 2, in a correlation with PBAB '87.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Concrete: Introduction; Strength of the concrete; Measuring the concrete strength. Concrete deformities: elastic deformities; plastic deformities caused by a short-term load; temporally-conditioned concrete deformities, effects to a structure and prevention of influence of the shrinkage and creep of the concrete. *Reinforcing steel:* General; Properties of reinforcing steel; Shaping of reinforcing steel. *Anchoring concrete and steel*; General issues; Stress at the bond and the basic principle of the bond; Factors that influence stress of the bond; Minimal thickness of the surface layer. *The basics of reinforced concrete structural design*: The main notions; Classification; Designing a load-bearing structure: In general, on bearing capacity; Causes of stress, Effects (or loads); Design models and calculating force at a section; Bearing capacity; Safety area; Calculation procedures for the bearing capacity: Load bearing structural dimensioning, safety factors and load combinations. *Applying the ultimate strength method (ULS) to reinforced concrete design calculation under bending moments and normal force;* The main propositions: calculation diagram for concrete (σb-εb); calculation diagram for reinforcing steel (σa- εa). Types of failure and the task of design calculation. Possible diagrams of section deformities in the state of the ultimate strength. *Dimensioning in shear force:* Phase I; Phase II; Analogy between the mechanism of internal forces of a reinforced concrete beam and internal forces of a truss beam; Calculating the internal forces of a constant height

	beam through the truss beam model; Kinds of failure in slender reinforced concrete beams; Recent research results; Calculating shear stress in phase II; Dimensioning onto shear force; The basic principles of reinforcement construction: anchorage, reinforcement bending diameters, distribution and continuation of reinforcement in bending stress elements. *Slabs:* Introduction; Uniaxial slabs; The basic principles of reinforcement and structural determinants; The basic equations of the thin slabs bending theory; Continuous rectangular slabs positioned over the entire perimeter; Details of reinforcing cross-sectioned slabs; Uniaxial and biaxial slabs with an opening; Cross-section forces in the area of interrupted horizontal support; Circular and annular slabs. *Slabs leaning on columns:* General characteristics; Calculating bending moment; Shear force dimensioning.
Learning outcomes:	Knowledge: Independently perform dimensioning, as well as allocate concrete reinforcement in individual load-bearing elements of the architectural building. Skills: Ability to understand and lay out the reinforced concrete structure of the architectural building. Competences: Independent resolution of the concept of load-bearing structure of reinforced concrete.
Teaching methods:	Lectures and practical classes that focus on creating numerical examples. Development of individual programme assignments: dimensioning of load-bearing elements of the structure. Apart from practical classes, students are also eligible for additional individual consultations for the purpose of resolving the issues they may have regarding the content of the subject, development of the programme assignment and preparation for the exam.
Assessment methods including grading structure [59]:	Students are assessed through two tests/partial exams (I test 40% during the classes, II test 40% within the first examination period) and/or the final exam (oral/written, max. 80% for additional semester points). The final exam includes both theoretical content and practical assignments. The final grade is formed on the basis of the passing grades at tests and/or a passing grade at the final exam; participation is also taken into consideration (20%). A student who is eligible for the second signature in the index can take the final exam, as prescribed by the Statute.

[59] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

	Preparation for the final exam is performed through lectures and practical classes, as well as through literature recommended at the beginning of the semester.
Bibliography[60]:	Obligatory: Miljanović, S. *Lectures*. Zlatar, M. (2006). *Lectures for the subject Reinforced concrete architectural constructions 1&2*. Sarajevo Eurocode 2. (1994). *Proračun betonskih konstrukcija, Deo 1: Opšta pravila i pravila za proračun zgrada*. Belgrade: Građevinski fakultet. Additional: Tahirović, I. V. (2001). *Armirani beton I, II.* Sarajevo: Svjetlost. Tomičić, I. (1984). *Betonske konstrukcije*. Zagreb: Školska knjiga.

60 **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.03.07	**Title of the subject: DESIGN 3**		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 5th**	**Number of ECTS credits:** 6
Status: OBLIGATORY		**Total number of hours: 60** Lectures 15 Exercises 45	

Teaching staff	**Teachers and associates elected in the field to which the subject belongs- Department of Architectural Design**
Prerequisites:	-
Aim (aims) of the subject:	Introducing students to the matter and methodology of design and enabling them for designing multi-storey buildings.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	During lectures, the matter immediately related to the assignment given at practical lectures is presented to the students. That is the integral project in the field of multi-storey buildings (typology: mezzanine, corridor, and gallery flats, cascade buildings, etc.). The basic regulations and limiting factors in designing multi-storey buildings. The current socio-political environment of residential architecture (the market, new typologies). A comparative analysis of individual housing and multi-family housing from socio-psychological and economic aspect. A context in housing – genius loci (cultural-historical, socio-political, natural). The influence of globalisation to the concept of housing. Typological analysis of flat organisation from the point of view of heritage and traditional values. Participation in housing. Individualisation of multi-family housing – transport of elements of individual to multi-family housing. Common spaces in multi-storey buildings – Social interaction. Work and housing. Apartment architecture of the world's leading architects. Shaping of multi-apartment buildings. Presentation and defence of student works.
Learning outcomes:	Knowledge: By successfully mastering the content of this subject, students gain theoretical and practical knowledge about designing collective housing. Skills: Students adopt design skills, project planning and organization, and presentation and communication skills. Competences: By successfully mastering these issues, students acquire some general (instrumental, interpersonal, system) and partly professional competences, which require mastering the basic understanding of the field of housing by critical thinking and creative, independent activity, as well as creating awareness of the social responsibility, keeping in touch with the most recent achievements of architectural profession, etc.
Teaching methods:	Lectures are obligatory and are organised as a combination of informative and interactive classes for which the students need to prepare continually, just as is the case with practical classes, which focus on analysis and work on the project that is partly supervised, partly individual. Professors and assistants work with the students through an immediate and structurally and functionally demanding method, and the approach to every student is individual.

Assessment methods including grading structure [61]:	The course is assessed according to the following structure: Attendance (max. 10 points); clause 1 (max. 15 points); clause 2 (max. 15 points); semester work (max. 15 points); final presentation / exam (max. 45 points). Students qualify for a passing grade (6) when they score 55 points in total. If students submit sufficient quality work in the term of the semester work, with all the contributions required for the final presentation, the semester work grade can be adopted as the final presentation / exam grade, provided that all previous work submissions are positively evaluated.
Bibliography[62]:	Obligatory: Bajlon, M. (1986). Upotrebna vrijednost stana. Belgrade: Arhitektonski fakultet. Kara-Pešić I., Petovar, K. (1985). Neposredna okolina stambenih zgrada. Belgrade: Centar za stanovanje IMS. Klein, R. (1978). Sudjelovanje korisnika u oblikovanju stana. Subotica: Građevinski fakultet. Knežević, G. (1986). Višestambene zgrade. Zagreb: Liber. Knežević, G. (1994). Fleksibilnost i participacija u stanogradnji. Zagreb: Tehnička knjiga. Additional: Knežević, G., Kordiš, I. (1987). Stambene i javne zgrade. Zagreb: Tehnička knjiga. Mandić, R. (2000). Kritički osvrt na funkcionalizam, knjiga II – postdiplomski studij. Sarajevo: Arhitektonski fakultet. Mandić, R. (2000). Stanovanje u tranziciji, knjiga II – postdiplomski studij. Sarajevo: Arhitektonski fakultet. Mandić, R. (2010/2011). A collection of texts for the subject Design 3 /1st and 2nd part/; A collection of texts by various authors. Sarajevo: Faculty of Architecture. Mandić, R. (2011). Kultura kao kontekst u stanovanju – doktorski studij. Sarajevo: Arhitektonski fakultet. Norber-Schulz, C. (1990). Stanovanje. Stanište, urbani prostor, kuća (M. J. Maksimović, Transl.). Belgrade: Građevinska knjiga. Rudlin, D., Falk, N. (1999). Building the 21st Century Home – the /Sustainble Urban Neighbourhood/. Oxford: Architectural Press. Schneider, F. (1997). Floor Plan Atlas Housing. Basel: Birkhauser-Verlag. Strižić, Z. (1996). Arhitektonsko projektovanje II (o stanovanju). Zagreb: Psefizma. Domestic and foreign journals treating the issue of housing (Oris, Arhitektura, ČiP, AA, TA, JA, AW, DB, etc.)

61 **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

62 **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.03.09	Title of the subject: DESIGN 5		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 5th**	**Number of ECTS credits:** 3
Status: Obligatory		**Total number of hours: 30** Lectures: 15 Exercises:15	

Teaching staff	**Teachers and associates elected in the field to which the subject belongs – Architectural design**
Prerequisites:	-
Aim (aims) of the subject:	The objective of the course is to familiarize students with the historical, typological and morphological character of administrative buildings. The implementation of the course is based on functional-organizational determinants and contemporary tendencies in the design of administrative buildings. Lectures provide an expert methodology for the design of architectural conceptual solutions for the administrative buildings of the average complexity.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	1. Historical development of administrative buildings; 2. Contemporary principles of organization of work; 3. Spatial-functional groups and spatial configuration of administrative buildings; 4. Urbanistic, architectural and ambient aspects of the planning of administrative buildings; 5. Architectural programming of administrative buildings; 6. Analysis of architectural types and functional-spatial units of administrative buildings.
Learning outcomes:	**Knowledge:** programming and architectural design of administrative buildings. Through lectures and exercises, the student will acquire knowledge about the methodology of designing spatial-functional groups by which the administrative building develops through the context, form, function, technology and materialization. **Skills:** The integration of theoretical and practical knowledge through semestral work encourages individual approach to problem solving in each individual student, as well as the development, research and use of traditional and contemporary materials and technologies. Developing skills for presentation and communication of an architectural design. **Competences:** The student is able to create the conceptual architectural project of the administrative building of the average complexity, based on the integrated knowledge from several previous professional subjects,

	simultaneously mastering the design conceptual and technical-methodological basics of architectural design.
Teaching methods:	Lectures – ex-cathedra / multimedia; In-semester engagement – individual assignments/supervised work; Work in architectural design studio with presentations and discussions regarding the development of architectural design concepts.
Assessment methods including grading structure [63]:	Students are assessed through successfully executed practical assignments (60% of the grade); Written exam (10 % of the grade); Presentations (10% of the grade); Project design defense (20% of the grade).
Bibliography[64]:	**Obligatory:** Actual professional and theoretical literature from the field of architecture of office buildings Picard,Q., RIBA, The Architects Handbook, Blackwell, 2002; Neufert,E., Arhitects' Data, Blackwell Science, Third Edition, 2000 De Chiara, J., Crosbie J.M., Time-Saver Standards for Building Types, McGraw-Hill, Fourt Edition, 2001 Hachner,R., Jeska,S., Klauck,B., Office Building: A Design Manual, Birkhauser, 2002. Aiddtional: Actual architectural magazines, design manuals for office buildings and monographs of architects

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Code: 01.05.45	**Title of the subject: BUILDING CONSTRUCTION TECHNOLOGY AND MATERIALS**		
Cycle: 1	**Year of the study: III (third)**	**Semester: V (fifth)**	**Number of ECTS credits: 4**
Status: OBLIGATORY		**Total number of hours: 5 hours per week / 75 per semester** Optionally elaborate the distribution of hours per type: Lectures 3 hour per week / 45 hours per semester Exercises 2 hours per week / 30 hours per semester Seminar Field work Laboratory exercises Praxis Concert activities	

Teaching staff	**Teachers and associates elected in the field to which the subject belongs: Department of architectural structures and building technology**
Prerequisites:	None.
Aim (aims) of the subject:	Studying traditional and contemporary technological procedures and their implementation in the final processes of completion of a building, from designing the primary load-bearing construction, to the performance technologies and artisan works; their succession and interdependence. Ways of writing tender documents with specified works showing bill of quantities and invoice (construction and artisan works), as well as the development of price calculation-analysis. Introducing materials used in architecture and civil engineering, important for an engineer of architecture. Introduction of the basic terminology and information on materials in architecture. Technical description of materials and products, a selection of information on characteristics of the materials.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Introductory remarks with presenting aims of the subject and methods of work in lectures and practical classes; Introductory remarks, historical development of understanding and examination of the materials. Life cycle and parameters of materials' sustainability. Achieving quality and control in accordance with the ISO and EN standards. Characteristics of materials – physical and mechanical characteristics of materials (structure, porosity, hydrophilicity, hydrophobicity, elastic and plastic behaviour, firmness, fatigue, hardness and toughness of the material). Moist of unincorporated and incorporated

	building material, moisture absorption and distribution. Destructive and non-destructive testing of materials. Division of building materials according to different criteria. Building stone (kinds, characteristics: colour, texture and structure, physical and mechanical characteristics, usage). Ceramic materials (classification, raw materials, brick, brick products, tile, fine ceramics, ceramic tiles, usage). Concrete (history, characteristics, usage, cement, aggregate). Architectural glass (history, characteristics, usage). Insulation materials (thermal insulation characteristics, classification, usage). Thermal insulation and waterproofing materials (characteristics, classification, usage). Development of building technology; An overview of building construction; Construction process mechanization; Earthworks technology; Wooden constructions; Formworks; Ironworks technology; Concrete works technology; Masonry works; Final works in civil engineering; Bill of quantities for construction works; Price analysis and calculations; Civil engineering legislation.
Learning outcomes:	Knowledge: Gaining an insight into the basic characteristics of materials – physical, mechanical and technological, as well as potentials, possibilities and ways of application of materials in materialisation and structure of an architectural object as a complex system. Acquiring knowledge on technological procedures and kinds of construction and artisan works and the relationship of building technology and architectural-structural specificities of a construction. Studying different technologies of building and their characteristics enables students to gain necessary knowledge in order to make a right choice depending on the characteristics of the building, location, disposable resources and other conditions. Skills: Student manages terminology and information about materials in architecture. Students are gaining the necessary skills in the field of building technology, necessary for a competent design and construction practice, with contemporary possibilities of building the basic constructions of a facility and their finalisation. Competences: The student is competent to independently select the materials in architectural project design phase. Preparation of the study of the construction works with the drainage of water from the construction pit, the elaborate and the draft for the production and execution of the formwork during the construction of concrete works.

Teaching methods:	Lectures supported by PowerPoint presentations and activities in practical classes.
Assessment methods including grading structure [65]:	Assessment is done by assigning points for each form of activity and knowledge checking during the semester as well as on the final exam that determines the final grade. Testing knowledge through two written tests in the semester. Each test carries 35% of the points in the rating structure, and the exercises carry 30% of the points in the rating structure. The student can take the final written exam if he / she did not score the minimum number of points on each test and the exam carries a maximum of 70% of points in the rating structure. The student has the right to test knowledge at the final exam only if he / she has obtained a minimum 50% of the points for the exercises. 10 (A) - (outstanding success, with no mistakes or with minor defects), carries 95-100 points, 9 (B) - (above the average, with a few mistakes), carries 85-94 points, 8 (C) - (average, with noticeable mistakes), carries 75-84 points, 7 (D) - (generally good but with significant disadvantages), carries 65-74 points, 6 (E) - (meets the minimum criteria), carries 55-64 points, 5 (F, FX) - (does not meet the minimum criteria), less than 55 points.
Bibliography[66]:	Obligatory: Ashby, M, F., Jones, D. R. H. (1996). Engineering Materials 1. Oxford: Butterworth Heinemann. Ashby, M, F., Jones, D. R. H. (1998). Engineering Materials 2. Oxford: Butterworth Heinemann. Beslać, J. (1989). Materijali u građevinarstvu i arhitekturi. Zagreb: Školska knjiga. Dreca, Š. (2002). Građenje. Sarajevo: Arhitektonski fakultet. Đorđević D. (2002). Izvođenje radova u visokogradnji. Beograd: Izgradnja. Normativi i standardi rada u građevinarstvu. visokogradnja (2006). Beograd: Građevinska knjiga. Additional:

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	Illston, J. M., Domone, P. L. J. (Ed) (1994). Construction materials – their nature and behaviour. London, New York: E&FN SPON Chapman & Hall. Arthur Lyons, Materials for Architects&Builders, Butterworth-Heinemann is an imprint of Elsevier, 2010 Victoria Ballard Bell, Patrick Rand, Materials for Architectural Design, Princeton Architectural Press, 2006 Bjørn Berge,The Ecology of Building Materials, Architectural Press, 2001 Muravljev, M. (2006). Građevinski materijali. Belgrade: Građevinska knjiga. Thornton, P. A., Colongelo, V. (1985). Fundamentals of engineering materials. Englewood Cliffs: Prentice Hall Inc. Tufegdžić, V. (1983). Građevinski materijali-poznavanje i ispitivanje, V izdanje. Belgrade: Naučna knjiga. Bučar G. (1997). Tesarski, armirački i betonski radovi na gradilištu. Osijek: Građevinski fakultet. Chudley, R., Greeno, R. (2006). Building Construction Handbook (6th edition). Cornwall: MPG Books Ltd. Legislation and technical requirements (rulebooks, norms and BAS standards) *Normativi i standardi rada u građevinarstvu*-visokogradnja Valid legal legislation, rules and regulation in the fild of construction.

Code: 01.04.25	**Title of the subject: THEORY AND HISTORY OF URBANISM**		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 5th**	**Number of ECTS credits:** 2
Status: Obligatory		**Total number of hours:** 30 Lectures 30	
Teaching staff	**Teachers and associates elected in the field to which the subject belongs** Field – Urbanism and spatial planning		
Prerequisites:	None.		
Aim (aims) of the subject:	Introducing students to historical preconditions and flows of construction of cities, as well as elements showing the basic criteria according to which the process of generating a city has developed.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Introduction (The essential definition of a town and the appearance of urbanism); Prehistoric and protohistoric cultures (General characteristics of development; Asia, Europe); Antiquity (Western Asia, Egypt, Middle East; Greece; Rome); Middle Ages (Europe; Medieval towns of ancient heritage; Genesis of the town and otreoscan genesis; Rural and protourban formations; Growth and development; the Forma Urbis; Shape of a town and topos; Islamic town; A review of BiH; Southern and Eastern Asia; PreColumbus Amierca); Renaissance (Eurepe; Renaissance of antiquity; Invention of firearms; Ideal City); Baroque (Europe; Metropolis; Residential cities; Fragmented creations; Colonised cities – Eastern and Western hemisphere); Industrial-age cities (Europe, America and a review of BiH; Garden city); 20th century urbanism (Reactions to industrial age urbanism; Modernism; New cities; Postmodernism); Cities today;		
Learning outcomes:	Knowledge: Defining urban codes and the village-town dichotomy; Skills: A synthesis of studies in the field of urban science and practice through understanding and consideration of theoretical and practical knowledge on valorisation and global essence of shaping the human environment; Competences: Comprehending flows of development of cities through history, types of definitions of a “populated place” and influential factors: anthropogenic, functional, legal, strategic, contemporary.		
Teaching methods:	Presentation of examples through informative-historical overview of development of towns and trough a comparative method, accompanied by visual analysis and presentations; Lectures and individual consultations;		

Assessment methods including grading structure [67]:	Students are evaluated through in-semester tests (two tests during the semester - each svaki 27,5-47,5%) and/or final exam (55-95%); The final grade consists of students activities in the classroom (5%), grades achieved at the in-semestral tests or final exam and the essay grade.
Bibliography[68]:	Obligatory: Čakarić, J, Teorija i historija urbanizma – The script, Arhitektonski fakultet u Sarajevu, 2013. Marinović-Uzelac, A, Prostorno planiranje, Dom i Svijet, Zagreb, 2001. Milić, B, Razvoj grada kroz stoljeća 1: Prapovijest-Antika, Školska knjiga, Zagreb, 1994. Milić, B, Razvoj grada kroz stoljeća 2: Srednji vijek, Školska knjiga, Zagreb, 1995. Milić, B, Razvoj grada kroz stoljeća 3: Novo doba, Školska knjiga, Zagreb,2002. Mumford, L, Grad u istoriji, Book Marso, Beograd, 2001. Additional: Krier, R, Gradski proctor u teoriji i praksi, Građevinska knjiga, Beograd, 1999. Elin, N, Postmoderni urbanizam, Orion Art, Beograd, 2002. Radović, R, Savremena arhitektura, Fakultet tehničkih nauka, Stylos, Novi Sad, 2001.

67 **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

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Code: 01.04.08	Title of the subject: URBAN PLANNING 1		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 5th**	**Number of ECTS credits:** 2
Status: obligatory		**Total number of hours: 30** Lectures: 22 Exercises: 8	

Teaching staff	Teachers and associates elected in the field of urbanism and spatial planning
Prerequisites:	none
Aim (aims) of the subject:	Understanding of city's physical elements and their causal-consequential relation. Developing capabilities of analysis and critical thinking of the urban structure. Acquiring the skill of reading and graphical representation of an urban plan. Building awareness of space as a limited category. The impact of standards and norms on the quality of urban living. Role and responsibility of an urban planner in city building.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	(1) terminology, definitions of a city and urban planning; importance of urban planning, obstacles and the impact on humans and space, (2) exercises: semester assignment subject explanation; methodology and the technique of the study work on the urban structure of the chosen city, graphic nomenclature, (3) urban form: urban functions and urban meaning, theories and history of western and eastern urbanism; European schools of urban morphology, urban structure models, (4) purpose and usage of the land (agricultural, forest, constructional, protected areas, water and other surfaces), (5) urban functions: housing, work, free time and mobility, (6) exercises: study progress evaluation, (7) genesis of city growth and urban structure; urban structure in the social and economic transition and new developments, (8) social infrastructure: commercial and social facilities, (9) social infrastructure: social facilities, (10) exercises: study progress evaluation, (11) legislative matter, decision makers and urban planning methodology, (12) exercises: study progress evaluation, (13) analytical part of urban planning; assessment of natural and man-made resources - assessment criteria, (14) general and specific goals of urban planning; urban plan concept; adopting and implementing the plan; changes and supplements, (15) border between architecture and urbanism; city design and open public space.

Learning outcomes:	Knowledge: knowledge of urban structure and the way a city works; legislative matter and the role of an urban planner in a society. Skills: capability of receiving a variety of information sources (textual, numerical, verbal and graphical) and responding to them. Competences: critical analysis and interpretation of urban structure
Teaching methods:	(1) lectures and discussion; (2) team/individual work on the study of urban structure of the chosen city (descriptive, analytical, quantitative and graphical part)
Assessment methods including grading structure [69]:	Semester assignment (40%), activity (10%) and final exam (oral and graphical presentation and critical analysis of urban structure study) (0–50 %).
Bibliography[70]:	Obligatory: ARH (1963). Generalni urbanistički plan grada Sarajeva. *Časopis za arhitekturu, urbanizam, primijenjenu umjetnost i industrijsko oblikovanje, 1*(2-3), str. 3–77. Bracken, I. (2007). *Urban Planning Methods*. Oxon: Routledge. Čengić, N. (ur) (2019). *Atlas urbane strukture gradova Bosne i Hercegovine*. Sarajevo. Katedra za urbanizam i prostorno planiranje. Čengić. N. (2020). Društvena infrastruktura: skripta. AFS: Katedra za urbanizam i prostorno planiranje. Ćuković, M. (1985). *Gradski centri*. Sarajevo: Svjetlost. Skupština Kantona Sarajevo (1999). Urbanistički plan Grada Sarajeva za urbano područje Sarajevo (Stari Grad, Centar, Novo Sarajevo, Novi Grad, Ilijaš i Vogošća) za period od 1986. do 2015. godine – prečišćeni tekst. *Službene novine Kantona Sarajeva, broj 5*, 11. mart 1999. Taylor, L. (ur) (1988). *Urban open space*. London: Academy editions. Vlada Federacije Bosne i Hercegovine (2005). Uredba o jedinstvenoj metodologiji za izradu dokumenata prostornog uređenja. Službene novine Federacije BiH, br. 63/04 i 50/07.

[69] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

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	ZPUPPS (1977). *Sarajevo – sistem gradskih centara: programski projekat*. Sarajevo: Zavod za prostorno i urbanističko planiranje i programiranje Sarajeva. Žuljić, V-J. (1981/1985/1991/2001). *Skripta: Separati*. Sarajevo: Arhitektonski fakultet. Additional: Krešić, I. (1977). *Prostorna ekonomija*. Zagreb: Informator. Marinović-Uzelac, A. (1985). *Teorija namjene površina*. Zagreb: Liber. Vresk, M. (1990). *Grad u regionalnom i urbanom planiranju*. Zagreb: Školska knjiga.

Code: 01.03.68	**Title of the subject: INTERIORS AND DESIGN 1**		
Cycle: 1st	**Year: 3rd**	**Semester: 5th**	**Number of ECTS credits:** 3
Status: Obligatory		**Total number of hours: 30** Lectures 15 Practical classes 15	
Teaching staff	Teachers and associates elected in the field/Department of architectural design		
Prerequisites:	-		
Aim (aims) of the subject:	Introduction to the field of interior design, focusing on interior design of residential spaces. Analysis of the interior design concepts, disposition and function of residential typologies in Bosnia and Herzegovina across different time periods and social systems. Presentation of the guidelines for project development for various types of the contemporary residential interiors.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	The basic analysis of interior; Importance of the apartment; The basic units of the interior; Decoration of an apartment, rooms and furniture; Interaction of space and furniture; Changeability of space in the interior – an integration of work and living; The contemporary materials in interiors – floors; Contemporary materials in interiors – walls and ceilings; Issues of materialisation in the interior; Colours in the interior; A practical application of colours in the interior – relevant examples; Natural and artificial lighting in the interior; Design, construction and planning of artificial lighting in the interior; Case studies of interiors in collective housing; Contemporary tendencies and interior design projects by renown architects.		
Learning outcomes:	Knowledge: Acquiring knowledge on the significance of designing residential interior spaces from the psychological, physiological and sociological perspective. By analysing each individual aspect of a housing unit, from developing spatial layout and material selection and application, to lighting and colours of the interior, the students will be able to understand and analyse the fundamental aspects of the relationship between spaces, furniture and end users. Skills: In the practical classes, the students will learn to plan, prepare and perform all the processes, procedures and techniques of designing residential interior spaces,		

	adaptive reuse and remodelling of the existing residential spaces for the original or new functions. Competences: The students will demonstrate the ability to understand and interpret the design brief as well as to assess the functional, structural and design aspects of residential interior spaces, in order to ultimately develop their own design projects.
Teaching methods:	Lectures – multimedia presentations and practical classes, associated with the course thematic units. Practical classes consist of developing projects of adaptive reuse of existing residential spaces and creating newly-designed apartment interiors.
Assessment methods including grading structure [71]:	The grade consists of an in-semester assignment 60%, assessment of theoretical knowledge through one in-semester test or a final exam 30% and participation (up to 10%). In order to obtain a passing grade, the students are obliged to fulfil the minimum requirements in the assessment of both theoretical knowledge assessment and in-semester assignment.
Bibliography[72]:	Obligatory: De Chiara Joseph, Panero Julius, Zelnik Martin, *Time-Saver Standards for Interior Design and Space Planning*, 2001; Pile John, *A History of Interior Design*, 2005.; Salihović Erdin, *Enterijer i prostorna organizacija stanova poslije II svjetskog rata u Sarajevu*, 2004; Salihović Erdin: *Interakcija dizajna namještaja i potreba stvaranja bosanskohercegovačkog branda-imena u okviru internacionalnog tržišta namještaja*, 2012; Welsh John: *Modern House*, 1995; Additional: Cerver Asensio Francisco, *Interior Design Atlas*, 2000; Abercrombie Stanley & Whiton Sherrill: *Interijeri, Arhitektura, Dizajn-Povijesni pregled*, 2016.

[71] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[72] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

SYLLABUS OF THE THIRD YEAR, 6th SEMESTER

Code: 01.05.22	Title of the subject: ARCHITECTURAL CONSTRUCTIONS 6		
Cycle: 1st	**Year: 3rd**	**Semester: 6th**	**Number of ECTS credits: 5**
Status: OBLIGATORY		**Total number of hours: 15 + 30 = 45** Lectures Exercises Field work	

Teaching staff	
Prerequisites:	
Aim (aims) of the subject:	Through a summary of all aspects of materialization (architectural constructions), the significance of the fencing surfaces (envelope of the architectural object) is emphasized both from the theoretical aspect of architecture and from the practical one. The aim of the course is to provide students with theoretical and practical aspects of new developments in architecture and their significance.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	According to the content of compulsory textbooks: Hadrović, A. (2018). *Details in architecture*. Sarajevo: Faculty of Architecture of the University of Sarajevo. WEEKS 1-2: the theoretical aspect of the fencing surfaces of the architectural space; WEEKS 3-4: covering and lining of objects with steel and aluminum trapezoidal profiled sheet; WEEK 5: Façade linings of Al-tensile strips and tapes; WEEKS 6-7: facade claddings made of cor-ten steel sheet and slab, cast aluminum panels; WEEK 8: façade fillings of light thermo-insulating Al-panels; WEEKS 9-11: Al-panel facade cladding (alukobonda), wooden panels with bakelite core (soldered), hardboard laminates (trespa); WEEKS 12-13: suspended facades; WEEK 14: double (double) facades; WEEK 15: new facade concepts: kinetic facades, parametrically designed façades, media facades, façade networks and membranes.
Learning outcomes:	Knowledge: Entrants will become familiar with the wide range of contemporary concepts and materialization of the envelope of the architectural object (facade); Skills: Sadomas will understand that "details are projected" (similar to the architectural object as a whole). He will understand the importance of some of the key sites of an

	architectural object that are always subjected to detailed materialization. Competence: The student should be able to see architecture as the unity of its artistic and exemplary-empirical components.
Teaching methods:	Lectures with projections that follow the subject matter. Exercises are being developed to develop a student's own project from the aspect of the subject's content (main project): Structural-anallithic and comparative concept of problem-solving. Main project, development S 1:50 and details Details of suspended facade and lining S 1:25, S 1: 1
Assessment methods including grading structure [73]:	Lecture and exercise monitoring 5% Individual assignment (exercises) 35% Announced, written part of the print 60% Final exam for those who have not collected enough credits.
Bibliography[74]:	Required: Hadrović, A. (2018). *Details in architecture*. Sarajevo: Faculty of Architecture of the University of Sarajevo. Hadrović, A. (2009). *Structural Systems in Architecture*. North Charleston, SC: Booksurge, LLC. Supplementary: Fisher, R. E. (1964). *New structures*. New York: McGraw Book Company. Hadrović, A. (2009). *Konstruktivni sistemi u arhitekturi*. Sarajevo: Arhitektonski fakultet. Hart, F., Henn, W., Sontag, H. (1987). *Atlas čeličnih konstrukcija (visokogradnja)*. Belgrade: Građevinska knjiga. Ivković, V. (1981). *Obješene fasade*. Belgrade: Arhitektonski fakultet. Michelis, P. A. (1973). *Estetika arhitekture armiranog betona*. Belgrade: Građevinska knjiga. Ruhle, H. et al. (1977). *Prostorne krovne konstrukcije, njihove pojedinosti, njihove izodese*. Belgrade: Građevinska knjiga. Sigel, C. (1960). *Strukturformen der modernen Architektur*. Munich: Verlag Georg D.W. Callwey. Vekić, Ž. *Teorija membrane (material postdiplomskog studija – arhitektonske structure u obnovi i izgradnji)*. Sarajevo: Arhitektonski fakutlet.

[73] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[74] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

	Wigginton, M. (1996). *Glass in Architecture*. London: Phaidon Press Limited. Journals (thematic editions on the new constructions): *The Japan Architect, 164.*; *Techniwues & Architecture, 291.*; *Detail, DBZ.*

Code: 01.06.22	Title of the subject: WOODEN AND METAL STRUCTURES		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 6th**	**Number of ECTS credits: 3**
Status: Obligatory		**Total number of hours: 45** Lectures 30 Exercises 15	
Teaching staff	Teachers and associates elected in the field to which the subject belongs - Department of Structural Systems		
Prerequisites:	None.		
Aim (aims) of the subject:	Acquiring the basic knowledge about wood/wood-base materials and steel as structural materials, the basic principles of dimensioning and design of a structural assembly and details of connections between classic and modern wooden and steel structures, as well as the basic principles of ensuring the stability of buildings (for example, an industrial hall).		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	***Wooden structures:*** Historical development; Wood as a construction material; Wood technology; Wooden structural calculation concepts; Design calculation – the basic principles; Centric tension; Centric pressure; Bending (straight and lateral); Eccentric tension; Eccentric pressure; Joints: screws, dowels, nails; Bonds and joints; Classic roofs; Truss beams. C*ontemporary wooden structures:* Glued laminated structures; Production technology; Glued laminated beams; Framed and arch structures; Bonds and fittings; Bearings; Spatial stability; Bracing. ***Metal structures:*** Historical development; Principal properties of steel; Design calculation; Centric tension; Centric pressure; Bending; Eccentrically stressed rods; Joints: common screws, high-tensile screws, welding; Calculations of the constructed rod and girder joints; Bonds. *The basic principles of hall design:* Structural load; Roofing. Bracing structures; Main girder systems; Structural shaping; Roof truss; Pillars; Relations between certain elements; Anchoring of the main pillars.		
Learning outcomes:	Knowledge: Independent design and dimensioning of structural elements made of wood and steel. Skills: Ability to independently solve the concept of load-bearing construction of an architectural building in given materials.		

	Competences: Having mastered the content, a student should be able to understand and logically design a wooden/metal structure of an architectural object, ensuring its stability, as well as to independently select materials and assortment of sections for the load-bearing structure, design bonds and fittings in a structural assembly, as well as to individually perform design calculation and section control for the needs of designing and constructing.
Teaching methods:	Lectures and practical classes, consultations for the preparation of the exam and development of individual tasks. During the practical classes, student is obliged to do one programme assignment in the basic areas from segment of the basic principles of hall design and dimensioning the load-bearing elements.
Assessment methods including grading structure [75]:	Students are assessed through two tests/partial exams (I test 40% during the classes, II test 40% within the first examination period) and/or the final exam (oral/written, max. 80% for additional semester points). The final exam includes both theoretical content and practical assignments. The final grade is formed on the basis of the passing grades at tests and/or a passing grade at the final exam; participation is also taken into consideration (20%). A student who is eligible for the second signature in the index can take the final exam, as prescribed by the Statute. Preparation for the final exam is performed through lectures and practical classes, as well as through literature recommended at the beginning of the semester.
Bibliography[76]:	Obligatory: Miljanović, S. *Lectures.* Additional: Androić, B.; Dujmović, D.; & Džeba, I. (1994). *Metalne konstrukcije 1, 2, 3.* Zagreb: Građevinski fakultet Sveučilišta u Zagrebu i Institut građevinarstva Hrvatske. Buđevac, D. (2000). *Čelične konstrukcije u zgradarstvu*. Belgrade: Građevinska knjiga. Buđevac, D., Marković, Z, Bogavac, D., & Tošić, D. (1999). *Metalne konstrukcije 1, 2*. Belgrade: Građevinski fakultet. Evrokod 5: EN 1995-1-1:2004. (2009). Belgrade: Građevinski fakultet Univerziteta.

[75] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[76] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

	Gojković, M., Stojić, D.: (2007). *Drvene konstrukcije*. Belgrade: Grosknjiga. Hart, F., Henn, W., & Sontag, H. (1991). *Atlas čeličnih konstrukcija*. Belgrade: Građevinska knjiga. Werner, G., Zimmer, K. (1996). *Holzbau Teil 1, 2 Grundlagen DIN 1052/ EUROCODE 5*. Berlin, Heidelberg, New York: Springer. Žagar, Z. (1999). *Drvene konstrukcije I,II, III & IV*. Zagreb: PRETEI.

Code of subject: 01.02.07.	**Name of subject: RESTORATION BASICS**		
Cycle: 1st	**Year: 3rd**	**Semester: 6th**	**Number of ETCS credits:** 1
Status: OBLIGATORY		**Total number of hours: 15** **Lectures 15**	

Participants	**Teachers and associates elected in the domain to which the subject belongs** Field of theory and history of architecture and preservation of cultural heritage
Pre-requisite for enrollment:	-
Goal (objectives) of the course:	Historical Context: Students are offered the first cycle of study with the basics of protecting the architectural heritage. It talks about the history of protection, so it moves from the ancient times (Egypt) and ends with today's time. Theoretical context: this way it comes to Acquiring knowledge about the significance, value and role of cultural and historical heritage, both for present and future generations, methods of its renewal, protection and use. Practical context: If a student intends to stop studying, this course offers knowledge of phenomena and problems, so that those who do not intend to enroll in the II cycle of study have information on protecting the architectural heritage.
Thematic units: *(if necessary, the performance plan per week is determined by talking into account the specificities of the organizational units)*	1. Information, literature, mode 2. Definition and classification of the architectural heritage 3. The significance and role of the architectural heritage 4. The historical significance of the protection doctrine and its development 5. Development of the method of protection through history 6. Modern approach to architectural heritage - biological direction 7. Contemporary approach to architectural heritage - introduction to active protection 8. Methods of preserving the architectural heritage and methodological procedure 9. International Legislation - Introduction 10. Athens Charter, Venetian Charter 11. UNESCO, ICCROM, ICOMOS 12. Contemporary Charter and Conventions 13. National legislation in the field of architectural heritage

Learning outcomes:	**Knowledge:** This course aims to direct the student to the field of heritage protection in basic form and thus enable them to use the acquired knowledge for the basic activity that will enable basic and encyclopedic recognition of problems and phenomena in the field of heritage protection at the level of their bachelor education. which includes basic tools, the most commonly used methodology, and legislation that places some restrictions. **Skills:** Knowledge of the basics of protection of the architectural heritage in the process of performing tasks appropriate to the first cycle of study, whereby the student will acquire basic skills necessary for work in this field within the already protected heritage. **Competencies:** It is this segment that is most relevant for the first cycle work, as it enables students to make independent decisions about the renovation process on already protected buildings, and thus to participate in the process that takes place when treating the architectural heritage in practice.
Methods of teaching	Theoretical presentation by analytical method and projections of templates of the state of idea of a certain historical epoch in the treatment of architectural heritage and comparisons with today's attitudes in the field of protection.
Knowledge testing methods with a rating structure[77]:	Exam 55-100% in written form with the possibility of additional oral examination at the boundary results. Partial knowledge assessment after the 6th and 13th lectures.
Literature[78]:	**Required**: Feilden M. B., Uvod u konzerviranje kulturnog naslijeđa, Društvo konzervatora Hrvatske, Zagreb, 1981. Maroević, I., Sadašnjost baštine, Društvo povijesničara umjetnosti, Zagreb, knjiga XXXVI, 1986. Marasović, T., Zaštita graditeljskog naslijeđa, Društvo konzervatora Hrvatske, Zagreb, 1983. Ceschi, C.Teoria e storia del restauro, Mario Bulzoni Editore, Roma, 1970.

[77] The structure of the points and the scoring criterion for each teaching subject is determined by the councils of the organizational unit before the beginning of the academic year in which teaching in the teaching subject is carried out in accordance with Article 64, paragraph 6 of the Law on Higher Education of the Sarajevo Canton

[78] The Senate of the higher education institution as the institution or council of the organizational unit of the higher education institution as a public institution determines the obligatory and recommended textbooks and manuals as well as other recommended literature on the basis of which it prepares and takes the exam with a special decision that it obligatory publishes on its website before the beginning of the academic year in in accordance with Article 56, paragraph 3 of the Law on Higher Education of Canton Sarajevo

	Chabbouh-Akšamija, L., Arhitektura svrhe, Acta architecture et urbanistica, 2004. Chabbouh Akšamija L., Arhitektura svrhe, . Arhitektonski fakultet, Sarajevo, 2004. Chabbouh Akšamija L., Šabić L., Tradicionalna travnička kuća, Zavičajni muzej u Travniku, Arhitektonski fakultet, Sarajevo, 2018. Chabbouh Akšamija L., Tradicija između autentičnosti i falsifikata, Arhitektonski fakultet, Sarajevo, 2015. **Supplementary**: In consultation with the subject professor individually in relation to the specificity of the topic of each individual candidate.

Code: 01.03.08	Title of the subject: DESIGN 4		
Cycle: 1st	Year of the study: 3rd	Semester: 6th	Number of ECTS credits: 3
Status: Obligatory		Total number of hours: 30 Lectures 15 Exercises 15	

Teaching staff	**Teachers and associates elected in the field – Department of Architectural Design**
Prerequisites:	Verified 5th semester of the first study cycle.
Aim (aims) of the subject:	The aim is to introduce students with the phenomenon of tourism and aspects that are relevant for designing objects servicing this branch of economy in the segment of hospitality industry and accommodation. The aim is also to emphasise the general, as well as particular, individual needs of potential users – tourists, hoteliers and investors of these objects, as well as the characteristics of locality reflected to the selection of an adequate typology that stems from a complete nomenclature of objects in the sphere of tourism and hospitality industry.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	The basic notions in tourism; An overview of historical development of tourism and specific characteristics of the current tourist tendencies/globalisation, mass media, communication, a tourist attraction, cultural, economic and sociological aspect of tourism in the world and in BiH; Tourism and leisure; The role of space and the role of ambient values in the development of tourism; The importance of environmental protection in the development of tourism – the spatial-ecological aspect; Broad nomenclature of tourist objects for accommodation; A systematised typology of tourist and hospitality facilities – WTO standards; Typology of objects used as hotels – an analysis of characteristic examples; Organisation of hotel structure – the basic functional groups of the hotel structure; The entrance space group; The social space group; The entertainment and leisure group; The housing group; Housing group typology – the hotel housing floor; The managing and administration group; The economy and production group; The auxiliary premises group; Tourist-hospitality facilities in BiH with a special emphasis to the tourist-facility objects of the internationally renowned architects; Specific tourist-hospitality formations: mega hotels, tourist and hotel settlements; spas and wellness centres, marinas and camps; Recent trends of tourist construction – concept hotels.
Learning outcomes:	Knowledge: By successfully mastering the content of this subject, students gain theoretical and practical knowledge about designing buildings for tourism. Skills: Students adopt design skills, project planning and organization, and presentation and communication skills.

	Competences: Acquiring theoretical knowledge, professional competences, and gaining an insight into new trends, which is a precondition for a possible continuation of work in this field within the elective subject Designing the Objects of Tourism and Hospitality Industry, starting in the first semester of the second study cycle, as well as within the elective module in the third semester and the undergraduate research thesis in the fourth semester of the second study cycle.
Teaching methods:	Lectures combine informative and interactive teaching, aided by multimedia presentations. Study visits are implemented through three visits to hotel and hospitality facilities of varying typology, where the presence of the lecturer, that is, the designer of a specific object, is obligatory. During the semester, students take two announced tests. Two graphical assignments are solved, treating the content presented at lectures and fully acquired through tests that preceed the assignments. Students are obliged to actively partake in lectures and practical classes, in the amount of 80 % of the total number of classes per semester.
Assessment methods including grading structure [79]:	Through the mentioned types of teaching during the semester, students receive grades and if all the anticipated forms of work are successfully passed, at the end of the semester, without passing the exam, they receive a final grade. Written examinations in the exams are attended by students who have attended all classes of teaching in a capacity of the required 80%, and have not obtained a sufficient number of positive grades during the semester, which would form a final passing grade. Evaluation of the activity in the final grade: 10% remaining, the tests 30% of the graphic methodical exercise 60%.
Bibliography[80]:	Obligatory: Albrecht, D. (2002). New Hotels For Global Nomads. New York: Merrell Publishers. Finci, O. (2006). Tipologije turističkih i ugostiteljskih objekata – osnovne funkcionalne grupe hotelske strukture / skripta 1. i 2.. Sarajevo: Arhitektonski fakultet. Finci, O. (2010). Razvoj turizma kroz povijest, skripta. Sarajevo: Arhitektonski fakultet. Additional: Finci, O. (Ed). (2006). Izbor tekstova o turizmu / različiti autori Sarajevo: Arhitektonski fakultet. Finci, O. (Ed). (2006). Moteli / izbor tekstova raznih autora i primjeri, skripta. Sarajevo: Arhitektonski fakultet. Finci, O. (Ed). (2009). Gradski hoteli – primjeri skripta. Sarajevo: Arhitektonski fakultet.

[79] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[80] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

	Finci, O. (Ed). (2009). Turistički hoteli – primjeri, skripta. Sarajevo: Arhitektonski fakultet. Lawson, F. (2007). Hotels & Resorts / Planing, Design and Refurbishment. Oxford: Architectural Press. Pirija, D. (2003). Standardi u turističkom ugostiteljstvu. Šibenik: Visoka škola za turizam. Rutes, W., Penner, R., & Adams, L. (2001). Hotel Design/Planing and Development. New York: Architectural Press. www.fmoit.gov.ba Turizam i ugostiteljstvo (Kategorizacija, Zakonski okvir / BiH). Časopisi koji obrađuju problematiku turizma i ugostiteljstva (AA, TA, DB, AW, ORIS, ČIP, etc.). Relevantne web stranice: ArchiDaily; Dezeen; Archilovers; Architecture Wallpaper Magazine; Architecture News and Trends, etc.

Code: 01.03.10	**Title of the subject: Design 6**		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 6th**	**Number of ECTS credits:** 6
Status: Obligatory		**Total number of hours: 90** Lectures: 30 Exercises: 60	
Teaching staff	**Teachers and associates elected in the field to which the subject belongs – Architectural design**		
Prerequisites:	-		
Aim (aims) of the subject:	The objective of the course is to familiarize students with the historical, typological and morphological character of school buildings. The implementation of the course is based on functional-organizational determinants and contemporary tendencies in the design of school buildings. Lectures provide an expert methodology for the design of architectural conceptual solutions for the school buildings of the average complexity.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	1. Historical development of school buildings; 2. Contemporary principles of education system; 3. Spatial-functional groups and spatial configuration of school buildings; 4. Urbanistic, architectural and ambient aspects of the planning of school buildings; 5. Architectural programming of school buildings; 6. Analysis of architectural types and functional-spatial units of school buildings.		
Learning outcomes:	**Knowledge:** programming and architectural design of school buildings. Through lectures and exercises, the student will acquire knowledge about the methodology of designing spatial-functional groups by which the school building develops through the context, form, function, technology and materialization. **Skills:** The integration of theoretical and practical knowledge through semestral work encourages individual approach to problem solving in each individual student, as well as the development, research and use of traditional and contemporary materials and technologies. Developing skills for presentation and communication of an architectural design. **Competences:** The student is able to create the conceptual architectural project of the school building of the average complexity, based on the integrated knowledge from several previous professional subjects, simultaneously mastering the design conceptual and technical-methodological basics of architectural design.		

Teaching methods:	Lectures – ex-cathedra / multimedia; In-semester engagement – individual assignments/supervised work; Work in architectural design studio with presentations and discussions regarding the development of architectural design concepts.
Assessment methods including grading structure [81]:	Students are assessed through successfully executed practical assignments (60% of the grade); Written exam (30% of the grade); Presentation (10% of the grade).
Bibliography[82]:	**Obligatory:** Auf-Franić, H., **Osnovne škole**, Zagreb, Golden marketing – Tehnička knjiga; 2004. **Additional:** Bajbutović, Z., **Arhitektura školske zgrade**, Sarajevo, „Svjetlost“ OOUR Zavod za udžbenike i nastavna sredstva; 1983. Baylon, M., **Školske zgrade**, Beograd, Građevinska knjiga; 1972.

[81] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[82] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.03.12	**Title of the subject: DESIGN 8 – Public Garages**		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 6th**	**Number of ECTS credits:** 3
Status: Obligatory		**Total number of hours: 45 (15+30)** 15 Lectures 28 Exercises 2 Field work	

Teaching staff	**Teachers and associates elected in the field to which the subject belongs, Department of architectural design**
Prerequisites:	none
Aim (aims) of the subject:	Parking garages are objects essential for functioning of contemporary city centers and cities in general. The aim of the subject is to introduce students to the need and ways of constructing parking garages. The aim is realized by studying theoretical aspects of the issue and finding conceptual solutions for different situational cases.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	1. Introduction – impact of traffic development to environment 2. Reasons for constructing parking garages 3. Theoretical and urban basis of the parking garage construction 4. Division of parking garages 5. Sloped parking garages 6. Parking garages with long straight ramps 7. Public garages with short straight ramps 8. Public garages with circular ramps 9. Parking ramps 10. Mechanized public garages 11. Normative 12. Examples of public garages with long straight and short straight ramps 13. Examples of public garages with circular ramps 14. Examples of mechanized public garages 15. Study visits (visiting representative examples – built garages).
Learning outcomes:	**Knowledge:** Acquiring specific knowledge of public garages and their design. **Skills:** Mastering skills of practical application of specific knowledge of designing public garages. **Competences:** Designing public garages in practice
Teaching methods:	**Ex-cathedra lectures** **practical classes – graphical presentation**

	visiting representative building
Assessment methods including grading structure [83]:	Partial exams, two during semester 16% + 16%, 64% graphical assignment, Lecture Activity and attendance 4% and / or integral/final exam 32% (For those who were not satisfied with the grades on partial exams during the semester). The final grade of the course is based on the lecture regularity of attendance, engagement on them, the quality of graphical assignment and the results of partial and / or integral/final exam. For the final grade to be positive, each exam segment must be evaluated positively.
Bibliography[84]:	Obligatory: 1. Fejzić, Emir: ***Otvoreni sistem prefabrikacije javnih garaža***, Sarajevo, 1990 (doktorska disertacija); 2. Bilalic, Sabrija: ***Elementi rampi i parking mijesta,*** skripta, 3. Fejzic E, Bilalic S, Alikalfic V: **Projektovanje 8/javne garaze,** skripta 4. Koželj, Jože: ***Parkiranje - načrtovanje parkirnih prostorov***, Ljubljana, FAGG, VTOZD Arhitektura - Univerza Edvarda Kardelja, 1980; 5. Kloze Deitrich: ***Parkhauser und Tiefgaragen***, Stuttgart, verlag Gerd Hatje Stuttgart, 1965; 6. Pech, Anton: Gunter Warmuth etc. ***Parkhauser-Garagen,*** Wien, *Springer-Verlag, 2009;* Additional: 7. Tomić, Milovan: ***Stacionarni saobraćaj***, Beograd, Saobraćajni fakultet u Beogradu, 1979; 8. Jelinović, Zvonimir: ***Saobraćaj u mirovanju***, Zagreb, Tehnička knjiga, 1965; 9. Henley, Simon: ***The Architecture of Parking***, London, Thames & Hudson Ltd., 2007; 10. Bayer, Edwin etc.: ***Parkhäuser - aber richtig***, Düsseldorf, Beton-Verlag GmbH, 1993; 11. Irmscher, Ilja: ***Construction and Design Manual Parking Structure, Voleme 1: Planning Principles***, Berlin, DOM publishers, 2013;

[83] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[84] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

12. Irmscher, Ilja: ***Construction and Design Manual Parking Structure, Voleme 2: Buildings and Projects***, Berlin, DOM publishers, 2013;

Code: 01.04.47	Title of the subject: URBAN DESIGN 3		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 6th**	**Number of ECTS credits:** 6
Status: OBLIGATORY		**Total hours: 90** **Lectures: 30…** **Exercises: 60**	
Teaching staff	Teachers and associates engaged in the scientific field „Urbanism and Spatial Planning“		
Prerequisites:	Passed exam from Urban Design		
Aim (aims) of the subject:	Understanding the relationship and differences between different levels of implementation - detailed planning documentation - regulatory plan and urban project. Mastering the methodology and processes of urban design in the complex relationships of city functions and their organization in space, with an understanding of the relationship between social (general) and private interest. Mastering the basic technical elements when creating a regulatory plan.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	1. Methodology for development of the planning documentation and urban planning, 2. The relationship between higher-order plans and implementation planning documentation, 3. Mastering the elements of urban construction land as a significant component of city management, 4. The plot as an element of the urban structure of the city and the question of ownership, 5. Common good and citizen participation, 6. Content and technical elements of the regulatory plan, 7. The object of interest of the urban project, the connection with the context, the boundaries and the content, 8. The relationship between morphology, leveling-regulatory indicators, ownership relations and their influence on the concept of the urban project, 9 Interdependence of the concept, composition and traffic solution with all its levels and elements 10. Building plot and urban indicators related to its definition		
Learning outcomes:	Knowledge: Conception of space as a framework for develop complex processes of interaction between the inhabitants of the city and the space, as well as facilities in the function of satisfying their needs, with deeper understanding of the complex processes of interaction between private and social interests. Skills: Developing analytical and critical observation skills of overall relationships in an urban environment.		

	Competences: Creation of the urban project and basic elements of the regulatory plan with all quantifications.
Teaching methods:	Lectures; Simulation of a public debate, Exercises; Individual or group work on an urban project.
Assessment methods including grading structure [85]:	The course grade is based on the activities in class: attending lectures and exercises 10%, successfully completed semester project 40%, and the grade from the partial and final knowledge assessment - through a test and/or oral defense of the project - 50%.
Bibliography[86]:	Žuljić Vlasta-Jelena: Separati, Arhitektonski fakultet Sarajevu 1984/1990/2000. Marinović - Uzelac Ante: „Teorija namjene površina u urbanizmu“, Liber, Zagreb, 1986. Marinović-Uzelac,A.: ”Naselja, gradovi, prostori“,Tehnička knjiga,Zagreb, 1986. Kevin Linč: „Slika jednog grada“, Građevinska knjiga, Beograd 1974. Gordon Cullen: „Gradski pejzaž“, Građevinska knjiga, Beograd 1971. Christian Norberg Schulz: „Genius loci“, Academy editions, London Kristijan Norberg-Šulc: „Egzistencija, prostor i arhitektura“, Agora, Građevinska knjiga, Beograd, 1975. K. Zite: „Umjetničko oblikovanje gradova“, Građevinska knjig Beograd, 1967. Edmund N. Bacon: „Design of Cities“, Thames and Hudson, M.I.T. Press, 1969. Schenk L.: „Designing cities“, Birkhauser Verlag, Basel, 2013. Zakoni o prostornom uređenju (FBIH, RS, kantoni,...) Uredba o jedinstvenoj metodologiji za izradu planskih dokumenata

[85] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[86] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

ELECTIVE SUBJECTS OF 6th SEMESTER

Code: 01.02.30	**Title of the subject: ANALYSIS OF PROCESSES AND APPROACHES IN CONTEMPORARY ARCHITECTURE – THA5**		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 6th**	**Number of ECTS credits:** 3
Status: ELECTIVE		**Total number of hours: 30** **Lectures 30** Exercises **Seminar last three weeks 3 x 2 hours**	

Teaching staff	**Teachers and associates elected at** Department for Theory and History of Architecture and Protection of Architectural Heritage
Prerequisites:	-
Aim (aims) of the subject:	Acquiring knowledge on trends in the contemporary architecture of 21st century, including analysis of the architectural approach and theoretical background, as well as selected key literature in architecture.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	Introductory lectures, concepts and approaches; The theoretical base (key selected theories); ; Degradation of the contemporary architecture (issues of globalisation, superficial green architecture, etc.); Avangard architecture (Francois Roche); Rem Koolhaas – ever expanding boundaries of architecture; Portugal ,Spain and South America– Minimalism (Eduardo Souto de Moura, Aires Mateus, Alvaro Siza); Architecture and thoughts on creating atmospheres (Peter Zumthor); Contemporary architecture in the region; Charles Jencks- Architectural icons; Critical regionalism between nostalgia, nationalism and contemporary identity; Key selected literature in architecture, Analysis and definitions of terms such as modern, kitsch, trendy, provocative etc; Student presentations of the selected topics and discussion (three weeks).
Learning outcomes:	Knowledge: Deepening knowledge in the field of contemporary architecture, theory and practices. Skills: Students will acquire the skills to analyse and recognize contemporary architectural trends and be able to use knowledge in their future work research or practice. Work in the seminar, presentation skills.

	Competencies: Analytical, theoretical preparation for designing tasks, practice for effective presentation of ideas.
Teaching methods:	Comparative lectures with presentations and a theoretical introduction of trends in architectural production; Student presentations of the selected topics.
Assessment methods including grading structure [87]:	Attendance and active participation in discussion 20%; Seminar assignment and presentation 80%.
Bibliography[88]:	Obligatory:/Additional: Due to the nature of the course which for students is an obligation to articulate and prepare assignment with presentation the literature is very individual. Bojanić, P. (2009). *Teorije arhitekture i urbanizma*. Belgrade: Arhitektonski fakultet. Corbellini, G. (2010). *Bioreboot: The Architecture of R&sie{n}.* New York: Princeton Architectural Press. Farrelly, L. (2007). *The Fundamentals of Architecure*. Lausanne: AVA Publishing. Frederic, M. (2007). *101 Things I learned in Architecture School*. Cambridge, MA: MIT Press. Holl, S. (2011). *Horizontal skyscraper*. San Francisco: Stout Books. Jencks, C. (2005). *Iconic Building*. New York: Rizzoli International Publications. Koolhaas, M., Mau, B. (1997). *S, M, L, XL*. New York: Monacelli Press. Roche, F. (2006). *Corrupted Biotopes*. Seoul: Damdi publishing. Unwin, S. (2009). *Analyzing architecture*. London: Routledge. Weston, R. (2011). *100 Ideas that changed Architecture*. London: Laurence King Publishing. Zumthor, P. (2006). *Thinking Archıtecture*. Basel: Birkhauser. Web pages, presentations and texts by the teaching staff

87 **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

88 **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.03.48	**Title of the subject: ARCHITECTURAL COMPETITIONS**		
Cycle: 1st	**Year: 3rd**	**Semester: 6th**	**Number of ECTS credits: 3**
Status: Elective		**Total number of hours: 15** 15 lectures	
Teaching staff	Teachers and associates elected in the field- Department for Architectural Design		
Prerequisites:	None		
Aim (aims) of the subject:	Students need to recognize the importance of implementation of public tenders as one of the strategies of planning and urban development aimed to raise the level of quality of the constructed space. Professionally, students will be able to independently prepare and develop architectural competitions.		
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	The subject consists of two parts. The first part treats the issues in organizing a competition, while the second part focuses on the very development of competition projects. In several concrete examples, all phases of preparation (competition organization plan drafting, budget development, preparation of templates and documents for public tender procedures, announcement of the competition) and implementation of the competition procedure (assembling of works, coding, jury, announcement of the results) are presented. Through analysis of the awarded and non-awarded works, with a critical overview of the implemented competition procedure, students will be involved in the valorisation process for certain solutions, which should serve as a base for the formation of one's own attitude for an independent development of projects.		
Learning outcomes:	Knowledge: Students gain basic knowledge in the field of organizing and participating in architectural competitions. Skills: While working on their tasks in the practical field of education students go through all stages of creating architectural competition entries and through analytical and creative processes they gain required knowledge and skills for participating in architectural competitions. Competences: By successfully mastering this matter, students acquire general and professional competences necessary for a		

	successful preparation and development of architectural competitions.
Teaching methods:	Lectures with analyses of real competitions. Supervised work – a seminar assignment.
Assessment methods including grading structure[89]:	Competition entry project – 90% Participation in classes and attendance – 10% The seminar assignment – 90%
Bibliography[90]:	**Obligatory:** _ Braun. (2010). Competition Architecture. Salenstein: Braun Publish, Csi. _ de Michelis, M., Matteoni, D. (1995). Architecture competitions after 1945: history, methods, procedures. Basel: Birkhauser Verlag. _Strong, J.(1996). Winning by Design: Architectural Competitions. Oxford: Butterworth-Heinemann. **Additional:** _ Young, P. M. (2011). Architectural Diagrams. Berlin: DOM Publishers. _ Wettbewerbe aktuell. (2019). Freiburg, Germany. Retrieved from https://www.wettbewerbe-aktuell.de

[89] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[90] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of theresults of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Code: 01.01.24.	**Title of the subject: DYNAMIC GEOMETRIC CONCEPTS AND PARAMETRIC DESIGN**		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 6th**	**Number of ECTS credits: 3**
Status:		**Total number of hours: 30 (15+15)** 15 lectures 15 exercises	

Teaching staff	**Teachers and associates elected in the field to which the subject belongs - Spatial and graphic representation**
Prerequisites:	Mastering the basic knowledge of geometric modeling in one of computer programs (SketchUp, AutoCad, Archicad, etc.)
Aim (aims) of the subject:	Introduction to contemporary dynamic geometric concepts of space and possibilities of applying complex geometric concepts and their information models in the architectural design process.
Content:	Geometric abstraction, universalisation and representation of space; Informatisation and virtualisation of an abstract space, structural geometric patterns; Dynamic geometric concepts and structural patterns; Geometrical concept of transformation and symmetry; Symetrical forms and strucutral patterns in architecture; Complex geometrical concepts; Fractal geometry; L-systems; cellular automata; Algorithmic and generative approach to design design in architecture; Parametric design, BIM, application of complex dynamic spatial concepts in architecture through various software solutions.
Learning outcomes:	Knowledge: Mastering theoretical assumptions for a dynamic approach to geometric modeling and representation in architecture based on more complex geometric concepts and their information models. Skills: Managing the basics and methods of analysis and synthesis of theoretical and applicative aspects of a more complex geometric conceptual thinking and spatial modeling. Competences: Developing a more dynamic and complex spatial imaginative thinking in accordance with the developmental tendencies of contemporary architecture provided by the application of computer design tools.
Teaching methods:	Lectures accompanied by digital visuals and additional material throuh the use of electronic media.

	Exercises - presentation of software applications and models through practical examples and seminar work.
Assessment methods including grading structure :	The course grade is derived from the student activity rating of 10%, the work on exercises 30%, the production of seminar work or project study / practical work, through the analysis and synthesis of lecture topics with a final presentation of 60%.
Bibliography:	Obligatory: Batty, M., Longley P. (1994). Fractal Cities – A Geometry of Form and Function. London: Academic Press. Herr C. M., Generative Architectural Design and Complexity Theory , International Conference on Generative Art, Politecnico di Milano University, 2002. Kolarevic, B. Designing and Manufacturing Architecture in the Digital Age. Architectural Information Management [19th eCAADe Conference Proceedings , Helsinki (Finland) 2001, pp. 117-123. Leach Neil, Parametrics Explained, Next Generation Building 1 (2014) 1–10 Mandelbrot B., Fractal Geometry, W.H.Freeman, 1977- 83 Schumacher, Patrik, Parametricism - A New Global Style for Architecture and Urban Design, in: AD Architectural Design - Digital Cities, Vol 79, No 4, July/August 2009. Additional: Garcia. M ed. The Patterns of Architecture: Architectural Design, 2009., Wiley Menges, A. “Instrumental geometry.” In: Corser, R. (ed.) Fabricating Architecture: Selected Readings in Digital Design and Manufacturing (NY: Princeton Architectural Press, 2010): pp.29-3041. Oxman, R. and Oxman, R. (eds.). The new structuralism – Design, engineering and architectural technologies. (New York: Wiley, 2010. Schnabel, M.A., Parametric Designing in Architecture, CAADFutures07, Sydney,2007, pp. 237-250. Stavric, M. , Marina, O. Parametric Modeling for Advanced Architecture, International Journal of Applied Mathematics and Informatics, Issue 1, Volume 5, 2011

Course code: 01.01.21	Name of teaching course: PHOTOGRAPHY IN ARCHITECTURE		
Cycle: 1st	Year: 3rd	Semester: 6th	Number of ECTS credits: 3
Status: Elective	Total number of hours: 45 Lectures 15 Exercises 30 ...		
Participants in the teaching	Teachers and associates elected in the domain to which the subject belongs / PHOTOGRAPHY		
pre-requisite for enrollment:	Self-handling technical and technological optical image fixation devices - photographs, photo-chemical and photo-digital transformative process; Preferably owning a DSLR (Digital Single Lens Reflex) camera, as well as obtaining the necessary repro-materials for the realization of the foreseen exercises.		
Goal (objectives) of the course:	HISTORICAL CONTEXT - Introducing students to the techniques and procedures of transformative processes within the media of photography, initiated by the creative tendencies of the author and / or by influencing historically current art directions and trends in architecture. THEORY CONTEXT - Defining the expressive possibilities of the media of photography, conditioned by the technical and technological development of this medium, and the function and position of photography in various forms of creative activity in the field of architecture. PRACTICAL CONTEXT - Expanding knowledge about possible specificities of digital transformative processes through the appropriate exercise program, which is realized through the independent work of students in photo studio and exterior.		
Thematic units: *(if necessary, the performance plan per week is determined by taking into account the specificities of the organizational units)*	1. Tasks, goals and methodology of the subject PHOTOGRAPHY IN THE ARCHITECTURE. 2. Fixation of optical image with photo-digital transformative process.		

	3. Technical-technological aspects of fixation of optical image - photographs. Camera and accessories - Hardware and software support. 4. From analog to digital. 5. Digital image. 6. Characteristics and operable work with digital camera. 7. Architectural photography - from documentation to specific copyright work. 8. COLLOQUIUM - surrender of the first exercise 9. Selection of motives, plans and modalities of representation; Image composition, tonality and contrast - correct color reproduction of the scene. 10. Image format and proportion. 11. Light effects and their impact on the visual presentation of the architectural object. 12. Digital processing techniques and the level of possible and necessary file interventions. 13. Correction of certain elements of the image record - possible correction of the perspective, as well as the horizontal and vertical lines of the object. 14. Retouching and removing the presence of unwanted characters in the image file. 15. COLLOQUIUM - surrender to another exercise.
Exercises - practical work (weekly work plan):	1. Photographic study of the given geometric bodies (compositions of industrial bricks) in a neutral space with evident influence of natural or artificial light source. Appropriate emphasis on the figurative and structural values of geometric bodies, as well as the creation of their mutual composition relationship within the given format and volume. This study contains at least three compositions, and a maximum of five of which are compulsory three. (from first to fourth week in semester)

	2. Photographic study of the exterior of a selected and approved architectural object in a real space under the influence of a natural light containing a minimum of twelve positions (maximum sixteen), five of which are mandatory (urban + four direct or angular facades) and eight (or eleven) free compositions with the attempt of photographic author characterization of the architectural values of the given object .. (from the sixth to the fourteenth weeks in the semester) Exercises are realized in the form of digital prints on paper A4, paper min. 200gr / m^2, spiral bound. They also deliver complete files stored on a 300dpi (300dpi) CD in Tiff or Jpeg. The frame is applied to all the photos with the following data: faculty name, student's first and last name, academic year, title of the exercise (name of the object) and the serial number of the printout within the presentation study. On the first page of the presentation form of the study of the architectural object, the student must also provide the following information: - basic elements of the selected object (author of the object, contractor / investor, location, beginning and completion of the building, explanation of belonging to a certain style category, their own observations ... - short biography of the author of the object.
Learning outcomes:	After completion of the planned curriculum, the student will be able: **Knowledge:** - Recognize the technical and technological characteristics that influenced the development of photography in architecture. - Distribute certain theoretical and critical views on the use of photography in the presentation of documentary and creative architectural values of objects. **Skills:** - Apply acquired theoretical and practical knowledge in your own documentary and creative work in the field of photography in architecture. - Practice the use of software packages for processing digital images. - Use photo media in documentation of architectural objects, as well as define their own creative authorial attitude towards the visual characterization of certain architectural objects.

	Competencies: - Create a critical attitude about your own work and the work of your colleagues.
Methods of teaching:	Lectures and exercises The applied didactic model in lectures is a combination of frontal and interactive classes in the group, while exercises are performed individually in an exterior and atelier, or in a digital laboratory. This model is based on the method of direct contact and operation with each student individually in the framework of independent solving of the chosen or given thematic and technological character of the exercise, in terms of specific and conscious use of expressive possibilities.
Knowledge testing methods with assessment structure [91]:	1. colloquium (first and second ending tests) - 40 points (2 x 20 points), 2. attendance and teaching activity - 10 points, 3. practical work (evaluated at the final exam) - 50 points.
Literature [92]:	Required: 1. Michael Freeman: *Digital Slr Handbook*, Ilex Press Ltd (2005). 2. Michael Harris: *Professional Architectural Photography, (Professional Photography Series)*. Focal Press; 3 edition (2001). 3. Gerry Kopelow: *Architectural Photography: The Digital Way*. Princeton Architectural Press; 1 edition (2007). 4. Norman McGrath: *Architectural –Photography: Professional Techniques for Shooting Interior and Exterior Spaces*. Amphoto Books (2009). 5. Jim Lowe: *Architectural Photography: Inside and Out.* Photographers' Institute Press (2007).

[91] **Struktura bodova i bodovni kriterij za svaki nastavni predmet utvrduje vijece organizacione jedinice prije pocetka studijske godine u kojoj se izvodi nastava iz nastavnog predmeta u skladu sa clanom 64. st.6 Zakona o visokom obrazovanju Kantona Sarajevo**

[92] **Senat visokoškolske ustanove kao ustanove odnosno vijece organizacione jedinice visokoškolske ustanove kao javne ustanove, utvrduje obavezne i preporučene udžbenike i priručnike, kao i drugu preporucenu literaturu na osnovu koje se priprema i polaže ispit posebnom odlukom koju obavezno objavljuje na svojoj internet stranici prije početka studijske godine u skladu sa članom 56. st 3. Zakona o visokom obrazovanju Kantona Sarajevo**

	6. Julius Shulman: *Photographing Architecture and Interiors.* Balcony Press; 1 edition (2000). Supplementary: 1. Fil Hunter: *Light: Science and Magic: An Introduction to Photographic Lighting*. Focal Press; 3rd edition (2007). 2. David Wilson: *Photographing Buildings (Professional Photography).* Rotovision; illustrated edition edition (2001). 3. Michael Heinrich: *Basics Architectural Photography*. Birkhäuser Architecture; 1 edition (2004). 4. Adrian Schulz: *Architectural Photography: Composition, Capture, and Digital Image Processing.* Rocky Nook; 1 edition (2009). 5. Robert Elwall: *Building With Light: An International History of Architectural Photography.* Merrell Publishers (2004).

Code of subject: 01.02.12.	**Name of subject: RESEARCH AND DOCUMENTATION OF HISTORICAL CIVIL ENGINEERING IN BOSNIA AND HERZEGOVINA**		
Cycle : 1st	**Year: 3rd**	**Semester: 6th**	**Number of ECTS credits:** 3
Status: ELECTIVE		**Total number of hours : 30** **Lectures 15** **Exercises 15** **Seminar work**	

Participants	**Teachers and associates elected in the domain to which the subject belongs** Field of theory and history of architecture and preservation of cultural heritage
Pre-requisite for enrollment:	-
Goal (objectives) of the course:	Historical context: in terms of a specific segment of the architectural heritage protection, students have the opportunity to select and validate the topic approved by the professor and research and document the different historical periods. Researching and documenting the historical heritage of Bosnia and Herzegovina, according to a model generally recognized in international practice. Theoretical context: Researching the situation with the diagnosis of degradation of materialization and construction, together with all possible transformations. Practical context: The development of scientific research enables each student in this course to master the techniques of writing scientific work, and in the future work he is qualified to work on the protection of the architectural heritage. Acquiring more detailed knowledge about methods of research, analysis and synthesis of cultural and historical heritage, tradition and identity of Bosnia and Herzegovina.
Thematic units: *(if necessary, the performance plan per week is determined by talking into account the specificities of the organizational units)*	- - Introduction to the rules of writing scientific work - Getting acquainted with the methods of citations and the use of previous results for scientific purposes. - Division of tasks - Methods of protection and work methodology for the area of ZGN - Individual work with each student - Presentation of results
Learning outcomes:	**Knowledge:** This elective course complements the knowledge that students gain in the first cycle of study in

	the same semester and gives them the opportunity to learn how to process and present the architectural heritage through individual examples of already protected objects when choosing this course. As part of the methodological process, the student learns about the processing of the original and the current state on individual examples. **Skills:** Valorization of perceived occurrences and problems in the heritage that is registered and familiarization with databases and archival material. **Competences:** through the additional lectures and practical work, students are introduced to the objective values and shortcomings of the established protection system, and to improve themselves in the process of renovation of individual objects placed under protection and to make direct contact with the architectural heritage through the valorisation mentioned in the skills. And with its restoration. In this way, their general competencies are enhanced.
Methods of teaching:	Theoretical presentation by the analytical method on cultural heritage, individual work with students, and the preparation of seminar papers with individual topics.
Knowledge testing methods with assessment structure [93]:	Seminar papers / presentations - 45-90% Activity - 0-10% Final exam - 45-90%
Literature[94]:	**Required**: Andrejević, A., Islamska monumentalna umetnost XVI veka u Jugoslaviji, Filozofski fakultet u Beogradu, Institut za istoriju umetnosti, Akademija nauka i umetnosti, Balkanološki institut, Beograd, 1984. Basler , Đ., Arhitektura kasnoantičkog doba u Bosni i Hercegovini, Veselin Masleša, Sarajevo, 1972. Bećirbegović, M.: Džamije sa drvenom munarom u BiH, Veselin Masleša, Sarajevo, 1989. Begović, M., Vakufi u Jugoslaviji, SANU (Odjeljenje društvenih nauka) posebno izdanje (CCCLXI), Beograd, 1963.

93 **Struktura bodova i bodovni kriterij za svaki nastavni predmet utvrduje vijece organizacione jedinice prije pocetka studijske godine u kojoj se izvodi nastava iz nastavnog predmeta u skladu sa clanom 64. st.6 Zakona o visokom obrazovanju Kantona Sarajevo**

94 The Senate of the higher education institution as the institution or council of the organizational unit of the higher education institution as a public institution determines the obligatory and recommended textbooks and manuals as well as other recommended literature on the basis of which it prepares and takes the exam with a special decision that it obligatory publishes on its website before the beginning of the academic year in in accordance with Article 56, paragraph 3 of the Law on Higher Education of Canton Sarajevo

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Chabbouh Akšamija L., Arhitektura svrhe, . Arhitektonski fakultet, Sarajevo, 2009.
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Grabrijan, D. i JURAJ, N., ARHITEKTURA BOSNE I PUT U SAVREMENO, Ljubljana, 1957.
Grabrijan, D., Bosanska orijentalna arhitektura u Sarajevu - Bosanska arhitektura i put ka moderni, Sarajevo, 1958.
Hadrović, A., Gradska kuća orijentalnog tipa u Bosni i Hercegovini, Avicena, Sarajevo, 1993.
Hrasnica, M., Arhitekt Josip Pospišil – život i djelo, Arhitektonski fakultet u Sarajevu, Sarajevo, 2003.
Husedžinović, S., Valorizacija islamske sakralne arhiekture Banja Luke s analizom njenog rušenja kroz povijest (neobjavljena doktorska disertacija), Zagreb, 1997.
Krzović, I., Arhitektura secesije u Bosni i Hercegovini, Sarajevo Publishing, Sarajevo, 2004.
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Redžić, H., Islamska umjetnost u Jugoslaviji, Beograd – Zagreb - Mostar, 1985.
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Vego, M., Naselja srednjovjekovne bosanske države, Svjetlost, Sarajevo, 1959.

	Supplementary: In consultation with the subject professor individually in relation to the specificity of the topic of each individual candidate.

Code: 01.03.57	**Name of subject: SPACIAL CONCEPTS IN ARCHITECTURE AND ART**		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 6th**	**Number of ECTS credits:** 3
Status: Elective		**Total number of hours: 45** Lectures 15 Exercises 30	
Teaching staff	Teachers and associates elected in the field- Department for Architectural Design		
Prerequisites:	None		
Aim (aims) of the subject:	The subject deals with spatial phenomena from the perspective of architecture and the other visual arts. The reciprocal influence of media used by architects and visual artists is analyzed, perceptual provisions and mechanisms of action are harmonized, and the view for a differentiated spatial expression is sharpened.		
Content:	The subject has two parts. The first as theoretical and in terms of perceptual theory and the upgrade of design methodology through authorial, experimental and speculative spatial definitions. The second, accompanying part, on which each student will work on his / her linguistic definition of a particular category of architectural space. Observing spatial situations and moments of movement opens up new perspectives on architecture, which are deepened through artistic, architectural analyzes and experimental tasks. This should remain experimental, speculative and open-ended, but at the same time a systematic and holistic approach to understanding spatial concepts in architecture and art.		
Learning outcomes:	Knowledge: Understanding the correlation between (contemporary) architecture and (visual / conceptual / contemporary) art. Skills: Developing a holistic, contemporary, artistic and conceptual approach to architectural design. Competences: Developing more complex spatial thinking in accordance with the developmental tendencies of contemporary architecture and art, which indicates creative potential beyond the boundaries of architecture and gives new impetus to the design process.		
Teaching methods:	The teaching process includes a theoretical part, which is carried out through lectures and individual consultations, and a practical part, which is carried out in exercises through the making of a		

	semestral project in the form of a conceptual solution, which implies graphic and conceptual solving of the subject matter.
Assessment methods including grading structure [95]:	Knowledge assessment is performed on the basis of: Design of an exact preliminary/research project - 90% Participation in classes and attending lectures - 10% no final exam within regular exam periods!
Bibliography[96]:	Obligatory: Arnheim, R., 1981: Umetnost i vizuelno opažanje. (Naslov originala: Art and Visual Perception. Prijevod: V. Stojić). Univerzitet umjetnosti u Beogradu.: Arnheim, R., 1990: Dinamika arhitektonske forme (Naslov originala: The Dynamics of Architectural Form. Prijevod: V. Stojić). Univerzitet umjetnosti u Beogradu: Norberg – Schulz, C., 1999: Egzistencija, prostor i arhitektura (Naslov originala: Existence, Space & Architecture. Prijevod: M. Maksimović). Građevinska knjiga, Beograd: Peterlić, M., 2009: Spoznaja intuitivnoga (Rudolf Arnheim, Novi eseji o psihologiji umjetnosti). Vijenac 411, Matica hrvatska, Zagreb; Jean Baudrillard, Jean Nouvel. (2002). *Singular Objects of Architecture.* University of Minnesota Press.; Pallasmaa, J. (1996.). The Geometry of feeling: a look at the phenomenlology of architecture. In Kate Nesbitt, *Theorizing a new agenda for Architecture* (pp. 448-453). New York: Princeton Architectural Press. Additional: Journals, Online Literature on Contemporary Architecture, Architectural Exhibitions, and Websites of World Museums of Contemporary Art.

Code: 01.03.66	**Title of the subject: DESIGNING THE MINIMUM**		
Cycle: 1st	**Year of the study: 3rd**	**Semester: 6th**	**Number of ECTS credits:** 3
Status: Elective		Total number of hours 30 Lectures 15 Exercises 15	
Participants in the teaching	Teachers and associates elected in the domain to which the subject belongs: Architectural design		

[95] **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

[96] **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

Pre-requisite for enrollment:	None
Goal (objectives) of the course:	The course aims to enable students to act within the emphasized social, economic, spatial, or any other limits without reducing the quality of the architectural project.
Thematic units: (if necessary, the performance plan per week is determined by taking into account the specificities of the organizational units)	Minimum in architecture could mean a reduction or rudimentary, but also depending on the criteria used, the realization of the maximum possibilities under tight limits of resources. The minimum in architectural design is most often associated with thinking about the minimum living space of the house through its functional and spatial characteristics, through architectural models of so-called "social housing" where budget constraints and habitat coexist. Spatial and formal constraints are defined as major problems in architectural research. Scarcity or scarcity is a basic economic problem of the presence of unlimited human needs and desires within limited resources, which means that thinking about the minimum is also applied to everyday architectural practice where there is a need to balance between desired housing and possible. Through a series of small and large exercises, students will confront and examine different socio-spatial problems to which they will respond using different media - text, drawings, models, and photographs. Research papers or design solutions are based on architecture as a tool for redefining and changing limited conditions. Thematic units: 1. Significance and use of limits in architectural design 2. Existenzminimum 3. Minimum standards in housing - Minimum as maximum 4. Social housing 5. Experimental housing - research of new concepts of overcoming limitations in collective housing 6. Japan - more than the minimum housing 7. Shelter housing - shelter design 8. Methods of architectural action within economic scarcity 9. Minimum as a concept of living 10. Micro-home 11. Planning and resource management in an architectural project 12. Case studies
Learning outcomes:	After passing the exam, the student will be able to: 1. Critically analyse architectural projects concerning reinforced context limits;

	2. Identifies different types of architectural activities within a specific environment and reduced resources; 3. Valorises architectural interventions concerning the solution instead of form and presentation; Knowledge: Critical observation of the value system of contemporary architecture. Possibilities of realizing experimental typologies of housing within emphasized social, economic, or spatial limits. Skills: Use of different design tools, protocols, materiality, and aesthetics within the context of scarcity. Competences: Architectural design and programming of housing within limited resources.
Methods of teaching:	Lectures, individual practical work, teamwork on the analytical part of the project, discussions, poster presentations, fieldwork.
Knowledge testing methods with assessment structure[97]:	1. Izrada istraživačke studije ili idejnog rješenja 80% 2. Učešće na predavanjima i u diskusijama 20%
Literature:	• Aureli, Pier Vittori; Martino Tattara. Loveless: The Minimum Dwelling and its Discontents. Black Square: Milan, 2019. • Habraken, N.John. The Structure of the Ordinary: Form and Control in the Built Enviroment. Cambridge, Mass.: MIT Press, 1998. • Awan, Nishat; Tatjana Schneider; i Jeremy Till. Spatial Agency: Other Ways Of Doing Architecture, uredio Nishat Awan, Tatjana Schneider i Jeremy Till. London and New York: Routledge, 2011. • Groat, Linda; David Wang. Architectural Research Methods. Hoboken: Wiley, 2013. • Teige, Karel ; Eric Dluhosch. The minimum dwelling : the housing crisis - housing reform. MIT Press: Chicago. 2002

97 **Struktura bodova i bodovni kriterij za svaki nastavni predmet utvrduje vijece organizacione jedinice prije pocetka studijske godine u kojoj se izvodi nastava iz nastavnog predmeta u skladu sa clanom 64. st.6 Zakona o visokom obrazovanju Kantona Sarajevo**

Code: 01.06.26	**Title of the subject: PREFABRICATED LOAD-BERING STRUCTURES**		
Cycle: 1st	**Year: 3th**	**Semester: 6th**	**Number of ECTS credits: 3**
Status: Elective		**Total number of contact hours: 30 (2+0)** Lectures 30	

Teaching staff:	Teachers and associates elected in the field to which the subject belongs- Department for Construction Systems
Prerequisites:	None
Aim (aims) of the subject:	One of the aims of this subject is to acquire knowledge about prefabricated load-bearing structures and processes related to the production, transport, assembly, and disassembly of these structures. Another aim is to acquire knowledge about the basic design of load-bearing prefabricated structures and the basic principles of the connections between elements depending on the chosen materialization. Following the modern trends of development in this field, one of the aims of the subject is to gain knowledge about modern methods and techniques of digital fabrication, which is particularly important in the development of future architects.
Content: *(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)*	**Introduction** (Defining the terms prefabrication and prefabricated construction, Comparison of prefabricated and traditional construction, Sustainability); **Historical development of prefabricated structures** (Development of buildings for various purposes; Industrialized architecture; Modern principles and techniques of prefabrication); **Production of prefabricated elements** (General methods of production and fabrication; Production plants for the prefabricated elements); **Prefabricated load-bearing elements** (Line prefabricated elements, Surface prefabricated elements, Spatial prefabricated elements); . **Load-bearing capacity and stability of prefabricated elements during transport and assembly phase** (Internal and external transport; Road transport, Rail transport, Water transport, Principles and strategies for the assembly of elements, Dynamics of crane installation, Basic assembly tools of prefabricated elements, Auxiliaries assembly tools

	of prefabricated elements, Assembly construction technology of prefabricated elements, Prefabricated elements connections); **Structural systems of prefabricated construction** (Skeletal structural system, Panel structural system, Structural system of spatial elements, Combined structural system); **Application of traditional materials in the development of load-bearing prefabricated structural systems** (Prefabricated load-bearing structures of wood, Use of steel in prefabricated load-bearing systems, Reinforced concrete prefabricated structures) **Case studies of prefabricated structures in terms of load-bearing structure** (Modular prefabricated residential buildings, Temporary prefabricated buildings, Prefabricated public, and industrial buildings, etc.); **Development of prefabricated interior elements** (Prefabricated partition elements, Modular transformable kitchens, Prefabricated bathrooms, Furniture elements); **Digital fabrication** (General, Digital fabrication techniques: sectioning, tessellation, bending, contouring and shaping, Application of digital fabrication in architecture, Case studies)
Learning outcomes:	**Knowledge:** By successfully mastering the content of this course, students acquire basic theoretical and practical knowledge about prefabricated load-bearing structures and modern principles of prefabrication. **Skills:** Ability to independently solve the concept of reinforced-concrete prefabricated load-bearing structure for architectural facilities with different functional purposes and structural span. **Competences:** After completing the course obligations, which include mastering the material presented in lectures and making seminar papers, students can solve at the conceptual level the load-bearing structural system of prefabricated reinforced-concrete buildings and details of connections between structural elements according to context analysis, materialization, and function of objects. Also, students are trained to participate in architectural projects of prefabricated reinforced concrete buildings and prepare workshop drafts for prefabricated structures.

Teaching methods:	Lectures include presenting theoretical and practical examples of prefabricated structures using analysis, synthesis, and comparison with interactive communication between students and teachers. Under the supervision of the subject teacher, students work on preparing individual seminar papers whose presentation is during the semester in terms of lectures. Consultations with students related to the preparation of seminar papers are performed individually and in groups, in terms defined by the schedule of consultations.
Knowledge assessment methods with grading structure [98]:	Verification of students' knowledge is done through an oral examination during the presentation of seminar papers in the presence of teachers. The final grade is based on the activities during the semester (20%), successfully completed and submitted seminar paper (30%), and oral examination during the presentation (50%). Preparation for the exam is based on lectures, obligatory and additional literature, and individual and group consultations.
Bibliography [99]:	**Obligatory:** Bergdoll, B., Christensen, P., Broadhurst, R. (2008). *HOME DELIVERY: Fabrication the Modern Dwelling.* New York: Museum of Modern Art. Gušić, I. Šljivić, A. (2015). *Prefabrikacija i tehnologija montaže.* Tuzla:OFF-SET Iwamoto, L., (2009). *Digital Fabrications: Architectural and Material Techniques.* Princeton: Princeton Architectural Press Smith, R.E. (2010). *Prefab Architecture: A guide to Modular Design and Construction*. New Yersey: John Wiley and Sons, Inc. **Additional:** Bennett, D. (2005). *THE ART OF PRECAST CONCRETE-Colour Texture Expresion*, Berlin: Birkhäuser – Publishers for Architecture. Davies, C., (2005). *The Prefabricated Home*. London: Reaktion Books, 2005 Elliott, K.S., Jolly, C. (2013). *Multi-Storey Precast Concrete Frames Structures*. Wiley-Blackwell

98 The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.

99 The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of theresults of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.

	Jenks, M., Dempsey, N. (eds) (2005). *Future Forms and Design for Sustainable Cities*. Oxford: Architectural Press. Kieran, S., Timberlake, J. (2004). *Refabricating Architecture: How Manufacturing Methodologies Are Poised to Transform Building Construction*. New York: McGraw-Hill Sadler, S. (2005). *ARCHIGRAM: Architecture Without Architecture*. Cambridge: The MIT Press Schneiderman, D., (2012). *Inside Prefab*. New York: Princeton Architectural Press Trivunić, M.R., Dražić J.J. (2009). *Montaža betonskih konstrukcija zgrada*. Novi Sad: AGM knjiga

Code: 01.05.46	**Title of the subject: TRANSFORMATION OF THE EXISTING ARCHITECTURE AS A CONSEQUENCE OF ENERGY EFFICIENCY**		
Cycle: I	**Year of the study: III**	**Semester: VI**	**Number of ECTS credits: 3**
Status: ELECTIVE		**Total number of hours: 45 hours per semester** Lectures 30 hours per semester Exercises 15 hours per semester	
Teaching staff	Teachers and associates selected in the field to which the subject belongs - Area for architectural constructions and construction technology. Others: as needed		
Prerequisites:	The first study cycle GPA.		
Aim (aims) of the subject:	The course aims to introduce students to the problems of research and design on the example of existing buildings from various historical stages and purposefully transform them into modern buildings, which can meet the contemporary times in terms of energy efficiency, interior comfort and better relationship with the environment in terms of CO2 emissions and the use of renewable energy sources. The course will include all phases of research, analytical, programming and design activities without diminishing the importance of ambient, functional, artistic and constructive values of architecture.		
Content:	Various architectural topics, but preferably residential, educational and office buildings. Recommended will be a real project with the possibility of its potential implementation in practice. Architectural competitions		

(if necessary, the outline plan per week is determined by taking into account the specificity of organizational units)	can also be considered, where great emphasis will be placed on creation of the concept of a low-energy building.
Learning outcomes:	Through systematic, scientific research and design work on a specific task, the student will acquire knowledge to independently produce a solution for transformation of an architectural building in accordance with the standards of low-energy architecture.
Teaching methods:	Lectures and group work of 2 -3 students, or independent work, depending on the project.
Assessment methods including grading structure [100]:	Print and public presentation of the results obtained through the scientific-research and project activities.
Bibliography[101]:	Bruck, J., (2009.), *Neue Energiekonzepte*, Beuth Verlag GmbH, Berlin, ISBN: 978-3-410- 17248-2 Danijels, K., (2009.), *Tehnologija ekološkog građenja, Osnove i mere, Primeri i ideje*, NK Jasen, Beograd, ISBN: 978-85337-66-6 Duran, S., C., (2011.), *Architecture & Energy Efficiency*, LOFT Publications, Barcelona, ISBN: 978-84-9936-206-9 Hadrović, A., (2010.), *Arhitektonska fizika - drugo izdanje*, Arhitektonski fakultet Sarajevo, Sarajevo, ISBN: 978-9958-691-20-1 Hadrović, A., (2008.), *Bioklimatska arhitektura, traženje puta za Raj*, Arhitektonski fakultet Sarajevo, Sarajevo, ISBN: 978-9958-691-05-8 Hegger, M., Fuchs, M., Stark, T., Zeumer, M., (2008.), *Energy Manual, sustainable architecture*, Institut fur internationale Architektur-Dokumentation GmbH & Co KG, 2008., Minhen, ISBN: 978-3-7643-8830-0 Henning, M., H., (2004)., *Solar-Assisted Air-Conditioning in Buildings*, Spreinger-Verlag Wien New York, Wien, ISBN: 978-3-211-73095-9 Hoghton, T., (2009.), *Net Zero Energy Design, a guide for commercial architecture*, Cambridge University Press, UK, ISBN: 978-1-118-01854-5 Kosorić, V., (2007.), *Aktivni solarni sistemi, primjena u materijalizaciji omotača energetski efiasknih zgrada*, Građevinska knjiga, Novi Sad, ISBN: 978-86-395-0534-9 Radosavljević, J., M., Pavlović, T., M., Lambić, M., R., (2004.), *Solarna*

100 **The structure of the points and the criterion for each subject shall be determined by the councils of the organizational unit before the beginning of the academic year in which the teaching activity is performed in accordance with Article 64. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

101 **The Senate of a higher education institution as an institution or a council of an organizational unit of a higher education institution as a public institution shall determine the obligatory and recommended textbooks and manuals as well as the other recommended literature used for preparation and assessment of the results of the examination by a special decision which is obliged to be published on its website before the beginning of the academic year in accordance with Article 56. Paragraph 6 of the Law on Higher Education of Canton Sarajevo.**

	energetika i *održivi razvoj*, Građevinska knjiga, Beograd, Beograd, ISBN: 86-395-0405-9