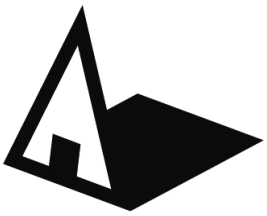
University of Belgrade – Faculty of Architecture

BOOK OF COURSES



Undergraduate academic studies Architecture

COMPULSORY COURSES

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT SPACE AND SHAPE[1] – SPACE AND SHAPE
Teacher:	Associate Professor Milan A. Djurić
Type of course:	Compulsory
ECTS:	8

Preconditions:
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Objectives:
Research of ideas on the relationship between space and shapes, examining basic elements of the structure of architectural space, building of space and situations, designing of own operating means within the given frame, initiating conceptual ability development and preparing knowledge and skills base, necessary for the level of Studio Design.

Learning outcomes:
Recognizing and understanding architectural spatial elements, observing their mutual relations and relations towards environment, and accordingly, development of routine skill for creating concepts of architectural buildings, structures and systems on the basic level. Inception of forming one's own architectural identity.

Course brief:

Theoretical education:

The course opens an insight into the nature of architectural creation, placed in the contemporary designing context. It has been grouped into three sub-units with three design tasks dealing in architectural space structure, its tectonics and cultural context in which takes place: A) SPACE ANATOMY (Beach): 1. Searching for the space and shape, 2. Ground landscape, 3. Space of wall, 4. Roofs and canopies, 5. Structure of spatial system, 6. Spatial relations; B) MATTER AND DESIRE (Shelter for a friend): 7. Environment, 8. Use and organization of space, 9. Beauty and proportion, 10. Firmness and structures; C) APPLIED GEOMETRY (Extension): 11. Basic forms, 12. Complex forms, 13. Movement and experience, 14. Ambiences, 15. Space and/or shape.

Practical education:

Practical classes are in the form of an open studio, where 7 small projects shall be completed using architectural model medium. The task is not to design a house, but to shape the system of spatial relationships, while the programs are taken out the everyday and familiar situations: Grounds, Walls, Canopy, Beach, Underground /Aboveground shelter for a friend, Extension. The work on models shall be followed by workshops enabling students to quickly understand basic techniques of materials' treatment in the process of architectural models making, analytical observing and understanding of one's own work through photos and texts that enable students to develop, on the basic level, the ability to argument themselves through reading practice.

Literature:

- Kucina I. 15/3 – textbook for the course space and shape. Beograd: Univerzitet u Beogradu - AF, 2008.
- Rem Kolhas: Uvod u S, M, L, XL. (Rem Koolhaas, Bruce Mau: SMLXL. New York: Monacelli Press, Rotterdam: 010 Publishers, 1995.)
- Bernard Čumi: Prostori i događaji. (Bernard Čumi: Arhitektura i disjunkcija. Zagreb: AGM, 2004)
- Peter Cumtor: Ima li lepota formu? (Peter Cumtor: Misliti arhitekturu. Zagreb: AGM, 2003)
- Kengo Kuma: Povratak materijalima (Luigi Alini, Kengo Kuma: Kengo Kuma Works and Projects. Florence: Electa Mondadori, 2006.)

Active training classes no.:				Other:
Lectures: 2	Practical classes: 4	Other teaching forms: /	Studio research: /	

Teaching methodology:
Positive and stimulating atmosphere among students and teachers through lectures, workshops, discussions, critiques, presentations and consultations. Learning through design. Presentation and verification of students' work in front of other students and teachers.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	portfolio 10
Practical classes		Oral exam	25+10
Colloquia	20+25	PART OF THE FINAL GRADE[2] of the Study unit – Space and shape	
Seminar-s			

[1] Study unit Leader: Associate Professor Milan A. Djurić

[2] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT SPACE AND SHAPE[3] – VISUAL ARTS ELEMENTS
Teacher:	Professor M.Sc. Vladan B. Ljubinković
Type of course:	Compulsory
ECTS:	2

Preconditions:
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Objectives:
The course objective is for students to acquire knowledge on basic art elements and gain practical experience in the field related to the theory of color and form. Additionally, the aim is to explore connections and methods within the field of synthesis of fine arts and architecture on the level of simple and abstract art research.

Learning outcomes:
Recognizing and acceptance of knowledge and practical experiences in visual presentation and transposition of forms and space, as well as the application of these skills in the work within the Studio Design.

Course brief:
Line, dot / Dynamics of line / Closed line, shape / Line, surface, form / Form / Form and Valero / Valero / Texture / Texture, materialization / Spatial relations / Relief / Color

Literature:
- Pavle Vasić, Uvod u likovne umetnosti, Fakultet likovnih umetnosti, Beograd, 1968.
- Zoran Pavlović, Prostor oblika i boje, Klio,Beograd, 1997.
- Johanes Iten, Umetnost boje, Umetnička akademija, Beograd, 1973.
- Rudolf Arnhajm, Umetnost i vizuelno opažanje, Univerzitet umetnosti Timothy Samara, Design Elements, Rockport.
- H. V. Dženson, Istorija umetnosti, Beograd 1983. or later editions

Active training classes no.:				Other:
Lectures: 1	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Keynote lectures and practical classes, which are grouped by methodological demands and theme frame.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Final portfolio	50
Practical classes		Oral exam	
Colloquia	20+20	PART OF THE FINAL GRADE[4] of the Study unit – Space and shape	
Seminar-s			

[3] Study unit Leader: Associate Professor Milan A. Đurić
[4] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT SPACE AND SHAPE[5] – VISUAL RESEARCH
Teacher:	Associate Professor M.Sc. Dušan M. Stanisavljević
Type of course:	Compulsory
ECTS:	2

Preconditions:
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Objectives:
The course objective is that during the teaching process, by selected thematic units and adequate pedagogical methods, students step by step and continuously develop analytical, creative and performing skills necessary for active participation in visual research process, encouraging the harmonization of a creative triad: imagination – graphical presentation – visual perception.

Learning outcomes:
Research – through graphic experiment / Implementation – through study and application of graphical techniques and technologies / Routine – through direct graphical experience / Communication – through the process of coding and de-coding of graphic meaning / Responsibility – through making graphical decision / Efficiency – through rational use of time and the choice of appropriate graphic techniques and technology / Progress – through ongoing confrontation with increasingly complex graphical demands / Valorization – through a graphical comparison / Authorship – through independent work on graphics / Collaboration – through sharing of knowledge and experience of graphic / Collegiality – through mutual trust and respect.

Course brief:

Theoretical education:
Interactive and ad hoc lectures: Visual perception / Shape and its properties / Graphical concept / Elements of a graphic expression (typography, photography, illustration, decorative graphics) / Composing graphical elements / Unit, fragment, detail / Methods of graphical presentations (sketches and engineering drawings) (linear and surface graphical articulation) (orthographic and axonometric drawing) / Graphical identification codes / Pre-press, format, digital printing, graphic finishing, exhibition concept.

Practical education:
The research part of the course consists of the transformation of given spatial and conceptual relationships into an adequate graphical form. / The executive pat of the course consists of using appropriate modes of graphical presentation to record/present characteristic phases of student's activities in the corresponding course Space and shape. The final part of the course aims at forming a representative authorial presentation of selected and visually matched graphical units by appropriate graphical presentation modes which affirmatively represent accomplished creative and implementation possibilities of course participants.

Literature:
– Petrović Đ. / Vizuelna istraživanja / Arhitektonski fakultet, Beograd 1972.

Active training classes no.:				Other:
Lectures: /	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
In classrooms: Interactive and ad hoc lectures indicating introduction to working tasks, analysis of characteristic examples; formulation of graphical concept and simulation of realization process. Individual consultations are held in professor's office. Privately: Composing graphical contents and preparation for production. Printing services: Realization (with possible extra work at home).

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	40
Practical classes	60	Oral exam	
Colloquia		PART OF THE FINAL GRADE[6] of the Study unit – Space and shape	
Seminar-s			

[5] Study unit Leader: Associate Professor Milan A. Djurić
[6] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT INTRODUCTION TO ARCHITECTURE AND ARTS[7] – ON ARCHITECTURE
Teacher:	Professor Branislav B. Mitrović
Type of course:	Compulsory
ECTS:	1

Preconditions:
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Objectives:
The course objective is to introduce students with basic elements of architecture as complex, multi-disciplinary social practice. Through a series of ex cathedra lectures and interactive work on the semester assignment, the students get an initial insight into basic concepts in architecture and explore their meanings through analysis of representative examples.

Learning outcomes:
Students' task is to individually examine themes set out in lectures and to present chosen theme unit via analytical review (case study).

Course brief:
Theoretical education:
The main part of the course are three thematic areas, within which are explored basic elements of architecture as technical (1), art (2) and social (3) practice. Each of these themes is discussed in lectures through analysis and explanation of single key terms and presentation of typical examples illustrating the subject theme and concept.

Literature:
- Milenković, Branislav. Uvod u arhitektonsku analizu I. Beograd: Građevinska knjiga, 1990.
- Milenković, B. Uvod u arhitektonsku analizu II. Compendium. Beograd: Građevinska knjiga, 1991.
- Koolhaas, Rem and Bruce Mau. SMLXL. New York: The Monacelli Press, 1993.
- Till, Jeremy . Architecture Depends. Cambridge, Mass: MIT Press, 2009.

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Teaching methodology includes: ex cathedra lectures, students' independent research, interactive public class and individual consultations in the process of the semester assignment development. During the examination period, scheduled time for individual consultations will be provided.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70**
Practical classes		Oral exam	
Colloquia	10 (out of 30)*	PART OF THE FINAL GRADE[8] of the Study unit – Introduction to architecture and arts	
Seminar-s			

*Remaining points of pre-exam requirements (2x10) students achieve on the colloquies of the two other courses within the Study unit Introduction to architecture and arts.
** For each of the courses of the Study unit Introduction to architecture and arts (On architecture, Architecture today and Arts today) the semester paper is being produced by one-third of the total number of students enrolled in the first year of Undergraduate academic studies: Architecture. If more students apply, the selection will be made based on the results of colloquies during the semester.

[7] Study unit Leader: Associate Professor Ph.D. Ljiljana M. Blagojević
[8] The final grade is being awarded for the Study unit as a sum of points achieved on colloquies of all three courses within the Study unit Introduction to architecture and arts and points achieved through semester paper which students' choose to develop for one of the Study unit courses.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT INTRODUCTION TO ARCHITECTURE AND ARTS[9] – ARCHITECTURE TODAY
Teacher:	Associate professor Ph.D. Ljiljana M. Blagojević
Type of course:	Compulsory
ECTS:	1

Preconditions:
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Objectives:
The main objective of the course is to provide students with an introduction into studies of contemporary architecture and urbanism and to introduce them with rough knowledge on the important contemporary trends and tendencies in architecture and urbanism worldwide and in Serbia. As a theoretical introduction that is significant for students in design tasks, the coursed is aimed at providing students with basic knowledge on contemporary architectural practices and theory of architecture, as well as basic knowledge of independent research and development of comprehensive, systematic and original presentation of a work.

Learning outcomes:
Students are expected to acquire following abilities: basic understanding and systematization of knowledge on main trends in contemporary architecture; awareness and basic assessment of the quality of architectural piece; basic knowledge on important authors and works of world architecture; initial knowledge on contemporary theories of architecture; basic knowledge on development of comprehensive, systematic and original presentation of a work.

Course brief:
Through reviewing and problematic lectures, presentations of case studies (ex cathedra) and interactive teaching, the course deals with several theme frames: avant-garde and modern movement, postmodernism; hi-tech architecture; deconstructivism in architecture; green/environmental architecture; contemporary theory of architecture; critical architecture; current architecture and new technologies in architecture; contemporary Belgrade architecture; author's position in architecture; contemporary trends in architecture.

Literature:

- Philip Jodidio. Architecture Now! 1-8, Köln: Taschen, 2001-2012
- Filip Žodidio i Tatjana Biži. Architecture now!: Arhitektura danas. Beograd: IPS Media, 2003
- James Steele. Architecture Today. London: Phaidon Press [1997], 2001
- Ljiljana Blagojević i Dragana Ćorović. Klimatske promene i estetika savremene arhitekture, u: Vladan Đokić i Zoran Lazović, ur. Uticaj klimatskih promena na planiranje i projektovanje, Beograd: Univerzitet u Beogradu – Arhitektonski fakultet, 19-33, 2011
- Miloš R. Perović, ur. Istorija moderne arhitekture, Knjiga 3: Tradicija modernizma i drugi modernizam. Beograd: Arhitektonski fakultet, 2005

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Thematic units are exercised through reviewing and problematic lectures and presentations of case studies (ex cathedra), as well as through students' independent research. During the semester there are colloquies by which are checked students' consistency in classes, individual consultations, interactive public class and students' presentations. Final exam consists of development of semester paper – independently developed presentation of examples related to thematic units.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70**
Practical classes		Oral exam	
Colloquia	10 (out of 30)*	PART OF THE FINAL GRADE[10] of the Study unit – Introduction to architecture and arts	
Seminar-s			

*Remaining points of pre-exam requirements (2x10) students achieve on the colloquies of the two other courses within the Study unit Introduction to architecture and arts.
** For each of the courses of the Study unit Introduction to architecture and arts (On architecture, Architecture today and Arts today) the semester paper is being produced by one-third of the total number of students enrolled in the first year of Undergraduate academic studies: Architecture. If more students apply, the selection will be made based on the results of colloquies during the semester.

[9] Study unit Leader: Associate Professor Ph.D. Ljiljana M. Blagojević
[10] The final grade is being awarded for the Study unit as a sum of points achieved on colloquies of all three courses within the Study unit Introduction to architecture and arts and points achieved through semester paper which students' choose to develop for one of the Study unit courses.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT INTRODUCTION TO ARCHITECTURE AND ARTS[11] – ARTS TODAY
Teacher:	Associate professor M.Sc. Milorad J. Mladenović / Professor Ph.D. Miodrag P. Šuvaković
Type of course:	Compulsory
ECTS:	1

Preconditions:
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Objectives:
The course objective is to provide initial information on contemporary art in general, as well as on forms and fields constituting the art. The students shall be introduced with basic concepts of arts today that will help them in further reflection and study of art themes, especially those that are important for the development of contemporary architecture. An important objective of the course is for students to perceive the width of context, themes and forms in which art subsists today and to enter the process of architectural studies aware of the limits and models reached by the contemporary art manifestation. The course objective is to enable students to perceive, recognize and interpret those manifestations.

Learning outcomes:
The development of high quality semester paper which will include experiences gained in the course. Theme frame that is taught relates to the widest possible framework of topics and concepts of contemporary art, its theoretical and practical consequences. Semester paper is not necessarily a scientific paper as it is individual and personal exploration of a selected topic through concepts and fields of contemporary art and it is focused on providing incentives to have concepts and topics of contemporary art recognized and included in later research and studies in architecture.

Course brief:
Theoretical education:
The course objective is to provide initial information on contemporary art in general, as well as on forms and fields constituting the art. The students shall be introduced with basic concepts of art today that will help them in further reflection and study of art themes, especially those that are important for the development of contemporary architecture. An important objective of the course is for students to perceive the context, themes and forms in which art subsists today and to enter the process of architectural studies aware of the limits and models reached by the contemporary art manifestation. The course objective is to enable students to perceive and to recognize those manifestations. Also, an important aim of the course is to give students basic information and incentives in the field of contemporary art that may be useful in courses within the Module Introduction to Architectural Design.

Literature:

- H.Foster, R.Krauss, I.A.Bois, H.D.Buchloh, Art since 1900: Modernism,Antimodernism, Postmodernism, Thames and Hudson, London, 2005
- Đ.K.Argan, A.B.Oliva, Moderna umetnost 1770-1970-2000, 1-3, Clio, Beograd, 2004.
- P.Wood, G.Perry, G.(eds), Themes in Contemporary Art, Yale University Press, New Haven, 2004.
- M.Šuvaković, Pojmovnik suvremene umjetnosti, Horetzky, Zagreb, 2005.
- M.Šuvaković, Diskurzivna analiza, Univerzitet umetnosti u Beogradu, Beograd, 2006.

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Teaching is conducted mainly through thematic lectures. Lectures are followed by a number of examples of contemporary art and examples from various theme frame in which art takes place today. Teaching includes guest lectures and visits to current exhibitions or presentations of contemporary art. The teaching methodology of the course is compiled with the Study unit Introduction to architecture and art, as well as with other courses within it.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70**
Practical classes		Oral exam	
Colloquia	10 (out of 30)*	PART OF THE FINAL GRADE[12] of the Study unit – Introduction to architecture and arts	
Seminar-s			

*Remaining points of pre-exam requirements (2x10) students achieve on the colloquies of the two other courses within the Study unit Introduction to architecture and arts.
** For each of the courses of the Study unit Introduction to architecture and arts (On architecture, Architecture today and Arts today) the semester paper is being produced by one-third of the total number of students enrolled in the first year of Undergraduate academic studies: Architecture. If more students apply, the selection will be made based on the results of colloquies during the semester.

[11] Study unit Leader: Associate Professor Ph.D. Ljiljana M. Blagojević
[12] The final grade is being awarded for the Study unit as a sum of points achieved on colloquies of all three courses within the Study unit Introduction to architecture and arts and points achieved through semester paper which students' choose to develop for one of the Study unit courses.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	THE CITY: FORMS AND PROCESSES
Teacher:	Associate professor Ph.D. Aleksandra B. Stupar
Type of course:	Compulsory
ECTS:	3

Preconditions:
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Objectives:
Comprehensive and organized understanding of the phenomenon of the city, its development and transformations; introduction to basic properties, processes and forms of urban space, inter-linking of natural, socially-economic and technological context with architectural dimension of urban environment.

Learning outcomes:
Critical understanding of a city, its forming, role and transformations; establishment of relations among urban structure (architecture), activities and social changes; introduction to current processes/trends/visions and effects that might have on (dis)continuity of urban space.

Course brief:

Theoretical education:

The course objective is to provide initial
Teaching is directed towards introduction and overviewing the phenomenon of a city, its role and position within the context of society, technology and environment. Lectures emphasize the connection between the city and architecture through the study of form and elements of urban space, as well as of processes which directly or indirectly affect urban space and society. Considering key spatial and time/historical determinants, students are given timely comprehensive and multilayered image of a city, as a key node of contemporary existence.

Practical education:

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Literature:

- Stupar A: Grad: forme i procesi, Beograd: AF (u pripremi)
- Stupar A: Grad globalizacije - izazovi, transformacije, simboli, Beograd: AF, Orionart, 2009
- Nikezić, Z: Građena sredina, Beograd: AF, 2007
- Kostof, Spiro. The City Shaped: Urban Patterns and Meanings Through History. Boston: A Bulfinch Press Book: Little, Brown and Company, 1991
- Hall, P: Cities of Tomorrow, Oxford: Blackwell, 2001

Active training classes no.:				Other:
Lectures: 3	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	60
Practical classes		Oral exam	
Colloquia	40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL STRUCTURES 1: Elements of buildings' materialization
Teacher:	Assistant professor Dušan M. Ignjatović
Type of course:	Compulsory
ECTS:	2

Preconditions:
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Objectives:
The main objective is to introduce students to basic terminology, principles and materialization elements of a building.

Learning outcomes:
Overview of the logic of designing and materialization of buildings in the massive construction system.

Course brief:
Theoretical education:
Concepts, principles, building materials: structural assemblies, foundations, vertical structural elements, horizontal structural elements, insulation against humidity and water, hydro and thermal insulation, flat roof, windows, doors, staircases, coverings, processing, finishes.

Literature:
- Textbooks on Architectural structures 1, Arhitektonski Fakultet
- Građevinske konstrukcije, M. Mitag, Građevinska knjiga, 2003.
- Arhitektonske konstrukcije, A. Deplazes, Građevinska knjiga, 2008.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70
Practical classes		Oral exam	
Colloquia	30	…..	
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	MATERIALS AND BUILDINGS' PHYSICS
Teacher:	Associate professor Ana P. Radivojević, Assistant professor M.Sc. Nataša D. Ćuković-Ignjatović, Professor Lidija s. Djokić, Professor Miomir m. Mijić
Type of course:	Compulsory
ECTS:	3

Preconditions:
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Objectives:
Introducing students with basic properties of the most important groups of materials, as well as with physical phenomena to which buildings are exposed. Through an overview of selected materials performances, special attention is given to their performances against water/humidity, and thermal properties of materials. By studying selected characteristics and performances of materials, students gain awareness of their potential, opportunities and manners in which they are applied in architectural buildings, as well as of a causal connection that selection of material has on the building performance as a whole, i.e. on the accomplishment of necessary comfort (thermal, air, light and sound).

Learning outcomes:
By completing the course, student should:
- Master basic terminology and information on materials in architecture,
- Be aware of main properties (nature) of materials and their potentials,
- Understand what are opportunities and manners in which different materials are applied on architectural building and have awareness of inter-dependence which exists between nature of material and the way in which it is used in the process of buildings' materialization regarding the complete performance of a building,
- Know what is comfort in terms of buildings and what are the forms,
- Have basic knowledge on each form of comfort – its physiological basis, parameters and limits, as well as measures providing that comfort, and especially basic properties of materials relevant to provide any comfort.

The student should, also, through the analysis of different examples taught in classes, learn to apply acquired knowledge and verify it in actual cases in practice.

Course brief:

Theoretical education:

Introduction – mutual relationship between environment, building and materials; Concept and types of comfort – thermal, air, light and sound.
Classification of materials; Nature of materials – Basic physical properties, performances against water, thermal and mechanical performances, changes of material; Stone and stone materials; Brick and clay products; Connective materials and aggregates, plasters and concretes; Wood and wooden products; Metals; Glass; Polymers and plastics; Protective materials, Composite materials.

Literature:

- Textbook – lectures' extracts
- Mihajlović-Ristivojević M.,Osobine i performanse materijala u arhitekturi, Arhitektonski fakultet Univerziteta u Beogradu, Beograd, 1995.
- Lyons A., Materials for Architects and Builders, Butterworth-Heinemann, Oxford, 2002.
- Ballard Bell V., Materials for Architectural Design, Laurence King Publishing, London, 2006.
- Jovanović-Popović M., Zdravo stanovanje, Arhitektonski fakultet, Beograd, 1991.
- Đokić L., Osvetljenje u arhitekturi – zahtevi i smernice za projektovanje, Arhitektonski fakultet, Beograd, 2007.
- Kurtović H.,Akustika za arhitekte, Akademska misao, Beograd, 2002.
- Szokolay S., Introduction to Architectural Science, Architetural Press, 2004.

Active training classes no.:				Other:
Lectures: 3	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures, interactive teaching with presentation and analysis of examples and tasks, followed with discussion and students' active involvement, consultation.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	50
Practical classes		Oral exam	
Colloquia	40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	MATHEMATICS IN ARCHITECTURE
Teacher:	Professor Ph.D. Ljiljana S. Petruševski
Type of course:	Compulsory
ECTS:	2

Preconditions:
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Objectives:
Students' introduction with mathematics fields relevant for application within the architectural geometry.

Learning outcomes:
Ability to apply mathematics within the architectural geometry.

Course brief:

Theoretical education:

Vector calculations. Analytic geometry in space – with emphasis on the parametric approach suitable for application in terms of architectural geometry. Straight line. Plane. Curves in space. Surfaces in space. Generative algorithms of surfaces. Curves on surfaces. Affine transformations. Geometric algorithms. IFS. Loops. Recursion. Symmetries. Algorithms of fractal geometry. L-systems. Cellular automata. Ланци Маркова.

Practical education:

Tests and tasks follow theoretical education and are a way to adopt necessary knowledge. At the same time, they indicate the level of competence of applying gained knowledge in the context of architectural geometry.

Literature:

- Michael Frame, Benoit Mandelbrot, and Nial Neger, Fractal Geometry, Yale University, August 22, 2007
- http://classes.yale.edu/fractals/

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures, practical classes – interactive teaching in electronic environment.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	30
Practical classes	40	Oral exam	
Colloquia	30	…..	
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL GEOMETRY 1
Teacher:	Assistant Professor Ph.D. Djordje D. Djordjević
Type of course:	Compulsory
ECTS:	3

Preconditions:
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Objectives:
- Development of logical and creative thinking, ability of comprehensive review and professionally competent reading of three-dimensional space and improving the skills of imagination;
- Introduction with geometry of architectural forms (bodies, surfaces and their compositions) observed in practice and used to define the structural and partition elements – of both interior and exterior;
- Introduction with the methods of geometric and structural processing and two dimensional presentation of 3D forms applied in architecture and urbanism – "orthogonal projections" obtained from parallel rays of perception and in accordance with the requirements of CAAD technology.

Learning outcomes:
Acquiring the necessary knowledge in the domain of architectural geometry, as well as of geometric - structural procedures required to define architectural form of complex geometries and their comprehensive presentation in orthogonal views.

Course brief:

Theoretical education:
Introduction with geometry of architectural forms (bodies, surfaces and their compositions) observed in practice and used to define the structural and partition elements – of both interior and exterior; as well as with the methods of geometric and structural processing and two dimensional presentation of 3D forms applied in architecture and urbanism – "orthogonal projections" obtained from parallel rays of perception and in accordance with the requirements of CAAD technology.

Practical education:
Training students for productive application of acquired theoretical knowledge – solving specific geometric problems taken out from architectural and urban design practice.

Literature:
- Graphic templates for lectures /A4. Lectures' extracts are available to students electronically on the Faculty website.
- Graphic templates for practical classes /A4. Solutions of given tasks are available to students electronically on the Faculty website.
- Gagić, Lj.(2004), Nacrtna geometrija, Akademska misao, Beograd
- Živanović, S., Čučaković, A. (2008), Zbirka zadataka iz nacrtne geometrije i perspektive sa rešenim primerima, Akademska misao, Beograd,
- Anagnosti, P. (1986), Nacrtna geometrija, Naučna knjiga, Beograd,
- Potmann, H. Asperl, A., Hofer, M. & Kilian, A. (2007), Architectural geometry, Bemntley Institute Press, Exton, Pennsylvania – USA

Active training classes no.:				Other:
Lectures: 2	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Lectures and practical classes are held simultaneously in Faculty amphitheatre with the aim to establish interactivity between students and lecturer, supported by modern didactic means.
Lectures: Lectures involve interactive communication with students: debates and discussions during the work on graphic presentations that follow a theme overviewed on lectures.
Practical classes: Tasks follow thematic units presented during lectures.
Work on the development of practical task is individual, with active consultation with all participants of the course

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	40
Practical classes	20	Oral exam	
Colloquia	2x20=40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	TRANSFORMATION OF GRAPHICAL FORM
Teacher:	Associate Professor M.Sc. Dušan M. Stanisavljević
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The course objective is to theorethicaly and practically introduce students-beginners by selected thematic units with manners of formulation of articulated graphical forms and their transformations into new affirmative forms appropriate for practical use, as well as with manners of comprehensive visual presentation – from preliminary researching sketches, over precise engineering drawing to manually or computerly generated three-dimensional model.

Learning outcomes:
Research – through genesis and transformation of graphic form / Implementation – through study and application of graphical techniques and technologies / Routine – through direct graphical experience / Communication – through the process of coding and de-coding of graphic meaning / Responsibility – through making graphical decision / Efficiency – through rational use of time and choice of appropriate graphic techniques and technology / Factography – through permanent graphical and textual recording of all characteristic stages of work / Valorization – through a graphical comparison / Authorship – through independent work on graphics / Collaboration – through sharing of knowledge and experience of graphic / Collegiality – through mutual trust and respect.

Course brief:

Theoretical education:
Interactive and ad hoc lectures: Shape and its properties / Geometric and proportional form analysis / Elements of a graphic expression (typography, photography, engineering drawing) / De-composing graphical elements / Transformation of graphical form / Manners of graphical presentation of geometrized form / Manners of modeling presentation of spatial form / Mutual relationship between form and environment / Presentation concept, pre-press, format, digital printing, graphic finishing, exhibition concept.

Practical education:
The cognitive part of the course is intended for students to be introduced with selected two-dimensional articulated graphical forms through geometrical and proportional analysis. Creative part of the course consists of applying the method of decomposing on graphical elements to transform them into new visual appearances which in inext stage will be translated into three-dimensional graphical or spatial form.
The executive pat of the course consists of making a spatial model and a set of representative graphics displaying phases of a creative procedure through sketches, text, photography and precise engineering drawing.

Literature:

- Stanisavljević D. / Grafičko predstavljanje oblika u prostoru / Arh. fakultet, Bgd. 2000
- Stanisavljević D. / 2D Design / Arhitektonski fakultet, Beograd, 2005

Active training classes no.:				Other:
Lectures:	Practical classes:	Other teaching forms:	Studio research:	
/	2	/	/	

Teaching methodology:
In classrooms: Interactive and ad hoc lectures indicating introduction to working tasks, analysis of characteristic examples; formulation of graphical concept and simulation of realization process. Individual consultations are held in professor's office. Privately: Composing graphical contents and preparation for production. Printing services: Realization (with possible extra work at home).

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	30
Practical classes	70	Oral exam	
Colloquia			
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT ELEMENTS OF ARCHITECTURAL DESIGN[13] – ELEMENTS OF ARCHITECTURAL DESIGN
Teacher:	Associate Professor M.Sc. Zoran R. Abadić
Type of course:	Compulsory
ECTS:	8

Preconditions:
/

Objectives:
Students' introduction with basic principles of architectural design and composition, structure of architectural design, dimensioning, measurements and proportions, architectural analysis, the logic of spatial organization, elements of the architectural programme and space shaping for a real use by given function..

Learning outcomes:
Through two simple design tasks and two exercises, students develop abilities of self- reflection, analytical observation and application of graphical and visual skills on a proper architectural design with the aim to create readable presentation of reality – from a design brief, sketch, concept to the architectural conceptual design.

Course brief:

Theoretical education:
Theoretical education includes one class per week with two hours of lectures + three tests. Lectures are held by the course teacher with teachers from the Department of Architecture. Titles of lectures are: Elements, Labeling, Scale, Context, Concept, Form, Activities, Simulation, Diagram, Organization, Dimension, Utility, Connections and Comfort.
The course lasts 15 working weeks in the school.
Teaching duration is 15 workweeks.

Practical education:
Practical
Practical classes include one 4hours class per week. These classes are held by teaching assistants/associates from the Department of Architecture, along with volunteering senior students. Practical classes are intended for students to directly apply knowledge gained at lectures through two architectural exercises, 1. Sign and 2. Comfort, and two architectural assignments, 1. Lighthouse and 2. Beach keeper house.
The course lasts 15 working weeks in the school.

Literature:
- Milenković, Branislav : Uvod u arhitektonsku analizu, GK, Beograd, 1988.
- Le Corbusier : Modulor 2. London, Faber, 1955, originally published as Le Modulor II, Paris, 1955.
- Le Korbizije : Ka pravoj arhitekturii (1923), 4. izd., Beograd, Građevinska knjiga, 2006.
- Francois De Pierrefeu Le Corbusier : Savremena kuća dostojna ljudi, GK, Beograd, 1956.
- Le Corbusier : Talks with students. New York, Orion Press, 1961, 83 p.

Active training classes no.:				Other:
Lectures: 2	Practical classes: 4	Other teaching forms: /	Studio research: /	

Teaching methodology:
Worksop, projects, lectures, discussions, critics, presentations, consultations. Positive and stimulating atmosphere among students and teachers. Verification of one's work in front of other students and teachers.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	20
Practical classes		Oral exam	10
Colloquia	60	PART OF THE FINAL GRADE[14] of the Study unit – Elements of architectural design	
Seminar-s			

[13] Study unit Leader: Associate Professor M.Sc. Zoran R. Abadić
[14] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT ELEMENTS OF ARCHITECTURAL DESIGN[15] – VISUAL ART FORMS
Teacher:	Professor M.Sc. Branko D. Pavić
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The course objective is to provide students with comprehensive understanding, practicing and application of fine arts in the field of architecture. Also, to introduce students with various forms of fine arts and their contemporary forms and interpretations, which will provide them a professional approach to visual expression and work,

Learning outcomes:
Understanding and acceptance of knowledge and practical experiences in visual presentation and transposition of forms and space, as well as the application of these skills in the work within the Studio Design.

Course brief:
Introduction in visual presentation / Preparations for presentations of fieldwork / Linear construction of space perspective and proportions / Shape and space / Contrast / Shape and Valero / materialization / Modeling / Artistic transposition of model / Introduction in visual presentation / Concepts, relations and meanings / Immediate environment

Literature:
- Pavle Vasić, Uvod u likovne umetnosti, Fakultet likovnih umetnosti, Beograd, 1968.
- Zoran Pavlović, Prostor oblika i boje, Klio,Beograd, 1997.
- Johanes Iten, Umetnost boje, Umetnička akademija, Beograd, 1973.
- Rudolf Arnhajm, Umetnost i vizuelno opažanje, Univerzitet umetnosti Timothy Samara, Design Elements, Rockport.
- H.V.Dženson Istorija umetnosti, Beograd 1983. or later editions

Active training classes no.:				Other:
Lectures: 1	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Keynote lectures and practical classes, which are grouped by methodological demands and theme frame.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Final portfolio	50
Practical classes		Oral exam	
Colloquia	20+20	PART OF THE FINAL GRADE[16] of the Study unit – Elements of architectural design	
Seminar-s			

[15] Study unit Leader: Associate Professor M.Sc. Zoran R. Abadić
[16] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT ELEMENTS OF ARCHITECTURAL DESIGN[17] – ARCHITECTURAL GRAPHICS
Teacher:	Associate Professor M.Sc. Dušan M. Stanisavljević
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The primary goal of the course is to provide graphical support to the final work in the course Elements of architectural design through a serie of appropriate design tasks, by respecting individual authorial graphical concept and by using adequate presentation procedures and available graphic technologies to turn creative idea into affirmative architectural drawing, manual or computer model, photography or text.
The secondary goal of the course is independent application of acquired knowledge and skills in development of final graphic and modelling presentations in other courses at the Faculty which are based on geometrized graphical presentation and contemporary graphic design.

Learning outcomes:
Genesis of a form – through a sketch as a monolog and a drawing as a dialogue / Implementation – through study and application of graphical techniques and technologies / Routine – through direct graphical experience / Communication – through the adoption of graphical conventions / Responsibility – through making graphical decision / Efficiency – through rational use of time and choice of appropriate graphic techniques and technology / Progress – through permanent confrontation with increasingly complex demands / Valorization – through a graphical comparison / Authorship – through independent work / Collaboration – through sharing of knowledge and experience of graphic / Collegiality – through mutual trust and respect.

Course brief:

Theoretical education:
Interactive and ad hoc lectures: Assistive graphical systems: grid and matrix / Genesis of form through activation of parts of graphical matrix / Visual concept by composing of graphical elements / Manners of graphical representation via geometrical construction (orthographical and axonometric drawing) / Graphical identification codes / Transformation of graphical form / Graphical representation of shapes in space / Visual perception and emotional experience of spatial form / Pre-press, format, digital printing, graphic finishing, exhibition concept.

Practical education:
Two-dimensional graphic presentation: sketch, graphical reconstruction, graphical matrix, ortography, linear and surface materialization / Three-dimensional graphic presentation: sketch, graphical construction (axonometry, isometry), form and anti-form, spatial graphical matrix and grid, surface materialization (light, shadow, color), decomposing of graphical form / Graphical representation of shapes in space (elevations, sections, isometrical views) / Graphical analysis of dimensional, proportional and volumetric relations / Decomposing of spatial structure / Representation of spatial structure via manually or computerly produced model and photography / Design and implementation of representative exhibition panel.

Literature:
- Stanisavljević D. / Grafičko predstavljanje oblika u prostoru / Arh. fakultet, Bgd. 2000

Active training classes no.:				Other:
Lectures: /	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
In classrooms: Interactive and ad hoc lectures indicating introduction to working tasks, analysis of characteristic examples; formulation of graphical concept and simulation of realization process. Individual consultations are held in professor's office. Privately: Composing graphical contents and preparation for production. Printing services: Realization (with possible extra work at home).

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	40
Practical classes	60	Oral exam	
Colloquia		PART OF THE FINAL GRADE[18] of the Study unit – Elements of architectural design	
Seminar-s			

[17] Study unit Leader: Associate Professor M.Sc. Zoran R. Abadić
[18] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	HISTORY OF MODERN ARCHITECTURE AND URBANISM
Teacher:	Associate Professor Ph.D. Ljiljana M. Blagojević
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The main objective is to present students with an introduction into studies of history of modern architecture and urbanism and to introduce them with basic knowledge on the important movements, authors and their ideas, concepts and realizations, and through analysis of movements and works of individual architects, to give students wider relevant base grounded on the historical perspective and cultural and socio-political context. Additionally, the course aims for students to connect theoretical knowledge from lectures with their design engagements.

Learning outcomes:
Students are expected to acquire following abilities: basic understanding and systematization of knowledge on main trends in modern architecture and urbanism; basic knowledge on important authors and works of modern architecture and urbanism worldwide and in Serbia; formulation of wide relevant basis on historical perspective and cultural and socio-political context; initial knowledge on theories of avant-garde and modernism in architecture and urbanism; analysis of architectural work, concept, plan or design; basic understanding of the method of research by design; basic knowledge on comprehensive, systematic and original presentation of a work.

Course brief:
Theoretical education:
Through reviewing and problematic lectures, presentations of case studies (ex cathedra) and interactive teaching, the course deals with several theme frames: visionary architecture and urbanism of 18th and 19th century; groundbreaking trends in architecture and urbanism at the beginning of 20th century; avant-garde movements in architecture and urbanism of 20th century: theory and practices; modern movement in architecture and urbanism: theory and practices; interpretation of modern architecture and urbanism in current architecture.

Literature:
- Sigfrid Gidion. Prostor, vreme i arhitektura. Beograd: Građevinska knjiga, 2002
- Kenet Frempton. Moderna arhitektura: kritička istorija. Beograd: Orion, 2004
- Ljiljana Blagojević.Moderna kuća u Beogradu, 1920-1941. Beograd: Zadužbina Andrejević, 2000
- Ljiljana Blagojević.Modernism in Serbia: The Elusive Margins of Belgrade Architecture, 1919-1941. Cambridge, Mass.: MIT Press in association with Harvard University Graduate School of Design, 2003

Active training classes no.:				Other:
Lectures:	Practical classes:	Other teaching forms:	Studio research:	
2	/	/	/	

Teaching methodology:
Teaching is exercised through ex cathedra lectures, interactively through public students' presentations, individual and public consultationas and development of a semester paper.
Pre-exam requirements include taking 2 colloquies –tests, intended for a check on students' consistency in classes. The exam includes the development of a semester paper using research by design method, which includes cases tudy, analisys, conclusion drawing and creative design interpretations of one thematic unit by choice.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	40
Practical classes		Oral exam	
Colloquia	30+20=50	…..	
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	HISTORY OF MODERN ART AND DESIGN
Teacher:	Professor Ph.D. Vladimir F. Mako
Type of course:	Compulsory
ECTS:	1

Preconditions:
/

Objectives:
The course objective is to introduce students with the history and theory of fine arts, design and visual culture. The lectures chronologically follow art concepts from the emergence of industrial design to postmodernism. The course elaborates issues of visual artwork, function of art, connections between fine arts and its theory, as well as the most diferent questions regarding the relations and interactions between various arts in the context of aesthetic and theoretical considerations.

Learning outcomes:
Understanding of different theoretical, aesthetical, conceptual and discursive relations featuring the relationship between art, design and shaping from the industrial revolution to today.

Course brief:

Theoretical education:

Theoretical education gives chronological study and consideration of concepts and movements in modern arts and design applying the method of discursive analysis, by which are defined certain knowledge objects and forms for elaboration of concepts and theories. Lectures provide knowledge on the world of art representing the type of application where artwork reacts to the cultural context in which it was created. An artwork placed in different concepts has different meanings. Thus, the status of artwork is not universal and out-contextual, but interactive and linked to the context in which the artwork is observed, interpreted, understood or experienced. Discursive analysis is a platform from which theory of art and design is being determined. It is used to link artistic practice and artworks to the cultural and social mechanisms of an era through verbal speech and other communication forms. Lectures are trying to process different concepts of art stating the art as non-universal.

Literature:

- Miško Šuvaković, Pojmovnik teorije umetnosti, Orion art, Beograd, 2012.
- Miško Šuvaković, Pojmovnik suvremene umjetnosti, Horetzky, Zagreb, Ghent, 2005.
- Miško Šuvaković, Konceptualna umetnost, Muzej savremene umetnosti Vojvodine, Novi Sad, 2007.
- Đilo Dorfles, Uvod u dizajn - Jezik i istorija serijske proizvodnje, Svetovi, Novi Sad, 1994.
- Ješa Denegri (ed.), Dizajn i kultura, SIC, Beograd, 1980.

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Lectures according to previously set schedule. Standing one-week consultation in students may resolve all issues related to the teaching content and inform themselves about colloquies and examination.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70
Practical classes		Oral exam	
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	URBAN MORPHOLOGY
Teacher:	Professor Ph.D. Vladan A. Djokić
Type of course:	Compulsory
ECTS:	3

Preconditions:
/

Objectives:
Introduction to the phenomenon of morphological characteristics of the city. Complex study of key morphological characteristics of urban areas and their interdependence with functional characteristics as well as with cultural context in which they are located. The overall phenomenon of the urban structure is observed morphogenetically, i.e. within the historical continuity of its creation, development and changes through time. Introduction with specificities of morphological characteristics of cities in Serbia resulted from cultural identity of our environment.

Learning outcomes:
Ability to understand the phenomenon of urban morphology and typological overview of morphological characteristics of urban spaces. Knowledge on key morphological characteristics of cities in Serbia and causes of found states.

Course brief:

Theoretical education:

A: PHENOMENON
1. Main determinants of urban morphology
2. Positions of urban structures and distribution of elements
3. Unit by urban space dimensioning
4. Shape of urban space
5. Function of urban space as a basis for its understanding
7. Relation between function and physical structure of the city
8. Morphogenesis of urban space
9. Understanding the way of use of urban space by Cultural identity

B: SPECIFICITIES OF OUR ENVIRONMENT
10. Cultural identity of our environment
11. Morphological characteristics of cities in Serbia
12. Functional characteristics of cities in Serbia
13. Forming new and reconstruction of existing cities in Serbia
14. Transformation of inherited structures

Practical education:

/

Literature:

- Djokić, Vladan. Urbana morfologija - grad i gradski trg. Beograd: Arhitektonski fakultet Univerziteta u Beogradu, 2004.
- Djokić, Vladan. Urbana tipologija: gradski trg u Srbiji. Beograd: Arhitektonski fakultet Univerziteta u Beogradu, 2009.
- Kostof, Spiro. The City Shaped: Urban Patterns and Meanings Through History. Boston: A Bulfinch Press Book: Little, Brown and Company, 1991.
- Kostof, Spiro. The City Assembled: The Elements of Urban Form Through History. Boston: A Bulfinch Press Book: Little, Brown and Company, 1992.
- Krier, Rob[ert]. Urban Space. London: Academy Editions, 1979.

Active training classes no.:				Other:
Lectures: 3	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	50
Practical classes		Oral exam	
Colloquia	50		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL STRUCTURES 2
Teacher:	Assistant Professor Zoran M. Stepanović (course leader), Assistant Professor Dragan n. Marčetić
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
Introduction with basic terminology, principles and elements of roof materialization, and physical phenomena to which the building is exposed. Through the course the students master the logic of designing and building methods of structures in the massive construction system.

Learning outcomes:
Information, understanding and readiness of students to be able to deal with, to the practical sense through the next practical education system, the logic of design and construction methods of roof structure of buildings in massive building systems.

Course brief:

Theoretical education:

Pitched wooden roofs: Introduction, classification
Traditional wooden roof structures: closed couple roof, rafter tie and collar tie
Traditional wooden roof structures: purlin roof structures – king and queen post truss
Traditional wooden roof structures: roof trusses with purlins, mono and dual pitched roofs
Contemporary wooden roof structures
Roof finishes, introduction, terminology
Roof covering – materials, classification, coverings' intersection, gutters, details
Roof dormers – roof windows, chimneys, ventilation
Finishing and isolation
Flooring, walls and ceilings finishing.

Practical education:

Practical classes are related to Arch. Structures 2 Studio design.

Literature:

- Branislav Žegarac: Tradicionalne i savremene drvene krovne konstrukcije, Beograd, Regija, 2007.
- Miodrag Petrović: Arhitektonske konstrukcije 1 i 2, Beograd, ICS, 1978.
- Wolfgang Brennecke, Heiko Folkers, Friedrich Haferland, Franz Hart: Atlas krovnih konstrukcija-kosi krovovi, Beograd, Građevinska knjiga, 1990.
- Martin Mittag: Gradjevinske konstrukcije, Beograd, Građevinska knjiga, 2003.
- Eberhard Schunck, Hans Jochen Oster, Rainer Barthel, Kurt Kiessl: Roof Construction Manual - Pitched roofs, Basel, Birkhauser - Publishers for Architekcture, 2003.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
System of lectures.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70
Practical classes		Oral exam	
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	SYNTHESIS OF ELEMENTS AND ASSEMBLIES – MASIVE STRUCTURE DESIGN
Teacher:	Professor Ph.D. Milica Dj. Jovanović Popović
Type of course:	Compulsory
ECTS:	4

Preconditions:
/

Objectives:
The course objective is to practice the knowledge acquired in the theoretical courses, namely Architectural structures 1 and 2, through the development of main design of a smaller individual building. The work on the design provides students with necessary knowledge of structure and materialization of a smaller building and practically rounds up into a whole individual segments of the system which they encountered in theoretical education.

Learning outcomes:
Acquiring knowledge about the structure and materialization of a smaller individual building by practicing on a particular example. During the work on the design, students pass methodological procedure of selection of materials and structure and practically apply the knowledge gained in the field of Architectural structures.

Course brief:

Theoretical education:

Theoretical education is based on the methodology of design development, from the conceptual solution to main design. The thematic units include the following: methodology of selection of structure, materialization of all elements of a house: walls, staircases, openings, floors, flat and pitched roof. Teaching is designed to theoretically complement the practical part and provides necessary knowledge for the design development.

Practical education:

Practical classes are designed so that students start working on the conceptual solution and, through the elaboration of individual segments, assemble a unity, resulting in the main design including: plans, sections, elevations and all characteristic details. The conceptual solution of the building is designed so that students practice the solution of the structure, stairs, terrace as a flat roof, pitched roof over one part of the building, bay windows, and porches and thus overcome all problems they can meet in practice in the development and materialization of a smaller building. The conceptual solution gives students a possibility of creative expression in selecting materials, resolving details and thus in creating the overall appearance of the building.

Literature:
- Textbook on architectural structures, AF Bookshop
- Branislav Žegarac: Tradicionalne i savremene drvene krovne konstrukcije, Beograd, Regija, 2007.
- Ranko Trbojević: Arhitektonske konstrukcije, Masivni konstruktivni sklop, Orion, 2001.
- Božidar Milić: Elementi i konstrukcije zgrada, Univerzitet Crne Gore, Podgorica 1999.
- Wolfgang Brennecke, Heiko Folkers, Friedrich Haferland, Franz Hart: Atlas krovnih konstrukcija-kosi krovovi, Beograd, Građevinska knjiga, 1990.

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: 3	Studio research: /	

Teaching methodology:
Lectures and practical classes are performed in groups of 20 students.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	60
Practical classes		Oral exam	
Colloquia	40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	MECHANICS AND STRENGTH OF MATERIALS
Teacher:	Assistant Professor Ruža D. Okrajnov Bajić
Type of course:	Compulsory
ECTS:	3

Preconditions:
/

Objectives:
Teaching in the field of mechanics and strength of materials enables students to define elements of architectural structures, to learn about nature, distribution and range of forces which oppose to the action of external loading and distortion of elements. This course teaches students to properly define stressing of elements of architectural structures so that they can be sized in order to receive and transmit forces to other elements, which is a prerequisite for the formation of a stable and technically correct structure.

Learning outcomes:
Theoretical and practical knowledge in the field of architectural engineering, which ensures competences and academic skills necessary for successful work in the field of architecture.

Course brief:

Theoretical education:

LECTURE 1: Material systems. Statistics of a material point. Conditions of equivalence and equilibrium of forces. Lecture 2. – Statics of free rigid body. Condition sof equivalence and equilibrium of force systems. Position of the resultant. Lecture 3. Introduction into Statics of girder. Structure and division of linear girders. Definition and calculation of internal forces. Girders of simple beam system and cantilever beams. Lecture 4. – Polygonal girders. Gerber girder. Lecture 5. – Trusses. Forces in members. Methods of nodes and sections. Lecture 6. – Geometrical features of sections. Static moments and moments of inertia. Lecture 7. - Change in the moments of inertia in the translation and rotation of the coordinate system. Principal moments of inertia. Lecture 8. – Concept and definition of stress. Types of stress. Axial stress. Normal stress. Deformation of axially prestressed member. Thermal stress. Sizing and control of stress. Lecture 9. – Pure straight bending. Hypothesis of flat sections. Distribution of normal stresses. Sizing at pure bending. Lecture 10. – Straight bending by forces. Distribution of shear stresses. Conjugation of shear stresses. Pure shear. Lecture 11.- Deformation of girders stressed to bending. Determination of deflection and slope of the elastic line of bent girder. Lecture 12.- Oblique bending. Pure oblique bending and oblique bending by forces. Stresses and deformation. Position of neutral axis. Sizing of girder; lecture 13. – Eccentric pressure or tightening. Expression for normal stress. Core of section. Lecture 14.- Stability of members stressed to pressure. Basic cases of buckling of straight member. Sizing of members. Lecture 15.- Preparation of test tasks.

Practical education:

EXERCISE 1: Determination of resultant for an arbitrary system of forces acting upon a material point. Exercise 2. – Determination of resultant for an arbitrary system of forces acting upon a rigid slab. Exercise 3. – Determination of reactions of supports and intersecting forces for the girder of simple beam system and cantilever beam. Exercise 4. – Determination of reactions of supports and intersecting forces for Gerber girder. Exercise 5.- determination of reactions of supports and intersecting forces for polygonal girder. Exercise 6. - Determination of reactions of supports and forces in truss members. Exercise 7.- Determination of position of centroid, surface static moments and moments of inertia of sections. Exercise 8. – Determination of moments of inertia for principal axes of inertia and radius of the ellipse of inertia. Exercise 9.- Determination of stress, deformations and sizing, axial. Exercise 10.- Distribution of normal and shear stresses at section of girder stressed to bending. Exercise 11. – Sizing and determination of deformations of girder stressed to bending. Exercise 12. – Sizing of girder stressed to oblique bending. Determination o fposition of neutral axis and extreme normal stresses. Exercise 13.- Determination of position of neutral axis and extreme normal stresses for girder stressed to eccentric pressure and tightening.

Literature:

- Predrag Jovanović, Božidar Petrović: "Statika I i II", Zavod za izdavanje udžbenika, Beograd, 1963.
- Dimitrije Rajić, Živorad Bojović: "Otpornost materijala", Zavod za udžbenike i nastavna sredstva, Beograd, 1994.
- Dimitrije Rajić: "Otpornost materijala - Zbirka rešenih zadataka sa izvodima iz teorije", Zavod za udžbenike i nastavna sredstva, Beograd, 1995.
- Đorđe Blagojević, Aleksandra Nenadović: "Mehanika i otpornost materijala - Praktikum", Arhitektonski fakultet, Beograd, 2007.

Active training classes no.:				Other:
Lectures: 2	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
Teaching includes two-hour lectures and two-hour practical classes per week. Practical classes thematically follow lecturing programme, and are supposed for exercising numerical examples related to previously theoretically presented thematic unit.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	40
Practical classes	30	Oral exam	
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL GEOMETRY 2
Teacher:	Assistant Professor Ph.D. Djordje D. Djordjević
Type of course:	Compulsory
ECTS:	3

Preconditions:
/

Objectives:
Introduction to different "spatial" presentation of architectural and urban forms in two dimension – inclined projections and perspective, to so called method of perspective restitution and photomontages, as well as to research of lightening impacts on spatial properties and visual impression.

Learning outcomes:
Development competencies to: construct inclined projections and perspective views of architectural and urban space; reconstruct geometric properties of architectural and urban space shown in photographs (restitution); photomontages; construct shadows for a given light source – in various types of 2D presentations; and develop "three-dimensional thinking" in the process of architectural and urban design – taking advantages of virtual CAAD 3D spaces

Course brief:

Theoretical education:

Familiarization of students with: the basic principles of constructing the spatial view of architectural-urban elements – oblique projections and perspectives , the logic of perspective restitution of their shaping and dimensional characteristics – using information from photos in which these elements are presented, the basic principles of photomontage, the typology and properties of different types of light sources in the context of their impact on the affirmation and degradation of the geometry and the basic principles of constructing the shadows of architectural-urban forms for typologically elaborated types of lighting, in order to develop the ability to predict / program their impact on the visual impression of the overall quality of future space – in its preliminary design phase.

Practical education:

Training students for productive/practical application of gained theoretical knowledge relating to: (1) constructing of spatial views of architectural-urban forms (oblique projections and perspectives) , (2) the restitution of shaping and dimensional characteristics of architectural-urban forms shown in photos, (3) photomontage, and (4) the application of lighting to emphasize/affirm geometrical characteristics of architectural-urban forms.

Literature:

- Graphic templates for lectures /A4. Lectures' extracts are available to students electronically on the Faculty website.
- Graphic templates for practical classes /A4. Solutions of given tasks are available to students electronically on the Faculty website.
- Gagić, Lj.(2004), Nacrtna geometrija, Akademska misao, Beograd
- Živanović, S., Čučaković, A. (2008), Zbirka zadataka iz nacrtne geometrije i perspektive sa rešenim primerima, Akademska misao, Beograd,
- Anagnosti, P. (1986), Perspektiva, Naučna knjiga, Beograd,
- Potmann, H. Asperl, A., Hofer, M. & Kilian, A. (2007), Architectural geometry, Bemntley Institute Press, Exton, Pennsylvania – USA

Active training classes no.:				Other:
Lectures: 2	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Lectures and practical classes are held simultaneously in Faculty amphitheatre with the aim to establish interactivity between students and lecturer, supported by modern didactic means.
Lectures: Lectures involve interactive communication with students: debates and discussions during the work on graphic presentations that follow a theme overviewed on lectures.
Practical classes: Tasks follow thematic units presented during lectures.
Work on the development of practical task is individual, with active consultation with all participants of the course

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	40
Practical classes	20	Oral exam	
Colloquia	2x20=40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	HOUSING
Teacher:	Associate Professor Vladimir M. Lojanica
Type of course:	Compulsory
ECTS:	3

Preconditions:
/

Objectives:
Introduction with the theme of architectural and urban structures of family and multifamily housing. Information about the factors influencing the types and levels of architecture of this typological groups and study of their different morphological and structural manifestation in space are some of the focal themes of the course. Lectures on course precede and are functionally related to the work in Design Studio 01 and represent the theoretical background for gaining experience in applying theoretical knowledge to solve practical problems in the process of design.

Learning outcomes:
Expected outcome is mastering the knowledge for researching the conditions and influential factors of context that lead to different typologies of assemblies, their identification and comparison, as well as for studing design techniques with which students are introduced into the general methodology of the design procedure for the design of buildings of this type.

Course brief:
Theoretical education:
Theaching includes following thematic units: Introduction to residential environment of family and multifamily residential facilities, Characteristics of family and multifamily residential facilities, Typology of housing architecture, Designing conditions for residential buildings, Typology of multi-family residential houses, Housing unit/Appartment and its functions, Housing legislation, Architectural heritage of residential architecture, Contemporary tendencies in design of housing architecture

Literature:
- Vladimir Lojanica, Stanovanje – tematske celine, Arhitektonkski fakultet, Beograd, 2013.
- Other required readings will be specified during the course.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	40
Practical classes		Oral exam	
Colloquia	60		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	HISTORY OF ARCHITECTURE – SHAPING OF SPACE AND STYLE
Teacher:	Assistant Professor Ph.D. Gordana D. Milošević-Jevtić
Type of course:	Compulsory
ECTS:	3

Preconditions:
/

Objectives:
The objective of the course is to familiarize students with the basics of the history of architecture and city through theoretical aspects of studying from the formation of the first civilizations to the architecture at the dawn of the modern age. Students learn about the complex process of the development of architecture and settlement, construction logic, meaning of the space and the use of symbols in architecture.

Learning outcomes:
Students are expected, after passing the exam, to have basic knowledge of architectural history and acquire the skill of observation of architecture and its development path; to understand the basics of the evaluation and analysis of individual architectural buildings throughout history, as well as to be able to, on the basis of a number of analyzed buildings, have general views on programs in architecture, forms, style and strutcture; to use applied principles in design throughout architectural history and implement them in a contemporary way in their own creative work.

Course brief:

Theoretical education:

Overview of the development of architecture and city from the oldest prehistoric human creations, their transformation and definition in civilizations of Egypt and Mesopotamia. The birth of European architecture in the ancient civilizations of Greece and Rome, through an overview of developments in the transition from Late Antiquity to the Middle Ages. Establishment of early Christian thought in architecture in the Middle Ages in the East and the West. Transformation of Byzantine architecture after the fall of Constantinople. Reciprocity in the elements of Romanesque and Gothic architecture. Development of social ideas and basic principles of Renaissance architecture and the continuity of classical architecture. Renaissance builders and their works, comparative analysis of sacred and profane structures. Organization of Renaissance cities in the theory and practice of heritage and application of new ideas. "Juxtaposition" – general features of Baroque, conditions of origin and cultural situation in Italy and the development of Baroque ideas in the area of Western and Central Europe. Reintroduction of the classical ideas of architecture at the dawn of the modern age. The focus is on understanding the spatial organization, the interpretation of phenomena and the origin and transformation of elements and unities throughout the history of styles, the identification of the development of materials, construction techniques and structural systems. Aesthetic experience in architecture and patterns of creation of universality of ideas. Familiarization with the most significant architectural achievements in architectural history from prehistory to the emergence of Renaissance. It is anticipated to abstract, through comparative analyses, certain archetypes of bases and forms of structure and consider them as universal ideas that are transformed in terms of program solution, immediate function and applied structure. The particular focus in the lectures is on selected examples of public (sacred and profane) architecture, made in the spring of certain civilizations and stylistic groups, as well as their impact on the formation of schools and the so-called 'provincial' architecture. The topics are selected with the aim of referring students to parallel reading of texts in several books or parts of the text in one book and separating individual from general in the context of architectural development.

Literature:

- Traktenberg, M., Hajman, I.: Arhitektura od preistorije do postmodernizma, Građevinska knjiga, Beograd 2006.
- Milić, B.: Razvoj grada kroz stoljeća, Knjiga 1, 2 i 3, Školska knjiga, Zagreb.
- Műller, W., Gunther, V.: Atlas arhitekture 1 i 2, Građevinska knjiga, Beograd, 2005.
- D. Watkin, A History of Western Architecture, 4th edition; Laurence King Publishing, 2005.
- P. Marej, Arhitektura italijanske renesanse, Građevinska knjiga, Beograd, 2005.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Teaching includes ex cathedra lectures according to the mentioned thematic units. Each lecture includes several forms of teaching; case analysis, interactive communication and focused thematic discussion, with the aim of exciting students' personal interests and mastering the basics of architectural history, through the history of architectural programs, building systems, the history of styles and semantic relations. Connecting general and individual analysis with the principles of design in contemporary architecture and urban planning. Integral parts of the teaching are regular consultations regarding the exam, and the basic and extended literature.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70
Practical classes		Oral exam	
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT URBAN DESIGN 1[19] – URBAN SPACE DESIGN
Teacher:	Associate Professor Ph.D. Aleksandra M. Djukić
Type of course:	Compulsory
ECTS:	2

Preconditions:
Passed exam from study units related to urbanism in 1st and 2nd semester

Objectives:
Development of elementary abilities for understanding, systematization and analysis of the process of formation and transformation of urban spaces and ambiences, and so to recognize tools and to gain basic skills for dealing with urban design and shaping of urban spaces.

Learning outcomes:
Understanding, knowledge and skills: training for oral, written and graphical expression: ability of observation, data collection and systematization of data and conclusions drawing; ability of analytical thinking; development of professional curiosity, independency in understanding of relations and processes and creative approach to express problems of the city and public spaces.

Course brief:

Theoretical education:

1. Identity of the city, character and genius loci 2. Cultural patterns as a function of urban spaces shaping 3. Accesibility 1 (pedestrians, bicycle, vehicle, public transport, to plot, block, unit, open urban space, networking of spatial elements) 4. Accessibility 2 (stationary traffic – types, capacities, engineering elements) 5. Asses for all 6. Multi-functionality (form and function) and flexibility (adaptability) 7. Security of urban spaces 8. Comfort, vitality and inspiration (covering, greenery, materialization, outdoor furniture) 9. Dimensioning, scale, orientation: horizontal and vertical leveling (level of plot, block, street, open space, cross- and longitudinal sections, climatic impacts) 10. Landmarks, rappers and opening 11. Continuity and silhouettes 12. Landscape composition 13. Axes of composition and balance 14. Colors 15. Proportions in the composition

Practical education:

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Literature:

- The Urban Design Compendium, English Partnership, 2000.
- Hertzberger,H.: Lessons for Students in Architecture, Uitigeverij 010 Publishers, Rotterdam, 1993.
- Gehl, J., et all: Places for People, Melbourne, 2004 (e-book)
- Bazik, D.: Scenario života u gradu: proces nastajanja gradske scenografije, edicija Arhitektonika, AF, Beograd,1996

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	/

Teaching methodology:
Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	50
Practical classes		Oral exam	
Colloquia	30	PART OF THE FINAL GRADE[20] of the Study unit – Urban design 1	
Seminar-s			

[19] Study unit Leader: Associate Professor Ph.D. Aleksandra M. Djukić

[20] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT URBAN DESIGN 1[21] – SPECIFIC THEMES OF URBAN SPACE DESIGN: RECREATION
Teacher:	Assistant Professor M.Sc. Jelena A. Živković
Type of course:	Compulsory
ECTS:	1

Preconditions:

Passed exam from study units related to urbanism in 1st and 2nd semester

Objectives:

Introducing students with problematic and thematic approach to the shaping of urban space, through recognition and understanding of the relations between urban design and planning, architecture and landscape architecture.

Learning outcomes:

Understanding the multidisciplinary and multiscalar nature of the urban design, as well as its relation to the social, economic, political, natural-environmental and cultural context. Recognizing the complex role of urban design in the development of cities and understanding of current issues/problems that shape the modern approach to urban design. Understanding the specific problems of shaping of certain types of urban spaces: recreation and open areas. .

Course brief:

Theoretical education:

This course includes the following topics: 1) Nature and purpose of the urban design: Urban design at different spatial and problematic levels; Urban design and planning, architecture, landscape architecture; 2) Problem-oriented urban design in modern development of cities – an overview of current thematic frameworks: a) "Nature and city": urban design and environmental/climatic challenges, b) "Living together": urban design and multiculturalism, c) "Right to the city" – formal/informal in urban design, d) "Healthy city" – the concept of active design; e) Urban design and competiveness of cities, f) "City of game": entertainment, creativity and education through design; 3) Specifics of shaping of certain types of city spaces – Example: open/recreational areas: Functional and environmental bases of development; Needs, activities and spaces; Types of spaces (parks, squares, pedestrian zones, coastal, centers of leisure, sports, culture, game and entertainment ….); Networks and locations; Program – spatial concepts; Shaping, development and equipping.

Practical education:

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Literature:

- Loidl H., Bernard S. (2003) Opening Spaces: Design as Landscape Architecture, Basel: Birkhauser
- Lefaivre L.,Doll (2007) Ground-up City-Play as a Design Tool, Rotterdam: OIO Publishers
- Hugh, Barton, (2004) Shaping Neighbourhoods, London, New York : Spon Press
- Lang J. (2005) Urban Design: a typology of procedures and products, Oxford:Architectural Press
- Vesnić Neđeral Ž.(1993) Urbana rekreacija, Beograd:Arhitektonski fakultet

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:

Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	50
Practical classes		Oral exam	
Colloquia	30	PART OF THE FINAL GRADE[22] of the Study unit – Urban design 1	
Seminar-s			

[21] Study unit Leader: Associate Professor Ph.D. Aleksandra M. Djukić

[22] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL STRUCTURES 3
Teacher:	Professor Ph.D. Aleksandra D. Krstić-Furundžić (course leader), Assistant Professor M.Sc. Budimir S. Sudimac
Type of course:	Compulsory
ECTS:	2

Preconditions:

Passed exams from courses Architectural structures 1 and Architectural structures 2

Objectives:

Familiarization with modern principles, methods and logic of the design of materialization of architectural buidlings with reinforced concrete load-bearing structure and introduction to the principles of design of materialization of façade systems. Discussion of concepts and details of facades, different in terms of material and construction techniques, taking into account the impact of functional-shaping and structural requirements and criteria of comfortable stay. Understanding the specifics of materialization of bay windows, balconies and roof floors. Acquiring knowledge about basic principles of industrialized and prefabricated construction, assemblies and elements of prefabricated structures and principles of design and installation of joints. Students will be also introduced to the fire protection measures.

Learning outcomes:

Acquiring general knowledge, in the field of materialization of architectural buildings with reinforced concrete structures, and specific knowledge and skills necessary for the development of final design, work in practice and training in further studies. Developing knowledge about the relations of forms, functions and physical properties present in the design of materialization of buildings with rc-structure, with the focus on the skeleton structures. .

The knowledge gained in this course are necessary to follow teachning in the courses Architectural Structures 4 and Design Studio: Architectural technologies.

Course brief:

Theoretical education:

Materialization concept and functional and formal qualities of reinforced concrete structures and massive buildings. Types of reinforced concrete ceilings – principles of design and construction. Vertical structural elements – types, functions and formal features. Types of foundations of skeletal buildings. Concepts and details of façade diversified in terms of materials and construction techniques considering functional, formal and structural demands and comfort criteria. Materialization properties of bay windows, terraces and roof floors – designing principles, details. Basics of industrialized and prefabricated construction. Designing principles of modular buildings, functional, structural and formal aspect. Mounting plans. Prefabricated staircases. Combined structural systems. Analysis of practicing examples as a part of theoretical education.

Literature:

- Krstić-Furundžić, A., textbook "Raznovrsnost materijalizacije arhitektonskih struktura", Arhitektonski fakultet Univerziteta u Beogradu, 2003, Beograd (ISBN 86-80095-48-6)
- Ivković, V, Višespratne skeletne zgrade – konstruktivni sklopovi i elementi, Arhitektonski fakultet, Beograd.
- Krstić-Furundžić, A., textbook "Osnove materijalizacije savremenih industrijalizovanih objekata", Arhitektonski fakultet Univerziteta u Beogradu, treće dopunjeno izdanje, 2000, Beograd (YU ISBN 86-80095-47-8)
- Krstić-Furundžić, A., Žegarac, B., Rajčić, A., textbook "Principi i tehnike oblaganja fasadnih zidova", Arhitektonski fakultet Univerziteta u Beogradu
- Krstić-Furundžić, A., Kosić, T., Terzović, J., "Architectural Aspect of Structural Design of Glass facades/Glass Skin Applications", in Challenging Glass 3, Proceedings of the Conference on Architectural and Structural Applications of Glass, Editors: Bos, Louter, Nijsse, Veer, Faculty of Civil Engineering and Geosciences, Delft University of Technology, IOS Press BV, The Netherlands, June 2012, str. 891-900.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:

Lectures and interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	60
Practical classes		Oral exam	
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STRUCTURAL PRINCIPLESS OF ARCHITECTURAL BUILDINGS
Teacher:	Professor Ph.D. Milan T. Glišić (course leader), Assistant Professor Ph.D. Ruža D. Okrajnov Bajić
Type of course:	Compulsory
ECTS:	3

Preconditions:

Passed exam from course Mechanics and strength of materials.

Objectives:

Introduction to structural principles of architectural buildings; approaches, systems and methods of formation of structural assemblies by recognizing and formulating static shemes on concrete examples of buildings, stress analysis and introduction to statically indeterminate beams (continuous beam) with a static calculation of impact.

Learning outcomes:

This course provides students with knowledge to understand logic of forces transfer within the building's structures, local and comprehensive stability of structural elements and optimal application of certain structural systems and materials.
This course includes subject matters that is logical connection between courses Mechanics and strength of materials and Design and calculation of architectural structures 1 and 2.

Course brief:

Theoretical education:

Structural loading, Structural elements, Reinforced concrete ceilings, Staircases, Reinforced concrete columns and walls, Foundations, Continuous beam – symmetric beams – envelopes, Steel structures, Wooden structures.

Practical education:

Stress analysis, Positioning of structural elements – residential building, Load distribution – reinforced concrete floor slab, Load condensation, Reinforced concrete staircase, Continuous reinforced concrete floor slab, Continuous reinforced concrete beam, Envelope of continuous beam, Load distribution – reinforced concrete column and wall, Positioning of structural elements – steel hall, Load analyses of steel roof structure, Load analyses and static calculation of the purlin, Load distribution – Arc with three joints and sloping beam

Literature:

- Lectures in the course Structural principless of architectural buildings
- Textbook of practical tasks
- Book of solved exam tasks

Active training classes no.:				Other:
Lectures: 2	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:

Lectures and practical classes.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	60
Practical classes	15	Oral exam	
Colloquia	25		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 01-a FAMILY HOUSING
Teacher:	Associate Professor Vladimir M. Lojanica, Ana Z. Nikezić, Đorđe V. Stojanović, Vladimir B. Milenković, Vesna P. Cagić-Milošević, Nebojša S. Fotirić, Igor Ž. Rajković, Miloš M. Nenadović, Zoran R. Abadić, Milan M. Maksimović, Miloš M. Komlenić, Aleksandar Č. Videnović, Ivan J. Kucina, Dragan B. Stamenović
Type of course:	Compulsory
ECTS:	10

Preconditions:

Students are distributed administratively based on the grade achieved in Study units Space and shape and Elements of architectural design in the 1st year of studies so that among studies is accomplished equal ratio of success.

Objectives:

Introduction with method of correalating architectural elements into simple functional and logical structural assemblies which are consistent with environment. Gaining experience in application of theoretical knowledge on elements of architecture, urbanism and architectural structures in solving practical tasks within a designing act. Development of skill to design smaller urban assemblies and architectural facilities of family housing on a given location in free environment from a concept, over an idea to conceptual design. Second part of semester includes designing a multi-family building in terms of built environment and interpolation with all solution aspects.

Learning outcomes:

Development of ability to create architectural designs that satisfy functional, aesthetic and technical requirements; to understand the methods of investigation and preparation of design brief, to develop responsibility for proper work and ability of self-criticism; to work highly independent and collaborating with others; to develop capacities to practicaly apply knowledge; to understand the relationship between people and buildings, and between buildings and their environment, and the need to relate buildings and the spaces between them to human needs and scale; improve the level of communication skills in verbal, written, graphical and digital forms.

Course brief:

Practical education:

The topic of semester assignment is related to family and multi-family housing in emerging urban environment or in concrete urban situations. All urban parametres, infrastructural and traffic conditions are proposed, but may be adjusted during the work. First part of semester is dedicated to conception, selection and elaboration of the architectural solution for a family residential facility – house within the location frame. The entire plot area shall be treated as a whole, with open, closed and transitional zones. Common topic is single family housing building intended for four-member family aligned with terms of legislation in this area. This assignment is supposed for team work. Team members choose a plot for which will individually develop a design, and along will coordinate their work in order to create meaningful whole – joint site plan. Having defined urban frame which allows maximal flexibility in the selection of position or plot size, design brief is set with no strict directions. The intention is to achive specific and concrete particular briefs, by working on the assignement and with parallel relevant theoretical education.

Literature:

- Vladimir Lojanica, Stanovanje – tematske celine, Arhitektonkski fakultet, Beograd, 2013.
- Other required readings will be specified according the given design brief out the tables 10.3 and 10.4 and other resources.

Active training classes no.:				Other:
Lectures: /	Practical classes: /	Other teaching forms: 8	Studio research: /	

Teaching methodology:

Studio-based methodlogy, with occasional lectures on design related topics. Combination of several teaching forms – ex cathedra lectures, interactive teaching, case studies, individual and group projects, research, presentation, essays, seminars, etc.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	
Practical classes	10	Oral exam	5
Colloquia	30	Design project	55

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 01-b URBAN DESIGN OF RESIDENTIAL ASSEMBLIES
Teacher:	Assistant professor Zoran N. Djukanović
Type of course:	Compulsory
ECTS:	1

Preconditions:
Passed exam from study units related to urbanism in 1st and 2nd semester

Objectives:
Introduction with basic methods and techniques of the analysis of location and urban design. Gaining experience in the application of theoretical knowledge of spatial shaping in solving practical tasks in the process of urban design. Developing the skill in urban designing of small urban unities, mainly residential.

Learning outcomes:
Upon completion of the course, students will be expected to:
• understand the multi-layered character of the urban space
• have knowledge of different aspects, methods and techniques of the analysis of location and develop the skill of their application in a concrete urban context
• be able to define, based on understanding different urban needs and knowledge of specific relations and processes in the space, possibilities of its improvement in the field of urban design.

Course brief:

Theoretical education:

1)Urban design of small urban unities, mainly residential: Urban design at different spatial and problematic levels; Urban design and planning, architecture, landscape architecture; 2) Problem-oriented urban design in modern development of cities – an overview of current thematic frameworks. 3) Specifics of shaping of certain types of city spaces – Example: small residential communities of low density of development; Functional basis of development; Needs, activities and spaces; Types of spaces; Networks and locations; program – spatial concepts; Shaping, development and equipping

Practical education:

/

Literature:

- Priručnik za urbani dizajn (Urban Design Compendium), Orion Art and Prograf, Belgrade, (2008)
- GLC Study (1978) An Introduction to Housing Layout; The Architectural press Ltd: London
- Moughtin C.(2003) Methods and Techniques, Oxford [etc.] : Architectural Press
- Thomas R., Fordham M. (ed.)(2005) Sustainable Urban Design : An Environmental Approach, London, New York: Spon Press
- Hugh, Barton, (2004) Shaping Neighbourhoods, London, New York : Spon Press

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching, case studies.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	40
Practical classes		Oral exam	
Colloquia	40	PART OF THE FINAL GRADE[23] of the Study unit – STUDIO 01b Urban design	

[23] The final grade is being awarded for the Study unit Studio 01b as a sum of single grades achieved on each of courses depending on the number of ECTS. (Study unit Leader: Assistant professor Zoran N. Djukanović)

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	VISUAL REPRESENTATION IN ARCHITECTURE
Teacher:	Professor M.Sc. Dragan M. Jelenković
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The course objective is for students to acquire knowledge and practical experience in art representations and art transposition of architecture, nature and urban environment, as well as in art communications which explore connections and methods that exist in the field of synthesis of fine arts and architecture. Through a complex art researches the students explore the possibilities of application in design work.

Learning outcomes:
Understanding and acceptance of knowledge and practical experiences in visual presentation and transposition of forms and space, as well as the application of these skills in the work within the Studio Design.

Course brief:
Natural environment and art work / introduction to anatomy and anthropological proportion / Representation of body in space and architecture / Art study of interior / Art study of architecture / Art communications in architecture / Artistic drawing in design process / Urban environment and ambient / Examples of contemporary fine art / Art concept and presentation

Literature:
- Pavle Vasić, Uvod u likovne umetnosti, Fakultet likovnih umetnosti, Beograd, 1968.
- Zoran Pavlović, Prostor oblika i boje, Klio, Beograd, 1997.
- Johanes Iten, Umetnost boje, Umetnička akademija, Beograd, 1973.
- Rudolf Arnhajm, Umetnost i vizuelno opažanje, Univerzitet umetnosti Timothy Samara, Design Elements, Rockport.
- H.V.Dženson Istorija umetnosti, Beograd 1983 ili kasnija izdanja

Active training classes no.:				Other:
Lectures: 1	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
The methodology is related to research, design, development and production of works involving synthesis of architecture and fine arts. Students perform practices which are individually determined and related to some of the thematic units in the subject field. The aim is to form a final portfolio (map) which will demonstrate knowledge and methodological and researching process of a student and must include all elements of the thematic units of the course.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Final portfolio	50
Practical classes		Oral exam	
Colloquia	20+20		

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	EDUCATION AND SPACE
Teacher:	Assistant Professor Vesna P. Cagić Milošević
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The course aims to familiarize students, through theoretical education, with the basic principles of design and specifics of space and program facilities intended for education, as well as the conditionality of social and economic context and significance of current pedagogical methods as influential factors in choosing design approach and forming the spatial concept.

Learning outcomes:
Development of the analytical and critical thinking and understanding; Ability to apply the gained knowledge in design process;
Knowledge of anthological and contemporary works of architecture in a particular area which reached the highest standards;
Awareness of potentials of new technologies;
Awareness of issues and topics of contemporary trends in architecture;
Awareness of a causal connection of the social context and process in architecture;

Course brief:
Theoretical education:
Theoretical education includes the following areas: history and development of the space and structures intended for education; functional and shape-related requirements, elements, organization, structure, through presentation and analysis of characteristic and specific anthological examples and examples from contemporary world practice; different aspects of the impact of social context and present psychological-pedagogical models, as well as the role of architect in implementing the impacts..

Literature:

- ARHITEKTURA ŠKOLSKE ZGRADE, Z. Bajbutović, Svjetlost 1983. Sarajevo
- ARCHITECTURE OF SCHOOLS: THE NEW LEARNING ENVIRONMENTS, M. Dudek, Architectural Press, Boston 2000.
- CHILDREN SPACES, M. Dudek, Architectural Press, Boston 2005.
- UPUTE ZA PROGRAMIRANJE, PLANIRANJE I PROJEKTIRANJE DJEČJIH JASLICA I VRTIĆA H. Auf-Franić, et al./ Zlatko Karač (ur.), Acta Architectonica, 2003. Zagreb

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Combination of ex cathedra lectures, analysis of typical examples and seminars. The accent is on improvement and deepening of designing experience in subject area.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	
Practical classes		Oral exam	
Colloquia	20+20=40	Seminar paper	50

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ADMINISTRATION BUILDINGS
Teacher:	Associate Professor Dejan D. Miletić
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The course objective is to improve knowledge of students in the field of architectural-zoning (urban) design through lectures and papers. The narrower framework is the design of commercial buildings. In this course, students will have an opportunity to meet the contemporary trends in designing office buildings.

Learning outcomes:
Capacity of development of the analytical and critical thinking and understanding; Ability to apply gained knowledge to future projects being done on undergraduate and master academic studies; ;
Capacity for applying knowledge in practice;
Awareness of issues and topics of contemporary trends in architecture;
Knowledge about modern and historical works which reached the highest standards in architecture;
Awareness of potentials of new technologies;

Course brief:
Theoretical education:
In theoretical instruction, teaching is carried out through lectures and provides basic guidelines and information necessary to understand and analyze the process of design of office buildings. The analytical part of the teaching will relate to the analysis of examples from contemporary architectural practice and new trends in designing office buildings.

Literature:
- R.Hascher, S.Jeska, B.Klauck - A DESIGN MANUAL – OFFICE BUILDINGS
- M.Pavlović – OSNOVNA SAZNANjA I DIMENZIONALNE PREPORUKE ZA MODULARNO PROJEKTOVANjE ADMINISTRATIVNIH ZGRADA

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Combination of ex cathedra lectures, analysis of typical examples and seminars. The accent is on improvement and deepening of designing experience in subject area.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	
Practical classes		Oral exam	
Colloquia	10+10+10=30	Seminar paper	60

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	HISTORY OF ARTS
Teacher:	Associate Professor Ph.D. Aleksandar M. Ignjatović
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The objective of the course is to introduce students with the basics of art history, including theoretical aspects of the study of art, from prehistory to the beginning of the new century. The objective of the course is to train the students to be able to independently identify, describe and explain artworks and artistic processes in a given historical period in two parallel lines: through the analysis of art and through interpretation of the historical process. In the process of teaching the issues of the visual identity of art, the relationship between art and theory, the relationship between the visual arts and architecture, the relationship between art and science, cultural aspects of art, and social and political functions of art will be systematically elaborated.
Special attention is given to questions: how cult and secular social functions, political institutions, science, philosophy and other have influenced the artistic concepts in different eras. What are the methods of interpreting the meaning and role of art works, and what their production and reception tell about the importance of art in a variety of contexts?

Learning outcomes:
Acquistion of knowledge and skills to observe and interpret arts in the historical and context. This knowledge will be important for the overall study of architecture, because the students will be able to use it to make judgments about the visual, socio-cultural and aesthetic aspects of architecture and visual culture, as well as to form a self-reflective judgment about the own creative acting.

Course brief:

Theoretical education:

The course will include presentation of art history and its theoretical explications, including artworks and works of visual and material culture from prehistoric times to the beginning of the new century.
A critical review involves the following aspects of the problem which will be analysed on a number of examples: art and cultural identity; art and politics; art and social processes; art and history; art and science.
Integral part of the course includes aspects of media and aspects of genre, as well as aspects of chronological, geographical and national determinateness of the art.

Literature:
- P. J. E. Davies, W. B. Denny, F. F. Hofrichter, J. Jacobs, A. M. Roberts, D. L. Simon, Jansonova istorija umetnosti: zapadna tradicija (Varaždin: Stanek i Beograd: Mono i Manjana, 2008).
- H. V. Janson, Anthony F. Janson, Istorija umetnosti (Varaždin: Stanek, Novi Sad: Prometej, 2005).
- Neil MacGregor, A History of the World in 100 Objects (London: The British Museum, 2010)
- Mark Cheetham, Michael Ann Holly, Keith Moxey (eds.), The Subjects of Art History - Historical Objects in Contemporary Perspective (Cambridge: Cambridge University Press, 1998).
- Eric Fernie (ed.), Art History and its Methods - A Critical Anthology (London: Phaidon, 1996).

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
The classes consist of lectures on different thematic and problematic units. Each session includes a number of teaching aspects, such as a case study, interactive communications and focused thematic discussions. The main teaching method is ex cathedra lectures aiming to provoke the personal interests of students and to serve as a pretext for other specified teaching forms. Integral part of teaching is consultations with students about the colloquias and exam, as well as introduction to basic literature.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70
Practical classes		Oral exam	
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT URBAN DESIGN 2[24] – URBAN INFRASTRUCTURE
Teacher:	Professor M.Sc. Rajko Lj. Korica
Type of course:	Compulsory
ECTS:	1

Preconditions:
Passed exam from Study unit Urban design 1 in 3rd semester

Objectives:
Familiarization with the aspects of urban planning and design of infrastructure networks and dependency of urban functions of infrastructure services. Recognizing structure, elements, processes and factors of development of infrastructure networks and systems in relation to the rational use of energy and land-use planning in built environments.

Learning outcomes:
Understanding of modern theoretical and practical concepts of sustainable urban development related to infrastructure, as well as the applicability in the context of Serbia. Application of the basic urban design principles for shaping different types of space depending on the needs for infrastructure equipping of residential, administrative, commercial and recreational facilities.

Course brief:

Theoretical education:

1.Main infrastructure networks and systems 2. Types of infrastructure facilities and services 3. Infrastructure in the function of connection 4. Needs for provision of infrastructure of various functions 5. Land use and infrastructure 6. Energy efficiency in relation to infrastructure 7. Infrastructure and environmental protection 8. Elements of urban planning of infrastructure 9. Urban design of various spaces depending on the need for provision of infrastructure 10.Urban design of capital infrastructure projects 11. Modern trends in the development of infrastructure and cities in different contexts: developed and developing countries 12. Situation in Serbian cities and infrastructure 13. Applicability of modern concepts in Serbian cities 14. Role of infrastructure in the legalization of informal settlements in developing countries 15. Applicability of modern concepts in the legalization of informal settlements in Serbian cities 1

Practical education:

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Literature:

- Žegarac, Z. (2001), Urbana infrastruktura, Beograd
- Korica, R. (2008) Infrastruktura, saobraćaj, urbanizam, arhitektura, Arh. fakultet, Beograd.

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	15	Written exam	35
Practical classes		Oral exam	20
Colloquia	30	PART OF THE FINAL GRADE[25] of the Study unit – Urban design 2	
Seminar-s			

[24] Study unit Leader: Professor M.Sc. Rajko Lj. Korica
[25] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDY UNIT URBAN DESIGN 2[26] – TRAFFIC AND SOCIAL INFRASTRUCTURE
Teacher:	Assistant Professor M.Sc. Uroš B. Radosavljević
Type of course:	Compulsory
ECTS:	2

Preconditions:
Passed exam from Study unit Urban design 1 in 3rd semester

Objectives:
Familiarization with the aspects of urban planning and design of transport networks for providing quality life in built environments in accordance with the principles of sustainability. Understanding people's needs for mobility. Recognizing structures, elements, processes and factors of development of transport systems and networks in relation to the rational use of energy and land-use planning in built environments. Familiarization with the phenomenon and structural characteristics of networks of social urban infrastructure.

Learning outcomes:
Understanding of modern theoretical and practical concepts of sustainable urban development related to traffic, as well as the applicability in the context of Serbia. Application of the basic urban design principles for shaping different types of streets and trafiic in relation to the position in a city and depending on the type of residential, administrative, commercial and recreational facilities.

Course brief:

Theoretical education:

1.Main transport networks and systems 2. Types of transport 3. Transport structures and services in relation to the spaces and functions 4. Street network and traffic in the function of connection 5. Needs and motives for mobility 6. Modern concepts of availability for all 7. Energy consumption and efficiency of transport system 8. Safety, crossing of movements and slowing down motor vehicle traffic 9. Typology of streets and types of transport in relation to the spaces and functions 10. Parking next to different facilities and in relation to the position 11. Public transport system and intermodality 12. Walking and cycling as non-motorized modes of movement 13. Creating space for movement and stay: mixed functions and compact spaces 14. Dynamics of cities and traffic in different contexts: developed and developing countries 15. Traffic in Serbian cities and applicability of modern concepts; 1. Settlement networks of social infrastructure – the definition of the notion and fundamental roles in the functioning of urban systems, 2. Typological classification and modern concepts, 3. Positioning in managing documents, 4. Modern trends of organization and implication in public space shaping.

Practical education:

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Literature:

- Maletin, M. (2005), Planiranje i projektovanje saobraćajnica u gradovima, Orion Art, Beograd.
- Radosavljević, U., Lalović, K. & Đorđević, A. (2013) Sustainable Urban Development & Concept of Mobility Management in Belgrade. Belgrade: UNDP Serbia, pp. 91-103.
- Sort, J. J. (2006) The Metropolitan Networks. Editorial Gustavo Gili. Barcelona.
- Petovar, K. (2003), Naši gradovi između države i građanina, Beograd, Geografski fakultet, Arhitektonski fakultet, Institut za arhitekturu i urbanizam Srbije
- Van Den Dool, L. TH. (2004), public management: An introduction for Public managers in developing Ccountries & Emerging Economies, Erasmus university Rotterdam

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	15	Written exam	35
Practical classes		Oral exam	20
Colloquia	30	PART OF THE FINAL GRADE[27] of the Study unit – Urban design 2	
Seminar(s)			

[26] Study unit Leader: Professor M.Sc. Rajko Lj. Korica

[27] The final grade is being awarded for the Study unit as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL STRUCTURES 4
Teacher:	Associate Professor Ph.D. Jelena A. Ivanović Šekularac (course leader), Assistant Professor Ph.D. Aleksandar N. Rajčić, Assistant Professor Ph.D. Jasna Lj. Čikić Tovarović
Type of course:	Compulsory
ECTS:	2

Preconditions:
Passed exam from course Architectural structures 2 and completed course Architectural structures 3

Objectives:
The objective of the course is introduction with basic principles of materialization of architectural structures by applying following structural materials: wood, steel, glass; design of facades and roofs, interior partitions, suspended ceilings and floors for dry prefabricated construction.

Learning outcomes:
The knowledge gained in this course is necessary to follow teachning in the courses Design studio Architectural structures and Design Studio: Architectural technologies.

Course brief:
Theoretical education:
Primary structures (wood, metal, glass); façade structural components (light wooden facades, glass facade, metal façade, composite metal facades); internal partitions of wood, plaster, metal; elevated floors; fire protection measures of given structures.

Literature:
- Herzog, Natterer,etc, 2004.,Timber Construction Manual, Birkhäuser, Basel,
- Hen, Hart, Zontag, Atlas čeličnih konstrukcija, Građevinska knjiga, Beograd
- Schittich, Staib, Balkow, etc, 1999.,Glass Construction Manual, Birkhäuser, Basel
- Herzog, Kripner, Lang, 2004., Fasade Construction Manuel, Birkhäuser, Basel
- Textbooks of lectures from the course Architectural structures 4

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	70
Practical classes		Oral exam	
Colloquia	20		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	DESIGN AND CALCULATION OF ARCHITECTURAL STRUCTURES 1
Teacher:	Professor Ph.D. Milan T. Glišić (course leader), Assistant Professor Ph.D. Ruža D. Okrajnov Bajić
Type of course:	Compulsory
ECTS:	3

Preconditions:
Passed exam from course Mechanics and strength of materials

Objectives:
Introducing students to the elements of design, construction and sizing of reinforced concrete structures of architectural buildings.

Learning outcomes:
Exposed material allows students to understand the possibilities provided by reinforced concrete structure, in forming various architectural shapes in designing architectural buildings.

Course brief:

Theoretical education:

Properties of concrete and reinforcing steel,
Basic postulates of the limit state theory,
Centrally loaded RC elements,
Sizing of RC section loaded by bending moments, ,
Sizing of RC section at the phase of small and large eccentricity, ,
Stress notations of main sloping tensile strains at AB section, ,
RC elements loaded by torsion

Practical education:

Concrete and reinforcing steel – concrete mixture composition – anchorage length
Centrally pressed non-slender strained columns with bending schedule
Spirally reinforced columns,
Formwork plan with positioning and static drawings,
Bending – singly reinforced rectangular sections,
Bending – doubly reinforced rectangular sections, Bending – T sections, ,
Continuous slabs and beams ,,
Protection of hangers from the effects of main sloping tensile strains, ,
Drawing a bending schedule for beam according to the diagram of moments and transverse forces, ,
Bending with normal force – large eccentricity, ,
Bending with normal force – small eccentricity, ,
Calculation of RC elements loaded by torsion,
Short RC element,

Literature:

- Lectures in the course Structural principless of architectural buildings
- Book of solved exam tasks
- Slobodan Romić, Armirano betonske konstrukcije, Građevinska knjiga, Beograd, 1985.

Active training classes no.:				Other:
Lectures: 2	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
Lectures and practical classes.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	60
Practical classes	15	Oral exam	
Colloquia	25		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 02-a – SUSTAINABLE URBAN COMMUNITIES
Teacher:	Assistant Professor Ph.D. Ksenija Ž. Lalović
Type of course:	Compulsory
ECTS:	2

Preconditions:
Passed exams from the field of urbanism in 1st and 2nd semester

Objectives:
Introducing students to the basic aspects of modern concepts of sustainable urban communities and their application in a given social, economic, and culture context. Introducing to basic methodological approaches to the design of sustainable urban communities. .

Learning outcomes:
The awareness of the complexity of structures and causal links between the urban areas of different spatial levels. Ability to recognize and understand basic structural characteristics of urban communities. Ability to formulate objectives and tasks of urban-architectural activity in the space and identify the effects of such activity on sustainable development of the community. Acquired basic methodological knowledge of research and the assessment of quality of complex urban units in relation to the principles of sustainability.

Course brief:

Theoretical education:

Contemporary conceptual tenants of sustainable urban communities. Principles of achieving urban sustainability and their relational connection with the specifics of social, economic and cultural context. Integrated model for the inclusion of complexity of the reality in sustainable urban development- basic research methods and techniques. Individual and common needs and their manifestation in the physical space. Models of spatial action in creating networks and places of social standards – structure, main characteristics and processes. Methods and techniques of assessment of spatial capacities and establishing of new arrangements.

Practical education:

/

Literature:

- Hamilton, M. (2008). Integral City, Evolutionalry Inteligences for the Human Hive. Canada: New Society Publishers
- Nan, E. (2006). Integral Urbanism. London: Routledge, Taylor & Francis Group
- Bajić Brković, M.,ur., (2010) Kreativne strategije za održivi razvoj gradova u Srbiji, Arhitektonski fakultet Univerziteta u Beogradu
- Thomas R., Fordham M. (ed.)(2005) Sustainable Urban Design : An Environmental Approach, London, New York: Spon Press
- Reeds, J. (2011). Smart Growth - From sprawl to sustainability. UK: Green Books.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching, fieldwork, comparative analisis of case studies, studio research.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	40
Practical classes		Oral exam	
Colloquia	40	PART OF THE FINAL GRADE[28] of the Study unit – Studio 02 Urbanism	
Seminar(s)			

[28] The final grade is being awarded for the Study unit Studio 01b as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 02-b ARCHITECTURAL STRUCTURES
Teacher:	Professor Ph.D. Aleksandra D. Krstić-Furundžić (course leader), Associate Professor Ph.D. Jelena A. Ivanović Šekularac, Assistant Professor Ph.D. Aleksandar N. Rajčić, Assistant Professor M.Sc. Budimir S. Sudimac, Assistant Professor Ph.D. Jasna Lj. Čikić Tovarović
Type of course:	Compulsory
ECTS:	4

Preconditions:
Passed exams from courses: AS1, AS2, AS3 and Synthesis of elements and assemblies – masive structure design.

Objectives:
Introduction to the basic principles of materialization of architectural structures through the application of following structural materials: reinforced concrete, wood, steel and glass. The main objective of the course is solving the building structure in accordance with applied materials and functional requirements, as well as acquiring skills in designing and materialization of different subsystems in the building in terms of construction techniques of: façade; roofs; interior prefabricated and dismantling partitions, ceilings and floors etc. from the concept to the detail.

Learning outcomes:
Students will gain knowledge and skills of designing architectural structures according to the specifics of structural solution, applied materials (reinforced concrete, steel, wood and glass) and construction techniques. The outcome of the course is the development of design. Knowledge acquired during this course is necessary for the course Studio AT.

Course brief:

Theoretical education:

Teaching is based on previously acquired knowledge in courses AS3 and AS4 and deals with specifics related to the materialization of particular design projects.

Practical education:

Students individually solve tasks sfrom conceptual design to details.

Literature:
/

Active training classes no.:				Other:
Lectures: 1	Practical classes: /	Other teaching forms: 3	Studio research: /	

Teaching methodology:
Ex cathedra lectures and other teaching forms.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	30
Practical classes		Oral exam	
Colloquia	60	`	
		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	COLOR AND VISUAL CONCEPTION
Teacher:	Associate Professor Ph.D. Mariela M. Cvetić
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The course objective is for students to acquire knowledge and practical experience in complex visual researches of interest to the study of architecture, such as painting, graphics, modelling and multimedia forms of fine art. The objective of the course is to explore visual conception and connections and applicability of this into the architectural design.

Learning outcomes:
Understanding and acceptance of knowledge and practical experiences in complex fine arts research, as well as the application of this knowledge in the work within the Studio Design.

Course brief:
Introduction to the art/visual application of colour in architecture / Psychophysical effects of colour / Spatial effects of colour / Coloristic variations and ambiences / Visual concept of colour and shape in space and architecture / Graphics. Modelling, multimedia / Examples of contemporary visual arts / Visual conception and presentation

Literature:
– Berger, John, Ways Of Seeing, BBC and Penguin Books, 1972

Active training classes no.:				Other:
Lectures: 1	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
Keynote lectures and practical classes, which are grouped by methodological demands and theme frame.
The classes include practices outside Faculty, consultations and work on the final portfolio (map).

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Final portfolio	50
Practical classes		Oral exam	
Colloquia	20+20	`	
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL DESIGN METHODOLOGY
Teacher:	Assistant Professor Ph.D Vladimir B. Milenković
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
Acquiring the ability to identify and analyse the structure of the designed space in relation to the design process – identification of components and elements and their cause-effect relationships that are of importance to the way of design development.

Learning outcomes:
Training to identify the structure of architectural assemblies, elements building them and to analyse their inter-connections which are important for: the way of design development, knowledge of the relevant specifics of creativity related to the field of architectural design, as well as of the characteristics of different phases of the design: seminar paper (5400 characters, form of essay) and oral presentation.

Course brief:

Theoretical education:

During the course, students are trained to identify the structure of architectural assemblies, elements building them and to analyse their inter-connections which are important for: the way of design development, knowledge of the relevant specifics of creativity related to the field of architectural design, as well as of the characteristics of different phases of the design.
Thematic units:
1. Introduction to architectural design methodology: Contemporary context of architecture; Conceptual and factual aspect of the architecture in the design; Spatial and programme structure of the design; 2. Elements and assemblies: architecture of landscape; accsess routes and entrancies; Inner architecture; serving and served spaces; Prevalence of interspace; Transparency of space, light and volume; Polyvalence and dynamics of space; 3. Development of architectural design: Materialization of the idea on the design – ecology and technology; Model – abstraction and simulation; 4. Consultations for seminar paper

Literature:
- Milenković, Vladimir, Arhitektonska forma i multi-funkcija, Zadužbina Andrejević Beograd 2004
- Stratimirović, Tatjana, Neprekinuti prostor / moderna kuća, Zadužbina Andrejević Beograd 2009
- Kordić, Milena, Međuprostor, Zadužbina Andrejević Beograd 2012
- Tschumi, Bernard, Arhitektura i disjunkcija, AGM Zagreb 2001
- Baudrillard, Jean, Nouvel, Jean, Singularni objekti - Arhitektura i filozofija, AGM Zagreb 2008

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Lectures, homeworks, colloquias, consultations, seminar paper, exam.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	
Practical classes		Oral exam	50
Colloquia	50	`	
Seminar(s)		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	INDUSTRY AND COMMERCE BUILDINGS
Teacher:	Assistant Professor Dragan B. Stamenović
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
Introducing students to the specifics, characteristics, programming and methods of design of industrial and commercial structures. In addition to the basic principles of locating, zoning, composing and functional solving the organization of these programs, students are familiarized with their specific shaping and structural requirements and characteristics.

Learning outcomes:
Development of the analytical and critical thinking and understanding;
Informing students about adequate examples from practice
Informing students about the application of work models from other activities to the program of architectural space;
Awareness of potentials of new technologies ;
Ability to apply gained knowledge in design process. ;

Course brief:
Theoretical education:
Theoretical education includes the following areas: the history and development of industrial and commercial structures: functional and shape-related requirements, elements, organization, structure, through presentation and analysis of characteristic and specific examples from practice: different aspects of the impact of social context and review of such impact in relation to cultural models, the evolution of the program flow of goods and capital in architecture from industry to commercial centers.

Literature:

- BUILDINGS FOR INDUSTRIAL STORAGE AND DISTRIBUTION, Jolyon Drury, Peter Falconer Architectural Press, Oxford, 2003.
- INDUSTRIAL BUILDINGS, A Design Manual, Jurgen Adam , Katharina Hausmann , Frank Juttner Birkhauser , 2004
- THE POWER OF IDENTITY: THE INFORMATION AGE: ECONOMY, SOCIETY AND CULTURE, Manuel Castells, Wiley, 2004

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures, interactive teaching and discussions.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	
Practical classes		Oral exam	
Colloquia	20+20=40	Seminar paper	50

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL HERITAGE IN SERBIA
Teacher:	Associate Professor Ph.D. Mirjana Z. Roter Blagojević
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The objective is to familiarize students with the architectural heritage in Serbia, its emergence, characteristics and values. Through the study of general trends and characteristics of settlements and architecture in Serbia, students will be familiarized with basic spatial, structural and shaping characteristics of the historical scared, profane and residential architecture, which will complement their knowledge of their own architectural tradition and enhance their creative abilities. In addition, students will be familiarized with basic problems related to the conversation and protection of architectural heritage.

Learning outcomes:
Knowledge of the historical development, impact, basic stylistic periodization, typological. Structural and shaping characteristics of sacred, profane and residential architecture in Serbia. Acquiring knowledge about the historical, cultural and architectural values of the architectural heritage in Serbia, impacts and connections with wider and immediate surroundings, including the value and importance as a part of the overall national and world cultural heritage.

Course brief:
Theoretical education:
The emergence and development of settlements and architecture in Serbia from prehistory to the early XIX century. Social and cultural conditions, impacts from immediate and wider surroundings, types of structures, structural characteristics and materialization, the shaping of scared, profane and residential architecture. Development of settlements, medieval cities - fortresses and monastery unities, and architectural features of buildings within them. Development of rural and urban housing in Serbia, from the simplest forms of construction to the city houses from the beginning of XIX century. Historical, cultural and architectural values of architectural heritage in Serbia.

Literature:

- Deroko, A. Monumentalna i dekorativna arhitektura u srednjovekovnoj Srbiji, Beograd, 1985
- Kojić, B.: Stara gradska i seoska arhitektura u Srbiji, Beograd, 1949.
- Kojić, B. Stari balkanski gradovi, varoši i varošice, Beograd, 1976.
- Findrik, R. Narodno neimarstvo - stanovanje, Sirogojno, 1994
- Roter Blagojević, M. Razvoj stambene arhitekture Beograda u 19. i početkom 20. veka. Beograd: Arhitektonski fakultet i Orion Art, 2006.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex-cathedra lectures according to the thematic units. Regular consultations with students regarding the preparation of mid-term paper and oral exam, as well as introduction to the basic literature.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	
Practical classes		Oral exam	60
Colloquia	40		
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	URBAN ANALYSIS AND PLANNING
Teacher:	Assistant Professor Ph.D Marija L. Maruna
Type of course:	Compulsory
ECTS:	3

Preconditions:
/

Objectives:
The focus of the course is on recognizing, positioning and studying the essence of the problems in urban development, as well as defining and analyzing the problems in relation to the possible ways of their solution. Problems are seen within the domain of public intervention. The course is directed towards understanding the problems, not their solving.
Special objectives of the course are: - Developing interest for the complex problems faced by urban areas (cities). – Developing logical and creative thinking, clarity of communication, and implementation of arranged research. – Encouraging creative thinking that enables inclusion in the professional activity on designing alternative directions of development of cities in the future.

Learning outcomes:
Familiarization with the factors and actors of the urban development and construction, Familiarization with research methods and methods of regulation of urban structures, Familiarization with basic methods and techniques related to the analysis and planning of the spatial organization of the city, Understanding the complexity of development processes in modern cities, Understanding the basis of planning control of urban development, Understanding the necessity of multidisciplinary approach to solving urban problems, Articulating the knowledge and thinking process and construction method, Establishing the framework for solving problems, identifying and defining urban problems, Using basic methods in studying urban structure, Construction of the cognitive model of professional expertise – the nature of knowledge necessary for the work in urban planning.

Course brief:

Theoretical education:
The city as a product and process. The forces affecting the inner structure of a modern city; actors in the production of built environment, private and public. Patterns of urban structure, heritage and modern trends. Urban changes: problems in development. Production of built space – building land and built structures. The way of use of city land: the deployment of activities in the city, conflict and complementary activities. Values and evaluation. Regulation of deployment of activities in market conditions: stability and dynamics of the process. Assessment of the quality of the urban structure in relation to different requirements. Parameters and regulation in construction. Transformation of the city structure: modern forms of public intervention.

Practical education:
/

Literature:

- Lazarević Bajec, Nada (2000) Urbana struktura i zoniranje (textbook). Arhitektonski fakultet Univerziteta u Beogradu
- Teofilović, Anica (2013) Urbanističko planiranje Beograda i očuvanje biodiverziteta. Beograd: Biološki fakultet Univerziteta u Beogradu
- Maruna, Marija (2013) Urbanizam Beograda: priručnik za istraživanje procesa proizvodnje prostora. Beograd: Arhitektonski fakultet Univerziteta u Beogradu
- Petrović, Mina (2009) Transformacija gradova: ka depolitizaciji urbanog pitanja. Beograd: Institut za sociološka istraživanja Filozofskog fakulteta u Beogradu
- McHarg, Ian (1969) Design with Nature. Garden City, NY: Natural History Press

Active training classes no.:				Other:
Lectures: 3	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	60
Practical classes		Oral exam	
Colloquia	40		
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL UTILITIES
Teacher:	Professor Ph.D Lidija S. Đokić (course leader), Assistant Professor Ph.D. Milan A. Radojević
Type of course:	Compulsory
ECTS:	3

Preconditions:
/

Objectives:
Overview on an architectural structure in general and implementation of utilities systems with respect to the structural system. Introduction with utility requirements of various purposes buildings.

Learning outcomes:
Acquisition of basic knowledge on utilities systems that provide essential comfort in buildings, as well as on the required space for adequate performance.

Course brief:

Theoretical education:

a. Sanitary facilities;
b. Design of sewage system;
c. Design of atmospheric sewage;
d. Design of water supply system;
e. Other utilities networks within a building (heating, ventilation and air Conditioning, electrical installation, elevators, waste);
f. Use of solar energy;
g. Synchronization of utilities networks, devices and equipment in architectural structures.

Practical education:

Design of water supply system and both faecal and atmospheric sewage system for a family house with at least two floors. Connection to city networks. Hydraulic calculations. Detailed design if bathroom interior with a catalogue of installed equipment.

Literature:

- Krešimir Martinković: Priprema i realizacija arhitektonskih objekata 1. Izgradnja. Beograd, 1994.
- Predrag Zrnić: Građevinski priručnik 5. Instalacije u zgradama. Građevinska knjiga. Beograd, 1990.
- Lidija Đokić, Milan Radojević: Textbook – instructions for practical classes. Arhitektonski fakultet u Beogradu.
- Gordana Ćosić: Textbook: Prostorne potrebe sanitarnih uređaja. Arhitektonski fakultet u Beogradu.

Active training classes no.:				Other:
Lectures: 2	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures,
Presentation.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	50
Practical classes		Oral exam	
Colloquia	50		
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	DESIGN AND CALCULATION OF ARCHITECTURAL STRUCTURES 2
Teacher:	Associate Professor Ph.D Nenad D. Šekularac (course leader), Assistant Professor Ph.D Žikica M. Tekić
Type of course:	Compulsory
ECTS:	3

Preconditions:
Enrolled in the 5th semester of study programme

Objectives:
The course objective is to introduce students with the elements of structural design and calculating of wooden and metal architectural structures,, as well as of glass structures.

Learning outcomes:
Exposed material allows students to recognize the possibilities provided by wooden, metal and glass load-bearing structures in forming various architectural forms in designing the space.

Course brief:

Theoretical education:

History of wood, steel and glass as a building material; properties of wood, steel and glass a structural building material; allowable stresses; multi-story skeleton buildings designed of wood, steel or glass as a load-bearing structure – th optimization of disposition of columns and beams; key principles of sizing of wooden, steel or glass structural elements; methods of constructions and calculations of main types of connections of wooden, metal or glass structural elements; spatial stiffening of skeleton buildings made of wood, metal and glass as a load-bearing structure element.

Practical education:

Students for already designed skeleton building (in terms of function) design structural system of wood, steel and glass – find optimal solution in accordance with the function and architecture of already defined building; positioning of structural elements; load analysis, structural analysis and sizing of basic structural elements, calculation of interconnections of some structural elements. The task includes the development of shop drawing of system elements and details of connections of the structure. Through this procedure students see the differences in designing and executing structures of different materials.

Literature:

- Metalne i drvene konstrukcije, Vojislav Kujundžić, Dragoslav Tošić, Zavod za udžbenike i nastavna sredstva, Beograd
- Drvene Konstrukcije, brojni primeri, Milan Gojković i saradnici, Građevinski fakultet Univerziteta u Beogradu, 2007.
- Drvene konstrukcije, Milan Gojković i Dragoslav Stojić, Geosknjiga, Beograd,1996.
- Čelične konstrukcije u zgradarstvu, Dragan Buđevac, Građevinska knjiga i Medifarm, Beograd,1992.
- Metalne konstrukcije 1 i 2, Dragan Buđevac i saradnici, Građevinski fakultet univerziteta u Beogradu, Beograd,1999.

Active training classes no.:				Other:
Lectures: 2	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures and practical classes.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	15	Written exam	50
Practical classes	15	Oral exam	
Colloquia	20		
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL DESIGN PROCESS
Teacher:	Associate Professor Borislav A. Petrović
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
Understanding the emergence of architecture through a series of relative sitations, , which successively connects during the research on organization of the space.
Observation of the architecture as a communication and social phenomenon.
Review of the meaning of concepts around which subject matter is being developed, avoiding the uncritical acceptance of the conventions.

Learning outcomes:
Increasing the level of sensibility in relation to the phenomenon of architectural space, as well as to historical and socio-cultural cause-effect relations that it entails.

Course brief:

Theoretical education:

Architectural design process represents a summary of theoretical education in undergraduate studies.
The educational focus is on understanding of the circumstances of the emergence of architectural work, as well as an organized space in general, in line with the essential features of cultural-historical period and their impact on the evaluation. Architectural creativity is interpreted as a cultural phenomenon, or a form of communication, through the transfer, exchange and interpretation of information. It is primarily about the identification of individual participants and the level at which communication takes place. Regardless of whether it is perceptual, syntactic, semantic or symbolic platform, the point is in the relative autonomy of the product of creation, architectural space, i.e. its message, the meaning of which can always be understood or interpreted differently.

Literature:

- B.Petrović, I. Rašković -"TRADICIJA - TRANZICIJA; upotreba nasleđa u arhitekturi", monografija, izdavači: Arhitektonski fakultet Univerziteta u Beogradu, IAUS i Orion art, Beograd, 2011.
- M. Lojanica, Proces projektovanja, sveska 1 i 2, Beograd, Skriptarnica AF, 2001.
- K.Poper, Objektivno saznanje, Podgorica, Paidea, 2002.
- Ž-M. Šefer, Zašto fikcija?, Novi Sad, Svetovi, 2001
- U.Eko, Kultura, informacija, komunikacija, Beograd, Nolit, 1973

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Combination of lectures, consultations, colloquias, seminar paper and oral presentation directs the discourse towards essential issues, without excessive and too extensive elaboration.
Teaching is interactive and implies active involvement of teachers and students.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	
Practical classes		Oral exam	
Colloquia	20+20=40	Seminar paper	50
		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	URBAN RENEWAL
Teacher:	Professor Ph.D. Eva J. Vaništa Lazarević
Type of course:	Compulsory
ECTS:	3

Preconditions:
/

Objectives:
Introduction to basic knowledge about the integrated and sustainable urban renewal. Introducing students to the field of urban renewal, regeneration and urban recycling. An overview of the latest knowledge of urban renewal and regeneration, by adapting to global changes, accepting new sensations and phenomena, in terms of social relationships, new form of housing, environmental design, cultural facts, architectural heritage and its protection, all within the context of large-scale urban renewals.

Learning outcomes:
The application of this knowledge to the situation in the Serbia, which during transition period changes its appearance, will contribute that students, future architects – who will encounter this matter at every step, be prepared for the challenges of the profession. Knowledge of applying basic theoretical concepts and skills in shaping, reconstruction and regeneration of urban areas. Understanding the importance and possibilities of professional activity in the field of urban planning in Serbia and beyond.

Course brief:
Theoretical education:
Familiarization with relevant urban processes, phenomena and ideas that significantly influence and determine the development of urban though both locally and in the European context.
Practical education:
/

Literature:

- Vaništa Lazarević, Eva. Obnova gradova u novom milenijumu. Beograd: Classic map studio, 2003.
- Vaništa Lazarević, Eva. Urbana Rekonstrukcija. Beograd: Zadužbina Andrejević, 1999.
- Stojkov, Borislav, ur.Obnova gradova u Srbiji – temeljne odrednice. Beograd: Institut za arhitekturu i urbanizam Srbije, 1996.
- Lord Rogers of Riverside, ed.Towards an Urban Renaissance: Final Report of the Urban Task Force. London: Spon Press, 2002.
- Roberts, Peter W., and Hugh Sykes, ed.Urban regeneration. London: SAGE Publications, 2000.

Active training classes no.:				Other:
Lectures: 3	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures and interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	60
Practical classes		Oral exam	
Colloquia	40		
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	CONSTRUCTION MANAGEMENT
Teacher:	Assistant Professor Ph.D Miloš P. Gašić
Type of course:	Compulsory
ECTS:	3

Preconditions:
Enrolled in the current semester

Objectives:
The course introduces basic concepts related to the activities and responsibilities of the architect as a participant in the construction and legally regulated procedures in the field of architecture, urban planning and construction. The objective of the course is to train future architects to take an active role in the process of construction, inspection, quality control and other activities related to the implementation of architectural designs.

Learning outcomes:
Understanding of the construction process and a role of an architect within. Mastering the techniques of development of Bill of Quantities. Knowledge on the ways of doing business, keeping documentation, and relationships between participants before and during the implementation phase.

Course brief:

Theoretical education:

The first part of the course presents construction works and calculation of construction and craft works, and development of knowledge necessary for the preparation of the Bill of Quantities. The second part of the course refers to procedures in the realization process, as well as to the roles and competences of all participants in the construction. This part of the course includes basic elements of project management.

Practical education:

Exercises include working on selected position from Bill of quantities of construction works, on selected parts of design, through all groups of rough and craft works. Introduction with all elements of the Bill of quantities and formation of works price by prices analysis.

Literature:
- Dušanka Đorđević: IZVOĐENjE RADOVA U VISOKOGRADNjI, Izgradnja, Beograd, 2004.
- Dušanka Đorđević: OSNOVI MENADžMENTA, SKRIPTA, Arhitektonski fakultet, 2006.

Active training classes no.:				Other:
Lectures: 2	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Theoretical education is performed via ex cathedra lectures, and practical classes include tasks working.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	50
Practical classes	20	Oral exam	
Colloquia	30		
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STRUCTURAL SYSTEMS
Teacher:	Professor Ph.D. Miodrag S. Nestorović
Type of course:	Compulsory
ECTS:	3

Preconditions:
Passed exam from course Mechanics and strength of materials

Objectives:
Introduction to the development and new structural systems for the purpose of rational use in architectural design.
Systematic approach to the selection of the structural systems according to the design task. Coordination of architectural and structural form in order to find optimal solutions.

Learning outcomes:
Training to have systematic approach in the selection of the structural systems within given conditions and so succesfuly coordinate the architectural and structural formation of a building.

Course brief:

Theoretical education:

1. LECTURE: Introductory class. The course brief.Presentation of students' drawings and models from previous generations. 2. LECTURE: The development of structural systems. Classification, structural principles, methods of selection of structural systems. 3. LECTURE: Beam systems. Shaping (solid, truss, wall, frame, prestressed systems). 4. LECTURE: Beam systems. Orthogonal and non-orthogonal meshes, supporting and suspension with oblique elements. 5. LECTURE: Arch systems. Shaping of arches with variable sections, arches composed of prefabricated elements. 6. LECTURE: Frame structure systems. Prestressed and non-prestressed frames. Compositions with diaphragms. 7. LECTURE: Three-dimensional systems. Grid systems with 2-, 3- and 4- way patterns, nodal connections, geodesic domes. 8. LECTURE: Shell structures. Forms of the shells that provide membrane state of stress; types of shell structures according to curvature. 9. LECTURE: Shapes of shells. Rotational, cylindrical, hyperbolic paraboloid, conoid and combined. 10. LECTURE: Folded-plate structures. Shapes of folded-plate structures (simple, pyramidal, hinged, polygonal and combined). 11. LECTURE: Hanging structures. Prestressed and non-prestressed cable nets and contoures. 12. LECTURE: Hanging structures on circular and polygonal base-plans, open and closed cable nets and membranes. 13. LECTURE: Tensegrity structures. Shapes depending on contoures (no-moment and banding strained contour). 14. LECTURE: Prestressed deployable structures. Types by contour shape. 15. LECTURE: Pneumatic structures – air-supported systems (that contain a completely pressurized interior space) and air-inflated systems (composed of pillow-like elements).

Practical education:

Weeks 1-5: Linear systems. The formation of the structural grid, transformation of columns by compression, supporting and suspending. Weeks 6-7: Shell structures with single and double, positive and negative curvatures. Week 8: Folded-plate structures on rectangular and trapezoidal base-plans, with concave and convex knees. Weeks 9-10: Hanging roofs, single-layer and two-layer, open and closed cable nets.
Semester work: Week 11-15: Analysis and selection of the structural system of high-rise or large-span building. Case study: Analysis of examples from literature of 5 high-rise and 5 large-span buildings.

Literature:

- M. Nestorović. KONSTRUKTIVNI SISTEMI – PRINCIPI KONSTRUISANjA I OBLIKOVANjA. Arhitektonski fakultet Univerziteta u Beogradu, 2000.
- Đ. Zloković. KOORDNIRANI SISTEMI KONSTRUKCIJA. Građevinska knjiga, Beograd 1969. Đ. Zloković. PROSTORNE STRUKTURE. SPACE STRUCTURES. Institut za Arhitekturu i urbanizam Srbija, Građevinska knjiga, 1969.
- F. Moussavi. THE FUNCTION OF FORM. Actar and Harvard Graduate School of Design, 2009
- H. Engel. STRUCTURE SYSTEMS, 3rd Edition. Hatje Cantz, 2007.

Active training classes no.:				Other:
Lectures: 2	Practical classes: 2	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures, practical classes with consultations (in which students develop drawings and working models directly related to the practical tasks and development of semester work), case studies – examples from the literature. It is expected that students will take active participation in the course.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	30
Practical classes	20	Oral exam	
Colloquia	50		
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	LEGISLATION
Teacher:	Assistant Professor Vesna P. Cagić Milošević, Assistant Professor M.Sc. Biserka Č. Mitrović, Assistant Professor Ph.D. Miloš P. Gašić
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The course objectives are: Introduction with relevance, development and contents of the legislation and regulations in the area of urbanism, architectural design and construction, as well as with standards and norms that are binding architects in their professional work. Knowledge on the diversity of demands and needs of professions involved in the process of urban and spatial planning, architectural and urban design and construction process.

Learning outcomes:
Awareness of the importance and ability to understand legislative framework in processes of urban and spatial planning, architectural and urban design and construction process.
Ability to apply gained knowledge in practice, and to recognize responsibilities, competencies, place and time of involvement of different stakeholders in the planning, design and construction process.
Ability to apply practical knowledge of the processes of implementation and project management.
Awareness of a causal connection between social context and processes in architecture.

Course brief:

Theoretical education:

Significance and development of legislation and planning regulations making the regulatory framework in planning, design and construction;
Types and structure of compulsory regulations, laws and bylaws, standards, norms and professional rules;
The role of institutional system involved in the process of urban and spatial planning, place and role of particular phases in designing and construction process and understanding of the process of decision-making and scoping of particular projects;
Public participation in the legislation of urban and spatial planning;
Introduction to the general context of EU legislation;
Introduction to the obligations and competencies of stakeholders in the construction process;
The impact of legislation in architectural profession, overview of relevant examples.

Literature:

- Gradimir Krstić: ZAKONSKA REGULATIVA U GRADITELJSTVU, Časopis „Izgradnja"; SGITS, SAS, Beograd 2004
- Cagić Milošević V; Medjo V; Mitrović N. „General legislative (regulatory) framework for residential construction in Serbia from 1948 to 2011. The example of Belgrade", od str. 56 do str 92. in Housing development in Serbia of globalisation end integrations. Methods end tendences. Vol 2. 2012 Faculty of Architecture University of Belgarde
- Pajović D.: Pregled urbanističkog zakonodavstva Srbije, Udruženje urbanista Srbije. Novi Sad, 2005.
- Pajović D.: Urbanistički zakoni južnoslovenskih zemalja – BIH, Crna Gora, Hrvatska, Makedonija, Slovenija, Srbija
- Laws, bylaws and standards regulating the area of urban and spatial planning, architectural and urban design and construction process

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Combination of ex cathedra lectures, analysis of characteristic examples and seminar papers. The accent is on improvement and deepening of designing experience in subject area.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	70
Practical classes		Oral exam	
Colloquia	30		
Seminar-s		`	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	PROFESSIONAL INTERNSHIP
Teacher:	Professor Ph.D. Milorad B. Ribar, Assistant Professor M.Sc. Biserka Č. Mitrović, Assistant Professor Ph.D. Miloš P. Gašić
Type of course:	Compulsory
ECTS:	2

Preconditions:
/

Objectives:
The course objective is the application of acquired knowledge in practice. Students are familiarized with different phases of the realization process, from the development of design documentation, the relationship with a client, the procedure for obtaining various permits and approvals, to concrete work on the construction of the structure and the role of the architect in supervising and controlling the quality of work. .

Learning outcomes:
Understanding the processes and practical procedures of the realization of architectural and urban designs. Acquiring knowledge about who participants in these processes are, and their qualifications, positions in the processes and competencies, as well as the position, duties and competences of the architect in the realization of architectural and urban design.

Course brief:
Students will spend three working weeks in a design office or on construction site. In the design office, students are introduced to the company structure and system of work, phases in developing the design documentation, procedures for obtaining conditions and approvals. On construction site, they are introduced to site documentation, construction technology, applied materials, tools and other participants in construction. The work plan is in agreement with the employer, within the tasks set by the managerial teacher. During the practice, students keep the log book and write paper.

Literature:
/

Active training classes no.:				Other:
Lectures: /	Practical classes: /	Other teaching forms: /	Studio research: /	 60

Teaching methodology:
A student himself choses a design office or construction site where he will do the practice / in the country or abroad.
Practical work within the design office with a visit to the location or a structure in construction, the comparison of the design with the actual situation.
Practical work on construction site, familiarizing with site documentation, technology, participants in construction and business.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Day-book on internship activities	50	Seminar paper	50

ELECTIVE COURSES

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 01b – URBAN DESIGN OF RESIDENTIAL ASSEMBLIES – Design project 01-14
Teacher:	Professor M.Sc. Petar M. Arsić; Professor M.Sc. Dragana M. Bazik; Professor Ph.D. Eva J. Vaništa Lazarević; Professor Ph.D. Vladan A. Djokić; Professor M.Sc. Rajko Lj. Korica; Professor Ph.D. Miodrag B. Ralević; Associate Professor Ph.D. Aleksandra M. Đukić; Associate Professor Ph.D. Aleksandra B. Stupar; Assistant Professor Zoran N. Đukanović; Assistant Professor M.Sc. Jelena A. Živković; Assistant Professor Ph.D. Ksenija Ž. Lalović; Assistant Professor Ph.D. Marija L. Maruna; Assistant Professor M.Sc. Uroš B. Radosavljević; Assistant Professor M.Sc. Biserka Č. Mitrović
Type of course:	Elective
ECTS:	3

Preconditions:

Passed exams from study units related to urbanism in 1st and 2nd semester

Objectives:

Introducing students to basic methods and techniques of analysis of location and urban design. Gaining experience in the application of theoretical knowledge of shaping space in solving practical tasks in the urban design process. Developing skills in urban design of small urban units, predominantly residential.

Learning outcomes:

Upon completion of the course students will be able to:

- Understand multi-layered character of the urban space,
- Have knowledge of different aspects, methods and techniques of analysis of location and develop skills of their application in a specific urban context,
- Define, on the basis of understanding different urban demands and knowledge of specific relations and processes in the space, possibilities of its improvement in the field of urban design.

Course brief:

Theoretical education:

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Practical education:

A) Analytical – problematic framework of urban design of a small urban assembly

- Analysis of the context: the position in the city, the characteristics of a wider and narrow context (natural-environmental, socio-cultural, functional, physical), analysis of correlation and availability,
- Analysis of location and micro-location: the characteristics of public space network, the characteristics of elements of urban structure,
- Synthesis: values/problems, possibilities/limitations regarding functional-physical interventions in the space.

B) Design of a small urban assembly

Thematic areas: nature/ecosystems, needs/activities, communication/movement, building/development, community/place, private/public,
Spatial levels: a) small urban assembly (district/neighborhood), b) standard element of urban structure (block/street), c) design of details of urban space;
Program – spatial concept: systematization of facilities according to the basic spatial and functional characteristics and understanding their mutual relationships. Distribution and organization of facilities in the space. Definition of types of built-up coverage with basic urban parameters. Definition of modes of transport serviceability and connectivity.
Design-related solution: formation and shaping of systems of structures and public spaces. Definition of all areas and basic leveling at the level of conceptual design. Check of mutual dimensional, functional, and regulatory and compositional relations.

Literature:

- Priručnik za urbani dizajn (Urban Design Compendium), Orion Art and Prograf, Belgrade, (2008)
- Loidl H., Bernard S. (2003) Opening Spaces : Design as Landscape Architecture, Basel, Berlin, Boston: Birkhauser
- Moughtin C.(2003) Methods and Techniques, Oxford [etc.] : Architectural Press
- Thomas R., Fordham M. (ed.)(2005) Sustainable Urban Design : An Environmental Approach, London, New York: Spon Press
- Hugh, Barton, (2004) Shaping Neighbourhoods, London, New York : Spon Press

Active training classes no.:				Other:
Lectures: /	Practical classes: /	Other teaching forms: 3	Studio research: /	

Teaching methodology:

Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	40
Practical classes		Oral exam	
Colloquia	40	PART OF THE FINAL GRADE[1] of the Study unit – Urban Design 1	
Seminar-s			

[1] The final grade is being awarded for the Study unit Studio 01b as a sum of single grades achieved on each of courses depending on the number of ECTS. (Study unit Leader: Assistant professor Zoran N. Đukanović)

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 02a – SUSTAINABLE URBAN COMMUNITIES – Design project 01-11
Teacher:	Professor M.Sc. Rajko Lj. Korica; Professor Ph.D. Miodrag B. Ralević; Professor M.Sc. Petar M. Arsić; Associate Professor Ph.D. Aleksandra M. Đukić; Associate Professor Ph.D. Aleksandra B. Stupar; Assistant Professor Ph.D. Ksenija Ž. Lalović; Assistant Professor Zoran N. Đukanović; Assistant Professor M.Sc. Jelena A. Živković; Assistant Professor M.Sc. Uroš B. Radosavljević; Assistant Professor M.Sc. Biserka Č. Mitrović; Assistant Professor Ph.D. Marija L. Maruna
Type of course:	Elective
ECTS:	6

Preconditions:
Passed exams from study units related to urbanism in 1st and 2nd semester

Objectives:
Mastering basic methods, techniques and tools in designing sustainable urban communities. Further development and deepening of acquired basic skills of urban design through exploring possibilities of action within more complex urban areas in the real environment.

Learning outcomes:
Ability to apply comparative case study methods in searching for possible courses of action in a given spatial area. Ability of urban articulation of new spatial solutions on regulatory, functional and formal level. Acquired skills in applying basic analytical techniques, systematization and presentation of analytical results, applying techniques tree of objectives/problems, the quantitative evaluation technique. Deepening of skills in the field of urban design and in applying basic urban techniques.

Course brief:

Theoretical education:

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Practical education:

Exploring the possibilities to improve given existing urban area on the basis of analysis and understanding of the context.
Defining, conceptual setting and conceptual elaboration of the urban design of the urban area in spatial, functional and formal context, through tree levels: 1. Conceptual setting – quality assessment, formulation of objectives, expected developmental effects and establishing the adequate relation with the observed context on the programme and spatial level. 2. Urban system – exploring forms of new spatial-functional assemblies, the process of their formation, structures and methods of using public space network on a selected narrower location. 3. Urban and architectural solution of segment – detailed definition of architectural organization and materialization of the space. Quality evaluation of proposed urban solution in relation to the set objectives.

Literature:

- K. Lalović, Održive urbane zajednice, Arhitektonski fakultet Univerziteta u Beogradu (in production)
- Bajić Brković, M.,ed., (2010) Kreativne strategije za održivi razvoj gradova u Srbiji, Arhitektonski fakultet Univerziteta u Beogradu
- Nan, E. (2006). Integral Urbanism. London: Routledge, Taylor & Francis Group
- Thomas R., Fordham M. (ed.)(2005) Sustainable Urban Design : An Environmental Approach, London, New York: Spon Press
- Reeds, J. (2011). Smart Growth - From sprawl to sustainability. UK: Green Books.

Active training classes no.:				Other:
Lectures:	Practical classes:	Other teaching forms:	Studio research:	
/	/	6	/	

Teaching methodology:
Interactive teaching, field research, comparative analysis of case studies, studio research.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	40
Practical classes		Oral exam	
Colloquia	40	PART OF THE FINAL GRADE[2] of the Study unit – Design studio 02a Urbanism	
Seminar-s			

[2] The final grade is being awarded for the Study unit Studio 02 as a sum of single grades achieved on each of courses depending on the number of ECTS.

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 03a – ARCHITECTURAL TECHNOLOGIES – Project Development (01-14)
Teacher:	Professor Ph.D. Ana P. Radivojević; Assistant Professor Dušan M. Ignjatović; Assistant Professor Zoran M. Stepanović; Assistant Professor Dragan N. Marčetić; Assistant Professor M.Sc. Nataša D. Ćuković Ignjatović; Assistant Professor M.Sc. Budimir S. Sudimac; Associate Professor Ph.D. Jelena A. Ivanović Šekularac; Assistant Professor Ph.D. Aleksandar N. Rajčić; Assistant Professor Ph.D. Jasna Lj. Čikić Tovarović; Associate Professor Ph.D. Nenad D. Šekularac; Assistant Professor Ph.D. Žikica M. Tekić; Professor Ph.D. Milan T. Glišić; Professor Ph.D. Miodrag S. Nestorović; Assistant Professor Ph.D. Ruža D. Okrajnov Bajić
Type of course:	Elective
ECTS:	9

Preconditions:

Average grade during the previous studies

Objectives:

The course objective is to introduce students with comprehensive process of designing buildings, starting from the conceptual design, through the elaboration of characteristic details, to main architectural design, including elements of structural design. In this process, students are introduced to required contents of design documentation, and relevant regulations applicable to architectural design and construction, understanding their impact on the design process itself. Students through design development improve acquired knowledge which they synthetically apply, taking into account the full complexity of the profession. The task is a simulation of the entire designing process, during which it is necessary to harmonize different requirements in solving a particular architectural problem. This process aims to confront students with the necessity and requirements of teamwork in which students in the team exchange and promote different ideas and concepts.

Learning outcomes:

General outcomes:

- integrating knowledge acquired in the field of materialization and construction technique;
- acquiring the ability to synchronize aesthetic and technical requirements in the process of architectural design;
- developing the ability to work on main design through creative cooperation with all participants in the process of designing buildings, creating a basis for quality work in practice.

Specific outcomes:

- understanding the design of structural system;
- acquiring the knowledge about the logic of establishing the structural system in the context of mechanical behavior of the structure, as well as methods of analysis of the mechanical behavior of the structure as a function of optimization of the system shape and shape and dimensions of structural elements;
- acquiring the knowledge about design and integration of service utilities systems;
- acquiring the knowledge about the physics of buildings, as well as functions of the structure in order to provide indoor comfort and protection from adverse climatic conditions;
- developing competencies for designing architectural details;
- acquiring the knowledge about all elements of the design documentation preceding the project realization.

During all phases of design development the general evaluation criteria are: independence and organization, linking and application of theoretical knowledge in the designing process, aesthetic and technical quality of the design and presentation.

Course brief:

Practical education:

The course is carried out through practical classes, during which architectural-urban design is developed, containing elements of structural design, according to the given program, on a particular location. In the studio are teachers and associates from the field of architectural structures and architectural engineering, which are the thematic framework of the task.

Based on the defined design brief and program, the architectural-urban design is developed, with elements of structural design, through research and comparative analyses of different spatial-functional, shape-related and technical solutions.

Special emphasis is given to the design of structure and architectural detail.

The development of architectural-urban design includes the application of different methods of presentation and visualization.

Literature:

- Addis Bill, Creativity and Innovation – the Structural Engineer's Contribution to Design, Architectural Press, 2001.
- Ivković, V, Višespratne skeletne zgrade – konstruktivni sklopovi i elementi, Arhitektonski fakultet, Beograd.
- Curtis W. Fentress, Civic Building, Wiley-academy, London, 2002.
- Martin Mitag, Građevinske konstrukcije, Građevinska knjiga, Beograd, 2000.

Active training classes no.:				Other:
Lectures:	Practical classes:	Other teaching forms:	Studio research:	
/	/	7	/	

Teaching methodology:

Studio lectures with high students' involvement, practical classes and consultations.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	50
Practical classes		Oral exam	5
Colloquia	15+30	Seminar-s	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 03b – MULTIFAMILY HOUSING – 01-11
Teacher:	Associate Professor Dejan D. Miletić; Associate Professor Ivan V. Rašković; Assistant Professor Aleksandar Č. Videnović; Assistant Professor Nebojša S. Fotirić; Assistant Professor Ph.D. Djordje V. Stojanović; Assistant Professor Vesna P. Cagić-Milošević; Assistant Professor Igor Ž. Rajković; Associate Professor Aleksandru J. Vuja; Associate Professor Milan A. Djurić; Assistant Professor Ivan J. Kucina; Assistant Professor Ph.D. Milan D. Maksimović
Type of course:	Elective
ECTS:	4

Preconditions:
/

Objectives:
The course objective is to enable students to continue education in the field of housing. After theoretical classes on housing and studio work in the previous semester in the field of family housing and transitional housing forms, in this course students are introduced with problems of multifamily housing through a series of lectures and studio work. Through dedicated lectures related to the specifics of this type of housing, as well as through development of the design on a particular location, students are introduced to advantages and limitations of multifamily housing. Working in the studio, a series of discussions, and case studies, all in accordance with the context, provide an opportunity for students to form contemporary architectural view on the subject matter and master the skills necessary to develop conceptual design of a multifamily building.

Learning outcomes:
Students acquire knowledge that enable them up-to-date, professional and sustainable approach to the design of multifamily housing buildings, in the spirit of modern life and contemporary architecture, and they become trained to master complex design issues related to this type of structure and create the space worthy of a modern man.

Course brief:

Theoretical education:

Theoretical education aims at understanding historical, social, economic and social aspects of the phenomenology of multifamily housing. The focus is at the level of physical, physiological and utilitarian conception of the space, from one side, while, from the other side, it defines the role of the architect in creation of this type of structure, in terms of appearance, sustainability, expertise and relevance.

Practical education:

Practical education takes place in the studio, where in direct work on a particular location, a multifamily residential building is designed. In correlation with the context, students improve their skills in forming concept, which afterwards, through further elaboration, bring to the level of conceptual design with all necessary functional and aesthetic characteristics, but also the elements necessary for presenting architectural structure with multifamily residential use.

Literature:
- Vladimir Lojanica, *Stanovanje – tematske celine*, Arhitektonkski fakultet, Beograd, 2013.
- *Other required readings will be specified according the given design brief out the tables 10.3 and 10.4 and other resources.*

Active training classes no.:				Other:
Lectures:	Practical classes:	Other teaching forms:	Studio research:	
/	/	4	/	

Teaching methodology:
Studio-based methodlogy, with occasional lectures on design related topics. Combination of several teaching forms – ex cathedra lectures, interactive teaching, case studies, individual and group projects, research, presentation, essays, seminars, etc.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	
Practical classes		Oral exam	10
Colloquia	40	Design project	40
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	PRIVATE AND PUBLIC IN RESIDENTIAL ARCHITECTURE OF ANTIQUITY AND THE MIDDLE AGES
Teacher:	Assistant Professor Ph.D. Gordana D. Milošević-Jevtić
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
This thematic unit is designed to introduce students to defining concepts of residential architecture in ancient times and the Middle Ages. Style, form, applied structure and construction technique and systematization of materials on types of structures, the share of materials and building material in late antiquity in the region, with special emphasis on monolithic and skeleton construction and applied types of structural systems. Medieval house and the establishment of the concept of citizen-householder. Transformation of private and public in the context of the early Christian's house. Bishop's palace as a new center of power.

Learning outcomes:
Upon each chronologically completed unit, colloquies/mid-term exams (4 in total) are planned; in which students will analysis certain forms of residential architecture from the past. Students are expected, after passing the exam, to have knowledge of history and development of residential architecture and division of the space into public and private. Acquired specific knowledge in the field of ancient and medieval residential architecture will be of direct benefit to the understanding of needs in designing residential architecture based on contemporary needs of urban and rural population.

Course brief:
Theoretical education:
Hellenization in art and architecture, which began in the second century BC, became the basic framework of private and public life in the Roman Empire. Social and historical diversity in the organization of the house on the east and west sublimates unique developmental type of residential architecture of the Roman Empire – domus. Such an attitude and a lifestyle lead to the creation of international Roman house, which reigns supreme with its appearance and organization in the entire territory of the Roman Empire. The concept of villas and palaces – function, appearance and transformation. During late antiquity, it came to the transformation of the relation between public and private, and villas and palaces became a place similar to a privatized forum. The ancient tradition of residential architecture in the East, through the Byzantine house, and its transformation of structure and space into urban Islamic house. Residential architecture of the feudal West and organization of public and private in single-space and multi-space houses. The lord of the manor in the Middle Ages and adjustment of the house to post and petrail skeleton construction. Feudalist and fortified palace – castle and differentiation between public and private. Sacralization of living space in monasteries and bishops' palaces. Bishop's palace as a new center of power. Impacts of ancient and medieval houses on residential architecture of the Renaissance and Baroque.

Literature:

- G. Milošević, Stanovanje u srednjovekovnoj Srbiji, Beograd 1977.
- P. Ven i dr., Od Rimskog carstva do 1000. godine, U: Istorija privatnog života 1 (ed. F. Arijes, Ž. Dibi), Beograd, 2000, Clio.
- D. Bartelemi i dr., Od feudalne Evrope do renesanse, U: Istorija privatnog života 2 (ed. F. Arijes, Ž. Dibi), Beograd 2001, Clio.
- J. C. Anderson, Roman Architecture and Society, The Johns Hopkins University Press Baltimore and London, 1977.
- L. Breje, Vizantijska civilizacija, Beograd 1976

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Introduction, through lectures, to modern methodology of studying ancient and medieval housing stock in the territory of the former Roman Empire. Each lecture includes several teaching; case studies, interactive communication and guided thematic discussions, with the aim of provoking personal interests of students, mastering and connecting with contemporary housing standards. Integral parts of the teaching are regular consultations with students regarding exams, and introducing to basic and recommended literature. Consultations regarding preparation of the final paper.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	40
Practical classes		Oral exam	10
Colloquia	40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	PROTECTION AND REVITALIZATION OF ARCHITECTURAL HERITAGE
Teacher:	Associate Professor Ph.D. Mirjana Z. Roter-Blagojević
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
Introduction to the basic objectives, principles, methods and contemporary examples of integrative care, restoration and revitalization of the architectural heritage in the world and in Serbia in order to acquire basic knowledge in the field pf preservation of cultural heritage and architectural design in the protected areas. Knowledge of basic elements of the law on cultural goods and international recommendations and charters.

Learning outcomes:
Knowledge of basic principles, legislation, evaluation, methods of protection and use of contemporary architectural heritage as a qualification for future problem solving in the field of protection and revitalization of historic buildings and spaces. This knowledge is necessary for quality dealing with protection and revitalization when working on design projects on higher levels of studies and practice in the future.

Course brief:

Theoretical education:

Historical development of the architectural heritage in our country and worldwide, contemporary standards, recommendations and charters. Evaluation and monumental qualities. Principles and methods of technical protection of architectural heritage. Objectives and principles of revitalization of the architectural heritage. Opportunities for revitalization and contemporary approach in the renewal of historic buildings and areas. Presentation and contemporary use of protected buildings and ambiences. Regeneration and renewal of different types of heritage – urban core, residential architecture, industrial heritage etc.

Practical education:

Visits to protected areas, consultations, introduction to literature, colloquias and presentation of research results to follow students' engagement in classes.

Literature:

- Nenadović, S. Zaštita graditeljskog nasleđa, Arhitektonski fakultet, Beograd, 1980.
- Nešković, J. Revitalizacija spomenika kulture, Arhitektonski fakultet, Beograd, 1986.
- Venecijanska deklaracija INTBAU - za očuvanje spomenika kulture i celina u 21-om veku, u: Info – urbanistički zavod Beograda, br. 20 (2007), str. 32-34.
- Jokileto, J. Konzervacija između prakse i teorije, u: Glasnik DKS, br. 27 (2003), str. 9 – 14.
- Stovel, H. Kulturni pejzaži: novi pristup očuvanju kulturnog nasleđa, u: Glasnik DKS, br. 27 (2003) str. 14 – 19.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lecture by thematic units. Discussions and referral of students to research work related to data collection in the field, in archives, development of analysis and case studies by choice. Excursions and visits to protected sites, regular consultations regarding colloquias and exams – semester paper and oral presentation, as well as the introduction to basic and specific literature.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	40
Practical classes		Oral exam	10
Colloquia	40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	DESIGN IN RURAL AREAS 1 – Housing in the countryside
Teacher:	Professor Ph.D. Milorad B. Ribar
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
The main objective of the course is for students to acquire theoretical and practical knowledge about planning and design of private spaces in rural areas. Classes are designed to improve students' ability in mastering the urban and architectural needs of housing and working facilities in rural environments, taking into account the specificity of different environments and spatial situations. Developing resourcefulness of students in design approach in areal contexts.

Learning outcomes:
Rural territory, organization, types of settlements, zoning, characteristics of housing with working in the rural area, principles of design of new and reconstruction of existing rural courtyards. Focus on insisting on students to treat the real space, design on particular models and in real situations.

Course brief:

Theoretical education:

01. Introductory lecture, Introducing students to objectives, brief and methods of teaching in the elective course, principles and criteria for evaluation of their performance.
02-03. Rural territories. Zones and characteristics of settlements.
04. Rural settlements. Rural courtyard as the main factor of the settlement. Tradition.
05. Rural settlements – particular design task from the previously studied material.
06. Rural courtyard. Beginning of the work on a particular design project. Concept and design program.
07. I Colloquia: prepared in school, completed at home, and submitted at the beginning of the next class.
08. Architectural concept of design solution Elaboration of the concept, working model, accepting general solution. Clarification and discussion of the seminar paper.
09. Spatial-functional organization Spatial organization of the courtyard. Housing and economic facilities. Consultations regarding the paper.
10. Spatial-functional organization. Elaboration of the solution, materialization, shaping. Submission of the seminar paper.
11. Analysis of examples. Presentation of examples and discussion of individual works.
12. Final work. Synthesis of acquired knowledge, interpolation of quality solutions from colloquia into the final work, corrections of the elements of the design.
13.II Colloquia: Particular design task related to individual project. It is prepared in school, completed at home and submitted at the beginning of the next class.
14. Final work. Final consultations regarding the design and agreement about the finalization of the work.

Literature:
- Simonović R. Đorđe, Ribar B. Milorad. Uređenje seoskih teritorija i naselja. Beograd: IBI-Inženjering i projektovanje Simović Đ.
- Seoski stan. Arhitektonski fakultet, Beograd.
- Simonović Đ. Sistemi seoskih naselja u užoj Srbiji. IAUS, Beograd
- Kojić B. Simonović Đ. Seoska naselja Srbije. IICS Beograd.
- Kanic F. Srbija - zemlja i stanovništvo. Srpska književna zadruga, Beograd

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Combination of various teaching forms: lectures, presentations, discussions, case studies, seminars, individual and potentially group design tasks.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	5	Written exam	55
Practical classes		Oral exam	10
Colloquia	10+10=20		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	DESIGN OF MOBILE ART RESIDENCES
Teacher:	Associate Professor M.Sc. Milorad J. Mladenović
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
The objective of the course is to train students of architecture for a research and design of minimal facilities of mobile art residences which could, within certain fictitious circumstances, provide residence and work of artists in different places. In this regard, the course is aimed to provide introduction to basic strategies of artistic acting today, conditions that are necessary or possible for such work, as well as to possible role of architects in this field of action. The widest objective of the course is the integration of artistic and architectural acting through a single art project positioned in local or wider social space as active and recognizable.

Learning outcomes:
Implementation of a design project of mobile art residence, as well as a conceptual group project within which is created assembly or campus of mobile art residences in which is possible stay and work of a larger group of artists and architects. Acquired researching and practical experience in the implementation of this type of design tasks in architecture.

Course brief:

Theoretical education:

Theoretical education is conducted on the basis of previous experiences and strategical principles of artistic activity within the residence and work of artists and architects in our country and worldwide, as well as on the basis of formal architectural requirements for such a residence and work. Special emphasis in theoretical education is on the contemporary possibilities of artistic and architectural acting in the context of this form of artistic and architectural treatment.
Many lecturers and invited associates will take participation in this course performance.

Practical education:

Students' practical work includes exploration of single and group possibilities for the design of mobile art residence through the conception and design of such a facility. In practical classes it is insisted for each student and the whole group to explore possibilities of implementation of strategic concepts that are theoretically contemplated as well as on the implementation of the most minimal and functional mobile residential space.

Literature:
– Literature will be specified according the given design brief out the tables 10.3 and 10.4 and other resources.

Active training classes no.:				Other:
Lectures: 1	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Keynote lectures which set the framework which enables contemporary artistic strategies of artists' and architects' residence and work, as well as the frame of design implementation of a specific adopted concept. Gradually, during the semester the focus is moved on the conception and implementation of design. The course brief also defines the field area where is possible to organize residence of a group and work on a joint project of the implementation within given conditions that allows group mobility.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	50
Practical classes		Oral exam	
Colloquia	40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	INTRODUCTION TO NEW MEDIA
Teacher:	Associate Professor Ph.D. Mariela M. Cvetić
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
The main objective is introduction with the concept and idea of new media as post-media or meta-media which use old media as their basic material.

Learning outcomes:
Knoledge to understand, recognize and evaluate art works developed in “new medias”, and skills in the development of these.

Course brief:

Theoretical education:
Keynote theoretical study of new media and their history followed through selected examples.

Practical education:
Practical classes and research are intended for students to conceptualize a project based on the idea of new media where the artwork is no longer based on perfecting the art form, but on dealing with contexts in which it (work) appears.

Literature:
- Manovič, Lev, Metamediji, Centar za savremenu umetnost Beograd, Beograd, 2001
- Rush, Michael, New Media in Art, Thames and Hudson, 2003
- Šuvaković, Miško, Pojmovnik suvremene umjetnosti, Horetzky, Zagreb, 2005.

Active training classes no.:				Other:
Lectures: 1	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Keynote ex cathedra lectures which transfer to discussions, analysis and dialogues. Films projections is also planned, so to open a debate on the researched problem. Upon completion, the exhibition of works is planned.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Final portfolio	60
Practical classes		Oral exam	
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	INTEGRATED MODELING OF ARCHITECTURAL STRUCTURES
Teacher:	Assistant Professor Ph.D. Mirjana S. Devetaković Radojević
Type of course:	Elective
ECTS:	2

Preconditions:

Basic knowledge of English, as well as possession of an appropriate computer on which it is possible to install student version of the chosen software.

Objectives:

Integrated modeling is a technology where the architectural form, defined as a parametric 3D computer model, becomes the main carrier of all other information about an architectural structure, through its entire life cycle, from the concept phase, design, construction, exploitation, to demolition. Integrated modeling is a part of a broader concept known as BIM (Building Information Modeling) in which, in addition to architects, participate engineers of other professions, and 3D model of an architectural structure is the central document for communication. The objective of the course is to introduce students to the basics of this technology, and to train them for independent application of integrated modeling in the architectural design process.

Learning outcomes:

Upon completion of this course, students will know basic terminology in BIM (Building Information Modeling), and will be able to use available software for integrated modeling. One will be able to identify and analyze case studies of BIM technology application in designing architectural structures and to analyze advantages of this technology application. Students will be able to independently work on simpler integrated models of architectural structures, on independent preparation of selected parametric defined components of models, as well as to engage in the activity of design teams who work together on complex projects. He/she will have a basis for further education and specialization in the field of BIM.

Course brief:

Theoretical education:

1. Basic concepts of integrated modeling, BIM (Building information Modeling) 2. Overview of integrated modeling software 3. Case study of the application of integrated modeling in the worldwide practice 4. Example of integrated modeling in domestic practice 5. Modeling of basic building elements 6. Modeling of building envelope 7. Families of elements – equipment and furniture 8. Control of display of integrated model 9. Materials, lighting, rendering 10 -14. Work on integrated model of selected existing architectural structure.

Practical education:

1. Account activation in the virtual environment and presentation of students and teachers 2. Installation of student version of selected software for integrated modeling (Revit, Autodesk) 3. Research of examples of the application of integrated modeling in the world practice 4. Introduction to the integrated model of the Building of Technical Faculties (prepared in the academic year 2012/13) 5. Modeling of basic building elements (Autodesk BIM Curriculum, Unit 1, Lesson 1) 6. Modeling of building envelope; Curtain wall (Autodesk BIM Curriculum, Unit 1, Lesson 2-3) 7. Creating families of parametric defined elements (Autodesk BIM Curriculum, Unit 1, Lesson 4) 8. Control of display of integrated model (Autodesk BIM Curriculum, Unit 1, Lesson 5) 9. Materials, lighting, rendering (Autodesk BIM Curriculum, Unit 1, Lesson 6) 10. Starting integrated model, preparation of a copy for each user and selection of a building fragment to be modeled (walls, columns, windows, doors, ceiling, floors, sanitary facilities, staircases, elevators, furniture, lighting, heating bodies, etc.) 11- 13. Synchronization and analysis of the integrated model 14. Visualization of selected fragments of the integrated model 15. Final presentation.

Literature:

- Katz, G: AutoDesk BIM Curriculum, Complete Unit 1 - BIM Modeling Basics, Student Workbook, Autodesk, 2011, http://bimcurriculum.autodesk.com/unit/unit-1-–-bim-modeling-basics
- Revit Architecture 2011 User's Guide, Autodesk 2010, .pdf
- AEC (UK) BIM Protocol, UK AEC Standards, September 2012, http://aecuk.files.wordpress.com/2012/09/aecukbimprotocol-v2-0.pdf
- Devetaković, M., Radojević, M.: Integrisano modeliranje arhitektonskih objekata – familije komponenti specijalizovanih proizvođača, kao deo BIM okruženja, Konferencija "Instalacije i Arhitektura", Zbornik radova, str. 151, Arhitektonski fakultet Beograd, 2013., http://www.scribd.com/doc/116999561/I-A-2012
- Devetaković, M. (urednik) i grupa studenata: Integrisano modeliranje arhitektonskih objekata - primer zgrade Tehničkih fakulteta, (in production, based on the performances in autumn and spring semesters 2012/13.)

Active training classes no.:				Other:
Lectures: 1	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:

Combination of lectures, practical classes and students' independent work. Teaching is supported with specially prepared virtual environment where students publish their tasks during a semester, as well as a final works (an example is available on http://elearning.amres.ac.rs/moodle/course/view.php?id=177.)

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing		Written exam	
Practical classes	60	Oral exam	
Colloquia		Final work – poster and portfolio	40
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ENGLISH FOR ARCHITECTS 1
Teacher:	Assistant Professor Ph.D. Gordana M. Vuković-Nikolić
Type of course:	Elective
ECTS:	2

Preconditions:
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Objectives:
By an integrated approach in the course, it is being developed a communicative competence in listening, reading, speaking and writing but the primary goal is to analytically process and rationalize various types of so-called "descriptive discourse" in the texts of architecture in English.

Learning outcomes:
Development of verbal skills in foreign language (English) on texts which are descriptive and thematically related to the context of architectural studies at the Faculty of Architecture.

Course brief:

Theoretical education:

The focus is on the functional apparatus of the descriptive texts, original and created, systematically arranged to thematically and functionally make one whole. Topics are related to studies in architecture at the Faculty of Architecture.
The students are being trained to analytically rationalize the organized set of descriptive text and perceive their most important grammatical and lexical features. It is expected that later they will be able to synthesize this acquired knowledge in other courses English for Architects 2 and 3.
The practicum which has been innovated each year, as well as multimedia presentations and seminar papers of previous generations are the basis for the course.

Literature:

- Dr Gordana Vuković-Nikolić: Engleski za arhitekte 1, praktikum, Arhitektonski fakultet, Beograd, 2012. (distributed on the first class)
- Gordana Vuković-Nikolić: Gramatika engleskog jezika sa vezbanjima, Viša PTT škola, Beograd, 1995. (online edition is on the teacher's page of the Faculty's website)
- Gordana Vuković-Nikolić: Kreativno pisanje, Krug centar, 2010. (available in the bookshop)

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Teaching classroom and teacher's office are equipped with audio-visual technology. Classes are based on the texts that are presented in the form of multimedia presentations and seminar papers of previous generations' students. Main part of the coursework is the Practicum that each student receives at the beginning (for free). Through announced units in the Practicum, the students are encouraged to explore tgiven topic on the internet, to discuss and to write about it in class and at home so that this gradually gained knowledge can be completed by the preparation for the final exam.
The complete course methodology is being performed through teacher's self-developed method (Portfolio method, described in detail in the book Creative writing, G. Vukovic -Nikolić , 2010).

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	30	Written exam	20
Practical classes		Oral exam	10
Colloquia	40		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	URBAN MARKETING
Teacher:	Professor Ph.D. Miodrag B. Ralević
Type of course:	Elective
ECTS:	2

Preconditions:
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Objectives:
The objective of the course is to provide knowledge on contemporary techniques of urban marketing and to train students to use those on different problems and levels of marketing modelling of urban settlements development.

Learning outcomes:
Upon completion of the course the student is expected to:
- Understand the marketing approach in space (spatial market and goods, competitiveness);
- Apply the techniques of branding of settlements/ region;
- Use the techniques of marketing modeling in their academic and professional performance.

Course brief:

Theoretical education:

Thematic blocks:
I. MARKETING APPROACH;
II. MARKETING METHODS;
III. MARKETING PROCEDURES;
IV. TECHNIQUES OF 'MARKETING';
V. OPERATIONS OF ACHIEVEMENT

Practical education:
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Literature:
- Miodrag Ralević and Novica Arandelović (2001), Urbani menadžment, urbani marketing i preduzetništvo u funkciji razvoja urbanih aglomeracija, Udruženje urbanista Srbije, Beograd
- Ljubinko Pušić, (2002), Preduzetnici i grad, Centar za sociološka istraživanja, Novi Sad
- Dejvid Aker, V. Kumar, Džordž S. Dej, (2008), Marketinško istraživanje, Ekonomsli fakultet, Beograd, 2008
- Saša Veljković, (2006), Marketing usluga, Ekonomsli fakultet, Beograd
- Branko Rakita, (2005), Međunarodni marketing, Ekonomsli fakultet, Beograd

Active training classes no.:				Other:
Lectures: 1	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Combination of various teaching and working forms: ex cathedra lectures, interactive teaching, group and individual projects and presentations, debates, round tables, workshops, and experts' guest lectures and visit to relevant institutions.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	30	Written exam	
Practical classes		Oral exam	40
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	OPEN URBAN SPACES
Teacher:	Assistant Professor Zoran N. Đukanović
Type of course:	Elective
ECTS:	2

Preconditions:
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Objectives:
The course objective is to train students, through theoretical and interactive work, to link theoretical views with practical operation, to apply contemporary professional conception, to establish authentic methods and principles of planning and design of open urban areas.

Learning outcomes:
Understanding the elements, structures, manifested shapes and general context of open urban spaces. Recognition and understanding of relations between open urban spaces and spatial, functional, social, economic, political, natural-environmental and cultural context of the urban area. Understanding the specificity and conditionality of modern planning, design, development and equipping of open urban spaces.

Course brief:

Theoretical education:

1. Benefits and potentials of open urban spaces: spatial-functional; social; health; environmental; economic. 2. Categories of open urban spaces: types, elements, structure and network; private and common open urban spaces; open urban spaces – neighborhood level; open urban spaces – city level – public infrastructure. 4. Contemporary approaches to planning, design, development and equipping of open urban spaces: the quality of life, sustainability, cultural identity, design for all, participation. 5. Case studies.

Practical education:

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Literature:

- Woolley, H.; Urban Open Spaces,First published 2003 by Spon Press LOW, Taylor & Francis e-Library, 2005
- Francis, M.; Urban Open Space: Designing For User Needs; Washington [etc.] : Island Press : Landscape Architecture Foundation, 2003;
- Đukanović, Z. Živković J.; Javna umetnost i kreiranje mesta – studija slučaja – Beograd, Gradska opština Stari grad; Arhitektonski fakulet Univerziteta u Beogradu; Beograd; 2008.

Active training classes no.:				Other:
Lectures: 1	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	
Practical classes		Oral exam	50
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	URBAN MOBILITY
Teacher:	Assistant Professor M.Sc. Uroš B. Radosavljević
Type of course:	Elective
ECTS:	2

Preconditions:
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Objectives:
The main objective of the course is to introduce students with the aspects of design and planning of development of the urban structure and to achieve higher levels of quality of life in urban areas, in accordance with the principles of sustainable urban transport systems.

Learning outcomes:
Students will acquire the following in this course: :
- Understanding of key contemporary disciplinary issues related to provision of multimodal transport and mobility of people in urban areas through an overview of basic tenets from the following areas: mobility and transport management, parking management, land-use planning to ensure sustainability of transport, safety and environmental protection.
- Knowledge of basic methods of mobility management, parking management and land-use planning to ensure sustainability of transport.
- Practical knowledge of the principles of urban design in accordance with the requirements of high mobility and sustainable transport in the city.

This knowledge should increase the competences of students in solving problems of urban design and planning in accordance with the principles of sustainable transport systems in the urban area and the skill to competently collaborate with experts in the field of transport in integral solving of urban problems.

Course brief:

Theoretical education:

Key thematic areas of architecture and urban planning included in this course are:
- Aspects of urban design in accordance with the principles of reaching high quality of urban mobility,
- Aspects of urban planning in accordance with the principles of sustainable urban transport.

The structure of thematic units that will be studied within the course is:
- Principles of land-use planning to ensure sustainability of transport – students will deal with the requirements set by the sustainable transport systems in planning the use and purpose of the land
- Mobility management – students will deal with the requirements that high quality of urban mobility sets to architects during urban planning and design.
- Parking management – students will deal with the requirements that efficiently parking management sets to architects during urban design and planning of parking space in the city

Safety and environmental protection – students will deal with the instruments for ensuring environmental protection using alternative fuels and vehicles during urban design and planning.

Practical education:

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Literature:
- Woolley, H.; Urban Open Spaces,First published 2003 by Spon Press LOW, Taylor & Francis e-Library, 2005
- Francis, M.; Urban Open Space: Designing For User Needs; Washington [etc.]:Island Press: Landscape Architecture Foundation, 2003;
- Đukanović, Z. Živković J.; Javna umetnost i kreiranje mesta – studija slučaja – Beograd, Gradska opština Stari grad; Arhitektonski fakulet Univerziteta u Beogradu; Beograd; 2008.

Active training classes no.:				Other:
Lectures: 1	Practical classes: 1	Other teaching forms: /	Studio research: /	

Teaching methodology:
Interactive teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	
Practical classes		Oral exam	50
Colloquia	30		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ARCHITECTURAL DETAIL
Teacher:	Assistant Professor Ph.D. Jasna Lj. Čikić Tovarović (course leader), Associate Professor Ph.D. Jelena A. Ivanović Šekularac
Type of course:	Elective
ECTS:	2

Preconditions:

Enrolled in the 5th semester of study programme

Objectives:

The course objective is to introduce students to basic principles of designing the architectural detail, taking into account: functional, shape-related and aesthetic aspect, as well as the logic of constructing links, the specificity of materialization, and special features related to construction technology and realization of the building, exploitation and maintenance. New trends in architecture and emergence of new materials bring new architectural solutions and different approaches to solving details.

Learning outcomes:

In this course, students will acquire new knowledge, focusing on the importance of well-designed architectural detail, taking into account that a number of well-designed and executed architectural details significantly influence the architecture and perception of the building as a whole. .

Course brief:

Teaching in this course relies on the knowledge gained in the course Architectural structures 1-4 and is expanded with new specific knowledge. Different approaches to the design of architectural details through analyzing a significant number of examples and basic principles for solving are a basis of theoretical education in this course. The main themes that will be dealt with in this course are: the attitude of the architect/designer towards architectural detail, a detail as a part of the architectural concept; the importance of the detail for the perception of the building as a whole; the connection of the building with the terrain at the level of detail; specific façade details; details of entrance, canopy; fences; shades; cornices; specific interior details; the combination of material-texture, color, compatibility, simplicity-complexity in solving details etc.

Literature:

- Thomas Herzog, Roland Krippner, Werner Lang, Facade Construction Manual, Detail, ISBN 3-7643-7109-9
- Klaus Sedlbauer, Eberhard Schunck, Rainer Barthel, Hartwig Künzel, Flat Roof Construction Manual, Detail, ISBN 978-3-0346-0658-5
- Christian Schittich, Gerald Staib, Dieter Balkow, Matthias Schuler, Werner Sobek, Glass Construction Manual 2nd Ed, Detail, ISBN 978-3-7643-8122-6
- Julius Natterer, Wolfgang Winter, Thomas Herzog, Roland Schweitzer and Michael Volz, Timber Construction Manual, Detail, ISBN 978-3-7643-7025-1
- Detail Magazine

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:

Ex cathedra lectures, case studies, interactive teaching, active participation in discussions, work on preparing papers and drawings.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	30	Written exam	50
Practical classes		Oral exam	20
Colloquia			
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ENVIRONMENTAL ASPECTS OF DESIGN AND CONSTRUCTION
Teacher:	Assistant Professor M.Sc. Nataša D. Ćuković Ignjatović
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
The course objective is to introduce students to environmental aspects of contemporary architectural theory and practice.

Learning outcomes:
Training students to perceive, through an integrative approach to architectural design, a broader context and environmental implications of decisions in all design phases – from concept design to construction.

Course brief:

Theoretical education:

Environmental issues in the context of contemporary architectural theory and practice. Basic theoretical models; Cradle to Cradle (C2C), lifecycle assessment (LCA), certification systems etc. Understanding the development and manifestation of theoretical postulates through developed (built) structures of contemporary architecture.

Literature:
- Textbook (distributed during the semester)
- Collection of texts and extracts from the relevant regulations (distributed during the semester)
- A Green Vitruvius, V. Brophy and J.O. Lewis, Earthscan 2011.
- Cradle to Cradle. Remaking the Way We Make Things, M. Braungart, W. McDonough, North Point Press 2002.
- A Life Cycle Approach to Buildings, H. Koning et al., Detail Green Books, 2010.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Combination of various teaching forms, such as ex cathedra lectures, interactive teaching, case studies, small research projects, presentations, seminars.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	40
Practical classes	25	Oral exam	
Colloquia	25		
Seminar-s			

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	ELEMENTS OF REINFORCED CONCRETE STRUCTURES
Teacher:	Assistant Professor Ph.D. Ruža D. Okrajnov-Bajić
Type of course:	Elective
ECTS:	2

Preconditions:
Mechanics and strength of materials, Structural principless of architectural buildings, Design and calculation of architectural structures 1

Objectives:
The objective of this course is to thoroughly introduce students to application of reinforced concrete in contemporary architectural structures, through learning the rules of design and calculation of reinforced concrete structures.

Learning outcomes:
Through a series of lectures, students are introduced with structural elements that are usually performed in reinforced concrete. Design and structuring, calculation and dimensioning, and finally details of reinforcement and performance of particular reinforced concrete structural elements will be studied in more details.

Course brief:

Theoretical education:

Hangers, frame girders, trusses, combined linear systems, rectangular slabs loaded in one direction, crosswise reinforced slabs, slabs supported on columns, r.c.walls, r.c. staircases, ribbed and pot floors, easy precast ceiling, hangers loaded with torsion

Practical education:

Calculation and sizing of continuous crosswise reinforced floor (slabs and girders). Sizing of ribbed or pot structure, sizing of r.c. frame

Literature:
- Ž.Radosavljević, D. Bajić: ARMIRANI BETON 3, Građevinska knjiga, Beograd, 1996.
- Textbook of practical tasks in Concrete structures at the Faculty of Architecture, group of authors
- Textbook of practical tasks in Elements of concrete structures

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Teaching includes ex cathedra lectures and practical classes presenting numerous examples. During semester there are two colloquias with the purpose to check students' level of knowledge adoption. Each colloquium is composed out of 10 questions.
Students work on their assignments at home, and submit them on classes. At the end of the course, students should have a study of four accepted assignements.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	70
Practical classes		Oral exam	
Colloquia	20	Seminar-s	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STRUCTURAL EXPERIMENTS
Teacher:	Professor Ph.D. Milan T. Glišić
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
The main objective of the course is for students to learn the structural and calculation principles of large-span roof structures of sport, exhibitions and other public facilities. In the process of teaching the students will learn the logic basics of forming of structural concept and forces transferring in large-span structures.

Learning outcomes:
Knowledge to understand the logic of forming the structural concept and forces transferring in large-span structures.

Course brief:
Theoretical education:
Basic concepts and principles of designing long-span roofs.
Analysis of flows of forces in specific structural solutions.
The principles of calculation using finite element method. Introducing to computer programs for analysis using finite element method. П
This course also includes design and calculation of variant of the roof structure with the basis of 2500 sq.m. with supports only along the basis contour.

Literature:
- Slobodan Romić, Armirano betonske konstrukcije, Građevinska knjiga, Beograd, 1985.
- Vojislav Kujundžić, Žikica Tekić, Saša Đorđević, Savremeni sistemi drvenih konstrukcija, Orion art, Beograd, 2004.
- Vojislav Kujundžić, Dragoslav Tošić, Metalne i drvene konstrukcije, Građevinska knjiga, Beograd 1991.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	60
Practical classes		Oral exam	
Colloquia	30	Seminar-s	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STRUCTURAL FORMS
Teacher:	Assistant Professor Ph.D. Žikica M. Tekić
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
Introducing students to concepts and fundamental principles underlying the structural design. The course objective is to help students to understand some of geometric structural relations that can be used in designing architectural structures. Also, the course aims to show students that the structure is an integrated part of architecture and its understanding is a basis for understanding both mechanical and conceptual aspects inherent in the art of building. Although the structural form is conditioned by structural demands, the course affirms the approach, in which the structure should not be construed as a limiting aspect, in which systems of elements integrate with patterns, proportions, scale, which are connected with essential aspects of architectural design: formal and spatial composition and coordination. The structural form is an architectural form, mathematically based, efficient, economical and aesthetically acceptable. The stated objective will be realized by model testing which will allow formal research, simulation, exact communication of ideas, visualization, presentation and production of structural forms.

Learning outcomes:
Students are expected to develop a new area of competency in terms of methodology of design of structures; acquire knowledge about geometric and structural principles that are basis of architectural shaping; train to creatively approach to problems, and propose forms of buildings and other structures. Students acquire the following general and course -specific skills: trained for proper perception of elements forming architectural space; trained to understand procedures and reconcile divergent factors in creating the structures that meet aesthetic and technical requirements; ability to generate structures by applying adequate computer programs; learn to solve concrete problems using scientific methods and procedures and integrate acquired knowledge from different fields in order to apply them in the context of architectural profession.

Course brief:

Theoretical education:
Mapping and transformation. Theory of groups. Symmetry. Group symmetry in the plane. Symmetry in mineralogy, crystallography, morphology of plants and animals, the notion of automorphism groups, rotations, reflections, translations. Modular coordination, spaces and forms. Proportion. Tessellations.

Practical education:
Work on individual or group tasks. .

Literature:

- Đ. Zloković. KOORDNIRANI SISTEMI KONSTRUKCIJA, Građevinska knjiga, Beograd 1969.
- F. Moussavi, D. Lopez, G. Ambrose, B. Fortunato, R. R. Ludwig, A. Schricker. THE FUNCTION OF FORM. Actar and Harvard Graduate School of Design, 2009.
- H. Pottman, A. Asperl, M. Hofer, A. Kilian. ARCHITECTURAL GEOMETRY. Bently Institute Press, 2007.
- AD Vol 79 No 6. PATTERNS OF ARCHITECTURE. Guest-Edited by M. Garcia. Londom: Wiley-Academy. Nov./Dec. 2009.
- F. D. K. Ching, B. S. Onouye, D. Zuberbuhler. BUILDING STRUCTURES: PATTERNS, SYSTEMS AND DESIGN. Wiley, 2009.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Ex cathedra lectures and consultations related to the preparation of individual or group tasks. It includes active participation of students in teaching.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	50
Practical classes		Oral exam	
Colloquia	30	Seminar-s	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	GREEN ARCHITECTURE
Teacher:	Assistant Professor Dušan M. Ignjatović
Type of course:	Elective
ECTS:	2

Preconditions:
/

Objectives:
The main objective of the course is introduction to the concept of "green architecture" as a theoretical and designing-technological approach in the architectural design.

Learning outcomes:
Development of a critical view on the relation of architecture, energy, technology and materialization of architectural structures.

Course brief:
Theoretical education:
Concept of a green building (historical and contemporary tendencies). Analisys and impacts of environment. Principles, technological solutions, materials and products, simulation methods, certification.

Literature:
- Bioklimatsko planiranje i projektovanje - urbanistički parametri, M. Jovanović popović i dr.
- Bioklimatska arhitektura, M. Pucar, IAUS 2006.
- Green Architecture, J. Wines, Taschen 2000
- Solar Energy in Architecture and Urban Planning, T. Herzog (ed.), Prestel 1996.
- Solar architecture: Strategies, Visions, Concepts, C. Shittich (ed.), Birkhauser 2003.

Active training classes no.:				Other:
Lectures: 2	Practical classes: /	Other teaching forms: /	Studio research: /	

Teaching methodology:
Combination of various working forms, such as: ex cathedra lectures, analysis of examples, researching projects, students' presentations.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	20	Written exam	50
Practical classes		Oral exam	
Colloquia	30	Seminar-s	

Study programme:	Undergraduate academic studies Architecture
Type and level of studies:	Undergraduate academic studies
Course:	STUDIO 04 – SYNTHESIS – 01-17
Teacher:	Professor Branislav B. Mitrović; Professor Ph.D. Milorad B. Ribar; Professor Mihailo B. Timotijević; Professor Miodrag M. Mirković; Professor Zoran M. Lazović; Associate Professor Ph.D. Ružica Dj. Božović Stamenović; Associate Professor Ph.D. Dragana M. Vasiljević Tomić; Associate Professor Vladimir M. Lojanica; Associate Professor Dejan R. Miljković; Associate Professor M.Sc. Milan M. Vujović; Associate Professor Borislav A. Petrović; Professor Ph.D. Eva J. Vaništa Lazarević; Associate Professor Ph.D. Aleksandra B. Stupar; Assistant Professor M.Sc. Uroš B. Radosavljević; Associate Professor Ph.D. Jelena A. Ivanović Šekularac; Assistant Professor Ph.D. Jasna Lj. Čikić Tovarović, Assistant Professor Dragan N. Marčetić; Assistant Professor Ph.D. Aleksandar N. Rajčić, Assistant Professor Ph.D. Milan A. Radojević
Type of course:	Elective
ECTS:	14

Preconditions:
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Objectives:
The main objective of the course is the introduction to methodological principles of linking acquired knowledge and skills in the field of arts, design, architecture, urbanism and architectural technologies in designing complex architectural-urban units, with integrated residential, commercial, cultural, educational and service features in a given location, in the built environment, from a concept, through the elaboration of design, to the conceptual design.
Students, through gaining experience in the application of theoretical knowledge of elements of architecture, urbanism and architectural structures in solving practical tasks during the design process, learn methods and techniques of connecting architectural elements in complex functional and logical structural systems that are adjusted to the built-up surrounding.

Learning outcomes:
The outcome of all activities in this course aims at developing architectural-urban design. Thematic framework in relation to the problematic structure defines the expected results of the design: :
Linking the acquired knowledge and skills in urban, architectural design process and engineering and practicing. Acquiring the knowledge and skills in identifying and overcoming basic problematic aspects of design of more complex urban-architectural units in the real environment.
Understanding specific real urban and architectural phenomena and their transformation in a given context. Mastering the methods and techniques of urban and architectural design, the application of mastered methodology of design process to the level of conceptual architectural and structural solutions. Ability to develop trans-disciplinary understanding. Capacity for generating creatively new ideas and forms. Capacity for applying knowledge in practice. Capacity for evaluating ideas of proposals and forms. Ability to recognize and appropriately use architectural theories (primarily in the field of urban design), concepts, paradigms and principles. Understanding the relationship between buildings and their environment, as well as the need for connecting structures and space between them to human needs and scale.

Course brief:

Theoretical education:
Studio-based teaching, with occasional lectures on design related topics.

Practical education:
Students work in the studio to develop conceptual designs of higher level of program and spatial complexity, with the application of all acquired knowledge from the previous studies. In typological terms, designs are based on previously completed theoretical courses of Department of Architecture. In terms of programming, designs are defined as complex, with a combination of two or more basic typologies. Designs are developed in the spatial urban context and may be spatially defined as smaller urban centers or as multifunctional units with more complementary functions, with testing the possibilities for improvement and enrichment of existing features (contextual). The focus of this course is to design typologies of multi-functional housing with supporting multipurpose, educational, cultural, business, sports, commercial and service functions. Architectural-urban unity on a given location in the built environment is a field for improving all previously acquired knowledge from the studies.

Literature:

- Frempton, K. (2004). Moderna arhitektura: Kritička istorija. Beograd: Orion Art.
- Gidion, S. (2002). Prostor, vreme i arhitektura. Beograd: Građevinska knjiga.
- Koolhaas, R., Mau, B. (1998). S,M,L,XL. New York: The Monacelli Press.
- Zumthor, P. (1999). Thinking Architecture. Basel: Birkhäuser-Publishers for Architecture.
- Tschumi, B. & Cheng, I. (2003). The State of Architecture at the Beginning of the 21st Century. New York: The Monacelli Press.

Active training classes no.:				Other:
Lectures:	Practical classes:	Other teaching forms:	Studio research:	
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Teaching methodology:
Teaching includes various forms – ex cathedra lectures, interactive teaching, case studies, individual and group projects, research, presentation, essays, seminars, etc.

Knowledge evaluation (maximum 100 points)

Pre-exam requirements	points	Final exam	points
Activity during lecturing	10	Written exam	
Practical classes		Oral exam	10
Colloquia	15+15=30	Design project	50
Seminar-s			