

COURSE DESCRIPTIONS 2012/2013
DEPARTMENT OF ARCHITECTURE FIRST CYCLE COURSE DESCRIPTIONS

First year

Compulsory courses

ARC 101. BASIC DESIGN

Hours (Theoretical-Practical): 2+4

ECTS: 8

Students are introduced to the visual elements and principles of design through slide lectures and practical sessions. The visual elements consist of: point and line; shape and mass; texture; light; color; and space. The principles of design include: unity and variety; balance; emphasis and focal point; proportion and scale; movement, stability and rhythm. Students will be expected to apply the concepts learned from the lectures and demonstrations to create 2-dimensional visual compositions. Students will advance from achromatic compositions to more advanced chromatic compositions. Classroom lecture will expand upon visual elements and principles of design to include straight, curved and implied line; geometric and organic shapes; positive and negative space; approximate symmetry, symmetrical, asymmetrical and radial balance; illusion of depth; simulated and actual texture; and color theory. The majority of class time will be spent working on assignments but outside time may be necessary to complete the work. Critiques will follow most major assignments for critical feedback from the instructor and fellow classmates.

ARC 103. GRAPHIC COMMUNICATION

Hours (Theoretical-Practical): 2+2

ECTS: 4

The course elaborates and explores methods of graphic representation of architectural project introducing students to the fundamental drawing techniques crucial to expressing any design idea. The focus of this course is on basic graphic representational elements and their integration into complex visual presentation. The course, through various practical exercises introduces students to the methods of representation of visual attributes of objects, spatial representational systems, proportion, drawing techniques.

CEN 131. COMPUTER LITERATURE AND SKILLS

Hours (Theoretical-Practical): 2+2

ECTS: 5

This course covers basic concepts in information technology, software and hardware, operating systems, word processing, spreadsheets, databases, using the Internet in education, effects of information technology on social structures and in education, system security and ethical considerations.

ELT 117. ADVANCED READING AND WRITING I

Hours (Theoretical-Practical): 2+2

ECTS: 6

Development of Reading and Writing Skills in English: The course reinforces academic reading skills (finding the main idea, skimming, scanning, inferring information, guessing vocabulary from context, etc.) through reading selections on a variety of topics. It also aims at developing critical thinking, which enables students to respond to ideas in a well-organized written format. Other reading related writing

skills such as paraphrasing and summarizing are also dealt with.

MTH101. CALCULUS I

Hours (Theoretical-Practical): 2+2

ECTS: 7

Calculus I: Functions, Limits, continuity and derivatives. Applications. Extreme values, the Mean Value Theorem and its applications. Graphing. The definite integral. Area and volume as integrals. The indefinite integral. Transcendental functions and their derivatives. L'Hopital's rule. Techniques of integration. Improper integrals. Applications. Parametric curves. Polar coordinates.

BOS 101. BOSNIAN I

Hours (Theoretical-Practical): 2

ECTS: 0

This course is taught through the Bosnian Language. The course contains basic grammatical rules of the language. Everyday practical use of the language. This course is for Turkish students.

TDE 191. TURKISH LANGUAGE I

Hours (Theoretical-Practical): 2

ECTS: 0

This course is taught in Turkish Language. The course contains basic grammar rules of the language. Everyday practical use of the language. This course is for non-Turkish students. It covers following topics:

Basic characteristic of written language

Grammar

Subjectivity and objectivity

Free writing

Guided writing

ARC 104. INTRODUCTION TO ARCHITECTURE

Hours (Theoretical-Practical): 2+2

ECTS:5

This course is designed to inspire the student to consider the built environment in a new way through the study of ideas about architectural design and history, and architecture and planning in the context of the urban and rural environments. Ideally, this new visual vocabulary and these architectural concepts will encourage the student to become more judicious users and observers of the built environment. This course is a Fine Arts Foundation course for the general education program. As such, it emphasizes issues of design. This course also provides students with information about the profession of architecture, its history, the scope of traditional practice, contemporary issues in design and related professional careers. The critical facets of architectural education will be examined.

ARC 114. ARCHITECTURAL DESIGN I

Hours (Theoretical-Practical): 2+4

ECTS:8

Architectural Design I studio lays down the foundations for architectural design. Through lectures, small scale and experimental design projects, thinking of human inhabitation, space, and tectonics, as well as the relationship between plan, section and elevation, the course introduces principles and methods used at various stages of design analysis and synthesis processes. Site conditions are introduced to the design process; and the relation between interior and exterior are considered with regard to inhabitation.

ARC 115. BUILDING CONSTRUCTION TECHNOLOGY I**Hours (Theoretical-Practical): 2+2****ECTS:6**

Introduction to building materials and their simple use and application techniques and technologies. Historical development of materials, criteria for selection of materials and a systematic overview of their properties; issues in building finalization, composition of envelope structures and surface treatment on the architectural design level. It trains the students in various techniques in the construction of buildings, especially cost efficient techniques to develop competencies in assisting supervisors, engineers, and contractors and prepare themselves for self-employment. Introduction into the systematic and efficiency of building constructions and its designed presentation. General view of the development and use of building constructions, as well as the stress of buildings and components. Understanding of basic information in the building, especially as an encouragement for constructive thinking, recognizing and understanding of building constructions.

ARC 108. STATICS AND STRENGTH OF MATERIALS**Hours (Theoretical-Practical): 2+2****ECTS:5**

Introduction to principles of mechanics. Equivalent force systems, free body diagrams. Analysis of simple plane structures. Internal force in beams and trusses, shear force, bending moment and axial force diagrams. Centroids and moment of inertia of sections. Introduction to stress and strain concepts. Equilibrium, compatibility and constitutive relations. Bending and shear stresses. Deflection of trusses and beams. Torsion. At the end of Statics and Strength of Materials course, the learner is expected to improve his/her ability to calculate the amount of load on a specific structural member.

ELT 102. ADVANCED READING AND WRITING II**Hours (Theoretical-Practical): 2+2****ECTS:6**

Development of Reading and Writing Skills in English II: The course reinforces academic writing skills. In this course students write different types of essays based on the ideas they are exposed to in the reading selections. The emphasis is on the writing process in which students go through many stages from brainstorming and outlining to producing a complete documented piece of writing.

BOS 102. BOSNIAN LANGUAGE II**Hours (Theoretical-Practical): 2****ECTS:0**

This course is taught through the Bosnian Language. The course contains basic grammatical rules of the language. Everyday practical use of the language. This course is for Turkish students.

TDE 192. TURKISH LANGUAGE II**Hours (Theoretical-Practical): 2****ECTS:0**

This course is taught in Turkish Language and is continuation of Turkish Language I. The course contains intermediate grammatical rules of the language. Everyday practical use of the language. This course is for non-Turkish students.

Second year**Compulsory courses**

ARC 201. SUMMER PRACTICE AT ARCHITECTURAL STUDIO

Hours (Theoretical-Practical): 30 working days

ECTS:0

This course makes students able to attend and professionally benefit from an architectural studio atmosphere. The student is expected to fully engage with the practice of a professional studio and get enough experience to be prepared for the after-graduation period.

ARC 224. ARCHITECTURAL DESIGN II

Hours (Theoretical-Practical): 2+4

ECTS:8

Studies for the identification of elements of architectural design and the development of sensitivity and awareness required for valid interpretations of natural and functional context. Semester project requires from students to provide design solution for single residential unit. Lectures and practical sessions will deal with

Analysis of a project brief.

Site Recording and Analysis

Context

Design Response and Conceptual Development / Volumetric Analysis

Functional Planning

Aesthetics

Materials

ARC 225. BUILDING CONSTRUCTION TECHNOLOGY II

Hours (Theoretical-Practical): 2+2

ECTS:5

This course offers an introduction to the history, theory, and construction of basic structural systems as well as an introduction to energy issues in buildings. It emphasizes basic systematic and elemental behavior, principles of structural behavior, and analysis of individual structural elements and strategies for load carrying. The course also introduces fundamental energy topics including thermodynamics, psychrometrics, and comfort.

ARC 206. THEORY OF STRUCTURES

Hours (Theoretical-Practical): 2+2

ECTS:5

The behaviors and properties of structural steels. Principles of steel structural design. Design methods of steel structures emphasizing load and resistance factor design. Design procedures and specifications of steel members subjected to tension, compression, flexure and torsion. Composite steel-concrete design and construction. Design building codes and seismic provisions of steel structures. It covers following topics Principles of structural design, Steel and properties, Steel and properties, Tension members, Tension members, Compression members: Columns, Compression members: Columns, Midterm, Structural fasteners, Welding, Beams, Combined bending and axial load, Connections, Composite steel-concrete construction.

ARC 208 BUILDING MATERIALS

Hours (Theoretical-Practical): 2+2

ECTS:5

By the end of the course, students are expected to: - recognize and analyse different construction systems, - distinguish between different materials and their structural specifications, - be familiar with prevailing and new building materials, their application methods, - be capable of drawing a system detail in 1/20 scale with basic

principles of interfaces. It covers following topics:

- Foundations, Earth materials, geotextiles, drainage, piles, diaphragms
- Wood, Wood products, plastic lumber, wood fasteners, glued laminated timber
- Wood Heavy timber frame, light frame, interior and exterior finishes
- Brick masonry Mortar, brick
- Stone and concrete masonry, Stone, Stone masonry and Concrete masonry units, Masonry wall
- Waterproof and thermal insulations (rock wool, glass wool, polystyrene, polyurethanes...)
- Concrete, Cement, Reinforcing
- Mid-term Examination
- Precast and site cast concrete Prestressed elements, joining, casting concrete, Lightweight concrete
- Steel Material, steel framing, fireproofing
- Roofing and roofing materials application
- Cladding, Flooring, Suspended Ceilings
- Exterior wall systems, Interior finishes, walls, partitions, gypsum systems

ARC 216. HISTORY OF ART AND ARCHITECTURE I

Hours (Theoretical-Practical): 2+2

ECTS:4

By the end of the course the student is expected to have a basic chronological sense of major architectural developments and be able to recognize and rationalize changes in form and material with a contextual approach. It covers following topics:

- Art in world history, introductory remarks.....Purpose of artThe beginnings of art: Prehistory - the Stone Age
- Art and Architecture in "time-cut" 3500 BCE
- Art and Architecture in "time-cut" 2500 BCE
- Art and Architecture in "time-cut" 1500 BCE
- Art and Architecture in "time-cut" 800 BCE
- Art and Architecture in "time-cut" 400 BCE
- Art and Architecture in "time-cut" 0- Beginning of the new era
- Art and Architecture in "time-cut" 200 CE
- Art and Architecture in "time-cut" 400 CE
- Art and Architecture in "time-cut" 600 CE
- Art and Architecture in "time-cut" 800 CE
- Art and Architecture in "time-cut" 1000 CE....Art and Architecture in "time-cut" 1200 CE / Intro

ARC 234. ARCHITECTURAL DESIGN III

Hours (Theoretical-Practical): 2+4

ECTS:8

Design of office buildings in relation to their particularly urban context is emphasized. Issues of settlement-dwelling relationships, buildings of functional complexity and spatial variety and architectonic interpretations of structural systems are analyzed and designed.

- Design - Context
- Design - Context (Public building; Commercial and Office buildings, Site)
- Design - Need (Office buildings design: Workspaces planning – relationships and sizes)

- Design -Need (Office buildings design: Other areas planning - ancillary, support, social, service; circulation / communications)
- Design: Need - Form (Office buildings design: disposition, typology)
- Design - Form
- Design - Form
- Design solutions: material
- Design solutions: structure
- Design solutions: light

ARC 209. BUILDING ELEMENT DESIGN

Hours (Theoretical-Practical): 2+2

ECTS:4

Building Element Design encompasses all of the issues and programs and is an essential way of approaching building projects. Understanding Building Element Design concepts will enable students to think and practice in an integrated fashion to meet the demands of today's as well as tomorrow's high-performance building projects. Topics:

Introduction to Building Element Design

Structural analysis and structural loads, building codes, load combinations

Loads on Roof structures (designing the roofs)

Loads on Roof structures (designing the roofs)

Loads on structural walls, partition walls and their load (designing the walls)

Loads on the slabs (designing the slabs)

Designing the frame elements (columns)

Designing the frame elements (beams)

Designing the foundations (shallow)

Designing the foundations (deep)

Structural analysis for the entire building (load transfer through the elements)

Structural analysis for the entire building (load transfer through the elements)

Technical reports and their importance

ARC 209. ENVIRONMENTAL CONTROL STUDIO

Hours (Theoretical-Practical): 2+2

ECTS:7

Students will be provided with knowledge on aspects of building environment controls related to architectural planning and design. Aspects on comprehensive fire prevention and control; and influence of building materials with respect to pollution, environmental degradation will be discussed. Topics:

- Course Introduction. Architectural form as an environmental control system. CLIMATE as an context.
- DESIGN STRATEGIES Streets. Open spaces. Buildings.
- DESIGN STRATEGIES Buildings. Zoned organizations. Location. Rooms and courtyards. Size and shape. Walls .Roofs. Floors. Windows.
- The Luminous Environment Fundamentals of LIGHT Lighting and human failings. Lighting in Cultural and Art Centers. Daylighting. Electric lighting.
- ACOUSTICS Design Fundamentals of Sound. Noise isolation and control.
- RENEWABLE TECHNOLOGIES. Low energy techniques for housing. Advanced and ultra-low energy houses.
- Sustainable design. Solar architecture. PASSIVE SYSTEM. Passive house.
- EXISTING housing: a challenge and opportunity. STUDENTS PRESENTATIONS A brief overview of one example from practice. /

- Renewable technologies , Passive design etc. /
- HVAC System VENTILATION. Natural Ventilation HVAC : VENTILATION
- HVAC: HEATING & COOLING SYSTEMS Indoor Air Quality - IAQ
- Energy sources. Water in Architecture WATER + Waste
- Energy code. WIND and air movement
- Building design and energy strategies

ARC 226. HISTORY OF ART AND ARCHITECTURE II

Hours (Theoretical-Practical): 2+2

ECTS:4

This course is organized around individual monuments, each making or reinforcing points about how principles and ideas behind civilization and architecture in the West (1750 – 1960) were shaped by ideas behind capitalism, nationalism, scientific materialism, socialism, and manifested in shifts of style from historicist revivals to minimalist design.

ARC 257. STEEL STRUCTURES

Hours (Theoretical-Practical): 2+2

ECTS:4

This course is organized around individual monuments, each making or reinforcing points about how principles and ideas behind civilization and architecture in the West (1750 – 1960) were shaped by ideas behind capitalism, nationalism, scientific materialism, socialism, and manifested in shifts of style from historicist revivals to minimalist design.

Non-Technical Electives

BUS 103. INTRODUCTION TO BUSINESS

Hours (Theoretical-Practical): 3+0

ECTS:3

This course presents a balanced view of business; the strengths, weaknesses, successes, failures, problems, and challenges. It provides students a base for more advanced courses. The objective of this course is to provide students a clear and complete description of the concepts underlying business and illustrate the dynamism and liveliness of business organizations and people who operate them with real life examples.

BUS 112. FUNDAMENTS OF MANAGEMENT

Hours (Theoretical-Practical): 3+0

ECTS:3

This course teaches management and the management functions of planning, organizing, directing, and controlling. A comprehensive immersion in the fundamentals of management. This course provides a thorough understanding of what is required to set up organization, motivate and manage your team successfully and provides clear structures and tools to enable you to do this. It will show you how to master the five key areas of modern management: Goal Setting; Effective Time Management; Performance Management; Motivating Your Team.

ELT 122. ORAL COMMUNICATION SKILLS

Hours (Theoretical-Practical): 3+0

ECTS:3

Through weekly classes built around various topical themes, students will have the opportunity to practice speaking English, both formally and conversationally. Activities will include class discussions and individual and group presentations. This course

aims to develop students' fluency and confidence in speaking English and will integrate different reading and listening samples into communication-oriented tasks. Following a brief assessment test at the beginning of the term, students will be divided into 2 groups based on their level of spoken English.

Third Year Courses

Compulsory courses

ARC 301. SUMMER PRACTICE AT CONSTRUCTION SITE

Hours (Theoretical-Practical): 30 working days **ECTS:0**

Building construction procedures and techniques and active participation in construction work. The student can engage in archaeological site work with the approval of the Department.

ARC 327. ARCHITECTURAL DESIGN IV

Hours (Theoretical-Practical):2+4 **ECTS:7**

The course establishes foundations for architectural design of multifamily housing engaging issues of space, organization, circulation, use, structure and material. The focus of this course is integration of basic architectural elements and conceptual spatial strategies into larger architectural structures with complex urban, social, cultural and economic characteristics. The topic of housing is treated from a wide range of perspectives: urban context, spatiality and form, functionality and aesthetics.

ARC 325. REINFORCED CONCRETE STRUCTURES

Hours (Theoretical-Practical):2+2 **ECTS:5**

Combined bending and compression, development and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to prestressed concrete, design of multi-story buildings.

ARC 325. ARCHITECTURAL DESIGN V

Hours (Theoretical-Practical):2+6 **ECTS:5**

This course will investigate the social, programmatic, tectonic and phenomenological characteristics of educational institutions as a building typology. The proposed theme is quite challenging since the students need to respond to the numerous building standards, laws and regulations in one hand, and in the other hand they should be able to provide a space which inspires and fosters children's creativity. The focus of the studio is on the user based design and on in-depth study of special needs of one community group resulting in detailed and complex program. The issue of children is of primary importance. What do they do, how do they learn, what is the relationship between space and creativity? The design process involves exploring the meaning of "child-orientated environment" as a basis for prosperous community. Therefore investigations of this studio will not be limited purely on architecture but they will include the study of current innovative approaches to education and learning such as Montessori and Waldorf learning method.

Students will be challenged to deepen their investigations into spatial, functional and aesthetic compositions started during previous semesters with special focus on following: standards, dimensional and zoning requirements, measurements, site

assessment and analysis and phenomenological experiences (colours, light and shadow, silence and noise). An important aspect of the studio is the communication with the client since the project will be done according to the capacities and needs of Bosna Sema International School, hence students will be able to present their proposals directly to the school representatives.

ARC 362. SENIOR DESIGN PROJECT

Hours (Theoretical-Practical):0+6

ECTS:5

Office organization, financial aspects and the legal framework of the professional with emphasis on relation with project preparation and construction practice. Management aspects of the architectural practice will be dwelt on through information on professional and administrative bodies; economic and financial policies, project and construction management, as well as collaborations with other professions.

Technical Electives

ARC 333. INTRODUCTION TO DETERIORATION AND CONSERVATION

Hours (Theoretical-Practical):2+2

ECTS:5

An introduction to conservation of the built environment; essence of conservation and preservation; simple methodology to identify critical assessment; and cultural significance of a material, building object or group of buildings. It covers following topics:

- Concept of heritage preservation: basics
- Concepts in conservation
- Concepts in conservation
- Concepts in conservation
- Conservation practice: Methodology of conducting conservation - restoration projects Survey and analyses
- Doctrine of architectural conservation
- Preservation methods; degree of intervention
- Mid-term (Project :midterm presentation)
- Introduction to restoration techniques
- Conservation practice: Case studies, Rehabilitation
- Conservation practice: Case studies, Conservation and restoration
- Conservation practice: Methodology of conducting conservation - restoration projects Project Solutions
- Case studies : Preservation methods Student's presentations. Concluding Remarks (+Notes: Protection services and legislation in the field of heritage

ARC 311. ADVANCED MEASURING METHODS

Hours (Theoretical-Practical):2+2

ECTS:5

Measuring method are necessary to develop every design project. The methods of making a thorough measured and descriptive survey of a building by means of various techniques and instruments are given in a series of lectures. Practical exercises are carried out on the site. The methods of making a thorough measured and descriptive survey of a building by means of various techniques and instruments are given in a series of lectures. Practical exercises are carried out on the site.

ARC 303. CITY PLANNING AND URBAN DESIGN

Hours (Theoretical-Practical):2+2

ECTS:5

The concepts of: settlement, urbanization, planning; subjects of the contemporary city planning, the legal dimension of planning. Course intends to:

- Demonstrate a systematic and critical understanding of the theories, principles and practices of City Planning and Urban Design
- Critical review of the city development and urban planning
- Understanding of the development of Cities/Towns through History: Background, Concept, Genesis, Postulates, Principles, Criteria
- Critically review of social, economic, environment, religion and cultural roles of the city/town development
- Creatively application of the knowledge in the research and analysis work
- Understanding of the Contemporary approaches in the City development and urban planning
- Demonstrate a systematic and critical understanding of street and squares, public and stationary traffic, infrastructure, waste management, zoning of the cities
- Basic understanding of basic sustainable urban planning and green cities gradation, dominance, balance, unity.
- Basic understanding of collaboration between Urban, Peri Urban and Rural
- Demonstrate skills to actively participate in the presentation and peer review and constructive communication with colleagues.

ARC 326. DESIGN WITH CLIMATE

Hours (Theoretical-Practical):2+2

ECTS:5

The course addresses the issue of climatic considerations and their significance in the design process of the built environment emphasizing the necessity of different architecture for different climates. Definition of climatic problems, effect of topography and surrounding elements on microclimate; different climatic regions, examples of vernacular architecture are the main topics. A design project considering site selection/topography/landscape/ orientation and microclimate/micro space in urban and rural context is the output.

ARC 307. DESIGN OF STEEL STRUCTURES

Hours (Theoretical-Practical):2+2

ECTS:5

Principles, analysis and methodologies for conceptual and detailed design of steel structures. Emphasis on the role of mechanics in modern structural engineering design specifications with a focus on load and resistance factor design. Topics include behavior and design of hot-rolled and cold-formed steel: connections, members, frames and advanced analysis techniques. Principles of basic design concepts. Definition of loads (dead, live, wind, snow and earthquake loads). Material characteristics of steel. Behavior of individual elements, tension members, compression members, beams and columns. Types and behavior of connections, connection design and details. Use of steel in architectural design. Behavior and analysis of large span steel structures.

ARC 323. LIGHTING IN ARCHITECTURE

Hours (Theoretical-Practical):2+2

ECTS:5

The primary focus of this course will be the study of lighting in an architectural context. The course will stress the integration of electric and natural light sources during the design process and place an emphasis upon the role light can play in shaping architecture.

Basic principles related to light and color in architecture; importance of light and color as design factors; light and vision; light sources and lighting methods; lighting fundamentals; visual comfort; design of artificial lighting systems; types of lighting, luminaries and applications.

Non-Technical Electives

FES 365. ENTREPRENEURSHIP

Hours (Theoretical-Practical): 3

ECTS:3

This course will provide students with an understanding of issues facing entrepreneurs and an exposure to the skills involved in addressing them. We will explore how executives should approach making critical decisions during the different phases of an entrepreneurial company's life. Starting from the vantage point of the individual, we will put ourselves in the shoes of decision makers ranging from technology entrepreneurs to venture capitalists, from real estate developers to inventors.

BUS 361. LEADERSHIP

Hours (Theoretical-Practical): 3

ECTS:3

This course develops a working knowledge of leadership theory and practice. The student will also develop self-knowledge of his or her leadership philosophy and preferred leadership styles along with a skill for successful analysis of cases involving leadership.