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ERASMUS+ PROGRAMME Project Number: 610238-EPP-1-2019-1-JOEPPKA2-CBHE-JP

Project Title: traditional craft Heritage trAining, design and marketing in jorDan and Syria

Course Outline

Module 1 – Proportions and Geometry in Architecture

Authors	**Training and Technical Group (TTG)** **Scientific and Supervising Committee (SC)**
WP Number	**WP5 / DEVELOPMENT** **Make traditional crafts skills competency development an integrated part in Teaching**
WP Leader	**UNIFI**
Course Offered by	**ZUJ**
Total number of pages	**5**

Project Coordinator

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Jordan University of Science and Technology
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Karmeh Design Studio
Tishreen University
Manara University
Al-Baath University
World University Service of the Mediterranean
Blue Room Innovation
CESIE
Università degli Studi di Firenze
Università degli Studi Guglielmo Marconi
Technische Hochschule Ostwestfalen-Lippe

PROPORTIONS AND GEOMETRY IN ARCHITECTURE, COURSE SYLLABUS

Course Code		**Course Title**	**PROPORTIONS AND GEOMETRY IN ARCHITECTURE**	**Cr.hr. ECTS**	**3 6**
Class Room		**Time**			
		Semester			
Instructor(s)			**Email:**	**Phone:**	
Office Hours	**As assigned in instructors schedules on the system & in front of their offices doors**				

COURSE DESCRIPTION: (ACCORDING TO THE CURRICULUM):

The purpose of this course is to bring the students to discover and develop an understanding of the regular and semi-regular formations of basic geometric shapes. Students will also be introduced to proportional systems; root proportions, the golden proportion and proportional rectangles. Students will explore the diversities of the geometric pattern stars and shapes developing the different possibilities to the patterns.

COURSE OBJECTIVE:

The objectives of this course are to help students:

1. Understanding the basic of geometric science
2. Understanding the different systems geometry science
3. Ability to Apply geometry in architecture
4. Assess students understanding of geometry and proportions applications in architecture modern design
5. Ability to apply knowledge related to architecture and geometry in craft designs

STUDENT PERFORMANCE CRITERIA:

Based on NAAB 2014 Student Performance Criteria for Accreditation:

A.4 Architectural Design Skills: Ability to effectively use basic formal, organizational and environmental principles and the capacity of each to inform two- and three-dimensional design.

A.5 Ordering Systems: Ability to apply the fundamentals of both natural and formal ordering systems and the capacity of each to inform two- and three-dimensional design.

Based on HANDS Learning Outcomes:

LO2: Analyze the design principles and techniques specific to traditional crafts from different cultures and regions.

LO11: Understanding the fundamental design principles such as balance, proportion, symmetry, rhythm, and harmony as they apply to traditional craft design. This includes understanding how these principles manifest in traditional craft objects.

LO12: Explore creative expression and innovation within traditional craft design. This involve experimentation with materials, techniques, and forms to create contemporary interpretations of traditional crafts.

COURSE CONTENT:

Week #	Topic	Type	Grading
W1	Introduction to geometry and proportion	Project 1	Total 20%
W2	Geometric proportional systems and terms Assignment #1		
W3	Geometric proportional systems and terms Assignment #2 Project 1		
W4	Geometric proportions in nature and cosmos Assignment #3		
W5	Geometric proportional systems as tool for architecture Project 2	Project 2	Total 20%
W6	Geometric proportional systems as tool for architecture		
W7			
W8	Evolution of geometry in architecture Assignment#4 Project 3	Final Project	Total 40%
W9	Sacred Geometry in east and west		
W10	Sacred Geometry in east and west		
W11	Geometry in Islamic architecture Assignment #5 Assignment #6		
W12			
W13	Geometry and Parametric architecture Assignment #7		
W14	Geometry and Parametric architecture Assignment #8		
W15	Final submission of the final project according to the dep. Schedule		
* For each project: the specific schedule is within the project description.			

GRADING:

- Grading will be based on class work and participation, and projects, assignments and quizzes. 60% of your total grade is the accumulation of grades earned on projects divided by two main projects, in addition to the final project (40%) as follow:

No.	Type	Start Week	Submit. Week	Weight
1	Project # 1:	1	4	20%
2	Project # 2:	5	7	20%
3	Assignments			20%
			TOTAL	**60%**
3	Project # 3: final project:	8	15	40%
			TOTAL	**100%**

- All lectures and project demonstrations take place at the beginning of the class time and will not be repeated. When you are absent or late it is your responsibility to get the missed work from your classmate.
- **Portfolio and Documentation of Design Work:** Students are required to document all studio work in Digital copies of design work.

REFERENCES:

- **Text Book:**
- Fletcher, R. (2013) *Infinite measure: Learning to design in geometric harmony with art, architecture, and nature*. Staunton, VA: George F. Thompson Publishing
- **References:**
  - Critchlow,Keith,1976.IslamicPatterns:AnAnalyticalandCosmo-logical Approach, Schocken Books,Thamesand Hudson,London
  - Critchlow, Keith,1987.Order in Space: Adesign Source Book. Thames and Hudson, USA
  - El-Said, Isasam, 2001. Islamic Art and Architecture: The Systems of Geometric Design. Garnet Publishing Ltd., UK.
  - Rawles, Bruce, 1997. Sacred Geometry Design Source book. Elysian Publishing, Eagle Point, Oregon
  - Skinner, Stephen, 2009. Sacred Geometry: Deciphering the Code. Sterling, NewYork
  - Dabbour, L.M. (2012) 'Geometric proportions: The underlying structure of design process for Islamic geometric patterns', Frontiers of Architectural Research, 1(4), pp. 380–391.
  - H**andouts:** To be introduced and handed to the students as needed.

ATTENDANCE POLICY:

Attendance policy:

- Attendance will be checked at each class and the university regulations will be strictly followed for student exceeding the maximum rate of absences.
- Late attendance will be considered as an absence.
- Late submissions will not be considered.
- Submissions without follow up with the direct instructor will not be evaluated.

CHEATING POLICY:

Cheating is not tolerated and against the university rules. Cheating will result in failing the course and reporting the incident to the dean of the college of architecture and design.

List of Suggested Projects in Accordance with HANDS LOs

Week	Project / Task	points
2-3	**Project 1: Geometric proportional systems and terms** **Using equipment at HANDS workshops** Description of Project: create a geometric pattern within its order systems **Project follow up** □ Analyzing the suggested pattern, □ Create 2D and 3D model for the pattern □ Beside the model, the student must present A3 sheet showing an analysis of the pattern he worked on, in terms of form and formality process	
2	**Project 2: Geometric proportional systems as tool for architecture Design** Description of: Analyze architecture forms in terms of geometric and proportional systems **Project follow up** □ Analyzing the suggested Architectural form, □ the student must present A3 sheet showing an analysis of the Architectural form he worked on, in terms of form and pattern proportional process	
3	**Project (3): Evolution of geometry in architecture and Crafts** Description of Project: Apply geometric knowledge on the design of a craft project with architecture form **Project follow up** □ Analyzing the suggested pattern, □ Create 2D and 3D model for the pattern □ Beside the model, the student must present A3 sheet showing an analysis of the pattern he worked on, in terms of form and formality process	
2-3	**Project (3): Geometric Design applications in craft project** Description of Project: Apply geometric knowledge on the design of a craft project using HANDS equipment **Project follow up** □ Analyzing the suggested pattern, □ Create 2D and 3D model for the pattern □ Beside the model, the student must present A3 sheet showing an analysis of the pattern he worked on, in terms of form and formality process	