

جامعة الامير سلطان  
PRINCE SULTAN  
UNIVERSITY



## EDUCATION FOR SDGs

CAD | كلية العمارة والتصميم  
COLLEGE OF ARCHITECTURE AND DESIGN

**SDG Mapping Report of the Architecture Department 2021/22**  
**ARCH SDG/s**

No.	Course	Instructor	Information	Evidence	SDG/s
4	ARCH 261	Dr. Wafa Labib	Sustainable structural systems	Lecture Project	3/ 13
5	ARCH 411	Dr. Eman Sabry	Applying the principles of sustainability in Institutional projects	Lecture Projects	3/ 11
6	Arch 346	Dr. salma dwidar	Preserving and Sustaining The Environmental Identify Of Heritage Building In Saudi Arabia: A Comparative Study Of The Environmental Impact On Heritage Houses In Western Region	Lectures	
7	ARCH 364	Dr. SukHee Ms. Hadil Kebbe	How to create a sustainable environment. Student sare asked to create different sustainable design in different regions in KSA	Lectures and Project	7-11-12
8	ARCH 311	Dr.Amani Derbali	Sustainable offices design	Syllabus , course specification & report CLOS .	3-11
9	ARCH 344	Ms. Hadil Kebbe	Taking the sustainable environment to urban design.	Lectures and Project	3-11-12 -13
10	Arch 412	Dr Jane Handal	Undertaking research, benchmarking, site analysis and design in a comprehensive manner covering socio-economic, environmental, ecological, cultural and physical components of an urban area.	Lectures, research, design project	1-3-4-7- 11-13, 15,17
11	Arch 343	Dr Jane Handal	Landscape Design as an action of creating connectivity and responsiveness to uses, users, interior of buildings and surrounding neighborhoods within a continuum of environmental and ecological considerations.	Lectures, research, design project	3-4-7-11,13, 15
12	ARCH 224	Beatriz Villanueva	Lecture on Sustainable architecture	Lecture 12: Tendencies in Contemporary Architecture I	1,7, 9, 11, 12, 13, 15
13	ARCH 455	Dr Fiorella	Postmodern Ecology	Lecture C. Jencks, <i>Theory and Manifestos of contemporary architecture</i> , Academy Editions, 1997, pp. 133-1167	11
14	ARCH 498	Dr Fiorella, Dr Beatriz	The Red Sea Ecotecture competition <a href="https://www.theredsea.sa/en/our-programs/ecotecture#">https://www.theredsea.sa/en/our-programs/ecotecture#</a>	Research	7, 10, 11

15	RCH 499	Dr. Walaa Metwally	Designing sustainable project with different sustainable solutions	Senior projects	3,10.1 1
16	ARCH 365	Dr. Marwa Fahmy	Passive sustainable Strategies & calculations of the heat gain through a building envelope	Lectures, Students' research	7,11,1 2,13
17	ARCH 252	Dr. Marwa Fahmy	Sustainable Building Materials Adoptable in Saudi Arabia	Research	9,11,1 2
18	ARCH 212	Dr. Monica Moscatelli	Implement the education system in a rural area of Mozambique	Lectures, design project	4,10
19	ARCH 365	Ms. Farah Al Attrache	Implementing passive and active sustainable strategies in their design projects.	Lectures, research and Projects	3.6.11. 12.13

### 1- Published Researches and Projects in process (both ID and ARCH)

No	Author	Paper/Project Title	Journal	Vol/Issue/pp	SDG/s
			Project Evidence		
2	Dr. Wafa Labib	<u>Analyzing sustainability awareness among higher education faculty members: A case study in Saudi Arabia</u> B Alkhayyal, W Labib, T Alsulaiman, A Abdelhadi	Sustainability 2019	11 (23), 6837  <a href="https://www.mdpi.com/2071-1050/11/23/6837">https://www. mdpi.com/20 71- 1050/11/23/6 837</a>	
3	Dr. Wafa Labib	Utilisation of date palm fibres in cement-based composites: A feasibility study WA Labib	IOP Conference Series: Materials Science and Engineering 2019	596 (1), 012028  <a href="https://iopscience.iop.org/article/10.1088/1757-899X/596/1/012028/meta">https://iopsci ence.iop.org/ article/10.10 88/1757- 899X/596/1/ 012028/meta</a>	
4	Dr Fiorella Vanini	Riyadh Urban liveability towards Saudi Vision 2030: investigating expat's experience	Ekistic and The New Habitat, Special Issueç Saudi Vision 2030 website <a href="https://ekisticsjournal.org/index.php/journal/about">https://ekisticsjournal.or g/index.php/journal/abo ut</a> ISSN 0013-2942	forthcoming	
5	Dr Yenny Rahmayati	Guest Editor on a special issue on Saudi Vision 2030  Advisory Board for Saudi Arabia	Ekistic and The New Habitat, Special Issueç Saudi Vision 2030 website <a href="https://ekisticsjournal.org/index.php/journal/about">https://ekisticsjournal.or g/index.php/journal/abo ut</a>	forthcoming	

			ISSN 0013-2942	
8	Dr Jane Handal	Post-COVID Urbanism in Riyadh - A question of the Head or the Heart?	Sustainable urban regeneration and environmental	
9	Dr. Marwa Fahmy	Comparative energy performance simulation for passive and conventional design: A case study in Cairo, Egypt	2020, Energy Reports	7,11,1 2,13
10	Dr. Marwa Fahmy	Influence of urban canopy green coverage and future climate change scenarios on energy consumption of new sub-urban residential developments using coupled simulation techniques: A case study in Alexandria, Egypt	2020, Energy Reports	7,11,1 2,13
11	Dr. Marwa Fahmy	Generic Energy Efficiency Assessment for heritage buildings; Wekalat El-Ghouri as a case study, Cairo, Egypt	2019, Energy procedia	7,11
12	Dr. Marwa Fahmy	On the development and optimization of an Urban Design Comfort Model (UDCM) on a passive solar basis at mid-latitude sites	2019, Climate	9,11,1 3
13	Dr. Marwa Fahmy	Estimating the future energy efficiency and CO2 emissions of passive country housing applying domestic biogas reactor: A case study in Egypt	2018, Ain Shams Engineering Journal	7,11,1 3
14	Dr. Marwa Fahmy	On the green adaptation of urban developments in Egypt; predicting community future energy efficiency using coupled outdoor-indoor simulations	2017, Energy and Buildings	7,11,1 3
15	Dr. Marwa Fahmy	Assessing the thermal performance of envelope parts under climate change scenarios: Residential case studies in Egypt	2017 International Conference on Sustainable and Renewable Energy Engineering, ICSREE 2017	7,11,1 3
16	Dr. Buthayna, Dr. Eman & Dr. Walaa	<b>The Impact of Methods on Results in Design Evaluation</b>	<b>The International Journal of Art &amp; Design Education , Scopus journal</b>	4
17	Dr. Walaa Metwally	<b>(Hotels' Design and the Environmental Challenges)</b>	<b>JARDCS, Journal of Advanced Research in Dynamical and Control Systems , Vol. 11, 01-Special Issue, Scopus</b>	1,3,10, 11

18	Dr. Hadeer Aboualnagha & Dr. Walaa Metwally	<b>Collaborative Learning in Practice; Enhancing Students' Involvement in Sustainability and 2030 Transformational Plan: PSU Go Green Campaign as an Example</b>	<b>Proceedings of the International Conference on Industrial Engineering and Operations Management Riyadh, Saudi Arabia, Scopus index</b>	3,11,13
19	Ms. Farah Al Attrache, Dr. Marcella & Dr. Quinsan Ciao	<b>Proposal of Isolation units/ Design solution in responding to the needs of COVID 19 application</b>	<b>Contract</b>	3.4.8.9



**SUSTAINABLE DEVELOPMENT GOALS**



## SDG Mapping Report of the Interior Design Department 2021/22 The mapping of ID courses to UN Sustainable Development Goals (SDG)

The SDG IMPACT methodology 2022 was reviewed and analyzed by understanding each sub-metric and reviewing all ID course descriptions to draw similarities. Further, the extracted keywords have been compared with all the CLOs and course descriptions of ID courses. The breakdown of these courses mapping is as shown in (Table 3).

Table 3: mapping of IS courses to the selected SDGs according to UNESCO learning Objectives

Course	SDG	Relevant CLOs	Course description
<b>ID 315</b>	SDG 12: Responsible Consumption and Production	CLO2: Research suitable finishes, furniture, fixtures and equipment for hospitality use.	In this course, students are expected to be able to deal with the client's needs for hotel design. Hence, at the end of this course , students would be able to resolve the different problems for designing the interiors of hotels and to design hotel plans from concept to final product (Floor Plan and Furnished Sections).
<b>ID 324</b>	SDG 4: Quality Education	CLO2: Explain historical and diverse cultural underpinnings of the discipline of architecture, and interior design.	To be able to state the different periods of Islamic Architecture ornamentation and its geographic origin. And, outline a basic knowledge in historical theoretical and diverse cultural underpinnings of the discipline of architecture, and interior design. In addition to explaining the use of Islamic ornaments and creative purposes in the development of spaces
<b>ID 342</b>	SDG 4: Quality Education	CLO1: Define history and theory of landscape in diverse cultures	Interior design students are introduced to planning and designing of environmental interior landscapes. The vast gamut of operations relevant to interior landscaping, from program formulation to implementation, is explored. Instruction also addresses and stresses a synthesis of environmental and social factors integral to the shaping of domestic settings in Saudi Arabia
	SDG 9: Industry, Innovation and Infrastructure	CLO6: Illustrate integrating interior space with the natural surrounds	
	SDG 11: Sustainable Cities and Communities	CLO5: Recognize environmental and social factors in landscape design	

	SDG 15: Life on Land	CLO6: Illustrate integrating interior space with the natural surrounds	
<b>ID 355</b>	SDG 7: Affordable and Clean Energy	CLO3: Differentiate the fundamentals of lighting applications in relation to energy saving	This course considers the role of illumination methods, lighting systems and mechanical systems in the design of interior spaces. Emphasis is placed on color and light, illumination aesthetics and applications, human behavior and responses to light and color, as well as strategies for dealing with heating, ventilation, air conditioning and acoustical systems.
<b>ID 354</b>	SDG 12: Responsible Consumption and Production	CLO7: Construct a piece of furniture following the outlined design process.	This course is an introduction and overview of furniture and case-good design. Students study construction techniques, design, and materials associated with casework, tables, seating and furniture for commercial and residential interiors. Preparation of detailed working drawings, models, and presentation drawings are emphasized in this course. Students work through a project from the initial design stages through to completion of finished pieces of furniture. To teach students the skills needed to create a piece of furniture from ideas to physical, functional pieces of furniture. This course demonstrated how to construct proper fabrication drawings, in addition to choosing the right type of joinery & materials.
<b>ID 442</b>	SDG 11: Sustainable Cities and Communities	CLO4: Design modern spaces and elements inspired by traditional architectural styles and materials.  CLO5: Differentiate historical elements related to function, material, and furniture in the interior spaces.	The course covers interior architecture and decorative arts within the cultural, technological and Social contexts of the Kingdom of Saudi Arabia from ancient times up through the 19th century. To educate students about the HISTORICAL AND CULTURAL architectural significance of Saudi Arabia and how it influences the modern architecture of the region.
<b>ID 456</b>	SDG 7: Affordable and Clean Energy	CLO2: Recognize the awareness of the lighting applications in relation to the sources and the energy efficiency	The course looks at advanced techniques used in planning lighting and acoustic mechanics in the design of interior spaces.
	SDG 4: Quality Education	CLO7: Demonstrate the ability to work in a team and individually in a project	This course aims to develop the necessary knowledge and skills of interior design students for designing

			lighting solutions for interior spaces. The course will also introduce HVAC systems and acoustic techniques.
<b>ID 457</b>	SDG 9: Industry, Innovation and Infrastructure	<p>CLO1: Recognize human psychological and physical requirements in design</p> <p>CLO4: Show adequate solutions to real-life problems utilizing the full range of design skills and knowledge</p> <p>CLO5: Illustrate the use of furniture, materials, and finishes according to a specific function, code and creative purposes</p>	<p>The field of Interior Design practice and execution is explored including the writing of detailed specifications, working out costing of materials and making a prototype of any one furniture piece.</p> <p>The Objective of the class is to Understand the purpose of preparing a bill of quantities using the various methods of processing dimensions, while being exposed to the different kinds of schedules required in producing a bill of quantities and maintaining the environmental awareness practice.</p>
	SDG 12: Responsible Consumption and Production	<p>CLO2: Recognize sustainable materials and their applications in the design process</p> <p>CLO6: Evaluate various materials to devise practical and creative solutions:</p>	
	SDG4: Quality of Learning	CLO7: Research documents of specifications and quantities of a project to support a written proposal	
<b>ID 458</b>	SDG 13: Climate Action	<p>CLO1: Define basics of comfort, health and bioclimatic design of buildings in Saudi Arabia</p> <p>CLO3: Use the principles and theories of building physics and thermal comfort in relation to environmental impact and well-being</p>	<p>This course surveys the integration of the following systems found in buildings: structural systems (skeleton, pre-cast, load bearing), mechanical systems (elevators, HVAC, plumbing), electrical systems (lighting, acoustics, and power) and safety fire protection systems. Students assess the best approaches to systems and services integration that correspond to used need and economic feasibility. This course aims to provide broad based knowledge in technological areas related to building services with focus on the development of certain aspects in design.</p>
	SDG 12: Responsible Consumption and Production	CLO2: Recognize different building systems, constructions and services utilized in buildings	
<b>ID 492</b>	SDG 4: Quality Education	<p>CLO1: Recall classroom learning with practical work experience.</p> <p>CLO4: Employ design solution in a professional manner.</p>	<p>The Co-Op is a career related professional program available to all Interior Design students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well.</p>



		CLO5: Demonstrate the role and value of life-long learning	The main focus of this course is to continue the life-long learning skills by placing students in a real work environment where they interact with clients and continue the improvement of their skills through the application of their knowledge.
<b>ID 498</b>	SDG 4: Quality Education	CLO1: Define a design problem within the cultural context.	This course is a research-based course that lays the foundation for the Senior Project course to be taken in the following semester. In consultation with the faculty and through guided research, students select an appropriate topic for their Senior Project. Their tasks are to write a research proposal featuring a summary of their preliminary research, articulate a research question and describe the scope of their project. When choosing a site, students use LEED site location criteria to choose an appropriate site for their final project.
	SDG 11: Sustainable Cities and Communities	CLO4: Choose the site location, codes, and standards for the design project.	
<b>ID 499</b>	SDG 9: Industry, Innovation and Infrastructure	CLO2: Show adequate solutions to real-life problems utilizing the full range of design skills and knowledge	This is the final studio course. It focuses on the multidimensional aspects of analyzing complex problems. Attention is placed on creativity and integration with previous experiences utilizing systematic design methodologies, research, programming, estimation and detailing all phases of the design process. The student is expected to be able to design a real project: plans (floor plans and sections furnished), so that the student will be able to design artificial lighting and visual privacy for buildings. Resolving the different problems for interior design privacy as the open ceiling and designing application for acoustical privacy.
		CLO 5: Illustrate the use of furniture, materials, and finishes according to a specific function, code and creative purposes	
		CLO7: Illustrate design process through sketches, construction drawings and models	
	SDG 11: Sustainable Cities and Communities	CLO1: Recognize human psychological and physical requirements in design	
	SDG 12: Responsible Consumption and Production	CLO4: Show adequate solutions to real-life problems utilizing the full range of design skills and knowledge	

## Recommendations and Future Enhancements

The use of the specific innovative service-learning methodology is recommended, as it encourages the University and society to work together, not only to transform society but also to transform the whole University community (Albareda-Tiana et al., 2017). Embedding Sustainable Development Goals into university curriculum is a new for many university and according to (Chang & Lien, 2020), the universities need a substantial work to integrate the SDGs into the curricula. Particularly, ID courses content should be revised to let the lecturers and students be aware of SDGs and feel these SDGs in the syllabi and other learning activities.

## References

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- UNITED NATIONS (UN) (2015), Transforming our World: the 2030 Agenda for Sustainable Development, Resolution adopted by the General Assembly on 25 September 2015.
- UNESCO (2015), Education for Sustainable Development Goals: learning objectives. Online accessed at <https://unesdoc.unesco.org/ark:/48223/pf0000247444> on 17th August, 2020.
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- Chang, Y. C., & Lien, H. L. (2020). Mapping Course Sustainability by Embedding the SDGs Inventory into the University Curriculum: A Case Study from National University of Kaohsiung in Taiwan. *Sustainability*, 12(10), 4274.