Course Specification

Course Code: ARE 2104 **Course Title: Acoustics & Artificial Lighting**

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	ARE 2104			
Year/level	Second Year			(3st Level)
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	2	0	0	2

2. Course Aims

No.	Aim
1	Train the students for creative thinking, solving design problems of sound and lighting and applying it to architectural projects. (AM2.1)

3. Course Learning Outcomes (CLOs)

CLO9	Utilize contemporary technologies, codes of practice and standards.
CLO23	Produce designs that meet the requirements of building users
CLO25	Produce designs with the scale of humanity and its needs

4. Course Contents

Topics	Week
Introduction of the subject and the research required.	1
Illustrate Artificial lighting: Visual perception and light.	2
Designing for artificial lighting quantity and quality for users	3
Illustrate how Computer simulation programs that aid artificial lighting design.+ Research 1	4
Illustrate Behavior of sound waves in enclosures.	5
What about Sound absorption, Sound reflections, Sound isolation.	6
Explain The concepts and objectives of acoustics design.	7
The most important considerations that have to be considered for designing auditoriums.+ Research 2	8
Presentation of the basic sources of industrial lighting and their role in architecture.	10
The integration of natural artificial lighting.	11

Concepts of design lighting system in working drawings.	12
Presentation of the role of computer programs in the design of industrial lighting. + Research 3	13
Final presentations of the Researches.	14
Revision all the course	15

5. Teaching and Learning methods

Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and	Projects	Presentation	Site Visits	Discussion and	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO9	√	-	-	-	-	√	-	√	-	√	√	-
CLO23	-	√	-	√	-	-	-	√	-	-	-	-
CLO25	√	-	-	√	-	-	-	√	-	-	-	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	CLos
1	Attendance	-
2	Written exam	CLO23, CLO25
3	Discussions	CLO9, CLO23, CLO25
4	Mid Term Exam	CLO9, CLO23
5	Class works	CLO23,CLO25
6	Projects	-
7	Researches	CLO9, CLO25
8	Reports	-
9	Presentations	CLO9, CLO25
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	-
2	Written exam	16
3	Discussions	weekly
4	Mid Term Exam	9
5	Class works	weekly
6	Projects	-

7	Researches	4,8,13
8	Reports	-
9	Presentations	15
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
Teacher Opinion	Discussions	50	50	5	5
	Researches			20	20
	Presentations			5	5
	Mid-term exam			20	20
Final Exam	Written exam	50	50	50	50
Total		100	100	100	100

7. List of References

[1] Marshall Long, “Architectural Acoustics, Second Edition ", Elsevier Science, second edition, 2014, ISBN: 9780123982582, 0123982588

[2] Leo L. Beranek ,Tim J. Mellow,, " Acoustics: Sound Fields and Transducers ", Elsevier Science ,First edition, 2012, ISBN: 9780123914217, 0123914213.

[3]دكتور أحمد الخطيب، " الصوتيات المعمارية النظرية والتطبيق "، مكتبة الأنجلو المصرية، ٢٠٠٣.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Lecture room equipped with e-learning tools (computer, mike, etc.)
Google Classroom
Data show

9. Matrix of Course Content with Course LO’s

Topics	Aim	CLO's
Introduction of the subject and the research required.	1	CLO9
Illustrate Behavior of sound waves in enclosures.	1	CLO9, CLO25
What about Sound absorption	1	CLO9, CLO25
What about Sound reflections, Sound isolation.	1	CLO9,CLO10,CLO25
The applications of Sound absorption, Sound reflections, Sound isolation.	1	CLO9, CLO25

Explain The concepts and objectives of acoustics design. Part (1)	1	CLO9, CLO25
Explain The concepts and objectives of acoustics design.Part (2)	1	CLO9, CLO23
The most important considerations that have to be considered for designing auditoriums+ Research 1	1	CLO9, CLO25
Illustrate Artificial lighting: Visual perception and light.	1	CLO9, CLO25
Designing for artificial lighting quantity and quality for users.+ Research 2	1	CLO9, CLO25
Illustrate Artificial lighting: Visual perception and light.	1	CLO9, CLO25
Concepts of design lighting system in working drawings.	1	CLO9,CLO23,CLO25
Presentation of the role of computer programs in the design of industrial lighting.+ Final Research	1	CLO9,CLO23,CLO25

10. Matrix of Program LOs with Course Los

Program LOs		Course Los	
PLO4	Use of modern technologies and professional practice bases, quality standards, health and environmental health and risk issues and risk management principles.	**CLO9**	Utilize contemporary technologies, codes of practice and standards.
PLO12	Produce designs that meet the requirements of building users by understanding the relationship between people and buildings, and between the buildings and their surrounding environment, with the necessity of linking the buildings and the spaces between them to the scale of humanity and its needs	**CLO23**	Produce designs that meet the requirements of building users
		CLO25	Produce designs with the scale of humanity and its needs

Title	Name	Signature
Course coordinator	**Assoc. Prof. Reham Othman**	

Head of Department	**Assoc. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

Course Specification

Course Code: ARE 2204 **Course Title:** Theories & History of Planning

1. Basic information

Program Title	Architecture Engineering Department			
Department offering the program	Architecture Engineering Department			
Department offering the course	Architecture Engineering Department			
Course Code	**ARE 2204**			
Year/level	Second year / Third Level			
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	4	0	0	4

2. Course Aims

No.	Aim
1	Provide the students with cultural knowledge of history of city Planning and differentiate between cities planning whether through direct education or e-learning. (AM3.1)

3. Course Learning Outcomes (CLOs)

CLO12	Practice research techniques and methods of investigation as an inherent part of learning.
CLO22	Gain Adequate knowledge of history, culture, local heritage and human sciences

4. Course Contents

Topics	Week
Introduces the scope of studying the history of cities Planning.	1
The origins of the city throughout history. How city has originated, Why	2
The Old and new stone era	3
Ancient Sumer cities civilization	4
Ancient Egyptian cities civilization	5
Greek cities civilization	6
Roman cities civilization	7
Emerging form including the transformations since the middle ages – Islamic cities	8
Emerging form including the transformations since the middle ages – barok civilization	10
Elements of city in planning	11
Theories of city planning	12

The origins of modern city and theories (Horizontal extension)	13
The origins of modern city and theories (Vertical extension)	14
Comparison between theories of Cities	15

5. Teaching and Learning methods

Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO12	√	-	-	√	-	√	-	√	-	√	√	-
CLO22	√	-	-	-	-	-	√	-	-	-	√	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	CLOs
1	Attendance	---
2	Written exam	CLO12, CLO22
3	Discussions	CLO12
4	Mid Term Exam	CLO12, CLO22
5	Class works	-
6	Projects	-
7	Researches	CLO12
8	Reports	-
9	Presentations	CLO12
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	weekly
2	Written exam	16
3	Discussions	weekly
4	Mid Term Exam	9
5	Class works	-
6	Projects	-
7	Researches	5 – 12
8	Reports	-
9	Presentations	5 -8-12
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments					
	Assessment Method	**Weights%**	**Weights**	**Weights%**	**Weights**
Teacher Opinion	Discussions	50%	50	5%	5
	Researches			15%	15
	Presentations			10%	10
	Mid-term exam			20%	20
Final Exam	Written exam	50%	50	50%	50
Total		100%	100	100%	100

7. List of References

Obateru, Oluremi & Obateru, Rotimi, "Cities and Planning in history", 1st edition, Penthouse Publications, Nigeria, 2019. ISBN: 978 978 56205 4 2

- Cartledge, Paul. "Ancient Greece: a very short introduction", Vol. 286. Oxford University Press, 2011. ISBN: 0199601348
- محمد مهدي، "العمارة والبيئة: تخطيط المدن والعمارة البيئية"، ط١، دار الكتاب الحديث، ٢٠١٩.
- خلف الدليمي، "تخطيط المدن: نظريات – أساليب – معايير - تقنيات"، ط١، دار صفاء للطباعة والنشر والتوزيع، ٢٠١٥. رقم التسجيل: 9789957249250
- أحمد خالد علام، "تاريخ تخطيط المدن"، مكتبة الأنجلو المصرية، ١٩٩٨.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Lecture room equipped with e-learning tools (internet, mike, etc.)
Moodle and Microsoft teams
Data show

9. Matrix of Course Content with Course LO's

Topics	Aim	CLO's
Introduces the scope of studying the history of cities Planning.	1	CLO22
The origins of the city throughout history. How city has originated, Why	1	CLO22
The Old and new stone era	1	CLO12, CLO22
Ancient Sumer cities civilization	1	CLO12, CLO22
Ancient Egyptian cities civilization	1	CLO12, CLO22
Greek cities civilization	1	CLO12, CLO22
Roman cities civilization	1	CLO12, CLO22
Emerging form including the transformations since the middle ages – Islamic cities	1	CLO12, CLO22
Emerging form including the transformations since the middle ages – barok civilization	1	CLO22

Elements of city in planning	1	CLO22
Theories of city planning	1	CLO22
The origins of modern city and theories (Horizontal extension)	1	CLO22
The origins of modern city and theories (Vertical extension)	1	CLO22
Comparison between theories of Cities	1	CLO22

10. Matrix of Program LOs with Course Los

Program Los		Course Los	
PLO5	Exercise and application of scientific research techniques and methods as an integral part of learning.	**CLO12**	Practice research techniques and methods of investigation as an inherent part of learning.
PLO11	Create architectural, urban and planning designs that meet aesthetic and technical requirements using Adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences.	**CLO22**	Gain Adequate knowledge of history, culture, local heritage and human sciences

Title	Name	Signature
Course coordinator	**Dr. Hadeel Mahmoud**	
Head of Department	**Assoc. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

برنامج الهندسة المعمارية
المعهد العالي للهندسة والتكنولوجيا
بالتجمع الخامس

Course Specification

Course Code: ARE 2102 **Course Title: Building Construction & Principles of Working Drawings (1)**

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	ARE 2101			
Year/level	Second year / Third Level			
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	2	4	0	6

2. Course Aims

No.	Aim
1	Provide the students with the capacity to prepare flexible and ecologically responsible designs by understanding modern structural and technological designs. (AM5.1)

3. Course Learning Outcomes (CLOs)

CLO9	Utilize contemporary technologies, codes of practice and standards.
CLO10	Demonstrate knowledge and understanding of different building materials and Application method techniques.
CLO26	Integrate relationship of building materials, and construction elements.
CLO27	Use appropriate construction techniques and materials to specify and implement different.

4. Course Contents

Topics	Week
Introduction and overview	1
Water and damp proofing	2
Thermal proofing	3
Expansion and settlement joints	4
Floor Finishes: Marble/ Granite	5
Floor Finishes: Ceramic / Tiles	6
Floor Finishes: Wooden	7
Introduction to wall Finishes: Plaster work/ wall paper	8
Wall Finishes: Marble cladding(Dry System)	10
Wall Finishes: wet system	11

External wall Finishes	12
Introduction to Celling Finishes: Plaster work	13
Celling Finishes: Ceiling finishes Suspended & False Ceiling	14
Celling Finishes: False Ceiling (Metal , wooden)	15

5. Teaching and Learning methods

Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO9	√	√	-	√	-	√	-	√	-	-	√	-
CLO10	√	√	-		-		-	√	-	-		-
CLO26	√	√	-	√	-	√	-	√	-	-	√	-
CLO27	√	√	-		-		-	√	-	-	√	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	CLOs
1	Attendance	-
2	Written exam	CLO9,CLO10, CLO26,CLO27
3	Discussions	CLO9,CLO10, CLO26,CLO27
4	Mid Term Exam	CLO10,CLO26
5	Class works	CLO9,CLO10, CLO26,CLO27
6	Projects	-
7	Researches	CLO9,CLO26
8	Reports	CLO9,CLO26
9	Presentations	CLO9,CLO26
10	Quiz	-
11	Skiz	CLO9,CLO26,CLO27

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	-
2	Written exam	16
3	Discussions	weekly
4	Mid Term Exam	9
5	Class works	weekly
6	Projects	-
7	Researches	weekly
8	Reports	-

9	Presentations	weekly
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
Teacher Opinion	Discussions	60	60	5	5
	Class works			25	25
	Researches			5	5
	Presentations			5	5
	Mid-term exam			20	20
Final Exam	Written exam	40	40	40	40
Total		100	100	100	100

7. List of References

- Edward Allen (2019), Joseph Iano; Fundamentals of Building Construction: Materials and Methods 7th Edition. ISBN-13: 978-1119446194.
- Chudley, Roy & Greeno, Roger (2014), Building Construction Handbook, 10th Ed, Routledge, NY. ISBN13: 978-0-415-83638-8.
- Ching, Francis D. K(2012); Building Construction Illustration, Wiley , 4th Ed , ISBN-13 : 978-8126535637.
- Elena M. S. Garrison (Editor)(2003); The Graphic Standards Guide to Architectural Finishes: Using MASTERSPEC to Evaluate, Select, and Specify Materials, The American Institute of Architects, ISBN: 978-0-471-44952-2.
- Dennis J. Hall, Nina M. Giglio(2016) ; Architectural Graphic Standards, 12th Edition Mitchell, American Institute of Architects, ISBN: 978-1-118-90950-8.
- محمد أحمد عبدالله (٢٠١٥) ، الرسومات التنفيذية والتفاصيل المعمارية، مكتبة الأنجلو المصرية، القاهرة.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Lecture room equipped with e-learning tools (computer, mike, etc.)
Data show

9. Matrix of Course Content with Course LO's

Topics	Aim	CLO's
Introduction and overview	1	CLO10
Water and damp proofing	1	CLO10
Thermal proofing	1	CLO10
Expansion and settlement joints	1	CLO10
Floor Finishes: Marble/ Granite	1	CLO9,CLO26,CLO27

Floor Finishes: Ceramic / Tiles	1	CLO9,CLO26,CLO27
Floor Finishes: Wooden	1	CLO9,CLO26,CLO27
Introduction to wall Finishes: Plaster work/ wall paper	1	CLO9,CLO26,CLO27
Wall Finishes: Marble cladding(Dry System)	1	CLO9,CLO26,CLO27
Wall Finishes: wet system	1	CLO9,CLO26,CLO27
External wall Finishes	1	CLO9,CLO26,CLO27
Introduction to Celling Finishes: Plaster work	1	CLO9,CLO26,CLO27
Celling Finishes: Ceiling finishes Suspended & False Ceiling	1	CLO9,CLO26,CLO27
Celling Finishes: False Ceiling (Metal , wooden)	1	CLO9,CLO26,CLO27

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO4	Use of modern technologies and professional practice bases, quality standards, health and environmental health and risk issues and risk management principles.	CLO9	Utilize contemporary technologies, codes of practice and standards.
		CLO10	Demonstrate knowledge and understanding of different building materials and Application method techniques.
PLO13	Preparing environmentally responsible designs to preserve and rehabilitate the environment through an understanding of the structural design, construction, technology used and associated engineering problems Building designs.	CLO26	Integrate relationship of building materials, and construction elements.
		CLO27	Use appropriate construction techniques and materials to specify and implement different.

Title	Name	Signature
Course coordinator	**Dr. Marwa Emad**	
Head of Department	**Assoc. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

برنامج الهندسة المعمارية
المعهد العالي للهندسة والتكنولوجيا
بالتجمع الخامس

	Ministry of Higher Education **Higher Institute of Engineering and Technology** **Architectural Eng. Department**	

Course Specification

Course Code: CVE 2131 **Course Title: Concrete Structures**

1. Basic information

Program Title	Architecture Engineering Program			
Department offering the program	Architecture Engineering department			
Department offering the course	Civil Engineering Department			
Course Code	CVE 2131			
Year/level	Second year / Third level (1st Semester)			
Specialization	**Minor**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	4	2		6

2. Course Aims

No.	Aim
1	Produce innovative construction design solutions in several architectural buildings. (AM1.2)

3. Course Learning Outcomes (CLOs)

CLO1	Define and formulate complex engineering problems by applying engineering fundamentals, basic science, and mathematics.
CLO 6	Manage engineering design processes to produce cost-effective solutions.
CLO17	Use creative, innovative, and flexible thinking to respond to new situations

4. Course Contents

Topics	Week
Revision of structure (1) how to draw internal forces.	1
Conversion from architecture to construction.	2
Design of solid slab systems (one way, and cantilever).	3
Design of solid slab systems (two way).	4
Design of simplebeams.	5
Design of continuous beams.	6
Introduction in different types of columns.	7
Design of columns (squarecolumns, rectangular columns, and circular columns).	8
Introduction in different types of foundation.	10
Design of surface foundation (isolated footing).	11
Design of surface foundation (combined footing).	12
Explanation of the general idea of designing deep foundations. Part 1	13
Explanation of the general idea of designing deep foundations. Part 2	14
Final revision and Evaluation.	15

5.	Teaching and Learning methods											
Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO1	√	-	-	-	-	-	-	-	-	-	-	-
CLO 6	√	√	-	-	-	-	-	-	-	-	-	-
CLO17	√	√	-	-	-	-	-	-	-	-	-	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	CLOs
1	Attendance	-
2	Written exam	CLO1, CLO6, CLO17
3	Discussions	-
4	Mid Term Exam	CLO6, CLO17
5	Class works	CLO1, CLO6, CLO17
6	Projects	-
7	Researches	-
8	Reports	CLO1, CLO6, CLO17
9	Presentations	-
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	Weekly
2	Written exam	16
3	Discussions	-
4	Mid Term Exam	9
5	Class works	weekly
6	Projects	-
7	Researches	-
8	Reports	Weekly
9	Presentations	weekly
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
Teacher Opinion	Reports / sheets / Activities	40%	40	10%	10
	Attendance			10%	10
	Mid-term exam			20%	20
Final Exam		60%	60	60%	60
Total		100%	100	100%	100

7. List of References

[1] Shahnewaz, Md, Ahmad Rteil, and M. Shahria Alam. "Shear strength of reinforced concrete deep beams–A review with improved model by genetic algorithm and reliability analysis." Structures. Vol. 23. Elsevier, 2020.

[2] Shetty, M. S., and A. K. Jain. Concrete Technology (Theory and Practice), 8e. S. Chand Publishing, 2019.

[3] Darwin, D., Dolan, C. W., & Nilson, A. H. (2016). Design of concrete structures (Vol. 2). New York, NY, USA:: McGraw-Hill Education.

[4] Reynolds, C. E., Steedman, J. C., & Threlfall, A. J. (2007). Reinforced concrete designer's handbook. CRC Press.

[5] Wang, C. K., & Salmon, C. G. (1979). Reinforced concrete design.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Data show
Laboratory Usage

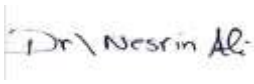
9. Matrix of Course Content with Course LO's

Topics	Aim	CLos
Revision of structure (1) how to draw internal forces.	1	CLO1,CLO6
Conversion from architecture to construction.	1	CLO17
Design of solid slab systems (one way, and cantilever).	1	CLO6, CLO17
Design of solid slab systems (two way).	1	CLO6, CLO7
Design of simplebeams.	1	CLO17
Design of continuous beams.	1	CLO17
Introduction in different types of columns.	1	CLO6
Design of columns (squarecolumns, rectangular columns, and circular columns).	1	CLO17
Introduction in different types of foundation.	1	CLO7, CLO17
Design of surface foundation (isolated footing).	1	CLO6
Design of surface foundation (combined footing).	1	CLO6

Explanation of the general idea of designing deep foundations.	1	CLO6
Final revision and Evaluation.	1	CLO1, CLO6, CLO17

10. Matrix of Program LOs with Course Los

Program LOs		Course Los	
PLO1	Identification, formulation and solving complex engineering problems by applying the basics of engineering, basic sciences and mathematics.	CLO1	Identify and formulate complex engineering problems by applying engineering fundamentals, basic science, and mathematics.
PLO3	Apply engineering design processes to produce cost-effective solutions. Meet specified needs with consideration for global, cultural, social, economic, environmental, and ethical aspects and achieve the principles of design within the principles and contexts of sustainable design and development.	CLO 6	Apply engineering design processes to produce cost-effective solutions.
PLO9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	CLO17	Use creative, innovative, and flexible thinking to respond to new situations

Title	Name	Signature
Course coordinator	**DR. Nesrin Ali**.	
Head of Department	**Prof. Dr. Reham Othman.**	
Date of Approval	**01/10/2022**	

Course Specification

Course Code: ARE 2103 **Course Title: Theories of Architecture (2)**

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	ARE 2103			
Year/level	Second year / Third Level			
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	4	0	0	4

2. Course Aims

No.	Aim
1	Train the students for innovative and creative thinking, describing and solving design problems (AM2.1)

3. Course Learning Outcomes (CLOs)

CLO15	Function efficiently as an individual and as a member of multi-disciplinary and multi- cultural teams.
CLO21	Recognize architectural designs aspects that integrate social, aesthetic and technical requirements.
CLO22	Use Adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences

4. Course Contents

Topics	Week
Introduction and overview	1
Concepts and terminology of architectural design	2
Functional Relationships and their expressions	3
Shaping the architectural design concept	4
Architectural design process methodology (Pre-design studies)	5
Architectural design process methodology (preparation of the design program)	6
Architectural design process methodology (site analysis-1)	7
Architectural design process methodology (site analysis-2)	8
Architectural design process methodology (Design problem)	10

Architectural design process methodology (Dimensions of the design problem)	11
Modern trends in solving design problems	12
Foundations of restoring models of public buildings	13
The basics of designing models of administrative buildings(1)	14
The basics of designing models of administrative buildings(2)	15

5. Teaching and Learning methods

Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO15	√	-	-		-	√		√	√	√	√	-
CLO21	√	-	-	√	-	√	√					-
CLO22	√	-	-		-	√		√	√	√	√	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	CLOs
1	Attendance	-
2	Written exam	CLO15, CLO21, CLO22
3	Discussions	CLO15,CLO21
4	Mid Term Exam	CLO15, CLO21, CLO22
5	Class works	CLO15, CLO21, CLO22
6	Projects	-
7	Researches	CLO21,CLO22
8	Reports	-
9	Presentations	CLO21,CLO22
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	-
2	Written exam	16
3	Discussions	weekly
4	Mid Term Exam	9
5	Class works	weekly
6	Projects	-
7	Researches	week 5-week 15
8	Reports	-

9	Presentations	week 5-week 15
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
Teacher Opinion	Discussions	50	50	5	5
	Class works			5	5
	Researches			10	10
	Presentations			10	10
	Mid-term exam			20	20
Final Exam	Written exam	50	50	50	50
Total		100	100	100	100

7. List of References

- Ching, Francis D.K.(2014), Architecture Space, Form, and Order, 4th Edition. ISBN-13: 978-1118745083.
- Donald Watson (Author), Michael J. Crosbie (Author) (2004): Time Saver Standards for Architectural Design Data. Publisher: McGraw Hill ISBN-13: 978-0071432054.
- De Bono, E., Serious Creativity (1992): Using the Power of Lateral Thinking to Create New Ideas, Harper Collins, Publisher : Harpercollins. ISBN-13: 978-0887305665
- K. Michael Hays (Editor)(2000), Architecture Theory since 1968. Publisher: The MIT Press, ISBN-13 : 978-0262581882.
- د/على رأفت (٢٠٠٧): كتاب ثلاثية الإبداع المعماري (المضمون والشكل) بين العقلانية والوجدانية، مركز أبحاث إنتركونسلت.
- د/ محمد محمود عويضة(١٩٨٤) : تطور الفكر المعماري في القرن العشرين، دار النهضة العربية للطباعة والنشر والتوزيع، مصر.
- د/طارق ابو عوف (٢٠١٥) كتاب المبدأ التصميمي Design concept، مكتبة الأنجلو المصرية.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Lecture room
Data show

9. Matrix of Course Content with Course LO's

Topics	Aim	CLO's
Introduction and overview	1	-
Concepts and terminology of architectural design	1	CLO22

Functional Relationships and their expressions	1	CLO15
Shaping the architectural design concept	1	CLO15,CLO22
Architectural design process methodology (Pre-design studies)	1	CLO15,CLO22
Architectural design process methodology (preparation of the design program)	1	CLO15,CLO22
Architectural design process methodology (site analysis-1)	1	CLO15,CLO21,CLO22
Architectural design process methodology (site analysis-2)	1	CLO15,CLO21,CLO22
Architectural design process methodology (Design problem)	1	CLO15,CLO22
Architectural design process methodology (Dimensions of the design problem)	1	CLO15,CLO22
Modern trends in solving design problems	1	CLO15, CLO21,CLO22
Foundations of restoring models of public buildings	1	CLO15, CLO21,CLO22
The basics of designing models of administrative buildings(1)	1	CLO15, CLO21,CLO22
The basics of designing models of administrative buildings(2)	1	CLO15, CLO21,CLO22

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO7	Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.	CLO15	Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.
PLO11	Create architectural, urban and planning designs that meet aesthetic and technical requirements using Adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences.	**CLO21**	Recognize architectural designs aspects that integrate social, aesthetic and technical requirements.
		CLO22	Use Adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences

Title	Name	Signature
Course coordinator	**Dr. Marwa Emad**	
Head of Department	**Assoc. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

برنامج الهندسة المعمارية
المعهد العالي للهندسة والتكنولوجيا
بالتجمع الخامس

Course Specification

Course Code: ARE 2201 **Course Title: Architectural Design (3)**

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	ARE 2201			
Year/level	Second year / Third Level			
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	0	8	0	8

2. Course Aims

No.	Aim
1	Use the architectural schools that ensure meeting the needs of the environmental aspects. (AM.2.1)

3. Course Learning Outcomes (CLOs)

CLO12	Practice research techniques and methods of investigation as an inherent part of learning.
CLO23	Produce designs that meet the requirements of building users
CLO24	Deal with the relation between people, buildings, and their surrounding environment

4. Course Contents

Topics	Week
Introducion of the project	1
Reaserch for the project + Skiz1	2
Layout 1/500	3
Layout 1/500 + Ground floor plan 1/400	4
Layout 1/500 + Ground floor plan 1/400	5
Skiz1 (Layout 1/500 + Ground floor plan 1/200 + sections 1/200)	6
Layout 1/500 + Ground floor plan 1/200 + sections 1/200	7
sections 1/200 + Elevations 1/200	8
sections 1/200 + Elevations 1/200	10
Skiz 2(Layout 1/500 + Ground floor plan 1/200 + sections 1/200+ sections 1/200 + Elevations 1/200+Prespective)	11
All Project observation	12
All Project observation	13
Semifinal project	14
Final project	15

5.	Teaching and Learning methods											
Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO12	√	-	-	√	-	√	-	√	-	-		-
CLO23	-	√	-	-	√	-	-	√	-	-	√	-
CLO24	-	√	-	-	√	-	-	√	-	-	√	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	LOs
1	Attendance	-
2	Written exam	CLO23,CLO24
3	Discussions	CLO12
4	Mid Term Exam	CLO23,CLO24
5	Class works	CLO12, CLO2,CLO3
6	Projects	CLO23,CLO24
7	Researches	CLO12
8	Reports	-
9	Presentations	CLO12
10	Quiz	-
11	Skiz	CLO23,CLO24

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	-
2	Written exam	16
3	Discussions	weekly
4	Mid Term Exam	9
5	Class works	weekly
6	Projects	14,15
7	Researches	2
8	Reports	-
9	Presentations	2
10	Quiz	-
11	Skiz	6,11

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
Teacher Opinion	Discussions	60	60	5	5
	Class works			10	10
	Projects			10	10
	Researches			3	3
	Presentations			2	2
	Skiz			10	10
	Mid-term exam			20	20
Final Exam	Written exam	40	40	40	40
Total		100	100	100	100

7. List of References

[1] Jihad Awad, (2020), "Top International Architects - DESIGN CONCEPTS IN ARCHITECTURE (4 volumes)", Universal Publisher & Distributor Est., Abu Dhabi - U.A.E., ISBN · 978-9953-591-04-9.

[2] Joseph De Chiara (Author, Editor), Michael J. Crosbie (Author, Editor), (2015), "Time-Saver Standards for Building Types, 4th Edition", published by McGraw-Hill, United States of America, 2015, ISBN-13 : 978-9339217778.

[3] Ernst Neufert (Author), Peter Neufert (Author) ,Bousmaha Baiche (Editor), Nicholas Walliman(Editor), (2012), "Neufert s Architects Data 4th Edition", published by Wiley–Blackwell, ISBN-13. 978-1405192538.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Data show

9. Matrix of Course Content with Course LO's

Topics	Aim	CLO's
Introduction of the project	1	CLO12
Research for the project + Skiz1	1	CLO12,CLO23
Layout 1/500	1	CLO23,CLO24
Layout 1/500 + Ground floor plan 1/400	1	CLO23,CLO24
Layout 1/500 + Ground floor plan 1/400	1	CLO23,CLO24
Skiz1 (Layout 1/500 + Ground floor plan 1/200 + sections 1/200)	1	CLO23,CLO24
Layout 1/500 + Ground floor plan 1/200 + sections 1/200	1	CLO23,CLO24
sections 1/200 + Elevations 1/200	1	CLO23,CLO24
sections 1/200 + Elevations 1/200	1	CLO23,CLO24
Skiz 2(Layout 1/500 + Ground floor plan 1/200 + sections 1/200+ sections 1/200 + Elevations 1/200+Prespective)	1	CLO23,CLO24
All Project observation	1	CLO12,CLO23,CLO24

All Project observation	1	CLO12,CLO23,CLO24
Semifinal project	1	CLO12,CLO23,CLO24
Final project	1	CLO12,CLO23,CLO24

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO5	Practice research techniques and methods of investigation as an inherent part of learning.	**CLO12**	Practice research techniques and methods of investigation as an inherent part of learning.
PLO12	Produce designs that meet the requirements of building users by understanding the relationship between people and buildings, and between the buildings and their surrounding environment, with the necessity of linking the buildings and the spaces between them to the scale of humanity and its needs	**CLO23**	Produce designs that meet the requirements of building users
		CLO24	Deal with the relation between people, buildings, and their surrounding environment

Title	Name	Signature
Course coordinator	**Prof. Dr. Essam Eldin Badran**	
Head of Department	**Assoc. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

برنامج الهندسة المعمارية
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Course Specification

Course Code: ARE 2105 **Course Title: Urban Landscaping**

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	ARE 2105			
Year/level	Second year /Third level			
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	2	-	2	4

2. Course Aims

No.	Aim
1	Use scientific methods that ensure meeting the needs of present and future generations in terms of social, cultural, environmental, and economic aspects (AM2.2)
2	Apply sustainable development to design planning projects. (AM2.3)
3	Provide the students with modern academic and technical skills, cultural knowledge of history, fine arts, and local and international heritage (AM3.1)

AM4. Strengthens the links

3. Course Learning Outcomes (CLOs)

CLO8	Achieve the principles of design within the principles and contexts of sustainable design and development.
CLO21	Create architectural, urban and planning designs that meet aesthetic and technical requirements
CLO22	Use adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences

4. Course Contents

Topics	Week
Urban Open Spaces concept, definitions, components.	1
Types of Urban Open Spaces and its characteristics.	2
Relation between buildings and open spaces, organization and geometry of space	3
Surveying the built environment on the scale of the street (Research)	4
Softscape Elements: Topography	5
Softscape Elements: Plants	6
Softscape Elements: Water Features	7

Classifications of Hardscape Elements	8
Landscape different styles	9
Steps of landscape design (alternatives)	10
Introduction to landscape project (BUBBLE DIAGRAM) Part 1	11
Introduction to landscape project (BUBBLE DIAGRAM) Part 2	12
Lay out of the project (zoning)	13
Distribute landscape elements and describe the element function.	14
Presentation of the landscape project and elements classifications- shapes- types- maintenance -color- function.	15

5. Teaching and Learning methods

Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO8	√	√	-	√	√	-	-	-	-	-	√	-
CLO21	√	√	-	-	√	√	-	-	-	-	√	-
CLO22	√	√	-	√	√	√	√	-	-	-	-	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	LOs
1	Attendance	-
2	Final exam	CLO8, CLO21, CLO22
3	Discussions	-
4	Mid Term Exam	CLO21, CLO22
5	Class works	CLO8, CLO21, CLO22
6	Projects	CLO8, CLO21, CLO22
7	Researches	CLO8, CLO22
8	Reports	-
9	Presentations	CLO21, CLO22
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks

1	Attendance	-
2	Written exam	16
3	Discussions	-
4	Mid Term Exam	9
5	Class works	3-4-10
6	Projects	10-15
7	Researches	4-7
8	Reports	-
9	Presentations	4-7
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
Teacher Opinion	Class works	%40	40	%5	5
	Researches			%5	5
	Presentation			%5	5
	Project			%5	5
	Mid-term exam			%20	20
Final Exam	Written exam	%60	60	%60	60
Total		%100	100	%100	100

7. List of References

- Charles Harris & Nicholas Dines, "Time-Saver Standards for Landscape Architecture", 2nd edition (November 22, 1997), IBSN: 0070170274
- Norman K. Booth," Foundations of Landscape Architecture", by John Wiley & Sons, Inc, 2012, IBSN: 10. 0470635053.
- The Art of Service - Competitive Landscape Publishing (Author)," Competitive Landscape A Complete Guide" - 2021 Edition, IBSN: 1867439166

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Lecture room equipped with e-learning tools (computer, internet, mike, etc.)
Data show

9. Matrix of Course Content with Course LO's

Topics	Aim	LO's

Urban Open Spaces concept, definitions, components.	1-3	CLO8
Types of Urban Open Spaces and its characteristics.	1-3	CLO8
Relation between buildings and open spaces, organization and geometry of space Surveying the built environment on the scale of the street (Research)	1-3	CLO8-CLO22
Softscape Elements: Topography	1-3	CLO8-CLO21
Softscape Elements: Plants	1-3	CLO8-CLO22
Softscape Elements: Water Features	1-3	CLO8-CLO22
Classifications of Hardscape Elements	1-3	CLO8-CLO22
Landscape different styles	1-3	CLO8-CLO22
Steps of landscape design (alternatives)	1-2	CLO21-CLO22
Introduction to landscape project (BUBBLE DIAGRAM)	1-2	CLO8-CLO21-CLO22
Lay out of the project (zoning)	1-2	CLO8-CLO21-CLO22
Distribute landscape elements and describe the element function.	2-3	CLO8-CLO21-CLO22
Presentation of the landscape project and elements classifications- shapes- types-maintenance -color-function.	2-3	CLO8-CLO21-CLO22

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	**CLO8**	Achieve the principles of design within the principles and contexts of sustainable design and development.
PLO11	Create architectural, urban and planning designs that meet aesthetic and technical requirements using Adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences.	**CLO21**	Create architectural, urban and planning designs that meet aesthetic and technical requirements
		CLO22	Use adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences

Title	Name	Signature
Course coordinator	**Assoc. Prof. Reham Othman**	
Head of Department	**Assoc. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

برنامج الهندسة المعمارية
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Course Specification

Course Code: ARE 2203 Course Title: Building Construction & Principles of Working Drawings (2)

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	ARE 2203			
Year/level	Second year / Third Level			
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	2	4	0	6

2. Course Aims

No.	Aim
1	Provide the students with the capacity to prepare flexible and ecologically responsible designs by understanding modern structural and technological designs. (AM5.1)

3. Course Learning Outcomes (CLOs)

CLO13	Plan engineering projects
CLO14	Supervise and monitor implementation of engineering projects,
CLO30	Prepare design project briefs and documents
CLO31	Manage the architect's context in the construction industry including his role in the bidding and procurement of architectural services

4. Course Contents

Topics	Week
Introduction and overview	1
Celling Finishes: Ceiling finishes Suspended & False Ceiling	2
Floor Finishes: Raised floor	3
Wall Finishes: Curtain walls	4
Wall Finishes: Partitions	5
Introduction to Preparation of working drawings for projects	6
Preliminary stage: Plans	7
Preliminary stage: Plans	8
Preliminary stage: Sections	10
Preliminary stage: Sections	11
Preliminary stage: Elevations	12
Preliminary stage: Elevations	13
Preliminary stage: Details	14
Final project (Full drawings of preliminary stage)	15

5.	Teaching and Learning methods											
Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO13	√	√	-		√	√	-	√	-	-	√	-
CLO14	√	√	-	√	√	√	-	√	-	-		-
CLO30	√	√	-	√	√	√	-	√	-	-	√	-
CLO31	√	√	-		√	√	-	√	-	-	√	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	CLOs
1	Attendance	-
2	Written exam	CLO13,CLO14,CLO30,CLO31
3	Discussions	CLO13,CLO14,CLO30,CLO31
4	Mid Term Exam	CLO14,CLO30
5	Class works	CLO13,CLO14,CLO30,CLO31
6	Projects	CLO13,CLO14,CLO30,CLO31
7	Researches	CLO14,CLO30
8	Reports	CLO14,CLO30
9	Presentations	-
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	-
2	Written exam	16
3	Discussions	weekly
4	Mid Term Exam	9
5	Class works	weekly
6	Projects	From week 6 To 15
7	Researches	weekly
8	Reports	-
9	Presentations	weekly
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
	Class works	60	60	20	20
	Projects			15	15
	Researches			5	5
	Mid-term exam			20	20
Final Exam	Written exam	40	40	40	40
Total		100	100	100	100

7. List of References

- Edward Allen (2019), Joseph Iano; Fundamentals of Building Construction: Materials and Methods 7th Edition. ISBN-13: 978-1119446194.
- Edward Allen & Patrick Rand (2016); Architectural Detailing - 3rd Edition by Edward Allen & Patrick Rand (Paperback), UPC: 9781118881996.
- Chudley, Roy & Greeno, Roger (2014), Building Construction Handbook, 10th Ed, Routledge, NY. ISBN13: 978-0-415-83638-8.
- Ching, Francis D. K(2012); Building Construction Illustration, Wiley , 4th Ed , ISBN-13 : 978-8126535637.
- Elena M. S. Garrison (Editor)(2003); The Graphic Standards Guide to Architectural Finishes: Using MASTERSPEC to Evaluate, Select, and Specify Materials, The American Institute of Architects, ISBN: 978-0-471-44952-2.
- Dennis J. Hall, Nina M. Giglio(2016) ; Architectural Graphic Standards, 12th Edition Mitchell, American Institute of Architects, ISBN: 978-1-118-90950-8.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Lecture room
Data show

9. Matrix of Course Content with Course LO's

Topics	Aim	LO's
Introduction and overview	1	CLO13
Celling Finishes: Ceiling finishes Suspended & False Ceiling	1	CLO14
Floor Finishes: Raised floor	1	CLO30
Wall Finishes: Curtain walls	1	CLO30
Wall Finishes: Partitions	1	CLO30
Introduction to Preparation of working drawings for projects	1	CLO14,CLO30,CLO31
Preliminary stage: Plans	1	CLO13,CLO14,CLO30,CLO31
Preliminary stage: Plans	1	CLO13,CLO14,CLO30,CLO31
Preliminary stage: Sections	1	CLO13,CLO14,CLO30,CLO31

Preliminary stage: Sections	1	CLO13,CLO14,CLO30,CLO31
Preliminary stage: Elevations	1	CLO13,CLO14,CLO30,CLO31
Preliminary stage: Elevations	1	CLO13,CLO14,CLO30,CLO31
Preliminary stage: Details	1	CLO13,CLO14,CLO30,CLO31
Final project (Full drawings of preliminary stage)	1	CLO13,CLO14,CLO30,CLO31

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	CLO13	Plan engineering projects
		CLO14	Supervise and monitor implementation of engineering projects,
PLO15	Prepare design project briefs and documents and understand the architect's context in the construction industry including, This includes his role in the bidding and procurement of architectural services and the production of buildings	CLO30	Prepare design project briefs and documents
		CLO31	Manage the architect's context in the construction industry including his role in the bidding and procurement of architectural services

Title	Name	Signature
Course coordinator	**Dr. Marwa Emad**	
Head of Department	**Assoc. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

برنامج الهندسة المعمارية
المعهد العالي للهندسة والتكنولوجيا
بالتجمع الخامس

Course Specification

Course Code: ARE 2203 **Course Title: Computer Applications in Architecture (1)**

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	ARE 2203			
Year/level	Second year / Third Level			
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	2	2	0	4

2. Course Aims

No.	Aim
1	Provide the students with AutoCAD software knowledge that enables them to well present their design and execution projects (AM1-1).

3. Course Learning Outcomes (CLOs)

CLO16	Communicate effectively – graphically, verbally and understanding computer techniques of design in two dimensions.
CLO21	Create architectural designs that meet aesthetic and technical requirements.
CLO22	Use Adequate knowledge of technologies and think of design forms in two dimensions.

4. Course Contents

Topics	Week
Introduction to CAD and overview : The AutoCAD window, screen menus, command line status bar, toolbars and data input devices.	1
Working with AutoCAD : Commands: UNITS, COORDINATES,OPEN, NEW, SAVE, SAVE AS, OSNAP, ZOOM and PAN	2
Working with AutoCAD: Commands: LINE, RECTANGLE	3
Working with AutoCAD: Commands: QUIT, ERASE, OOPS, UNDO, REDO, SNAP. GRID, and ORTHO. Basic drawing tools: Commands: ARC, CIRCLE, ELLIPSE	4
Basic drawing tools: Commands: Multiline, XLINE, PLINE and POINT.	5
Modifying Drawings 2: Advanced editing operations Commands: ARRAY, MIRROR, STRETCH, SCALE, ALIGN, ROTATE, and PEDIT.	6

Drawings management 1: Commands: Line Width, LINETYPES, PURGE, Layer Properties and Layer Tool	7
Drawings management 2: Commands: LIST, AREA, MEASURE, DIVIDE, TEXT STYLE and PTYPE	8
Developing the drawing 1: Commands: HATCH, Boundary and DIMENSIONS.	10
Developing the drawing 2: Commands: BLOCK, INSERT, WBLOCK and EXPLODE	11
Data Output/Input: Commands: PLOT, PAPER SPACE, MODEL SPACE, IMPORTING and EXPORTING	12
Data Output/Input: Commands: PLOT Layout	13
Starting final project using AutoCAD skills	14
Final project evaluation for all required drawings.	15

5. Teaching and Learning methods

Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO16	√	√	√	-		-	-	-	-	√		-
CLO21	√	√	√	-	√	-	-	-	-	√	√	-
CLO22	√	√	√	-	√	-	-	-	-	√	√	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	LOs
1	Attendance	-
2	Written exam	CLO21,CLO22
3	Discussions	-
4	Mid Term Exam	CLO21,CLO22
5	Class works	CLO16 ,CLO21,CLO22
6	Projects	CLO21,CLO22
7	Researches	-
8	Reports	-
9	Presentations	-
10	Quiz	-
11	Skiz	-

7.2 Assessment Schedule		
No.	**Assessment Method**	**Weeks**
1	Attendance	-
2	Written exam	16
3	Discussions	-
4	Mid Term Exam	9
5	Class works	weekly
6	Projects	Week 15
7	Researches	-
8	Reports	-
9	Presentations	-
10	Quiz	-
11	Skiz	-

7.3 Weighting of Assessments					
	Assessment Method	**Weights%**	**Weights**	**Weights%**	**Weights**
	Class works			20	20
	Projects			10	10
	Mid-term exam			20	20
Final Exam	Written exam	50	50	50	50
Total		100	100	100	100

7. List of References

- Richard, Paul, Kenneth(2013). Introduction to AutoCAD. Prentice Hall, Publisher Peachpit Press . ISBN-13: 978-0132954754.
- Dennis J.Hall and Charles Rick Green.(2006) – The Architect's Guide to the U.S National CAD Standard –publisher John Wiley& sons. ASIN : B00I2TN5SU.
- Autodesk AutoCAD website / AutoCAD 2020

.Facilities required for teaching and learning

Lecture/Classroom
White board
Lecture room equipped with e-learning tools (computer, mike, etc.)
Data show

9. Matrix of Course Content with Course LO's

No.	Topics	Aim	LO's
1	Introduction to CAD and overview : The AutoCAD window, screen menus, command line status bar, toolbars and data input devices.	1	-
2	Working with AutoCAD : Commands: UNITS, COORDINATES,OPEN, NEW, SAVE, SAVE AS, OSNAP, ZOOM and PAN	1	CLO16 ,CLO21,CLO22

3	Working with AutoCAD: Commands: LINE, RECTANGLE	1	CLO16 ,CLO21,CLO22
4	Working with AutoCAD: Commands: QUIT, ERASE, OOPS, UNDO, REDO, SNAP. GRID, and ORTHO. Basic drawing tools: Commands: ARC, CIRCLE, ELLIPSE	1	CLO16 , CLO21,CLO22
5	Basic drawing tools: Commands: Multiline, XLINE, PLINE and POINT.	1	CLO16 , CLO21,CLO22
6	Modifying Drawings 2: Advanced editing operations Commands: ARRAY, MIRROR, STRETCH, SCALE, ALIGN, ROTATE, and PEDIT.	1	CLO16 , CLO21,CLO22
7	Drawings management 1: Commands: Line Width, LINETYPES, PURGE, Layer Properties and Layer Tool	1	CLO16 , CLO21,CLO22
8	Drawings management 2: Commands: LIST, AREA, MEASURE, DIVIDE, TEXT STYLE and PTYPE	1	CLO16 , CLO21,CLO22
10	Developing the drawing 1: Commands: HATCH, Boundary and DIMENSIONS.	1	CLO16 , CLO21,CLO22
11	Developing the drawing 2: Commands: BLOCK, INSERT, WBLOCK and EXPLODE	1	CLO16 , CLO21,CLO22
12	Data Output/Input: Commands: PLOT, PAPER SPACE, MODEL SPACE, IMPORTING and EXPORTING	1	CLO21,CLO22
13	Data Output/Input: Commands: PLOT Layout	1	CLO21,CLO22
14	Starting final project using AutoCAD skills	1	CLO21,CLO22
15	Final project evaluation for all required drawings.	1	CLO16 , CLO21,CLO22

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	CLO16	Communicate effectively – graphically, verbally and understanding computer techniques of design in two dimensions.
PLO11	Prepare design project briefs and documents and understand the architect's	CLO21	Create architectural designs that meet aesthetic and technical requirements.

	context in the construction industry including, This includes his role in the bidding and procurement of architectural services and the production of buildings	CLO22	Use Adequate knowledge of technologies and think of design forms in two dimensions.

Title	Name	Signature
Course coordinator	**Dr. Marwa Emad**	
Head of Department	**Assoc. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

برنامج الهندسة المعمارية
المعهد العالي للهندسة والتكنولوجيا
بالتجمع الخامس

Course Specification

Course Code: CVE 1232 **Course Title: Foundations & Testing of Materials**

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Civil Engineering			
Course Code	CVE 1232			
Year/level	First year / Second Level			
Specialization	**Minor**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	4	2	0	6

2. Course Aims

No.	Aim
2	Able to plan supervise and follow up the implementation of engineering projects(AM1.3)
1	Teach the students to practice the methodology in creative thinking, describing, solving soil problems and using suitable material in their architecture purposes (AM2.1)

3. Course Learning Outcomes (CLOs)

CLO 3	Develop appropriate experimentation and/or simulation to draw conclusions.
CLO 4	Analyze data, assess by using statistical analyses to draw conclusions.
CLO5	Evaluate findings by using statistical analyses and objective engineering judgment.
CLO12	Practice research techniques and methods of investigation as an inherent part of learning.

4. Course Contents

Topics	Week
Soil formation: soil origin and formation, basic definitions.	1
Physical properties of soil: definitions, basic relationships, laboratory tests, water content, specific gravity, unit weight, relative density.	2
Physical properties of soil: sieves and hydrometer analysis, Atterberg limits, Soil classification.	3

Physical properties of soil: Relative density, measure density in field.	4
Foundation: Types of foundation, Design criteria, Suitability of foundation type to soil and loads.	5
Foundation: Design of shallow and deep foundation	6
Properties and testing of stone, specific gravity, unit weight, natural and total absorption, permeability, soundness, crushing, compressive strength.	7
Properties and testing of bricks, Types of bricks, dimensions of bricks, specific gravity, unit weight, absorption, compressive strength.	8
Properties and testing of Timber**,** using of timber in architecture purposes**.**	10
Properties and testing of cement, Types of cement, specific gravity, volumetric weight, fineness, setting time, soundness, compression, absorption, compressive strength.	11
Properties and testing of aggregates (sand, gravel), specific gravity, unit weight, grain size distribution**,** content of fine particles.	12
Concrete: Types of Concrete, components of concrete. Tests on fresh concrete and hardened concrete.	13
Concrete manufacturing: storage, mixing, transportation, pouring, compacting, curing.	14
Revision	15

5. Teaching and Learning methods

Course learning Outcomes (LOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO 3	√		-				-		-	-		
CLO 4	√	√	-	√			-	√	-	-		
CLO5	√	√	-	√			-	√	-	-		
CLO12	√		-	√			-	√	-	-		

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	LOs
1	Attendance	-
2	Written exam	CLO3,CLO4, CLO5
3	Discussions	CLO4, CLO5,CLO12
4	Mid Term Exam	CLO3,CLO4, CLO5
5	classwork	CLO3,CLO4, CLO5
6	Projects	-
7	Researches	CLO4, CLO5,CLO12

8	Reports	-
9	Presentations	-
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	-
2	Written exam	16
3	Discussions	-
4	Mid Term Exam	9
5	classwork	weekly
6	Projects	-
7	Researches	3
8	Reports	-
9	Presentations	-
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
Teacher Opinion	classwork	40%	40	10%	10
	Researches			10%	10
	Mid-term exam			20%	20
Final Exam	Written exam	60%	60	60%	60
Total		100	100	100	100

7. List of References

[1] Das B.M, "Advanced Soil Mechanics", Fifth Edition, ISBN: 0367730103, (2020).
[2] Egyptian Code of Practice for Soil Mechanics and Design and Construction of foundations, parts 5,10, Housing and Building Research Center, Cairo,2020.
[3] Liu C and Evett J.B, "Soils and Foundations" 7th Edition, Prentice Hall, ISBN: 0132221381 (2007).
[4] Barry, "Statics & Strength of Materials for Architecture & Building Construction" 4th Edition, Pearson, ISBN: 978-0135079256, (2011).

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Data show
Laboratory Usage

9. Matrix of Course Content with Course LO's

Topics	Aim	LO's
Soil formation: soil origin and formation, basic definitions.	1	CLO4, CLO5
Physical properties of soil: definitions, basic relationships, laboratory tests, water content, specific gravity, unit weight, relative density.	1	CLO3,CLO4, CLO5
Physical properties of soil: sieves and hydrometer analysis, Atterberg limits, Soil classification	1	CLO3,CLO4, CLO5,CLO12
Physical properties of soil: Relative density, measure density in field.	1	CLO3,CLO4, CLO5,CLO12
Foundation: Types of foundation, Design criteria, Suitability of foundation type to soil and loads.	1	CLO5,CLO12
Foundation: Design of shallow and deep foundation	1	CLO5,CLO12
Properties and testing of stone, specific gravity, unit weight, natural and total absorption, permeability, soundness, crushing, compressive strength.	1	CLO3,CLO4, CLO5,CLO12
Properties and testing of bricks, Types of bricks, dimensions of bricks, specific gravity, unit weight, absorption, compressive strength.	1	CLO3,CLO4, CLO5
Properties and testing of Timber**,** using of timber in architecture purposes**.**	1	CLO3,CLO4, CLO5
Properties and testing of cement, Types of cement, specific gravity, volumetric weight, fineness, setting time, soundness, compression, absorption, compressive strength.	1	CLO3,CLO4, CLO5
Properties and testing of aggregates (sand, gravel), specific gravity, unit weight, grain size distribution**,** content of fine particles.	1	CLO3,CLO4, CLO5
Concrete: Types of Concrete, components of concrete. Tests on fresh concrete and hardened concrete.	1	CLO3,CLO4, CLO, CLO12
Concrete manufacturing: storage, mixing, transportation, pouring, compacting, curing.	1	CLO5
Revision	1	CLO3,CLO4, CLO5, CLO12

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO2	Develop and conduct appropriate experimentation and/or simulation, analyses and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	CLO 3	Develop appropriate experimentation and/or simulation to draw conclusions.
		CLO 4	Analyze data, assess by using statistical analyses to draw conclusions.
		CLO5	Evaluate findings by using statistical analyses and objective engineering judgment.
PLO5	Practice research techniques and methods of investigation as an inherent part of learning.	CLO12	Practice research techniques and methods of investigation as an inherent part of learning.

Title	Name	Signature
Course coordinator	**Dr. Mounir Kamel**	
Head of Department	**Assocc. Prof. Reham Othman**	
Date of Approval	**1/10/2022**	برنامج الهندسة المعمارية المعهد العالي للهندسة والتكنولوجيا بالتجمع الخامس

Course Specification

Course Code: ARE 2202 **Course Title:** History of Architecture (2)

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	ARE 2202			
Year/level	Second Year (3st Level)			
Specialization	**Major**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	4	0	0	4

2. Course Aims

No.	Aim
1	Provide the students with modern academic and technical skills, cultural knowledge of history, Features of Historic Architecture in every Era in Ancient Christian and Islamic Periods, and local and international heritage whether through direct education or e-learning, to design and implement more inclusive architectural projects. (AM3.1)

3. COURS Learning Outcomes (LOs)

CLO15	Function efficiently as an individual and as a member of multi-disciplinary and multi- cultural teams.
CLO19	Acquire and apply new knowledge.
CLO22	use Adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences

4. Course Contents

Topics	Week
The historic series of architecture	1
Romanesque architecture	2
Gothic architecture	3
Renaissance architecture+ + Research 1 (Comparison of Rom., Gothic and Reainss. Architecture Features)	4
Islamic, Ayyubid architecture	5
Architecture of Abbasid periods	6
Architecture of the Tollund.	7
Architecture of the Fatimid	8
Architecture of Mamluk+ Research 2 (Comparison of Islamic Arch.)	10

Architecture of Ottoman period	11
Architecture of Modern period + Research 3(Comparison of Ottoman and Modern period)	12
Presentation of the Field Visit of Churches and cathedrals and Mosques in Cairo	13
Presentation of Comparisons between Islamic architecture in all periods.	14
Final presentations of the Research.	15

5. Teaching and Learning methods

Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO15	-	-	-	√	-	√	√	√	-	-	√	-
CLO19	√			√		√	√					
CLO22	√	-	-	√	-	√		√	-	√	√	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	LOs
1	Attendance	-
2	Written exam	CLO19,CLO22
3	Discussions	ClO15, CLO19,CLO22
4	Mid Term Exam	CLO19,CLO22
5	Class works	ClO15, CLO91,CLO22
6	Projects	-
7	Researches	ClO15, CLO19,CLO22
8	Reports	-
9	Presentations	ClO15, CLO19,CLO22
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	-
2	Written exam	16
3	Discussions	weekly
4	Mid Term Exam	9
5	Class works	weekly

6	Projects	-
7	Researches	4, 9,12
8	Reports	-
9	Presentations	13,14,15
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments

	Assessment Method	Weights%	Weights	Weights%	Weights
Teacher Opinion	Discussions	50	50	5	5
	Class works			5	5
	Researches			10	10
	Presentations			10	10
	Mid-term exam			20	20
Final Exam	Written exam	50	50	50	50
Total		100	100	100	100

7. List of References

[1] Hanno-Walter Kruft, A history of architectural theory : from Vitruvius to the present., Princeton Architectural Press ,1994, ISBN: 9781568980102, 1568980108.

[2] توفيق عبد الجواد, " تاريخ العمارة والفنون الإسلامية"، مكتبة الأنجلو المصرية،٢٠١٠.

[3] John Hansbridge ," Graphic History of Architecture ", Viking Press , 1967, ISBN: 9780940512153, 0940512157.

[4]عبد الله عطية عبد الحافظ،" العمارة الإسلامية "، مكتبة افاق، ٢٠١٨.

[5] نعمت اسماعيل علام ، "فنون الشرق الاوسط والعالم القديم"، دار المعارف، الطبعة الثالثة،٢٠٠٩.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Google Classroom
Data show

9. Matrix of Course Content with Course LO's

Topics	Aim	LO's
The historic series of architecture	1	CLO15
Romanesque architecture	1	CLO15
Gothic architecture	1	CLO15
Renaissance architecture+ + Research 1 (Comparison of Rom. ,Gothic and Reainss. Architecture Features)	1	ClO15, CLO19,CLO22
Islamic, Ayyubid architecture	1	CLO19
Architecture of Abbasid periods	1	CLO19
Architecture of the Tollund.	1	CLO19
Architecture of the Fatimid	1	CLO19
Architecture of Mamluk+ Research 2 (Comparison of Islamic Arch.)	1	ClO15, CLO19,CLO22
Architecture of Ottoman period	1	CLO22
Architecture of Modern period + Research 3(Comparison of Ottoman and Modern period)	1	ClO15, CLO19,CLO22
Presentation of the Field Visit of Churches and cathedrals and Mosques in Cairo	1	ClO15, CLO19,CLO22
Presentation of Comparisons between Islamic architecture in all periods.	1	ClO15, CLO19,CLO22
Final presentations of the Research.		ClO15, CLO19,CLO22

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO7	Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.	**CLO15**	Function efficiently as an individual and as a member of multi-disciplinary and multi- cultural teams.
PLO10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.	**CLO19**	Acquire and apply new knowledge.
PLO11	Create architectural, urban and planning designs that meet aesthetic and technical requirements using Adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences.	**CLO22**	use Adequate knowledge of history, related fine arts, culture, local heritage, technologies and human sciences

Title	Name	Signature

Course coordinator	**DR. Nesma Helmy**	
Head of Department	**Associa. Prof. Reham Othman**	
Date of Approval	**01/10/2022**	

Course Specification

Course Code: MCE2231 **Course Title: Technical insulation**

1. Basic information

Program Title	Architecture Engineering			
Department offering the program	Architecture Engineering			
Department offering the course	Architecture Engineering			
Course Code	MCE2231			
Year/level	second year / Third Level			
Specialization	**Minor**			
Teaching Hours	Lectures	Tutorial	Practical	Total
	3	1	-	4

2. Course Aims

No.	Aim
1	Select efficiently the Technical insulation in numerous professions of the Application of Thermodynamics, Thermal insulation, Plumbing systems, Electromechanical Principles to generate suitable buildings (AM3.2)

3. Course Outcomes (CLOs)

CLO26	Prepare Projects that can serve Human comfort and health requirements.
CLO27	Choose the Application of Thermodynamics, Thermal insulation, Plumbing systems, Electromechanical Principles.

4. Course Contents

Topics	Week
Human comfort and health requirements.	1
Plumbing systems.	2
Plumbing systems contained	3
Supplying building with water	4
Fire protection systems	5
Thermodynamics Principles.	6
Application of Thermodynamics Principles.	7
HVAC systems and applications	8
Active HVAC systems	10
Thermal insulation in buildings	11
Thermal insulation in buildings contained	12
Electromechanical Systems in building	13
The project discussion	14
Revision about all course content	15

5.	Teaching and Learning methods											
Course learning Outcomes (CLOs)	Teaching and Learning Methods											
	Lectures	Assignment	Labs	Research and Reports	Projects	Presentation	Site Visits	Discussion and Dialogue	Brain storm	E-Learning	Self-learning	Modeling and Simulation
CLO26	√	√	-	√	√	√	√	√	√	-	-	-
CLO27	√	-	-	√	√	√	√	√	√	-	√	-

6. Students' Assessment

6.1 Students' Assessment Method

No.	Assessment Method	CLOs
1	Attendance	-
2	Written exam	CLO26-CLO27
3	Discussions	CLO27
4	Mid Term Exam	CLO26-CLO27
5	Class works	CLO26-CLO27
6	Projects	CLO26-CLO27
7	Researches	CLO26
8	Reports	-
9	Presentations	CLO27
10	Quiz	-
11	Skiz	-

6.2 Assessment Schedule

No.	Assessment Method	Weeks
1	Attendance	-
2	Written exam	16
3	Discussions	weekly
4	Mid Term Exam	9
5	Class works	3 times
6	Projects	6-14
7	Researches	4-10
8	Reports	-
9	Presentations	4-6-10-14
10	Quiz	-
11	Skiz	-

6.3 Weighting of Assessments					
	Assessment Method	**Weights%**	**Weights**	**Weights%**	**Weights**
Teacher Opinion	Discussions	%40	40	%2.5	2.5
	Class works			%2.5	2.5
	Projects			%10	10
	Researches			%2.5	2.5
	Presentations			%2.5	2.5
	Mid-term exam			%20	20
Final Exam	Written exam	%60	60	%60	60
Total		%100	100	%100	100

7. List of References

- Vaughn Bradshaw ,(2019),"The Building Environment: Active and Passive Control Systems", Wiley & Sons,5TH Ed,ISBN13 978-0471689652.
- MERRITT F. S., RICKETTS J.T., McGraw Hill ,(2018),"Design and Construction" Hand Book, , New York,3rd Ed,ISBN13 979-8352035498 .
- American Society of Heating, Refrigerating & Air-Conditioning Engineers,(2016), "Principles of Heating, Ventilating and Air-ConditioningHandbook. Fundamentals: SI ed. Amer Society of Heating, Atlanta, GA 6th Ed, ISBN13 978-1933742694.
- ايمان عبدالهادى, 2022, "انظمة التدفئه والتهوية وتكييف الهواء, ورقة بحثية,المجلة العربية للبحث العلمى,العدد الثانى.

8. Facilities required for teaching and learning

Lecture/Classroom
White board
Data show

9. Matrix of Course Content with Course LO's

Topics	Aim	CLO's
Human comfort and health requirements.	1	CLO26, CLO27
Plumbing systems.	1	CLO26, CLO27
Plumbing systems contained	1	CLO26, CLO27
Supplying building with water	1	CLO26, CLO27
Fire protection systems	1	CLO27
Thermodynamics Principles.	1	CLO27
Application of Thermodynamics Principles.	1	CLO27
HVAC systems and applications	1	CLO27
Active HVAC systems	1	CLO27
Thermal insulation in buildings	1	CLO27
Thermal insulation in buildings contained	1	CLO26, CLO27
Electromechanical Systems in building	1	CLO26, CLO27
The project discussion	1	CLO26, CLO27
Revision about all course content	1	CLO26, CLO27

10. Matrix of Program LOs with Course LOs

Program LOs		Course LOs	
PLO13	Preparing environmentally responsible designs to preserve and rehabilitate the environment through an understanding of the structural design, construction, technology used and associated engineering problems Building designs.	CLO26	Prepare Projects that can serve Human comfort and health requirements.
		CLO27	Choose the Application of Thermodynamics, Thermal insulation, Plumbing systems, Electromechanical Principles.

Title	Name	Signature
Course coordinator	**Dr. Hend Ali**	
Head of Department	**Associa. Prof. Reham Othman**	
Date of Approval	**01/10/2022**