

Architectural Engineering
Department

برنامـج العمـارة
ARCHITECTURE PROGRAM
الـتوصـيف المـختـصـر لـلـمـقـرـرات
Concise Course Description

Architectural Engineering
 Department

التوصيف المختصر للمقررات
(نبذة مختصرة عن كل مقرر دراسي تشمل أهدافه وموضوعاته وأهم المراجع):
(includes objectives, contents, and the most important references

مقررات المستوى الثالث

111-TQF-2	رمز ورقم المقرر
Muslim Culture (1)	اسم المقرر
2	عدد الوحدات المعتمدة
	أهداف المقرر
	محتوى المقرر (مختصر) : (concise)
	أهم المراجع
111-ARC-4	رمز ورقم المقرر
Basic Design Studio	اسم المقرر
4	عدد الوحدات المعتمدة
<ul style="list-style-type: none"> The students will learn the basics of 2D&3D architectural design elements. The students will design a 2D&3D dimensional composition by manipulating the architectural design elements in creative manners. Learn how to demonstrate ergonomic and anthropometric aspects in an architectural context. <p>Illustrate the knowledge of design elements and principles, ergonomics and anthropometrics.</p>	أهداف المقرر
<p>This course provides an introduction to basic design and basic concepts of beauty in the context of architecture, through a series of studies and exercises, students can learn, understand, analyses and apply basic principles and elements of design and architecture. Subsequently the student could express the function in a small-scale project.</p> <ul style="list-style-type: none"> Ernst Neufert, Peter Neuter, Neufert's Architects' Data, John Wiley & Sons, (2012) 	محتوى المقرر (مختصر) : (concise)
121-ARC-4	رمز ورقم المقرر
Architectural Drawing & Presentation	اسم المقرر
4	عدد الوحدات المعتمدة
<ul style="list-style-type: none"> The ability to draw freely by hand and methods of directing. Use engineering instruments professionally. Create hand-sketched detail and assembly drawings according to standards. Produce high-quality and neat architectural drawings. The ability to draw the types of architectural perspectives, internal and external Develop students' skills in representing architectural drawings and design concepts. Reading the architectural plans and working on projecting them geometrically through the architectural perspective. 	أهداف المقرر

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This course is concerned with architectural drawing techniques of different presentation methods including instruments used, types of lines, drawing scales, architectural lettering, projections for different bodies, and isometric drawings. Then, they learn to draw the external and internal architectural perspective of different types, and the perspective projection of the architectural blocks by means of vanishing points and stopping points, and knowing the dimensions of the perspective drawing. However, the main concept of the course is to teach students the different symbols used by architects to recognize, indicate and represent architectural plans, elevation sections and architectural projects.

Ching, Frank (Francis D.K.), Architectural Graphics, Van Nostrand Reinhold, New York, 4th ed. John Wiley, New York 2003
 Basic Perspective Drawing: A Visual Approach, 6th Edition
 John Montague

131-ARC-3

History and Theory of Architecture (1)

3

- Provide students with a thorough understanding of architecture from prehistory through ancient, medieval, and Islamic traditions, ending before the Renaissance.
- Analyze how cultural, religious, environmental, and technological factors shaped forms, construction, and urban patterns.
- Examine key theories of proportion, aesthetics, and symbolism in historical traditions.
- Developing the student's ability to analyze, criticize, and evaluate different architectural styles.

This course introduces students to the global history and theory of architecture from prehistoric times to the mid-nineteenth century. Through a chronological and thematic survey, students examine architectural traditions of major civilizations, including Egyptian, Mesopotamian, Chinese, Greek, Roman, Byzantine, Medieval European, and Islamic architecture, and their contributions to form, function, symbolism, and theory. Emphasis is placed on analyzing significant buildings, understanding the cultural and environmental factors that shaped them, and exploring foundational theories of proportion, aesthetics, and function. The course fosters critical awareness of architecture as both a cultural expression and a theoretical discourse.

Moffett, M. et al, A World History of Architecture, Laurence King Publishing, London, 2003.

171-ARC-3

Building Materials

3

- Study properties, types, testing, and test techniques for the Performance of materials.

محتوى المقرر (مختصر) :
 (concise)

أهم المراجع

رمز ورقم المقرر

Course name

عدد الوحدات المعتمدة

أهداف المقرر

محتوى المقرر (مختصر) :
 (concise)

أهم المراجع

رمز ورقم المقرر

Course name

عدد الوحدات المعتمدة

أهداف المقرر

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- Study the concept of fundamental material science and solid mechanics concepts to understand, explain, characterize, and predict the Performance of construction materials.
- Study the behavior of composite materials, aggregate, Portland cement and Portland cement concrete, asphalt and bituminous concrete, and masonry.
- Study types and mechanical properties of reinforcing steel.
- Study types and mechanical properties of blocks, Wood, and Bricks.

General properties, testing, and specifications of engineering materials. Stress-strain behaviour of concrete and reinforcing bars. Properties and testing of concrete-making materials (cement, aggregates, mixing water, and admixtures). Requirements and design of concrete mixes. Strength behavior of blocks, Wood, and Bricks.

Mamlouk, M.S., Zaniewski, J. P, Materials for Civil and Construction Engineers, 3rd Edition, Pearson, Prentice, Hall ISBN -13 978-0-13-611058-3

محتوى المقرر (مختصر) :
 (concise)

أهم المراجع

مقررات المستوى الرابع :Courses of level 4

212-TQF-2	رمز ورقم المقرر	Course number and code
Muslim Culture (2)	اسم المقرر	Course name
2	عدد الوحدات المعتمدة	No. of credit units
	أهداف المقرر	Course objectives
	محتوى المقرر (مختصر)	: (concise)
	أهم المراجع	Most important references
112-ARC-4	رمز ورقم المقرر	Course number and code
Architectural Design Studio (1)	اسم المقرر	Course name
4	عدد الوحدات المعتمدة	No. of credit units
▪ Develop the student's basic architectural design skills. ▪ Use skills acquired in the courses/stage of the project design. ▪ Design simple architectural schemes using manual tools	أهداف المقرر	Course objectives
The course is intended to build upon the ideas and skills developed in the core course of the basic design studio. It is an introductory design course aiming at understanding the principles and processes of solving architectural problems in a studio setting. Students are encouraged to explore fundamental architectural concepts of space, form, composition, function, circulation, and orientation, as well as the aesthetical issues; designing small-scale projects such as villas, chalets, vacation houses, etc.	محتوى المقرر (مختصر)	: (concise)
Joseph De Chiara, Time saver standards for residential development (Second Edition), Mac Graw-Hill Book Company, New York, 1995.	أهم المراجع	Most important references
122-ARC-2	رمز ورقم المقرر	Course number and code
Computer Applications in Design (1)	اسم المقرر	Course name
2	عدد الوحدات المعتمدة	No. of credit units

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<ul style="list-style-type: none"> ▪ Operate the user interface for Sketch Up and AutoCAD. ▪ Complete exercises using the majority of Sketch-Up tools. ▪ Produce and edit professional 2D drawings using layers and other tools Plot out. ▪ Drawings to scale and other requirements 	<p>أهداف المقرر Course objectives</p>
<p>This course provides an overview of all of the essential Sketch-Up skills needed for general modeling, layout, and architecture and at the same time provides an introduction to Computer-Aided Design (CAD). It also introduces drafting concepts pertaining to CAD in general, and in particular to selected drafting packages. Throughout this course, the emphasis is to be placed Sketch-Up 3D tools on another hand Auto CAD two-dimensional drawing techniques.</p>	<p>محتوى المقرر (مختصر) Course content (concise)</p>
<ul style="list-style-type: none"> ▪ Errin Esquerre (2020) Step By Step Guide To Start Sketch-Up For Beginners: Sketch-Up Book Paperback – December 8, 2020 	<p>أهم المراجع Most important references</p>
132-ARC-3	<p>رمز ورقم المقرر Course number and code</p>
History and Theory of Architecture (2)	<p>اسم المقرر Course name</p>
3	<p>عدد الوحدات المعتمدة No. of credit units</p>
<ul style="list-style-type: none"> ▪ Trace the historical development of architecture from the Renaissance to the contemporary era, highlighting the cultural, technological, and theoretical forces shaping architectural expression. ▪ examine major architectural movements, including modernism, postmodernism, high-tech, deconstructivism, and digital paradigms, and evaluate their impact on design thinking and practice. ▪ cultivate students' ability to critically analyze landmark works, key architects, and theoretical debates, fostering historical insight and interpretive skills. ▪ contextualize contemporary Saudi architecture within global architectural discourse, linking heritage, identity, and sustainability. 	<p>أهداف المقرر Course objectives</p>
<p>This course explores the history and theory of architecture from the Renaissance to the present. Beginning with Renaissance, Baroque, Rococo, and Neoclassicism, it traces the transformation of architecture through the Industrial Revolution, early modern movements, and the rise of modernism in the 20th century. The course examines postmodern, high-tech, deconstructivist, and digital paradigms. Special emphasis is placed on contemporary Saudi architecture and the ongoing development of the Two Holy Mosques. Students engage critically with architectural movements, theoretical debates, and landmark projects to cultivate historical insight and analytical skills essential for understanding architecture's role in shaping culture and society.</p>	<p>محتوى المقرر (مختصر) Course content (concise)</p>
<ul style="list-style-type: none"> ▪ Moffett, M. Et al, A world History of Architecture, Laurence King Publishing, London, 2003 ▪ Nuttgens, Patrick, the Story of Architecture, Phaidon Press Limited, London, 1997. 	<p>أهم المراجع Most important references</p>

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Frampton, K. Modern Architecture, a Critical History, Thames and Hudson, London, 2007	
141-ARC-3	رمز ورقم المقرر Course number and code
Building Construction (1)	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> The students will understand different types of building components, building materials, building technologies, and structural systems. The students will acquire design and draw skills of building components. <p>The students will learn to use hand-drawing tools in building construction details.</p>	أهداف المقرر Course objectives
<p>This course aims to introduce the fundamentals of building construction and architectural materials including building components, and traditional construction systems (wall-bearing structure system, skeleton structure system). Masonry works (walls, arches, vaults, lintels), Foundations, Ceilings / Roofs' types, Floors types, Architectural materials (Wood, Aluminum, Glass, etc.), and vertical access elements (stairs, elevators). Different types of staircases are to be studied in detail also working drawings for the mentioned topics are to be drawn.</p>	محتوى المقرر (مختصر) (concise) Course content
Emmits, S. & Gorse, C. Barry's Introduction to Construction of Buildings, Wiley-Blackwell; 4th ed., 2018.	أهم المراجع Most important references
181-ARC-3	رمز ورقم المقرر Course number and code
Statics and Strength of Materials	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> Understand different loads and forces acting on structures. Analyze internal forces and stresses in various structural components and systems. Design structures that are safe, functional, and aesthetically pleasing using appropriate materials and dimensions. <p>Apply engineering principles to integrate structural considerations into architecture design.</p>	أهداف المقرر Course objectives
<p>The first part of the course: (Statics) is primarily concerned with the study of forces acting on structural members, which are at rest. Topics include forces and their effects, resultants of coplanar force systems, equilibrium of coplanar force systems, Different types of support conditions and loads, analysis of simply supported beam, centroids, and moments of inertia. The second part of the course primarily deals with analysis and design. The topics to be covered include direct stresses and strains, shear stresses and strains, Stresses in beams, Combined stresses, Column buckling and elastic stability and Bearing stress.</p>	محتوى المقرر (مختصر) (concise) Course content
Barry S. Onouye and Kevin Kane (2011) Statics and Strength of Materials for Architecture and Building Construction, 4th Edition.	أهم المراجع Most important references

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مقررات المستوى الخامس : Courses of level 5

رمز ورقم المقرر	Course number and code
اسم المقرر	Course name
عدد الوحدات المعتمدة	No. of credit units
أهداف المقرر	Course objectives
محتوى المقرر (مختصر) : (concise)	Course content
أهم المراجع	Most important references
101-ARB-2	رمز ورقم المقرر
Arabic Language Skills	اسم المقرر
	عدد الوحدات المعتمدة
	أهداف المقرر
	محتوى المقرر (مختصر) : (concise)
	أهم المراجع
213-ARC-4	رمز ورقم المقرر
Architectural Design Studio (2)	اسم المقرر
4	عدد الوحدات المعتمدة
<ul style="list-style-type: none"> The students will learn the process of architectural design including design concepts and considerations that shape the exterior and interior spaces of buildings. The students will learn how to analyze the site and basic structural considerations. <p>The students will learn how to gather and analyze information about human needs and aspirations to guide the design development stages.</p>	أهداف المقرر
<p>The course aims at deepening the understanding of architectural processes and concepts introduced in the architectural design studio (1). The projects seek to raise awareness of the multiple considerations that shape the exterior and interior spaces of buildings. In addition to site analysis and basic structural considerations, gathering and analyzing information about human needs and aspirations are required to guide design development stages. Studies using intermediaHistory and Theory of Architecture-scale projects such as (school, library, institute, university students center, etc.)</p>	محتوى المقرر (مختصر) : (concise)
Neufert Architects' Data, Fourth Edition 4th Edition, by Ernst Neufert (Author), Peter Neufert	أهم المراجع
223-ARC-2	رمز ورقم المقرر
Computer Applications in Design (2)	اسم المقرر
2	عدد الوحدات المعتمدة
<ul style="list-style-type: none"> Introduce fundamentals of graphics and drafting in computer-aided software (AutoCAD). Demonstrate the technique of constructing 2D and 3D Geometry <p>Facilitate the production of 2D and 3D presentation</p>	أهداف المقرر
<p>This course provides students with a broad introduction to 2-dimensional and 3-dimensional Computer-Aided-Design (CAD) with a focus on construction- and architecture-specific applications. By using CAD software (such as Autodesk AutoCAD as well as Google Sketch Up in hands-on exercises, assignments, and projects, students</p>	محتوى المقرر (مختصر) : (concise)

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gain the capability to use CAD to model construction projects and create and distribute industry-standard architectural drawing	
1. Elise Moss (2019) Autodesk AutoCAD Architecture 2020 Fundamentals Perfect Paperback Mission, KS, United States. ISBN10 1630572640 ISBN13 9781630572648	أهم المراجع Most important references
242- ARC-3	رمز ورقم المقرر Course number and code
Building Construction (2)	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> ▪ Understand different secondary building components, materials, technologies, and modern structural systems. ▪ Acquire design and drawing skills in building working drawings. Know the types and details of doors and windows, settlement and expansion joints, and finishing materials. 	أهداف المقرر Course objectives
This course aims to complete the fundamentals of building construction and architectural materials, including, Modern construction systems, Insulation materials (Water insulation, Heat insulation, Sound Insulation), Doors and Windows, Settlement and expansion joints, and, Finishing materials. Also, students will learn how to prepare working drawings for a simple two-level building (plans, sections, elevations, Doors, Windows).	محتوى المقرر (مختصر) (concise)
Francis D.K. Ching, Building Construction Illustrated 6th Edition, Kindle Edition, Wiley, 2020.	أهم المراجع Most important references
251-ARC-3	رمز ورقم المقرر Course number and code
Sustainable Architecture	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> ▪ Understand the basic parameters of sustainable architecture. ▪ Recognize the role of architecture in addressing global sustainability challenges such as climate change, resource depletion, and urbanization. <p>Create architectural spaces that are not only functional and aesthetically pleasing but also environmentally responsible.</p>	أهداف المقرر Course objectives
This course aims to introduce students to basic concepts of sustainability and its application in architecture, considering the environment and quality of space. The course provides an insight into climate change and as such the backdrop for the need to design sustainable buildings and cities with considerably less greenhouse gas emissions. This also includes the use of energy-efficient and environmentally friendly materials, systems, and technologies, as well as practices that promote the health and well-being of occupants.	محتوى المقرر (مختصر) (concise)
<ul style="list-style-type: none"> ▪ Szokolay, Steven. (2008) Introduction to Architectural Science: The Basis of Sustainable Design. 2nd Edition. ▪ Kishnani, N., (2012) "Greening Asia – Emerging principles for sustainable Architecture" publications : FuturArc., Singapore. 	أهم المراجع Most important references
261-ARC-3	رمز ورقم المقرر Course number and code
Principles of Urban Planning	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units

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- Define urban planning and study planning's goals, levels, history, and development.
- Learn old and contemporary urban planning theories.
- Recognize the requirement studies, regulations, and limitations of urban planning.
- Demonstrate urban planning applications and implementation at selected neighborhoods.

Understand how to collect data for required urban planning project and how to use new technology.

This course aims to understand the fundamental concepts in urban planning, understand the historical development and different processes that shaped urban and regional development. Also, this course introduces old and current urban planning theories, and it covers the process of analyzing current neighborhoods and the process for designing new ones. The course, in addition, looks at the main characteristics and components of the city and the evolution and development, such as city forms, neighborhoods development, urban systems, and land use planning. Finally, it explains the strategies and regulations in local, regional, and national levels coupled by a practical exercise on an urban area in Najran city in which the students will use the new technology in urban planning to study and analyses the specific area.

- الوكيل، شفقي. (2006). التخطيط العمراني. إيكوبيا: القاهرة.
- حسن، عاطف. (نـ). تخطيط المدن أسلوب ومراحل. جامعة قطر: قطر.

أهداف المقرر Course objectives

محتوى المقرر (مختصر) Course content (concise)

أهم المراجع Most important references

مقررات المستوى السادس 6 :Courses of level 6

102-NAT-2	رمز ورقة المقرر Course number and code
National Identity	اسم المقرر Course name
2	عدد الوحدات المعتمدة No. of credit units
	أهداف المقرر Course objectives
	محتوى المقرر (مختصر) Course content (concise)
	أهم المراجع Most important references
214-ARC-4	رمز ورقة المقرر Course number and code
Architectural Design Studio (3)	اسم المقرر Course name
4	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> Analyze and study architectural schemes. Design architectural schemes that concentrate on electromechanical systems in buildings. Demonstrate and show an exceptionally good standard of architectural presentation according to the architectural principals. Apply the knowledge of design elements and principles to this project. 	أهداف المقرر Course objectives

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<ul style="list-style-type: none"> Enhance and strengthen reporting data collection and analysis, presented methods and discussed skills. 	
Students will learn how to approach and process relatively complex architectural design forms, considering: functional, symbolic, organizational, aesthetic, and structural parameters of the architectural space. This course motivates students to explore possible structural solutions for long-span spaces.	محتوى المقرر (مختصر) : (concise) Course content
<ul style="list-style-type: none"> Ernst Neufert, Peter Neufert, Neufert's Architects' Data, John Wiley & Sons, (2012). Architectural Graphic Standards, 2006, American Institute of Architects- sleeper Ramsey 	أهم المراجع Most important references
224-ARC-2	رمز ورقم المقرر Course number and code
Computer Applications in Design (3)	اسم المقرر Course name
2	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> Present intermediate level of graphics and drafting appropriate for developing functional skills in computer-aided drafting Present intermediate level of AutoCAD, designing, and modeling. Teach higher level of Architectural Applications of AutoCAD principles and components of an Architectural Design Process 	أهداف المقرر Course objectives
Building upon skills acquired in the "Architectural AutoCAD I" course, this course presents advanced topics in architectural, CAD software centered on problem-based tasks, topics such as 3-dimensional modeling, parametric building design, Building Information Models (BIMs), material take-off, energy-efficient planning, rendering and presentation, and others will be explored. Industry-standard, CAD	محتوى المقرر (مختصر) : (concise) Course content
Stine, DJ. 2009. "Residential Design Using Autodesk Revit Architecture 2009", SDC Publications	أهم المراجع Most important references
262-ARC-2	رمز ورقم المقرر Course number and code
Housing & Settlements	اسم المقرر Course name
2	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> Define housing and recognize its different basic concepts. Recognize housing types, patterns, advantages, and disadvantages of each one. Explain the main housing problems, causes, solutions and strategies. Discuss housing in Saudi Arabia (history, problems, policies, strategies, housing in Vision 2030). <p>Write housing report about some issues related to housing in Saudi Arabia.</p>	أهداف المقرر Course objectives
This course aims to introduce housing concept, importance and history. In addition, this course takes into consideration international housing typology, patterns, and levels to understand the pros and cons of each type. Other housing types will be discussed such as economic, affordable and slum housing. After that, housing in Saudi Arabia history, problems, regulations, policies, and strategies. Finally, a report about housing issue in Saudi Arabia will be written	محتوى المقرر (مختصر) : (concise) Course content

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and discussed to improve the students' ability of writing and searching for appropriate references.

باهمام، علي. (1439). الإسكان. الجمعية السعودية لعلوم العمران. الرياض.

أهم المراجع

272-ARC-2

رمز ورقم المقرر

Surveying for Architects

اسم المقرر

2

عدد الوحدات المعتمدة

- Introduction, definitions, surveying types and measuring units
- Linear measurements (Tape, Electronic distance measurement, angular measurements)
- Levels and levelling operation; contorting and cross-sections and volume; area computations
- Introduction to Total Stations; data collection and setting out
- Introduction to terrestrial Photogrammetry

Basics of GPS, remote sensing, and GIS

أهداف المقرر

The main purpose of the Surveying for Architects course is to help students to understand the fundamental principles and potential errors involved in surveying. This includes learning various techniques, such as measuring distances, elevations, and angles using different tools like Total Stations, levels, tapes measuring wheel. Additionally, they will explore experimental works and gain experience-analyzing data while utilizing digital methods for documenting heritage building terrestrial Photogrammetry or 3D object scanning with 3D laser scanning technology. Finally, they will learn about basic applications of GPS systems along with remote sensing and geographic information system (GIS).

محتوى المقرر (مختصر) :
 (concise)

Text Book: Paul, R. Wolf & Charles D. Ghilani, " Elementary Surveying: An Introduction to Geomatics 15th Edition " Pearson; 15th edition (January 24, 2017).

أهم المراجع

273-ARC-2

رمز ورقم المقرر

Heritage and Buildings Conservation

اسم المقرر

2

عدد الوحدات المعتمدة

- At the end of this course, the student will be able to:
- Discuss and apply the fundamentals of the conservation of heritage places
- Understanding the role of monitoring systems can improve the maintenance and care of existing buildings.
- Study, record, register and record heritage buildings and details.
- Compare and evaluate historical and vernacular architecture.

أهداف المقرر

Discuss and contextualize heritage conservation organizations/institutions, policies, and documentation.

The aim of this course is to introduce students to methods and techniques of architectural conservation and to introduce building heritage conservation with particular emphasis on Saudi Arabia's architectural and townscape heritage.

محتوى المقرر (مختصر) :
 (concise)

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The course supports theoretical subjects for the specialization; through it, the student is introduced to architectural preservation methods.	
▪ Conservation of Historic Buildings Paperback (2014) The Art of Earth Architecture: Past, Present, Future Hardcover – Illustrated, March 3, 2020, 282-ARC-3	أهم المراجع Most important references رمز ورقم المقرر Course number and code
Structural Analysis	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> ▪ To understand the difference between determinate and indeterminate Structure. ▪ To provide a thorough understanding and practical applications of structural analysis theories. ▪ To develop the skills to analyze the behavior and response of structures to various loads and constraints. <p>To establish foundation knowledge and skills in preparation for structural design, concrete and steel design</p>	أهداف المقرر Course objectives
Aware of type of structures, structure elements, types of loads, types of supports, and structure determinacy, to be able to determine reactions of determinate structures (beams, frames, trusses, and arches). To analysis trusses. To draw shear and moment diagrams of determinate structures (beams and frames). To study influence lines of determinate beams. To be able to determine deflection of determinate beams. Moreover, to Study of analysis of Indeterminate Structures using one method of classical methods.	محتوى المقرر (مختصر) (concise) Course content
<ul style="list-style-type: none"> ▪ Jack C. McCormac, "Structural Analysis", Harper & Row Publishers, Last Edition. Russell C. Hibbeler, "Structural Analysis", Person Education South Asia Pte Ltd, last Edition. 	أهم المراجع Most important references

مقررات المستوى السابع :Courses of level 7

315-ARC-5	رمز ورقم المقرر Course number and code
Architectural Design Studio (4)	اسم المقرر Course name
5	عدد الوحدات المعتمدة No. of credit units
This course introduces students to office design and teaches them to prepare a schematic and developed design for a complex office building project, emphasizing interrelationships of spaces and specialist functions, including public interface, public assembly, and functional Performance. Students will be able to think about relationships between a newly designed building and the surrounding context.	أهداف المقرر Course objectives
This course emphasizes environmental issues as a significant determinant of architectural form. Analysis and synthesis of climatic information of the physical environment in deciding the orientation, form, layout, openings, shading devices, and built and open spaces. Students are encouraged to consider local cultural and environmental parameters in the project design.	محتوى المقرر (مختصر) (concise) Course content

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▪ Neufert, Ernst, Neufert, Peter, "Neufert Architects' Data", Wiley-Blackwell; 4 edition, 2012. Hachner, Rainer, Jeska, Simone, Klauck, Birgit, Office Building, Birkhauser, 2002;	أهم المراجع Most important references
343-ARC-3	رمز ورقم المقرر Course number and code
Construction Drawing and Detailing	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
▪ Master preparing the shop drawings of the medium project. ▪ Acquire design and drawing skills in architectural and technical installation (sanitary works, artificial lighting) working drawings. ▪ Know the types and details of doors and windows, settlement and expansion joints, as well as internal and external finishing materials.	أهداف المقرر Course objectives
This course aims to master the students' shop drawings (architectural working drawings (plans, sections, facades, and layout), architectural details, sanitary working drawings, and artificial lighting working drawings) using CAD applications for a medium project of their previous architectural design projects.	محتوى المقرر (مختصر) :(concise)
▪ Keith Styles, Andrew Bichard, Working Drawings Handbook 4th Edition, Kindle Edition, Routledge, 2012 ▪ David Kent Ballast (2012) Architect's Handbook of Construction Detailing 2nd Edition ▪ Rosemary Kilmer (2016) Construction Drawings and Details for Interiors, John Wiley Publishing Ref 9781118944356 ▪ Joseph DE Chiara, Julius Panero and Martin Zelnik (1992) Architectural Detailing Time-Saver Standards for Interior Design and Space Planning ISBN, 0071125892, ▪ Bielefeld, Bert (2018) 20 Basics Fundamentals of Construction Detail Drawing ISBN 9783035613797 publishers Birkhauser Hisham Hassan Ali, Working drawings, Assiut University, Assiut, Egypt, 2010	أهم المراجع Most important references
352-ARC-3	رمز ورقم المقرر Course number and code
Illumination and Acoustics	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
▪ Learning the concept of lighting and acoustics in a built environment. ▪ Analyze and design Electrical-Lighting and Daylighting for indoor spaces. Learning acoustical design of rooms and noise control principles.	أهداف المقرر Course objectives
The course covers the fundamental concepts of lighting and acoustics in the context of architectural design. The course is divided into two parts. The first part of the course focuses on lighting design, including light measurement techniques, and lighting design methods. Students will gain an understanding of various electrical light sources, and lighting systems, and how to measure and control the quantity and quality of illumination. Additionally, students will also explore the principles of daylighting, the integration of daylighting	محتوى المقرر (مختصر) :(concise)

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<p>and electrical lighting with architectural design, and how to use computer simulation tools to enhance lighting design. The second part of the course covers acoustics, including the acoustical properties of materials and constructions, room acoustics, and noise control. Students will learn about measuring methods and equipment used in acoustics, as well as the acoustic design of auditoria. Students will also gain an understanding of how to integrate acoustical and lighting systems to achieve optimal results, and how acoustics impacts architectural design.</p>	
<ul style="list-style-type: none"> ▪ Walter T. Grondzik, Alison G. Kwok. 2015. Mechanical and electrical Equipment for Building. John Wiley & Sons, Inc. Lechner, Norbert . 2015. Heating, cooling, lighting : sustainable design methods for architects. by John Wiley & Sons.. 	<p>أهم المراجع Most important references</p>
353-ARC-3	<p>رمز ورقم المقرر Course number and code</p>
Climate Responsive Design	<p>اسم المقرر Course name</p>
3	<p>عدد الوحدات المعتمدة No. of credit units</p>
<ul style="list-style-type: none"> ▪ Concept of climate as a significant determinant of built forms ▪ Concept of thermal comfort through passive means ▪ Climate-based design principles for buildings in different climatic zones. ▪ Emphasizes practical applications for environmental and climatic design with respect to the hot-arid climate of Saudi Arabia. 	<p>أهداف المقرر Course objectives</p>
<p>The course aims to introduce climatic classification, tools for measurement and understanding of climatic data, thermal comfort requirements, and principles of buildings' thermal and environmental Performance. The course also aims to introduce passive design strategies adapted to the buildings to achieve a climate-responsive design in an approach to control the indoor thermal environment while preserving the natural resources in the environment.</p>	<p>محتوى المقرر (مختصر) Course content (concise)</p>
Olgyay, Victor. Design with Climate. Princeton: Princeton University Press, 2015	<p>أهم المراجع Most important references</p>
383-ARC-3	<p>رمز ورقم المقرر Course number and code</p>
Structural Design	<p>اسم المقرر Course name</p>
3	<p>عدد الوحدات المعتمدة No. of credit units</p>
<ul style="list-style-type: none"> ▪ To Recognizing the General principals of design of reinforced concrete & steel structures based on ACI, AISC and SBC code requirements. ▪ To Analyze and design of reinforced concrete members subject to flexure, shear and diagonal tension in accordance to ACI strength method. ▪ To define Types of slabs and design one-way solid slab. ▪ To define Types of columns and design short columns. ▪ To define Types of Footings and Design of Spread Footing. ▪ To understanding the reinforcement layout and detailing. ▪ Understand the advantages and disadvantages of steel Structures. Understand the design of critical sections within the constraints of code design, criteria of safety, serviceability and economy using fundamental principles as well as design aids. 	<p>أهداف المقرر Course objectives</p>

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Fundamentals and design theories based on ultimate strength design and elastic concept using ACI code and AISC codes. ACI and AISC Code requirements. Load factors. Analysis and design of reinforced concrete members subject to flexure, shear and diagonal tension in accordance to ACI strength method. Type of slabs. Design of One-way Continuous Slab; Shrinkage & Temperature Steel Type of Columns. Design of Reinforced Concrete Short Loaded Columns. Type of Footings. Design of Spread Footing. Introduction to steel structures design. Design of tension and compression members, Design of beams, column under eccentric loadings, Design of Connections.

Jack C. McCormac, Russell H. Brown, Design of reinforced concrete, Wiley, Last Edition.

محتوى المقرر (مختصر) :
 (concise)

أهم المراجع

مقررات المستوى الثامن 8 :Courses of level 8

101-CIS-2	رمز ورقم المقرر Course number and code
Digital Skills	اسم المقرر Course name
2	عدد الوحدات المعتمدة No. of credit units
	أهداف المقرر Course objectives
	محتوى المقرر (مختصر) Course content : (concise)
	أهم المراجع Most important references
316-ARC-5	رمز ورقم المقرر Course number and code
Architectural Design Studio (5)	اسم المقرر Course name
5	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> ▪ Analyze and study architectural schemes and the ability to execute master planning within a given urban context. ▪ Demonstrate and show a particularly good standard of architectural presentation according to the architectural principles. ▪ Apply the knowledge and theory of design elements and principles to this project. ▪ Enhance and strengthen reporting data collection and analysis, presented methods, and discussed skills. Develop and understanding of architectural sustainability design. ▪ Applying professional skills and ability to work independently and with the team's work. ▪ Ability to prepare documentation of design works that include policy statements. 	أهداف المقرر Course objectives
Introduction to community design theories and techniques, participatory design; collaborative design processes; community involvement in decision making; understanding community needs and resources; housing types; new understandings in neighborhood planning and design theories; gated communities; housing design; housing types; community support; design projects involve the use of community information in establishing collaborative design processes; and developing solutions based on community needs,	محتوى المقرر (مختصر) Course content : (concise)

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preferences, and other contextual constraints such as local building regulations, codes and bylaws.	
Green Building, Guidebook for Sustainable Architecture by: Michael Bauer, Peter Mosle & Michael Schwarz. Mills, B. Criss. Designing with Models: A Studio Guide to Architectural -Process Models. John Wiley & Sons EBook. 2011	أهم المراجع Most important references
354-ARC-3	رمز ورقم المقرر Course number and code
Building Services Systems	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> ▪ Provide students with a comprehensive understanding of the different building services engineering systems found in contemporary buildings. ▪ Understand the fundamental design principles of diverse building services systems and how they fit together with the building fabric and architectural features. 	أهداف المقرر Course objectives
The course aims to introduce basic principles and appropriate application and Performance of building service systems such as plumbing, electrical, vertical transportation, security, and fire protection systems.	محتوى المقرر (مختصر) (concise) Course content
Fred Hall, et al. (2013) Building Services Handbook, 7th Edition, Routledge.	أهم المراجع Most important references
374-ARC-2	رمز ورقم المقرر Course number and code
Research Methods in Architecture	اسم المقرر Course name
2	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> ▪ The student will learn the research methods employed in a range of design research projects. ▪ The student will learn how to write literature in students particular areas of interest. <p>The student will learn how to write a research proposal in architectural design and planning.</p>	أهداف المقرر Course objectives
This course introduces students to the research process, through critical exploration of published research, relevant to their field of interest. The course provides the understanding and use of the research terminology and integrates the elements of the research process within quantitative, qualitative, and mixed scientific methods approaches	محتوى المقرر (مختصر) (concise) Course content
<ul style="list-style-type: none"> ▪ Kate L. Turabian. 2007. A Manual for Writers of Research Papers, Theses, and Dissertations. Chicago Style for Student and Researchers, 7th Edition. The University of Chicago Press; ▪ Steven R. Terrell. 2016. Writing A Proposal for your Dissertation. Guidelines and Examples. The Guilford Press; ▪ Margaret Cargill, Patrick O'Connor. 2009. Writing Scientific Research Articles. Various articles to be provided by the lecturer 	أهم المراجع Most important references
XXX-ARC-2	رمز ورقم المقرر Course number and code
Elective#1: From group #1	اسم المقرر Course name
2	عدد الوحدات المعتمدة No. of credit units
	أهداف المقرر Course objectives

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	Course content محتوى المقرر (مختصر) :(concise)
	أهم المراجع most important references
XXX-ARC-2	رمز ورقم المقرر Course number and code
Elective#2: From group #1	اسم المقرر Course name
2	عدد الوحدات المعتمدة no. of credit units
	أهداف المقرر Course objectives
	محتوى المقرر (مختصر) :(concise)
	أهم المراجع Most important references

مقررات المستوى التاسع :Courses of level 9

261-BUS-2	رمز ورقم المقرر Course number and code
Innovation and Entrepreneurship	اسم المقرر Course name
2	عدد الوحدات المعتمدة No. of credit units
	أهداف المقرر Course objectives
	محتوى المقرر (مختصر) :(concise)
	أهم المراجع Most important references
463-ARC-5	رمز ورقم المقرر Course number and code
Urban Design Studio	اسم المقرر Course name
5	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> ▪ gain experience in documenting, analyzing and understanding urban form ▪ develop knowledge of key concepts and principles of urban design and their application through the exploration of an approach and methodology for urban design ▪ develop the ability to address issues and opportunities at the urban scale in three-dimensional form through a process of design development. ▪ gain experience in graphic thinking and communication as it relates to urban design 	أهداف المقرر Course objectives
<p>This course focuses on design in urban contexts at a range of scales - from neighborhood down to site - while introducing students to spatial configuration in urban environments that integrate the many cultural, spatial, architectural, and ecological issues of these places. This studio aims to further develop skills in conceptualization and visualization through consideration of contemporary urban design issues. It includes documentation and analysis of urban form and process, and explores site planning and design of the public realm. Issues of local and regional identity and sustainability inform the approach of the studio.</p> <p>The course aims for students to engage with complex urban design challenges and to achieve levels of design resolution well beyond their previous studio assignments, while critically engaging and</p>	محتوى المقرر (مختصر) :(concise)

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challenging their own design processes. Students are required to take a clear position on the issues at stake and articulate that position visually and spatially through their own individual project. All assignment work will be project-based, with each of the stages building upon one another to produce a final design that demonstrates technical, theoretical, ecological and spatial competencies.

Moughtin, C., Cuesta, R., Sarris, C., & Signoretta, P. (2003). *Urban design: Method and techniques*. Routledge.

475-ARC-2

Building Information Modelling BIM

2

- Produce 3D computer models of structures using established standards.
- Understand the transition from 2D to 3D representations.
- Be able to analyze and extract building information data for a Revit model.

The useful of the BIM in supporting investment decision-making related to capital works and infrastructure; how BIM can assist in comparing alternative solutions to design, energy and environmental services, and build method; how BIM can assist with design visualization for the client; how BIM can assist in the identification of building issues and clashes including quality assurance and safety; and how BIM data can be used to manage the completed facility through to the end of its useful life. The course includes learning by case studies.

Introduction to Building Information Modelling (BIM) is designed to enable students to develop a conceptual and practical understanding of how buildings and other structures may be designed, procured, costed; project managed to completion and maintained using 3D and other integrated technology.

In this course, students will explore various Building Information Modelling (BIM) technologies and practice BIM processes using BIM-enabled software. The course Provides essential knowledge required to manage and implement BIM technologies in construction processes. Students will identify the benefit of BIM and outline the criteria for developing a BIM implementation plan. Students will be exposed to the various skills to use BIM in the design and construction of facilities, with an emphasis on structural and civil roles. Autodesk Revit will be the primary platform used by students to further develop BIM models and apply advanced modelling techniques.

▪Wing, Eric. Autodesk Revit Architecture 2017: No Experience Required. Indianapolis: John Wiley & Sons, 2016. 6 rev. 1/10/18
 Kim, Marcus, Lance Kirby, and Eddy Krygiel. *Mastering Autodesk Revit 2017 for architecture*. 1st ed. INpolis, IN: John Wiley & Sons, 2016.

491-ARC-2

Graduation Project

أهم المراجع Most important references

رمز ورقم المقرر Course number and code

اسم المقرر Course name

عدد الوحدات المعتمدة No. of credit units

أهداف المقرر Course objectives

محتوى المقرر (مختصر) (concise)

أهم المراجع Most important references

رمز ورقم المقرر Course number and code

اسم المقرر Course name

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		عدد الوحدات المعتمدة
2	<ul style="list-style-type: none"> Provide an introductory guide for conduct research in Architecture and the built environment—from the scale of a building component, a room, a building, a neighborhood, to an urban center Integrates various components of the curriculum in comprehensive Architectural experience so that the basic sciences, mathematics, and engineering sciences which the student has learnt in his freshman-to-senior years of study can be applied. 	أهداف المقرر
	<p>The course considers design of a complete project or system including establishment of objectives and criteria, formulation of the problem statements, preparation of specifications, consideration of alternative solutions, feasibility considerations and detailed Architecture application to solving designs problems. The design should take into consideration appropriate constraints such as economic factors, safety, reliability, ethics and environmental and social impact. Submission of a written report is an essential requirement for completion of the course. Team design projects, where appropriate, are highly encouraged.</p>	محتوى المقرر (مختصر) : (concise)
	<ul style="list-style-type: none"> Linda N. Groat and David Wang (2034) Architecture Research Method Published by John Wiley & Sons, Inc., Hoboken, New Jersey Published simultaneously in Canada Ajla Aksamija (2021) Research Methods for the Architectural Profession 1st Edition 	أهم المراجع
XXX-ARC-2	Course number and code	رمز ورقم المقرر
Elective#3: From group #2	Course name	اسم المقرر
2	No. of credit units	عدد الوحدات المعتمدة
	Course objectives	أهداف المقرر
	Course content	محتوى المقرر (مختصر) : (concise)
	Most important references	أهم المراجع
XXX-ARC-2	Course number and code	رمز ورقم المقرر
Elective#4: From group #2	Course name	اسم المقرر
2	No. of credit units	عدد الوحدات المعتمدة
	Course objectives	أهداف المقرر
	Course content	محتوى المقرر (مختصر) : (concise)
	Most important references	أهم المراجع
مقررات المستوى العاشر		
433-ARC-2	Course number and code	رمز ورقم المقرر
Special Topics in Architecture	Course name	اسم المقرر
2	No. of credit units	عدد الوحدات المعتمدة
<ul style="list-style-type: none"> Develop students' ability to explore, reflect and communicate contemporary issues in architecture. Allow students to investigate an academic topic. 	Course objectives	أهداف المقرر

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<ul style="list-style-type: none"> ▪ Prepare students for the final thesis. ▪ Locate subjects of interest in relation to other texts through reading and literature reviews. ▪ Conduct a critical review of relevant academic literature and/or architectural projects and proposals. ▪ Apply an appropriate strategy to undertaking research. <p>This flexible course stresses the experience of architecture from theory to Practice. Building integration systems are highly considered. Intensive courses on specialized topics in architecture related to the study of architecture and not covered in other specifics. May include research and/or studio experiences in architecture, interior architecture, computer-aided design, professional Practice, advanced visual design. Sustainability, green buildings, building envelope, life safety in buildings and tall buildings and smart architecture are also given an importance in the course together with the advanced architecture that has been recently created in the Arabian Gulf Region.</p>	
<ul style="list-style-type: none"> ▪ Deutsch, R. Superusers: design technology specialists and the future of Practice. Routledge, New York (2019). Available UQ library: eBook (with valid UQ login). ▪ Hensel, M., and Nilsson, F. (ed). The changing shape of architecture: further cases of integrating research and design in Practice. Routledge, New York (2019). 	أهم المراجع Most important references
444-ARC-3	رمز ورقم المقرر Course number and code
Quantity Surveying & Specifications	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
<ul style="list-style-type: none"> ▪ Define the importance and the meaning of Quantity surveying and specifications. ▪ The determination of and measurement of excavation and back filling, plain and reinforced concrete, building, insulation, rendering and plastering, painting, cladding, staircases, iron monger, carpentry, sanitary works. ▪ Understanding of the drawings and finishing tables. ▪ Preparation of the technical documentation. ▪ Ability to write different specifications works. 	أهداف المقرر Course objectives
<p>Specifications are among the most important matters. This course introduces specifications and surveying quantities principles and techniques with knowledge and skills of professional practices for architects according to the code of conduct. Specifications and surveying the quantities of construction works is one of the most important matters that the contract parties which concerned with due to the financial obligations that they entail.</p>	محتوى المقرر (مختصر) Course content (concise)
<ul style="list-style-type: none"> ▪ How to Estimate with RSMeans Data: Basic Skills for Building Construction Paperback (2020), RSMeans and Saleh A. Mubarak. ▪ Estimating in Building Construction (What's New in Trades & Technology) Hardcover (2018), Steven Peterson MBA PE and Frank D'Agostino. 	أهم المراجع Most important references
417-ARC-5	رمز ورقم المقرر Course number and code

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اسم المقرر Course name	عدد الوحدات المعتمدة No. of credit units
5	5
▪ Continuation and completion of the graduation project . Oral presentation and submission of the final written report of the design project are essential requirements for the completion of the course	أهداف المقرر Course objectives
This is the second phase of the graduation project, during which students continue to design the project which they have chosen in the previous semester. Studies related to each of the building technology and engineering areas such as: Building Structural and Environmental Control Systems, the student continues his study in the semester on one of the following specific areas: 1. Building Structural Systems 2. Building Environmental Control Systems 3. Construction and Maintenance Management 4. Computer-Aided Building Design. Simulation if needed, should be carried out and then complete the rest of the dissertation started in GP. Each student/s is required to prepare a detailed, valuable dissertation with all the necessary illustrations	محتوى المقرر (مختصر) Course content :(concise)
	أهم المراجع Most important references
492-ARC-2	رمز ورقم المقرر Course number and code
Ethics and Professional Practice	اسم المقرر Course name
2	عدد الوحدات المعتمدة No. of credit units
▪ Prepare students to deal with the legal responsibilities of the architectural engineering profession in a different sector, i.e. private Consulting Offices, Construction Companies, and government agencies. ▪ Understanding the basic principles of financial management, entrepreneurship, marketing, negotiation, risk mitigation, and trends that affect professional Practice in parallel with respect to the ethics of the profession. Prepare students to be responsible for their own learning, group participation, and leadership.	أهداف المقرر Course objectives
This course contains the study of the different fields of architectural engineering practice, professional ethics, the rules, and the regulation that organize the profession in the Saudi construction industry. The course focused on the legal framework of Practice and the role of architectural engineers in the building industry and process. The regulatory system: designing and planning projects. Management principles and practices for the range of architectural engineering practice. The selection process and the conditions of the design market. Responsibilities and liabilities of different building professionals in all sectors of Practice as the outcome of their relationship with local authorities and current building legislation.	محتوى المقرر (مختصر) Course content :(concise)
▪ Architects Essentials of starting a design firm by Peter Piven and B. Perhins 2003 Johu Willey And Sons, Allan, E. Fundamentals of Building Construction 1990	أهم المراجع Most important references
408-GEC-3	رمز ورقم المقرر Course number and code

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Economics and Engineering management	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
	أهداف المقرر Course objectives
	محتوى المقرر (مختصر) Course content : (concise)
	أهم المراجع Most important references
المستوى الصيفي :Summer level	
493-ARC-3	رمز ورقم المقرر Course number and code
Cooperative Training	اسم المقرر Course name
3	عدد الوحدات المعتمدة No. of credit units
	أهداف المقرر Course objectives
	محتوى المقرر (مختصر) Course content : (concise)
	أهم المراجع Most important references