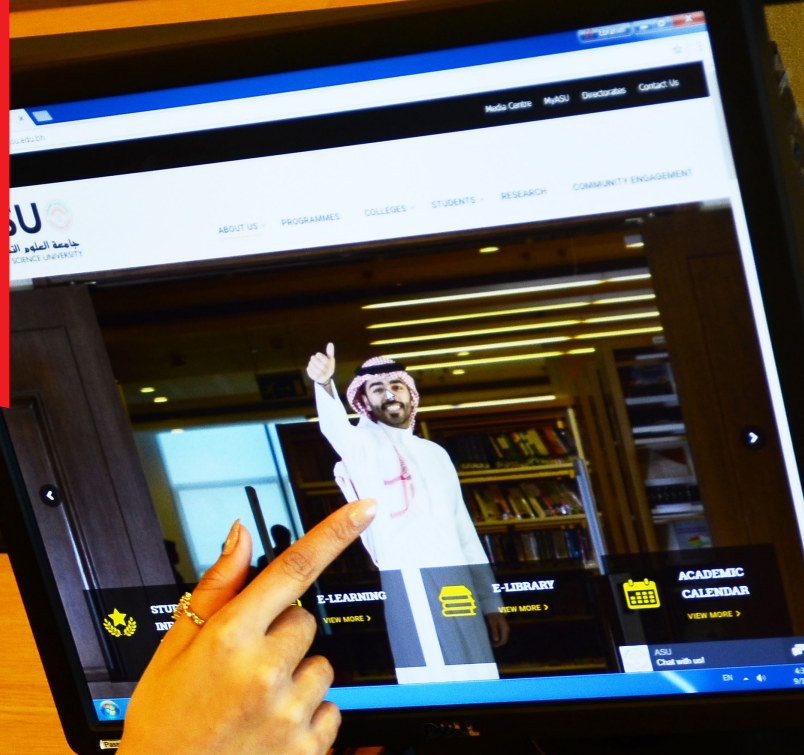


ASU



جامعة العلوم التطبيقية
APPLIED SCIENCE UNIVERSITY

Accredited by the Higher
Education Council



COLLEGE OF
ARTS & SCIENCE
2019-2021



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University Vision, Mission and Values

Vision:

“The vision of Applied Science University is to be one of the leading private universities supporting practical learning and scientific research in Bahrain and the Gulf”.

Mission:

“ASU is committed to offering an education that is accessible to academically competent students of Bahrain, the Gulf and beyond, and to deliver academic programmes of quality that graduate students equipped with knowledge and skills relevant locally and regionally. ASU is further dedicated to the promotion of a culture of learning and scientific research for its students, staff and faculty regionally and globally to engage meaningfully with the community at large”.

Values:

1. **Integrity:** ASU’s community values honesty, fairness and academic integrity as fundamental to its vision and mission, and will recognize, affirm and uphold this value in a responsible and committed manner.
2. **Collaboration and Team Spirit:** ASU’s community recognizes collaboration and team spirit to be at the heart of the institutional culture and will promote these values in a dedicated manner.
3. **Loyalty:** ASU’s students, faculty and staff cherish loyalty and commitment and recognize these values to be inherent in their culture of cooperation and dedication.
4. **Social Responsiveness and Community Engagement:** ASU’s students, faculty and staff value their partners, networks and communities and intend to engage with them, in a thoughtful, respectful, responsible and meaningful manner.
5. **Quality:** ASU’s community values, quality as an ideal and standard that should characterize its processes, outcomes, people and partners.

College Vision, Mission and Objectives

Vision:

To achieve a high status amongst national, regional, and international educational institutions via the spread of knowledge and skills to enrich the lives of individuals and contribute towards a comprehensive sustainable development for the Kingdom of Bahrain and the Arabian Gulf.

Mission:

To deliver a high level education by offering a variety of information technology and applied arts educational programmes in order to meet the needs of local and regional communities contributing to economic and social development and developing responsible students. The college also seeks to create a motivating environment for research and creative thinking to develop our human capital, and to encourage collaboration with higher education institutions within the Kingdom of Bahrain and abroad.

Objectives:

1. To prepare students to work towards future job requirements.
2. To provide graduates with skills for postgraduate studies in the computing, graphic design, and interior design.
3. To develop analytical skills by offering high quality education that links the theoretical and practical and meets with international standards of high education.

Message from the Dean

Dear Students,

The College of Arts and Science was established at the Applied Science University in the first semester of the academic year 2005/2006. The College has three departments:

1. Department of Computer Science with Computer Science programme.
2. Department of Design and Art with Interior Design and Graphic Design programmes.
3. Department of General Studies, which serves all university departments by delivering general interdisciplinary courses.

According to the University's mission, the college seeks to provide students with the necessary knowledge and practical skills to meet their educational goals and with valuable graduate attributes for successful employment. Our dedicated staff continuously evaluate, update, and enhance our courses and introduce new courses towards this goal.

The College also strives to keep abreast of market requirements and developments in the Kingdom of Bahrain and the countries of the Gulf Cooperation Council (GCC) in order to be outstanding in the fields of Computer Science, Interior Design, and Graphic Design.

A common complaint about today's university graduates in IT and design is their inexperience to linking theory to practical situations. To address this problem, the College focuses on connecting information and concepts taught to real life contexts, through projects and practical applications. In this way, our students develop professional hands on skills to meet the needs of local, regional, and international labour markets.

The College also implements an academic education plan by selecting experienced college members to engage with and advise students regarding their courses and responsibilities.

The College offers first class facilities, including state of the art design classrooms and a suite of sophisticated computer labs connected to the university network to support e-learning. Ongoing research is conducted to ensure computer science, interior design, and graphic design courses meet the latest international standards.

I warmly welcome you to come and join our college

Design and Arts

Interior Design

Students are admitted to the programme according to:

1. Criteria approved by the Presidency of the University for secondary school graduates of scientific, or non-scientific certificates with a minimum passing grade of 60%.
2. The applicant undergoes an evaluative interview with the following results:
 - a. Shall the result of the interview be “Possess qualifying readiness”, the student is directly admitted into the programme.
 - b. Shall the result of the interview be “Possess basic readiness”, the student is admitted under certain conditions provided he/she presents a portfolio of work and getting a mark of 65% by a committee at the end of the first academic semester in order to proceed to the second semester and continue his/her studies in the programme. Failure to do so, the student shall select one or more courses of the following courses: Introduction to Drawing, Design Fundamentals, and Principles of Architecture Design to reach the required results.
 - c. Shall the result of the interview be “Student is not ready”, the student will be transferred to another programme at the University.

Design and Arts

Graphic Design

Students are admitted to the programme according to:

1. Criteria approved by the Presidency of the University for secondary school graduates of scientific, or non-scientific certificates with a minimum passing grade of 60%.
2. The applicant undergoes an evaluative interview with the following results:
 - a. Shall the result of the interview be “Possess qualifying readiness”, the student is directly admitted into the programme.
 - b. Shall the result of the interview be “Possess basic readiness”, the student is admitted under certain conditions provided he/she presents a portfolio of work and getting a mark of 65% by a committee at the end of the first academic semester in order to proceed to the second semester and continue his/her studies in the programme. Failure to do so, the student shall select one or more courses of the following courses: Introduction to Drawing, Design Fundamentals and Computer Graphic 1 to reach the required results.
 - c. Shall the result of the interview be “Student is not ready”, the student will be transferred to another programme at the University.

Computer Science

Applicants should normally have one of the following:

1. Certificate of Secondary School (except Literary) discipline with an average of 60%.
2. Transcript for Transferred student from related discipline .

* All students have to enroll and pass a remedial course with 0 credit hours which is Introduction to Computer Mathematics (CSC001) prior to their registration in the major courses except students who have graduated from scientific secondary school discipline or equivalent.

* All accepted students have to attend English test (Oxford English test). According to the English test, they have to attend different English modules, as follows:

- 1- Students who scored between (0-34), have to attend Elementary English (ENG097).
- 2- Students who scored between (35-50), have to attend Intermediate English (ENG098).



Bachelor in Interior Design

Programme Description

Programme Coordinator: Eiman Elgewely

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Programme Details

Programme Title	Bachelor in Interior Design
Awarding Institution	Applied Science University
Teaching Institution	Applied Science University
Programme Licensed by	Ministry of Education, Kingdom of Bahrain
Final Qualification	Bachelor Degree
Academic Year	2021 - 2019
Language of Study	Arabic
Mode of Study	Full Time

Aims of the Programme

- 1- Develop professional graduates in graphic design capable of meeting market needs of both local and regional levels.
- 2- Develop expert graduates in applying their specializations, particularly in innovative applications of modern technology, to open broader future opportunities for learning and developing thinking process.
- 3- Develop graduates capable of visioning broader environmental and human contexts while achieving the responsibilities of their specializations.
- 4- Prepare interactive and open-minded graduates capable of following curricular methods, innovative thinking, and responding to cultural and environmental changes
- 5- Carry a humanitarian vision towards society respecting diversity in cultural and employment related requirements, in addition to being mature enough towards the future to achieve sustainability.

Programme Structure

Overall Structure of the Programme

Minimum Study Period : 3 years

Maximum Study Period : 8 years

Total Credit Hours : 132Credit Hours

No. of Courses : 44 Courses

Study Plan

First Year - First Semester (15 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
ADE 1091	Introduction to Drawing	3	-
IND 1092	Principles of architectural Drawing	3	-
ADE 1110	Design Fundamentals	3	-
-	University Requirements	3	-
-	University Requirements	3	-

First Year - Second Semester (18 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
IND 1071	Design and Environment Behavior	3	ADE 1110
ADE 1101	History and Theory of Art and Design (1)	3	-
IND 1093	Presentation Techniques	3	IND 1092
IND 1094	Computer-Aided Design (CAD) (1)	3	IND 1092
-	University Requirements	3	-
-	University Requirements	3	-

Second Year - First Semester (18 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
IND 2081	Interior Design Studio (1)	3	IND 1071
IND 2131	Interior Materials & Finishes	3	IND1094
IND 2095	Computer-Aided Design (CAD) (2)	3	IND1094
ADE 2102	History and Theory of Art and Design (2)	3	ADE 1101
-	University Requirements	3	-
-	University Requirements	3	-

Second Year - Second Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
IND 2112	Interior Design Studio (2)	3	IND 2081
IND 2151	Interior Structures & Constructions	3	IND 2131
IND 2121	Light & Color in Interior Environments	3	IND 2081
-	University Requirements	3	-
-	University Requirements	3	-
-	Programme Elective	3	-

Third Year - First Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
IND 3113	Interior Design Studio (3)	3	IND 2112
IND 3141	Building Systems and Codes	3	IND 2151
IND 3117	Furniture Design	3	IND 2112
IND 3103	History of Interior Design	3	ADE 2102
-	University Requirements	3	-
-	Programme Elective	3	-

Third Year - Second Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
IND 3114	Interior Design Studio (4)	3	IND 3113
IND 3142	Sustainability in Design	3	IND 3113
IND 3051	Building Information Modeling (BIM) (1)	3	IND 2151
IND 3061	Ethics & Practice of the Profession	3	IND 3141
-	Programme Elective	3	-
-	Programme Elective	3	-

Fourth Year - First Semester (15 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
IND 4115	Interior Design Studio (5)	6	IND 3114 + IND 2151
IND 4071	Graduation Project - Programming	3	IND 3114
IND 4062	Specification and Estimation	3	IND 3051
IND 4040	Internship (BID)	3	90 Credit Hours+ IND 3113

Fourth Year - Second Semester (12 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
IND 4116	Graduation Project	6	IND 4115 + IND 4071
IND 4053	Design Collaboration	3	IND 3114
-	Programme Elective	3	-

B . Levels and Courses

University Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
ARB101	Arabic Language	3	-
ENG101	English Language (1)	3	-
ENG102	English Language (2)	3	ENG101
BA161	Introduction to Entrepreneurship	3	-
CS104	Computer Skills	3	-
HBH105	Bahrain Civilization & History	3	-
HR106	Human Rights	3	-

University Elective Courses

Course Code	Course Title	Credit Hour	Prerequisite
ISL101	Islamic Culture	3	-
ISL102	Islamic Ethics	3	-
ISL103	Islam & Contemporary issues	3	-
SOC101	Introduction To Sociology	3	-
MAN101	Man & Environment	3	-
LIB101	Introduction To Library Science	3	-
SPT101	Special Topics	3	-
LFS102	Thinking and communications skills development	3	-

College Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
ADE 1101	History & Theory for Art & Design (1)	3	-
ADE 2102	History & Theory for Art & Design (2)	3	ADE 1101
ADE 1091	Introduction to Drawing	3	-
ADE 1110	Design Fundamentals	3	-

Programme Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
IND 1092	Principles of architectural Drawing	3	-
IND 1071	Design and Environment Behavior	3	ADE 1110
IND 1093	Presentation techniques	3	IND 1092
IND 1094	Computer-Aided Design (CAD) (1)	3	IND 1092
IND 2081	Interior Design Studio (1)	3	IND 1071
IND 2131	Interior Materials & Finishes	3	IND 1094
IND 2095	Computer-Aided Design (CAD) (2)	3	IND 1094
IND 2112	Interior Design Studio (2)	3	IND 2081
IND 2151	Interior Structures & Constructions	3	IND 2131

Course Code	Course Title	Credit Hour	Prerequisite
IND 2121	Light & Color in Interior Environments	3	IND 2081
IND 3113	Interior Design Studio (3)	3	IND 2112
IND 3141	Building Systems and Codes	3	IND 2151
IND 3117	Furniture Design	3	IND 2112
IND 3103	History of Interior Design	3	ADE 2102
IND 3114	Interior Design Studio (4)	3	IND 3113
IND 3142	Sustainability in Design	3	IND 3113
IND 3051	Building Information Modeling (BIM)	3	IND 2151
IND 3061	Ethics & Practice of the Profession	3	IND 3141
IND 4115	Interior Design Studio (5)	6	IND 3114 + IND 2151
IND 4071	Graduation Project - Programming	3	IND 3114
IND 4062	Specification and Estimation	3	IND 3051
IND 4040	Internship (BID)	3	Credit 90 Hours + IND 3113
IND 4116	Graduation Project	6	IND 4115 + IND 4071
IND 4053	Design Collaboration	3	IND 3114

Programme Elective Courses

Course Code	Course Title	Credit Hour	Prerequisite
IND 4041	Interior Design Advanced Internship "on-site"	3	IND 4040
IND 4042	Interior Design Study Tour	3	IND 3103
IND 4104	Critical issues in design	3	IND 3103
IND 1099	Advanced Perspective	3	IND 1092
IND 3098	Interior Design Animation	3	IND 2096

Course Code	Course Title	Credit Hour	Prerequisite
IND 2097	3D Printing & 3D Scanner	3	IND 2095
IND 2096	Computer-Aided Design (CAD) (3)	3	IND 2095
IND 4052	Building Information Modeling (BIM) (2)	3	IND 3051
IND 3122	Lighting Design	3	IND 2121
IND 3132	Smart Material	3	IND 2131
IND 3152	Interior Structures & Constructions (2)	3	IND 2151
IND 4111	Hospitality Design	3	IND 3113
IND 3115	Exhibition Design	3	IND 3113
IND 3116	Kitchen and Bath Design	3	IND 3141
IND 2103	Islamic Built Environment	3	ADE 2102
IND 4043	Bahrain's experience in interior design	3	IND 3103
IND 4162	Psychology & Sociology Design	3	IND 2081
IND 3118	Interior Plantations & courtyard Design	3	IND 3113
IND 3154	Rehabilitation of historic buildings	3	IND 3142
GDE 111	Computer Graphics (1)	3	IND 1092
IND300	Special Topics in Interior Design	3	Department Approval

Programme Intended Learning Outcomes

A. Knowledge and Understanding

A1	Explain of ethical, legal, financial and administrative issues from the point of view of their relation and impact on the graphic design profession.
A2	Explain of fundamentals of design, its history, and theories and their interpretation into design solutions.
A3	Shows the documentation, specifications, environmental impact, and applications of systems, methods and details of internal structures. Considers the relationship between the structural system of the building, and internal structures.

Teaching and Learning Methods:

- 1- Lectures: provide knowledge, theoretical and technical information within context.
- 2- Seminars: qualify for research or logical examination for all theories, issues, methods and techniques of design

Assessment Methods:

- 1- Theoretical tests
- 2- Oral and interactive tests.
- 3- Student preparation of written documents about specified subjects (supporting self-learning).

B. Subject Specific (Practical) Skills

B1	Uses design elements and principles to form space and body, to support concepts and design solutions
B2	Employs the science and art of colour and light and combines them in design operations to improve human experiences
B3	Selects design elements among materials and products according to their various specifications and aesthetic contribution. Applies this in design solutions.
B4	Develops suitable strategies to reach performance, comfort and safety in the built environment, taking into account the environmental impact of their design decisions.
B5	Implements applicable laws, guidelines and standards that affect the development of solutions through the design process by recognizing his/her role in protecting the health, safety and well-being of occupants of the building and the impact of various organizational entities on the practice of interior design.

Teaching and Learning Methods:

- 1- Practical Studio: to develop work and obtain benefits and tips in the context of work professionalism.
- 2- Trainings: to test conceptual development, criticize design proposals, learning and comparative analysis, assessment, advice and evaluation through communication and media strategies.
- 3- Computer laboratories: encouraging students to build and deliver their design ideas through computer graphics.
- 4- Workshops: to acquire and develop special skills, that can be applied in specified projects works.
- 5- Field Visits: to gain experience in the context of real world and design applications in built-up environments and expand the student knowledge of design elements.

Assessment Methods:

- 1- Assessment of presentation methods (audiovisual) both manual and by computer.
- 2- Exams (draw and color (free-hand) variety of scenes). (Supports self-learning).
- 3- Ability to apply theories, methodologies and different techniques of design.
- 4- Ability to prepare and read detailed and constructive drawings for interior design topics.
- 5- Ability to apply requirements of building, safety and health on interior design projects.

C. Critical Thinking Skills

C1	Analyses information and data received from various sources and contributors to achieve a successful response to users' needs and enjoy well-being and comfort.
C2	Frames suitable design questions through data collection and analysis. Employs problem-solving methods through the design process to achieve comprehensive design solutions.

Teaching and Learning Methods:

- 1- Seminars: qualify for research or logical examination of all theories, issues, methods, techniques and views of design.
- 2- Training: to test conceptual development, criticize design proposals, learning and comparative analysis, assessment, advice and evaluation through communication and media strategies.
- 3- Workshops: to acquire and develop special skills, that can be applied in specific work projects.
- 4- Field Visits: to gain experience in the real world context and design applications in built-up environments and expand the student knowledge of design elements.
- 5- Presentation Reviews: to show and detail design proposals, receive assessments feedback of proposed projects and transfer them into handbooks and guidelines for future presentations

Assessment Methods:

- 1- Ability to think logically and diagnose problems.
- 2- Ability to provide solutions for different design problems and develop solutions.
- 3- Assessment of design alternatives submitted and their logic. (Support self-learning).
- 4- Ability to visual imagination, volumetric visualization, and submitting authentic and creative concepts.
- 5- Ability to collect and analyze information, build requirements program for diverse projects. (Supports self-learning).
- 6- Oral and interactive exams.

D. General and Transferable Skills

D1	Responds to cultural, economic, social and environmental changes in the context of practicing interior design.
D2	Works in a team and are aware of the value of the integrity of practicing design. Is ready to hold leadership roles and work efficiently in a team.
D3	Presents a persuasive, visual, oral and written presentation for design projects in addition to showing the capability to listen and explain external data. Communicates effective method and content-wise (to build a case, ----, to persuade in a particular topic).

Teaching and Learning Methods:

- 1- Seminars: qualify for research or logical examination of all theories, issues, methods, techniques and views of design.
- 2- Training: to test conceptual development, criticize design proposals, learning and comparative analysis, assessment, advice and evaluation through communication and media strategies.
- 3- Workshops: to acquire and develop special skills, that can be applied in specific work projects.
- 4- Field Visits: to gain experience in the real world context and design applications in built-up environments and expand the student knowledge of design elements.
- 5- Presentation Reviews: to show and detail design proposals, receive assessments feedback of proposed projects and transfer them into handbooks and guidelines for future presentations.
- 6- Independent Study (self-learning): enhance and develop independency of research, critical analysis, decision-making, planning and self-management, and consider their impacts on work.

Assessment Methods:

- 1- Student preparation of written documents about specified subjects (supporting self-learning).
- 2- Ability to apply theories, methodologies and different techniques of design.
- 3- Ability to work team spirit.
- 4- Have a sense of responsibility, self-organization, motivation and management.

	15 Credit.H	Electives	4	5	6	7	8	9	10	11	12	13	14	15	16
	IND 4041	Interior Design Ad- vanced Intern- ship "on- "site	✓	✓	✓										
	IND 4042	Interior Design Study Tour	✓						✓						
	IND 4104	Critical issues in design				✓		✓	✓						
	IND 1099	Ad- vanced Perspec- tive						✓							
	IND 3098	Interior Design Anima- tion						✓		✓					
	IND 2097	3D Print- ing & 3D Scanner						✓		✓					
	IND 2096	Comput- er-Aided Design (CAD) (3)						✓			✓	✓			
	IND 4052	Building Infor- mation Mod- eling (BIM) (2)		✓				✓						✓	
	IND 3122	Lighting Design									✓		✓		
	IND 3132	Smart Material										✓		✓	
	IND 3152	Interior Struc- tures & Con- struc- tions (2)						✓						✓	
	IND 4111	Hospi- tality Design								✓	✓	✓			
	IND 3115	Exhi- bition Design								✓	✓	✓			
	IND 3116	Kitchen and Bath Design								✓	✓	✓			
	IND 2103	Islamic Built Environ- ment							✓						

15 Credit.H	Electives	4	5	6	7	8	9	10	11	12	13	14	15	16
IND 4043	Bahrain's experience in interior design	✓	✓				✓	✓						
IND 4162	Psychol- ogy & Soci- ology Design							✓				✓		
IND 3118	Interior Planta- tions & court- yard Design							✓	✓					
IND 3154	Rehabili- tation of historic buildings	✓						✓			✓			
GDE 111	Com- puter Graphics (1)						✓			✓				
IND 300	Special Topics in Interior Design													

Course Description

Programme Compulsory Courses

ADE 1101 - History & Theory for Art & Design (1)

The course teaches art, architecture, graphic and interior design, and how they develop from antiquity to the late nineteenth century. It covers also the contemporary analysis of the cultural conditions and the manner in which designers respond to those conditions.

(Prerequisite: None)

ADE 2102 - History & Theory for Art & Design (2)

The course teaches art, architecture, graphic and interior design, and how they develop from modernity to the present day. It covers also the contemporary analysis of the cultural conditions and the manner in which designers respond to those conditions.

(Prerequisite: ADE 1101)

ADE 1091 - Introduction to Drawing

The course introduces students to various freehand drawing tools and materials, their uses, and applying the principles of freehand drawing, perspective, shade and light and its gradation on different objects and materials.

(Prerequisite: None)

ADE 1110 - Design Fundamentals

The course includes a study of the principles and elements of design, the formation of

two-dimensional (2D) and three-dimensional (3D), and introduction to color theory, and its practical applications and projects which contribute to develop student's ability in the sensory perception of visual formations and stereotypes.

(Prerequisite: None)

IND 1092 - Principles of Architectural Drawing

This course builds on the familiarity between the students and architectural drawing methods and applications. The student will be taught and trained to use the engineering tools, symbols and engineering lines, and drawing of geometric projections of objects and forms (orthographic and paraline projections) based on a common architectural language that communicates with other relevant specializations.

(Prerequisite: None)

IND 1071 - Design and Environment Behavior

The course deals with the relationships between the body, the objects, the culture, the events and the environment in a habitable world within the built environment, and it is composed of both aesthetic and practical requirements (user needs and their behavior, human factors, context, building systems, etc.).

(Prerequisite: ADE 1110)

IND 1093 - Presentation Techniques

The course focuses on principles of perspective drawing, and representation of interior spaces with the help of perspective techniques (perspective at a one vanishing point/ two vanishing points). As well as the conceptual drawings and rendering techniques, and professional graphics for professional presentations.

(Prerequisite: IND 1092)

IND 1094 - Computer-Aided Design (CAD) (1)

This course explores the architectural language and the graphic standards of 2D designs as the basis of three-dimensional (3D) drawings, conducting to the development of drawing skills that lead to understanding the relationship between two dimensional (2D) and three dimensional design (3D), design schemes, as well as enhancing the ability to communicate visually and graphically.

(Prerequisite: IND 1092)

IND 2081 - Interior Design Studio (1)

This course represents the introduction to basic interior design principles and an introduction to research as a tool for understanding programming and design. Lectures, applications and case study methodology will be used to investigate different design strategies and to show the relationship of history and human behavior in the context of the habitable environment. This course provides students with methodologies, design processes, use of color, anthropometric and ergonomics and design elements related to interior design.

(Prerequisite: IND 1071)

IND 2131 - Interior Materials & Finishes

This course explores the features, characteristics and applications of textiles and other materials used in construction, furnishings, surfaces and finishes in the built environment. The course also provides students with an opportunity to learn how to choose the right materials to meet specific criteria.

(Prerequisite: IND 1094)

IND 2095 - Computer-Aided Design (CAD) (2)

This course promotes the building of student skills in the creation and study of computer aided 3D drawings after completing "Computer-Aided Design (CAD) I" course. So that the student can form and manipulate three-dimensional (3D) shapes and succeed in producing environments that emulate reality to a large extent.

(Prerequisite: IND 1094)

IND 2112 - Interior Design Studio (2)

This course deals with the organization, planning and design of the internal spaces of the residential activities, including (space and functional analysis requirements, movement and spatial organization requirements, motor regulation, internal surface treatment and human dimensions), with a focus on the space and privacy concepts, in order to provide students with an internal design project for residential space and produce it in an appropriate manner.

(Prerequisite: IND 2081)

IND 2151 - Interior Structures & Constructions

The course deals with the relationship between the structural system of the building with internal constructions and the effects thereof, and the methods of construction and internal structures, while enabling students to understand the regulations, components and accepted standards to create an integrated and comprehensive set of internal construction documents.

(Prerequisite: IND 2131)

IND 2121 - Light of Color in Interior Environments

The course deals with the basics of interior lighting design and its relationship to color and its impact in supporting health, safety, comfort and human performance, and identify light sources and systems, measurement and calculation of lighting. Students learn to analyze the spatial requirements of light, identify appropriate systems, calculate the appropriate lighting level, and draw up reflected ceiling plans and identify their symbols and keys.

(Prerequisite: IND 2081)

IND 3113 - Interior Design Studio (3)

This course discusses and applies the design philosophies, theories and creative design strategies at the intermediate level (targeting shops/ and hospitality). It also focuses on: research, surveying, analysis, design processes, spatial and functional analysis, branding,

construction technology, design elements and principles, human factors, creative problem solving, lighting requirements, internal component selection and preparing a presentation.

(Prerequisite: IND 2112)

IND 3141 - Building Systems and Codes

In this course, students will be introduced to the basic elements of the building systems (COD) and its systems, including mechanical systems (ventilation and air conditioning), health service systems (sanitation, nutrition and health systems), fire safety systems, data / voice systems), supervision and safety.

(Prerequisite: IND2151)

IND 3117 - Furniture Design

This course focuses on issues related to furniture design, including construction (composition and production), methods, function, sustainability, technical aspects and costs associated with furniture. The course also allows students to develop and model their designs and transfer them to construction. Those skills will be gained through the study of human structure and search for suitable materials and construction techniques.

(Prerequisite: IND 2112)

IND 3103 - History of Interior Design

The course covers the study of the development of internal environments, as well as the most prominent theories and movements related to the interior design which emerged during the twentieth century. It also teaches the study of social, economic, technological and anthropological considerations that influenced the design thought across the different historical stages.

(Prerequisite: ADE 2102)

IND 3114 - Interior Design Studio (4)

This studio focuses on contemporary issues related to business/ office and institutional styles, construction technology, and sustainable design. Design and technological issues are addressed through: understanding of office culture, modeling industry, construction systems, solar considerations, internal environmental quality, HVAC systems, space planning, material selection and finishes, lighting design, integration of furniture and equipment, and code requirements. The course emphasizes solutions based on comprehensive and sustainable design thinking, organizing complex spatial responses, and understanding that design is a structure in nature.

(Prerequisite: IND 3113)

IND3142 - Sustainability in Design

This course explores the sustainable design and the fundamentals of the Green Building Initiative. It also exposes a review of the concepts, strategies and classification systems adopted by the LEED Leadership Program in the United States. Students will complete this course with a basic understanding of the objectives, concepts and terminology of

all LEED categories, as well as green building practices, sustainable products, and the importance of synergies.

(Prerequisite: IND 3113)

IND3051- Building Information Modeling (BIM) (1)

The course is an introduction to BIM (Building Information Modeling), a multi-dimensional integrated database, it covers the drawings, building scenes, calculations, quantities, detection of conflicts before they occur, energy efficiency analysis, structural analysis and construction scheduling which automatically derived from BIM. The course addresses the implications of this advanced technology and covers the basic tools for the implementation of the BIM.

(Prerequisite: IND 2151)

IND 3061- Ethics & Practice of the Profession

The course includes the profession ethics definition and interior designer responsibilities. It exposes topics such as small business management, marketing, promotion, presentations, services scope, job descriptions, contracts, ethics and accounting. The student will be also studying project management contract documents, its budget and schedule.

(Prerequisite: IND 3141)

IND 4115 - Interior Design Studio (5)

This advanced, comprehensive studio emphasizes the solution of various design issues in a multi-functional building project and in collaboration with a design team. It extends from the initial design to the development stage of the design and then the constructional documents, it is based on the knowledge acquired in previous courses (design, history, theories, and technology). Students gather their research and design ideas and apply their knowledge in a comprehensive final presentation.

(Prerequisite: IND 3114 + IND 3051)

IND 4071 - Graduation Project - Programming

This is the preparation of the graduation project report (chosen by the student in coordination with the supervisor and approval of the department council). It includes the collection of all information and data related to the project, including theoretical studies related to the project subject matter, analysis of user characteristics and needs, development of the project program and functional relations, and identification of conceptual trends for design and discussion of spatial characteristics, color, materials and surface treatments suitable for the project. The report is presented for discussion by a jury.

(Prerequisite: IND 3114)

IND4062 - Specification and Estimation

This course focuses on studying the basics of technical specifications and estimates the cost of interior design projects, including the quantities of construction materials, wages, supervision and others.

(Prerequisite: IND 3051)

IND 4040 - Internship (BID)

This course provides an opportunity for students to gain experience in the workplace and translate what they have learned in the classroom into a practical reality. It focuses on enhancing students' practical and transformational skills, where more knowledge and skills are acquired for professional development and to meet future business requirements. This course allows them to work well in a culturally diverse work environment. In addition, it helps to expose students' skills and benefits gained from the training experience in the fields of study and life.

(Prerequisite: 90 Credit Hours + IND 3113)

IND 4116 - Graduation Project

The course provides an opportunity for the student to express himself and his vision as a designer, and combines theory and skills gained during the program. During this course, the student will submit an integrated internal design based on research, combination and development of a predetermined graduation project within the Graduation Project Course / programming (IND 4071). The project will be presented and discussed in front of a specialized academic panel including an external expert.

Prerequisite (IND 4115 + IND 4071)

IND 4053 - Design Collaboration

This course encourages students to engage in collaborative activities and design, and to engage in different cognitive approaches for analysis and investigation issues that affect the world in which we live. It is designed to deepen students critical and creative understanding of the subject matter by placing it in a broader context.

(Prerequisite IND 3114)

Programme Elective Courses

IND 4041- Interior Design Advanced Internship "On-Site"

This is an advanced internship that focuses on advanced issues in internal design practice learned through the working experience with professionals. It requires the student to have completed the "Internship" course (IND4040).

(Prerequisite: IND 4040)

IND 4042 - Interior Design Study Tour

The course provides an opportunity to introduce students to various cultural and artistic sites through out-of-campus supervision, this will broaden their vision of the design profession. The significant lectures and tours are designed for interior design, architecture, furniture and associated arts.

(Prerequisite: IND 3103)

IND 4104 - Critical Issues in Design

The course provides students with the opportunity to study a wide range of ideas, cultures and current issues related to the built environment. It also provides an opportunity for

in-depth exploration of personal interest, a forum for brainstorming and research. It provides an excellent opportunity to synthesize a number of approaches to deal with the design problem.

(Prerequisite: IND 3103)

IND 3098 - Interior Design Animation

The course introduces digital animation techniques for interior spaces, moving cameras. The course revolves around real-world projects, workshops, practical tips and tricks used in 3D animation techniques. The student also learns time saving techniques, testing some tips for production at maximum speed and highest efficiency in the animation processes of interior designs. The student is required to pass the course "IND2096".

(Prerequisite: IND 2096)

IND 2097 - 3D Printing & 3D Scanner

The course provides the needed knowledge and skill to produce and print 3D objects, as well as generate and prepare data for that. It focuses on the use of two professional technologies; 3D Printing, 3D Scanner and related software which enables students to utilize these technologies in their future projects.

(Prerequisite: IND 2095)

IND 2096 - Computer-Aided Design (CAD) (3)

This course enhances student skills in the creation and study of computer aided 3D drawings after completing "Computer-Aided Design (CAD) 2" course. So that students will be able to form and manipulate 3D shapes and succeed in producing environments that emulate reality to a large extent.

(Prerequisite: IND 2095)

IND 4052 - Building Information Modeling (BIM) (2)

The course builds on the principles and implementation principles learned in (BIM) I, with a focus on case studies of owners and managers of building facilities.

(Prerequisite: IND 3051)

IND 3122 - Lighting Design

This course focuses on the design and analysis of lighting using software, by introducing students to a range of digital lighting simulation techniques. This course will expose students to theoretical aspects of lighting analysis and design, as well as the tools used to enhance the integration of lighting analysis in the architectural or interior design process. Students will apply these guidelines in a design project.

(Prerequisite: IND 2121)

IND 3132 - Smart Material

The course deals with in-depth studies in the fields of raw materials and materials used in internal constructions, with a focus on studies and research related to smart and environmentally-friendly materials, and their methods for installation and use.

(Prerequisite: IND 2131)

IND 3152 - Interior Structures & Constructions (2)

The course deals with studying the existing and new technologies and materials in the interior design world, as well as the study of the effects of construction laws and manufacturing specifications for selecting both structural and nonstructural elements. This reflects students' achievement of drawings and structural details and develops understanding the relationship between drawings and specifications with a focus on residential and commercial projects.

(Prerequisite: IND 2151)

IND 4111 - Hospitality Design

This course is concerned with the study of hospitality projects, including analysis of requirements, project programming, space planning, selection of furniture and appropriate finishes, through the anthropometric utilizing, and taking into account relevant regulations and standards.

(Prerequisite: IND 2151)

IND 3115 - Exhibition Design

This course deals with the design of the exhibition pavilion at local and international exhibitions, with a focus on the impact of the context in which this type of activity takes place. The student will have to provide an appropriate lighting scheme and specifications along with utilizing the color theories and taking into account the relevant standards.

(Prerequisite: IND 3113)

IND 3116 - Kitchen and Bath Design

This course focuses on requirements, standards, code, symbols, materials, finishes, and constructions related to bathroom and kitchen designs. In addition to connecting the requirements of plumbing and installation of equipment and electrical equipment with the design of these events.

(Prerequisite: IND3141)

IND 2103 - Islamic Built Environment

This course sheds more light on the study of art, architecture, interior design and its development during the various Islamic eras. It analyzes the cultural and social contexts that have influenced the character of this urbanization and the manner in which the designers respond to those conditions.

(Prerequisite: ADE 2102)

IND 4043 - Bahrain's Experience in Interior Design

This course explores the reality and trends of interior design in the local environment by conducting a field study of the reality of interior design in the region. This study includes collecting and documenting all necessary information and data and analyzing it with a view to extracting the local experience in interior design and exploring the future of interior design.

(Prerequisite: IND 3103)

IND 4162 - Psychology & Sociology Design

The student explores the psychological and social impact of design and how design can be directed to meet human needs and aspirations, and the role played by the designer in influencing the users' social behavior, and finally its reflection in the development of design solutions.

(Prerequisite: IND 2081)

IND 3118 - Interior Plantations & Courtyard Design

The objectives of this course are to introduce the most important designs, functional and visual aspects of plants and internal structures. In addition to that, it also introduces the internal plantations (in terms of varieties, species, use and care), and selecting suitable furnishing and finishing materials. Students will have to apply this in a specific project.

(Prerequisite IND3113)

IND 3154 - Rehabilitation of Historic Buildings

This course deals with the theoretical bases and concepts of the rehabilitation and use of historical and heritage buildings. This course provides the student with the suitable ground to choose appropriate rehabilitation policies to bring back the project to its original purpose for which it was developed, or for the purpose of converting it to serve another purpose.

(Prerequisite: IND 3142)

GDE 111 - Computer Graphics

This course helps students to possess the ability to use the Bitmap characteristics and features in the design and implementation of various visual elements, processing and blending images, using colors, preparing designs for the production process.

(Prerequisite: IND 1092)

IND 300 - Special Topics in Interior Design

The course deals in-depth with internal design issues. It may include new issues in the field of interior design, or issues proposed by the faculty members.

(Prerequisite: Department Approval)

ASU



جامعة العلوم التطبيقية
APPLIED SCIENCE UNIVERSITY

Bachelor in Graphic Design

Programme Description

Programme Coordinator Dr. Mhd Yasser Abbar

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Programme Details

Programme Title	Bachelor in Graphic Design
Awarding Institution	Applied Science University
Teaching Institution	Applied Science University
Programme Licensed by	Ministry of Education, Kingdom of Bahrain
Final Qualification	Bachelor Degree
Academic Year	2019 - 2021
Language of Study	Arabic
Mode of Study	Full Time

Aims of the Programme

- 1- Prepare competent graduates in the field of graphic design who possess innovative thinking skills and use research methods and continuous education to solve problems relating to environment and society.
- 2- Equip graduates with theoretical knowledge and skills in various fields of design to keep up with market needs in Bahrain and the Gulf.
- 3- Ability to keep up and use techniques and modern communication ways to expand his/ her field and technical knowledge and local society and direct the team and understand the cultural and social dimensions.

Programme Structure

Overall Structure of the Programme

Minimum Study Period	: 3 years
Maximum Study Period	: 8 years
Total Credit Hours	: 135 Credit Hours
No. of Courses	: 45 Courses

Study Plan

First Year - First Semester (15 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
ADE1091	Introduction to Drawing	3	-
ADE1110	Design Fundamentals	3	-
GDE111	Computer Graphic (1)	3	-
-	University Requirement	3	-
-	University Requirement	3	-

First Year - Second Semester (18 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
ADE1101	History & Theory for Art & Design (1)	3	-
GDE113	Typography (1)	3	ADE1110
GDE116	Drawing & Painting	3	ADE1091
GDE131	Principles of Graphic Design	3	ADE1110
-	University Requirement	3	-
-	University Requirement	3	-

Second Year - First Semester (15 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
ADE2102	History & Theory for Art & Design (2)	3	ADE1101
GDE214	Computer Graphic (2)	3	GDE111
GDE232	Branding Design	3	GDE131 + GDE 113
GDE211	Photography	3	ADE1110
-	University Requirement	3	-

Second Year - Second Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
GDE222	History of Graphic Design	3	ADE2102
GDE216	Computer Graphic (3)	3	GDE214
GDE233	Advertising Design	3	GDE232
GDE237	Typography (2)	3	GDE113
GDE221	Communication Theory	3	GDE131
-	University Requirement	3	-

Third Year - First Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
GDE336	Digital Video	3	GDE211
GDE335	Design & Layout of Publications	3	GDE233 + GDE216
GDE334	Illustration (1)	3	GDE214 + GDE116
GDE328	Psychology & Sociology Design	3	GDE221
GDE341	Printing technology & Specifications	3	GDE237
-	University Requirement	3	-

Third Year - Second Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
GDE343	Ethics & Practice of Profession	3	GDE341
GDE337	Multimedia	3	GDE336
GDE315	3D Computer Graphic	3	GDE214
GDE338	Packaging Design	3	GDE341
-	Programme Elective	3	-
-	University Requirement		-

Fourth Year - First Semester (18 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
GDE431	Graduation Project Studies	3	GDE335
GDE442	Internship	3	90 Credit Hours + GDE335
GDE432	Web Page Design	3	GDE214
GDE434	Outdoor Design & Symbols	3	GDE341
-	Programme Elective	3	-
-	Programme Elective	3	-

Fourth Year - Second Semester (15 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
GDE433	Graduation Project	6	GDE431 + GDE328
-	Programme Elective	3	-
-	Programme Elective	3	-
-	University Requirement	3	-

B. Levels and Courses

University Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
ARB101	Arabic Language	3	-
ENG101	English Language (1)	3	-
ENG102	English Language (2)	3	ENG101
BA161	Introduction to Entrepreneurship	3	-
CS104	Computer Skills	3	-
HBH105	Bahrain Civilization & History	3	-
HR106	Human Rights	3	-

University Elective Courses

Course Code	Course Title	Credit Hour	Prerequisite
ISL101	Islamic Culture	3	-
ISL102	Islamic Ethics	3	-
ISL103	Islam & Contemporary issues	3	-
SOC101	Introduction To Sociology	3	-
MAN101	Man & Environment	3	-
LIB101	Introduction To Library Science	3	-
SPT101	Special Topics	3	-
LFS102	Thinking and communications skills development	3	-

College Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
ADE 1101	History & Theory for Art & Design (1)	3	-
ADE 2102	History & Theory for Art & Design (2)	3	ADE 1101
ADE 1091	Introduction to Drawing	3	-
ADE 1110	Design Fundamentals	3	-

Programme Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
GDE111	Computer Graphic (1)	3	
GDE113	Typography (2)	3	ADE1110
GDE116	Drawing & Painting	3	ADE1091
GDE131	Principles of Graphic Design	3	ADE1110
GDE214	Computer Graphic (2)	3	GDE111
GDE232	Branding Design	3	GDE131 + GDE113
GDE211	Photography	3	ADE1110
GDE222	History Theory of Graphic Design	3	ADE2102

Course Code	Course Title	Credit Hour	Prerequisite
GDE216	Computer Graphic (3)	3	GDE214
GDE233	Advertising Design	3	GDE232
GDE237	Typography (2)	3	GDE113
GDE221	Communication Theory	3	GDE131
GDE336	Digital Video	3	GDE211
GDE335	Design & Layout of Publications	3	GDE233 + GDE216
GDE334	Illustration (1)	3	GDE214 + GDE116
GDE328	Psychology & Sociology Design	3	GDE221
GDE341	Printing technology & Specifications	3	GDE237
GDE343	Ethics & Practice of Profession	3	GDE341
GDE337	Multimedia	3	GDE336
GDE315	3D Computer Graphic	3	GDE214
GDE338	Packaging Design	3	GDE341
GDE431	Graduation Project Studies	3	GDE335
GDE442	Internship	3	90 Credit Hours
GDE432	Web Page Design	3	GDE214
GDE434	Outdoor Design & Symbols	3	GDE341
GDE433	Graduation Project	6	GDE431 GDE328

Programme Elective Courses

Course Code	Course Title	Credit Hour	Prerequisite
GDE436	Animation Design	3	GDE334
GDE437	Calligraphy & Design	3	GDE237
GDE439	Illustration (2)	3	GDE334
GDE438	Portfolio Design	3	GDE335
GDE212	Digital Photography	3	GDE211
GDE217	Arabic Calligraphy	3	GDE113

Course Code	Course Title	Credit Hour	Prerequisite
GDE218	Anatomy Art	3	ADE1091
GDE219	Geometry in Design	3	-
GDE312	Drawing & Painting (2)	3	GDE116
IND2097	3D Printing & 3D Scanner	3	GDE315
GDE224	Design in Islamic Arts	3	ADE1101
GDE225	Design Process	3	GDE222
GDE326	Principle of Marketing	3	GDE221
GDE327	Industry & Art	3	GDE222
GDE300	Special Topics in Graphic Design	3	GDE233
GDE421	Critical Issues in Graphic Design	3	GDE221

Programme Intended Learning Outcomes

A. Knowledge and Understanding

A1	Explains the history and theories of art, design and historic achievements, current main issues in addition to theories of art criticism.
A2	Knows principles and theories of communication, and concepts of semiology through their historic contexts and the mechanism of employing them in different types of current issues.
A3	Describes professional and operational design practice, professional and ethical behaviours, intellectual property cases and their relationship to communication design
A4	Differentiates between various technologies in design problems at different levels: social, cultural, and economic, and the relationship between technology and users' expectations.

Teaching and Learning Methods:

- 1- Lectures: Lectures provide knowledge, theoretical and practical information within the context.
- 2- E-Learning: through the University's website (Moodle).
- 3- Office hours: to follow up with, support and develop students.

Assessment Methods:

- 1- Midterm and final examinations'.
- 2- Oral and interactive tests.
- 3- Assessment of reports and research papers (Support self-learning).

B. Subject Specific (Practical) Skills

B1	Uses principles of visual organization (2D and 3D), typography, photographs, graphs, movement, gradation, colours, and others.
B2	Applies the results of research to develop designs that respect social and cultural norms for users in both local and international fields. Supports design decisions quantitatively and qualitatively.
B3	Employs shapes, tools, technological systems, specialized software, time-space motion specifications, and its relation to the shape and behavior in developing specific design projects.

Teaching and Learning Methods:

- 1- Studio: Train the student to develop practical skills, design skills, implementation of work, and getting feedback.
- 2- Computer lab: Students will gain skills to express their thoughts and implement their work of Specialty using the computer.
- 3- Workshops: Get market needs experience, modern professional practice and develop teamwork skills.
- 4- Study visits: Gain experience and expand knowledge and design applications in the professional field and community engagement.
- 5- E-Learning: through the University's website (Moodle).
- 6- Office hours: To follow-up and enhance the students' development.

Assessment Methods:

- 1- Midterm and final examinations.
- 2- Oral and interactive tests
- 3- Assessment of reports and research papers (Support self-learning)

C. Critical Thinking Skills

C1	Uses analysis tools such as data collection, questions, inquiries, which monitor users' requirements, needs and behaviours to build appropriate visualizations.
C2	Develops communication strategies on various levels: planning, production, publishing, narration, scenarios in order to best describe users' experiences.
C3	Analyses requirements based on the purpose of the design and makes innovative choices suitable to create the best suitable alternative designs.
C4	Evaluates his design and designs of others and works of arts and design relating to the utility and ease of use, improvement, technological use, economic growth and sustainability from results point of view in the long run.

Teaching and Learning Methods:

- 1- Quality: thinking, brainstorming, and analysis of the design theories.
- 2- Thinking and analysis, criticize designs and obtainment of mental and imaginative experiences.
- 3- Testing the conceptual development, criticize the design proposal, assessment and comparative analysis
- 4- Workshops: Acquire and develop the critical thinking skills that may be applied in certain projects and assignments.
- 5- Field visits: Acquire the imagination skills and creative thinking within the surrounding environment.
- 6- Presentation reviews: Highlight the design proposals and the projects assessments.
- 7- E-Learning: Through the use of the university website (Moodle)
- 8- Office hours: To follow-up and enhance the students' development.

Assessment Methods:

- 1- Midterm and final examinations.
- 2- Assessment of exercises and practical projects.
- 3- Assessment of presentations.
- 4- Assessment of homework (Develop self-learning).

D. General and Transferable Skills

D1	Works independently on a variety of design problems in a multi-specialized team from different fields in order to solve complex problems.
D2	Takes into consideration technological updates relating to design and communication and keeps abreast of all developments.
D3	Students present their work and participates in discussing their work and the work of others. He also communicates fluently through the use of terms and vocabulary in a way that responds to visual communication problems.

Teaching and Learning Methods:

- 1- Workshops: To acquire and develop the communication skills, team work and team management.
- 2- Field visit: To acquire experience within the real surrounding environment and responds to the requirements of the labour market.
- 3- Presentation and display methods: To present the design proposals and evaluations for the proposed projects.
- 4- Enhance and develop the element of independency in research, critical analysis, decision-making, planning and self-management, self- confidence and reflects of all of this on work.
- 5- E-Learning: Through the use of the university website (Moodle)

Assessment Methods:

- 1- A report on the field training competence issued by the institution which provided the training.
- 2- Student's preparation for researches and articles on certain topics.(enhance self-learning)
- 3- Assessment of the presentation methods (Audio and Visual).
- 4- Ability to communicate with others and justifies solutions as well the ability to persuade others.
- 5- Ability to perform within the teamwork.
- 6- Having the sense of responsibility, self - organization, motivation and management.

Curriculum Mapping

Graphic Design Programme															
Link PILOS with CILOS		Knowledge & Understanding				Subject Specific Skills			Critical Thinking Skills				General and Transferable Skills		
Code	Courses	A1	A2	A3	A4	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
ADE1101	History & Theory for Art & Design (1)	✓							✓						✓
ADE2102	History & Theory for Art & Design (2)	✓							✓						✓
GDE222	History of Graphic Design	✓							✓						
GDE431	Graduation Project Studies		✓		✓				✓	✓	✓		✓		✓
GDE341	Printing technology & Specifications			✓	✓			✓		✓	✓			✓	✓
GDE328	Psychology & Sociology Design			✓						✓					✓
GDE343	Ethics & Practice of Profession		✓	✓						✓					✓
GDE221	Communication Theory		✓		✓					✓					✓
ADE1091	Introduction to Drawing					✓									
GDE111	Computer Graphic (1)				✓	✓		✓						✓	
GDE214	Computer Graphic (2)				✓	✓		✓						✓	
GDE216	Computer Graphic (3)				✓	✓		✓						✓	
GDE211	Photography				✓	✓		✓						✓	
ADE1110	Design Fundamentals					✓		✓			✓				
GDE113	Typography (1)	✓				✓		✓			✓				
GDE131	Principles of Graphic Design		✓			✓		✓							✓
GDE232	Branding Design		✓			✓		✓	✓		✓	✓	✓		✓

Graphic Design Programme															
Link PILOS with CILOS		Knowledge & Understanding				Subject Specific Skills			Critical Thinking Skills				General and Transferable Skills		
Code	Courses	A1	A2	A3	A4	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
GDE233	Advertising Design		✓		✓	✓		✓	✓	✓	✓		✓		✓
GDE338	Packaging Design		✓		✓	✓	✓	✓	✓	✓	✓		✓		✓
GDE335	Design & Layout of Publications		✓			✓	✓	✓		✓	✓	✓	✓		✓
GDE433	Graduation Project		✓		✓	✓	✓	✓		✓	✓		✓		✓
GDE237	Typography (2)	✓	✓					✓			✓				✓
GDE334	Illustration (1)		✓			✓		✓			✓	✓			✓
GDE432	Web Page Design		✓				✓	✓		✓	✓				✓
GDE315	3D Computer Graphic				✓	✓		✓			✓			✓	
GDE336	Digital Video				✓	✓		✓		✓	✓				✓
GDE442	Internship			✓				✓		✓			✓	✓	✓
GDE434	Outdoor design & Symbols		✓			✓	✓	✓		✓	✓		✓		✓
GDE116	Drawing & Painting					✓									
GDE312	Drawing & Painting (2)					✓									✓
GDE224	Design in Islamic Arts	✓										✓			
GDE217	Arabic Calligraphy	✓				✓									
GDE326	Principle of Marketing	✓		✓						✓					
GDE439	Illustration (2)					✓		✓		✓	✓				✓
GDE327	Industry & Art	✓			✓	✓		✓			✓		✓		
GDE337	Multimedia		✓		✓	✓		✓		✓	✓		✓		✓
GDE225	Design Process		✓										✓		
GDE436	Animation Design		✓			✓		✓		✓	✓		✓		✓
GDE437	Calligraphy & Design		✓			✓		✓		✓	✓				✓
GDE218	Anatomy Art					✓									
GDE212	Digital Photography				✓	✓		✓			✓		✓	✓	✓
GDE438	Portfolio Design			✓		✓		✓		✓	✓				✓
GDE300	Special Topics in Graphic Design										✓		✓		✓
GDE421	Critical Issues in Graphic Design	✓	✓		✓					✓			✓		
IND2097	3D Printing & 3D Scanner				✓			✓			✓				

Course Description

Programme Compulsory Courses

ADE 1101 - History & Theory for Art & Design (1)

The course teaches art, architecture, graphic and interior design, and how they develop from antiquity to the late nineteenth century. It covers also the contemporary analysis of the cultural conditions and the manner in which designers respond to those conditions.

(Prerequisite: None)

ADE 2102 - History & Theory for Art & Design (2)

The course teaches art, architecture, graphic and interior design, and how they develop from modernity to the present day. It covers also the contemporary analysis of the cultural conditions and the manner in which designers respond to those conditions.

(Prerequisite: ADE 1101)

ADE 1091 - Introduction to Drawing

The course introduces students to various freehand drawing tools and materials, their uses, and applying the principles of freehand drawing, perspective, shade and light and its gradation on different objects and materials.

(Prerequisite: None)

ADE 1110 - Design Fundamentals

The course includes a study of the principles and elements of design, the formation of two-dimensional (2D) and three-dimensional (3D), and introduction to color theory, and its practical applications and projects which contribute to develop student's ability in the sensory perception of visual formations and stereotypes.

(Prerequisite: None)

GDE 113 - Typography (1)

The course is an introduction to typography and its history; it teaches the principles of typography through Latin and Arabic characters' segmentation and structure, character formation, and the experience of creating a literal shape as a communication element.

(Prerequisite: ADE 1110)

GDE 116 - Drawing & Painting

The course focuses on enhancing the student's ability to express different formations and materials using Color Pencils.

(Prerequisite: ADE 1091)

GDE 131 - Principles of Graphic Design

The course exposes students to the visual communication concepts, it also introduces them to the formation, simplification, and creation of free and geometric shapes and connecting them with the communication concept.

(Prerequisite: ADE 1110)

GDE 214 - Computer Graphic (2)

This course helps students to possess the ability to utilize the Vector characteristics and

features in the design and implementation of various visual elements, processing and blending images, using colors, preparing designs for production process, converting between vector and bitmap technologies, and relying on self-learning to keep abreast of the technical development and production process design.

(Prerequisite: GDE 111)

GDE 232 - Branding Design

The course deals with the trademarks and their role in the communication process, the characteristics and features of the company logo, testing the research process, and preparing the logo and formulating the company's visual identity.

(Prerequisite: GDE 131, GDE 113)

GDE 211 - Photography

The course includes the camera study, its development and techniques, the various imaging equipment, the photographic principles, the light and composition. It also deals with the image as a visual communication element. The student will experiment different modes and techniques of photography in the studio.

(Prerequisite: ADE 1110)

GDE 222 - History of Graphic Design

The course includes the graphic design history and theories, the development role of printing technology, media, communication theory, visual sciences and artistic movements to form the concepts of visual communication. This course also focuses on visual communication concepts, and meeting the most important works and pioneers of design, and the contemporary and professional issues and practices.

(Prerequisite: ADE 2102)

GDE 216 - Computer Graphic (3)

The course introduces the most important principles and basics of professional layout software, the practice on layout software, especially InDesign, preparing and dividing the page and columns, inserting the titles, texts, images, and editing them with practical projects that deals with modeling and simulations for some newspapers and magazines.

(Prerequisite: GDE214)

GDE 233 - Advertising Design

The course focuses on the art of the poster, its history and role in the communication process, the technical and visual foundations of the poster, analyzing the communication process and developing design responses that respect the social and cultural rights. This course also includes the differences between design users, critical analysis practice related to functional, utilitarian and environmental aspects of design.

(Prerequisite: GDE232)

GDE 237 - Typography (2)

This course is a reinforcement of the previous course "Typography 1", which complements the theoretical concepts of alphabet design, development and production of Arabic and Latin typefaces, and process of research and development of letters and alphabets forms

that support the solutions of visual communication problems, and gain the advanced understanding, techniques and skills required in the labor market.

(Prerequisite: GDE 113)

GDE 221 - Communication Theory

The course explores the most important communication theories related to visual communication, analysis of mass communication problems, critical and semiotics theory. It also introduces the use of appropriate means to determine people's desires, needs, patterns of behavior and propose appropriate communication solutions.

(Prerequisite: GDE 131)

GDE 336 - Digital Video

The course designed to familiarize students with the practice and processing of video camera, editing software, concepts related to narrative structure and others in the areas of video production.

(Prerequisite: GDE211)

GDE 335 - Design & Layout of Publications

The course deals with the design and layout of publications, their techniques and role in the communication process, planning the publication design, studying the target audience to reach the appropriate solutions. It also includes the analysis of the results in terms of ease of use, the recipient's appeal, technical relevance, economic feasibility and sustainability.

(Prerequisite: GDE 233, GDE 216)

GDE 334 - Illustration (1)

The course includes the study of the basic principles, concepts and elements of illustrations as one of the means of visual communication, conducting research and development, designing children's story characters, and drawing two-dimensional (2D) scenes, and dialogue scenes.

(Prerequisite: GDE114, GDE116)

GDE 328 - Psychology & of Sociology of Design

The content of this course is concerned with the study of psychological aspects because of the great impact on the success of various designs and influence on the mood and psyche of the design recipient. This course also covers the role played by the designer in influencing the social behavior and habits of the users.

(Prerequisite: GDE221)

GDE 341 - Printing Technology & Specifications

The course includes a theoretical study and practical applications to identify the types of old and modern printing techniques, their applications in arts, design and printing on various materials, advertising materials, and digital printing. The course also includes the study of paper types, its measurements, printing inks, with practical applications on various materials showing design and printing techniques.

(Prerequisite: GDE 237)

GDE 343 - Ethics & Practice of Profession

The course includes the functional knowledge of professional design practices and processes, professional and ethical behaviors, intellectual property issues such as patents, trademarks and copyrights, management, marketing and economics principles, business, contracts and globalization from a professional perspective.

(Prerequisite: GDE341)

GDE 337 - Multimedia

The course includes the recognition of multimedia systems, and applications combining the the use of text, graphics, sound, animation and video, to utilize them in the field of graphic communication.

(Prerequisite: GDE 336)

GDE 315 - 3D Computer Graphic

The course includes the construction and development of students' skills in the use of three-dimensional (3D) graphics software so that the student can form, display and handle all three-dimensional graphic designs in line with contemporary trends based on studying the depth and impact of the recipient through the three-dimension and simulation reality.

(Prerequisite: GDE 214)

GDE 338 - Packaging Design

The course focuses on packaging, its techniques and communication problems, planning and understanding of design at different levels, starting from the components of appropriate packaging systems, and its impact on the target audience. This course also covers the design analysis in a critical way associated with utility and ease of use, the economic and technology feasibility, and sustainability.

(Prerequisite: GDE 341)

GDE431 - Graduation Project Studies

This course is characterized by research nature where the student selects a particular subject or problem and carries out the planning process, which involves surveying and critical analysis of the associated communication problems, comparing them with research results and similar professional practices. The student will use the appropriate means to determine the wishes, needs and patterns of behavior of the target audience. This course also addresses strategies for alternative solutions that respect social, cultural and environmental rights.

(Prerequisite: GDE 335)

GDE 442 - Internship

The course includes the practice of experience in the application of knowledge, design and skills outside the classroom, and attention to prepare for facing the practical life, and integration into the labor market after graduating through training in official institutions or private or professional offices or advisory specialized and relevant field of specialization, to apply those theoretical and practical courses that have been studied in reality. The

student will be followed up by an academic supervisor to evaluate his performance through a specialized committee.

(Prerequisite: 90 Credit Hours, GDE 335)

GDE 432 - Web Page Design

The course aims to introduce the communication mechanisms associated with web pages and their techniques, the designing and layout based on the function and studying the target audience, and finally working effectively in multidisciplinary teams and possessing the cooperative skills to solve complex problems.

(Prerequisite: GDE 214)

GDE 434 - Outdoor Design & Symbols

This course deals with the problems of communication for graphic and advertisement designs related to advanced advertising and functional purposes of two and three dimensional (2D and 3D) graphics, those purposes focus on raw materials and its techniques, specifications, drawing method and presentation of these designs, which includes large three-dimensional advertisements and symbols related to services design.

(Prerequisite: GDE 341)

GDE 433 - Graduation Project

In this course, the student benefits from the results of his study in the graduation project studies. He presents solutions to communication problems based on the previous formulated design strategy and design understanding at different levels, starting from the components of production systems to achieve the objective of the previous research, taking into account the differences between recipients of design, ease of use, economic and technological feasibility, and sustainability.

(Prerequisite: GDE 431, GDE 328)

Programme Elective Courses

GDE 436 - Animation Design

The course introduces the basic principles of animation art, its beginnings, animation, and basis, developing the animated personality and performance style manually or through computer programs. It also enhances students' skills in graphic design, movement analysis, manual skills and its animation methods, drawing, coloring and digital movement.

(Prerequisite: GDE 334)

GDE 437 - Calligraphy & Design

The course introduces the use of calligraphy in building the design, enhancing the student's design ability to use handwriting and typography, training in layout the words according to traditional and modern methods, in accordance with the nature and spirit of design, using various artistic and graphic additions to the lettering, and using typefaces as an expressive method in the designing various subjects with different techniques in proportion to their functions and objectives.

(Prerequisite: GDE 237)

GDE 439 - Illustration (2)

The course includes the development of students' practical performance and deepening their personal style and artistic and expressive vision through the design of illustrations for a variety of subjects such as the children's story design, novels, encyclopedias, storyboard drawings, learning the diagram art and implementing designs and applied works for service or commercial buildings.

(Prerequisite: GDE 334)

GDE 438 - Portfolio Design

This course helps the student to design the business file for the purpose of applying for a job. This course considers as an advanced course compared to the presentations presented by the student in other courses.

(Prerequisite: GDE 335)

GDE 212 - Digital Photography

This is an advanced course compared to the "Photography" course, it supports professionally the photography of advertising models within the studio, taking into consideration the differences related to materials, type and image processing.

(Prerequisite: GDE211)

GDE 217 - Arabic Calligraphy

The course is concerned with studying the types and methods of Arabic Calligraphy and its historical development. The student will gain the ability to write and form letters and words in accordance with configurations that emanate from the concepts of graphic communication.

(Prerequisite: GDE113)

GDE 218 - Anatomy Art

The course introduces the measures and mechanism of human body movement, train the student to sketch the human body in its various situations and movements and recognize the structure of the human body from the skeleton and muscles and their formative and kinetic effect on the shape and movement of the whole body, and finally to identify the physical differences between the body growth stages and the formal differences between the women and men body and benefit from it in the implementation of various design works.

(Prerequisite: ADE 1091)

GDE 219 - Geometry in Design

This course is concerned with the methods of geometric drawing, grades and proportions that help the designer to apply the geometric designs, letters, layout and various dimensions associated with three dimensional (3D) designs.

(Prerequisite: None)

GDE 312 - Drawing & Painting (2)

The course includes the expression of the technical configurations using the techniques of colors of all kinds and gain experience and ability to quick sketches with strong lines and quick shadows and experience using pastel colors and colored pens.

(Prerequisite: GDE 116)

IND 2097 - 3D Printing & 3D Scanner

The course provides the needed knowledge and skill to produce and print 3D objects, as well as to generate and prepare data for that. It focuses on the use of two professional technologies; 3D Printing, 3D Scanner and related software which enables students to utilize these technologies in their future projects.

(Prerequisite: GDE 315)

GDE 224 - Design in Islamic Arts

The course focuses on the study and analysis of the most important works in Islamic art, and the variety of styles that arose as a result of the combining Islamic concepts with local and environmental cultures, shapes, constructions, decorative units, their generation mechanisms and structural relationships.

(Prerequisite: ADE 1101)

GDE 225 - Design Process

The course covers the access to design through a series of actions that bring the imaginary leap from a current situation to future possibilities. It focuses mainly on the development of stylistic solutions and logical results of design problems through analytical scientific contexts.

(Prerequisite: GDE 222)

GDE 326 - Principle of Marketing

The course aims to study the art of marketing, promotion, advertising campaigns, the effects of needs, motives, trends and desires in marketing, organizing the advertising message, identifying the work mechanism in advertising companies. It also teaches the role of the graphic designer in the marketing process and the role of media and technology in deepening the importance of electronic marketing, and studying the impact of advertising on the recipient and surrounding environment.

(Prerequisite: GDE 221)

GDE 327 - Industry & Art

The course introduces the art role in the industry, as well as the modern theory study in the industrial design, the role of industrial production and various raw materials in the design form and function, and its impact on the development of modern design theories, and to apply practical applications to achieve useful and aesthetic model.

(Prerequisite: GDE 222)

GDE 300 - Special Topics in Graphic Design

This course is an open window to developments and techniques that challenge the designers in their career and require attention to their personal development.

(Prerequisite: GDE 233)

GDE 421 - Critical Issues in Graphic Design

This course focuses on contemporary communication issues related to graphic design, and how to utilize them in a critical, analytical way via a range of contemporary artistic experiences and practices.

(Prerequisite: GDE 221)

ASU



جامعة العلوم التطبيقية
APPLIED SCIENCE UNIVERSITY

Bachelor in Computer Science

Programme Description

Programme Coordinator: Dr. Jamal AlSultan

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Programme Details

Programme Title	Bachelor in Computer Science
Awarding Institution	Applied Science University
Teaching Institution	Applied Science University
Programme Licensed by	Ministry of Education, Kingdom of Bahrain
Final Qualification	Bachelor Degree
Academic Year	2019 - 2021
Language of Study	English
Mode of Study	Full Time

Aims of the Programme

- 1- Knowledge and understanding:** produce graduates who have an up to date knowledge and understanding of Information and Communication Technology (ICT) which is relevant to the needs of industry.
- 2- Application:** to ensure graduates have practical experience in the analysis and design of application and their associated tools and technologies which are used in the development of computer-based systems individually and in a team.
- 3- Lifelong learning:** to prepare graduates understand the need to continually update their skills and knowledge, and rapidly developing subject area using research in order to meet their full potential throughout their career.
- 4- Innovation:** to develop graduates who are reflective learners and understand the importance of research and critical thinking to identify and pursue an evidence based approach to develop and improve current systems or methods of working both independently and as part of a team, and to be able to communicate this clearly and effectively to diverse audiences.
- 5- Social context:** to foster graduates' personal development in GCC society and contribute positively in a socially responsible and ethical manners and in particular understand the ethical dimensions which impact on the development and use of computer-based systems.

Programme Structure Overall Structure of the Programme

Minimum Study Period	: 3 years
Maximum Study Period	: 8 years
Total Credit Hours	: 135 Credit Hours
No. of Courses	: 45 Courses

Study Plan

First Year - First Semester (15 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
ENG111	Upper Intermediate English	3	Oxford test score > 50 /ENG098
CS104	Computer Skills	3	-
CSC101	Mathematics 1	3	-
CSC111	Structured Programming	3	-
CSC102	Discrete Mathematics	3	-
First Year – Second Semester (18 Credit Hours)			
Course Code	Course Title	Credit Hour	Prerequisite
ENG112	Advanced English	3	ENG111
-	University Elective (1)	3	-
HR106	Human Rights	3	-
CSC103	Probability and Statistics	3	-
CSC141	Communication Skills	3	-
CSC142	Computer Ethics and Social Responsibility	3	ENG111

Second Year - First Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
-	University Elective (2)	3	-
ARB101	Arabic Language	3	-
CSC202	Digital Logic	3	CSC102
CSC203	Mathematics 2	3	CSC101
CSC212	Object-Oriented Programming I	3	CSC111
CSC222	Software Engineering I	3	CSC141

Second Year - Second Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
HBH105	Bahrain Civilization and History	3	-
CSC215	Data Structures	3	CSC212
CSC221	Database Systems	3	CSC212
CSC231	Computer Organization and Architecture	3	CSC202
CSC241	Scientific Research Methods	3	CSC103
CSC322	Web Based Software Development I	3	CSC222

Third Year - First Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
CSC304	Artificial Intelligence	3	CSC212
CSC314	Object Oriented Programming II	3	CSC212
CSC321	Systems Analysis and Design	3	CSC221
CSC325	Database Development	3	CSC221
CSC331	Operating Systems	3	CSC231

-	Programme Elective (1)	3	-
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Third Year - Second Semester (18 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
BA161	Introduction to Entrepreneurship	3	-
CSC301	Numerical Analysis	3	CSC203
CSC302	Computational Theory	3	CSC215
CSC323	Visual Programming	3	CSC314+CSC221
CSC332	Data Communication and Computer Networks	3	CSC331
-	Programme Elective (2)	3	-

Fourth Year - First Semester (15 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
CSC401	Algorithm Design and Analysis	3	CSC215
CSC402	Compilers Design	3	CSC302
CSC425	Graduation Project 1	3	CSC241+90 credit hours
CSC441	Internship	3	CSC321+90 credit hours
-	Programme Elective (3)	3	-

Fourth Year - Second Semester (15 Credit Hours)

Course Code	Course Title	Credit Hour	Prerequisite
CSC426	Graduation Project 2	3	CSC425
CSC435	Ciphering and Computer Security	3	CSC332
CSC436	Mobile Computing	3	CSC332

-	Programme Elective (4)	3	-
-	Programme Elective (5)	3	-

B . Levels and Courses University Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
ARB101	Arabic Language	3	-
ENG111	Upper Intermediate English	3	-
ENG112	Advanced English	3	ENG111
HR106	Human Rights	3	-
CS104	Computer Skills	3	-
HBH105	Bahrain Civilization & History	3	-
BA161	Introduction to Entrepreneurship	3	-

University Elective Courses – Group 1

Course Code	Course Title	Credit Hour	Prerequisite
ISL101	Islamic Culture	3	-
ISL102	Islamic Ethics	3	-
ISL103	Islam & Contemporary issues	3	-

University Elective Courses – Group 2

Course Code	Course Title	Credit Hour	Prerequisite
LIB101	Introduction to Library Science	3	-
MAN101	Man and Environment	3	-
SOC101	Introduction to Sociology	3	-
SPT101	Special Subjects	3	-
CS205	Computer Application	3	CS104
LFS102	Developing thinking and communication skills	3	-

Remedial Courses

Course Code	Course Title	Credit Hour	Prerequisite
CSC001	Introduction to Computer Mathematics	0	-
ENG097	Elementary English	3	-
ENG098	Intermediate English	3	-

College Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
CSC101	Mathematics 1	3	-
CSC102	Discrete Mathematics	3	-
CSC103	Probability & Statistics	3	-
CSC111	Structured Programming	3	-
CSC141	Communication Skills	3	-
CSC142	Computer Ethics & Social Responsibility	3	ENG111
CSC241	Scientific Research Methods	3	CSC103

Programme Compulsory Courses

Course Code	Course Title	Credit Hour	Prerequisite
CSC202	Digital Logic	3	CSC102
CSC203	Mathematics 2	3	CSC101
CSC212	Object-Oriented Programming I	3	CSC111
CSC222	Software Engineering I	3	CSC141
CSC221	Database Systems	3	CSC212
CSC231	Computer Organization and Architecture	3	CSC202
CSC215	Data Structures	3	CSC212
CSC322	Web Based Software Development I	3	CSC222
CSC301	Numerical Analysis	3	CSC203

CSC302	Computational Theory	3	CSC215
CSC304	Artificial Intelligence	3	CSC212
CSC314	Object Oriented Programming II	3	CSC212
CSC321	Systems Analysis and Design	3	CSC221
CSC325	Database Development	3	CSC221
CSC331	Operating Systems	3	CSC231
CSC323	Visual Programming	3	CSC314+CSC221
CSC332	Data Communication and Computer Networks	3	CSC331
CSC401	Algorithm Design and Analysis	3	CSC215
CSC402	Compilers Design	3	CSC302
CSC425	Graduation Project 1	3	CSC241+ 90 credit hours
CSC426	Graduation Project 2	3	CSC425
CSC435	Ciphering and Computer Security	3	CSC332
CSC436	Mobile Computing	3	CSC332
CSC441	Internship	3	CSC321+ 90 credit hours

Programme Elective Courses – Group 1

Course Code	Course Title	Credit Hour	Prerequisite
CSC204	Linear Algebra	3	CSC203
CSC305	Operations Research	3	CSC103
CSC326	Mobile Application Development	3	CSC322+CSC221
CSC327	Web Based Software Development II	3	CSC322+CSC221
CSC328	Human computer interaction	3	CSC222
CSC329	Multimedia Systems	3	CSC322

CSC421	Software Engineering II	3	CSC222
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Programme Elective Courses – Group 2

Course Code	Course Title	Credit Hour	Prerequisite
CSC312	Programming Language Concepts	3	CSC314
CSC315	Data Mining	3	CSC304
CSC343	Special Topics in Computer Science	3	DEPT. APPROVAL
CSC403	Image Processing	3	CSC401
CSC411	Computer Graphics	3	CSC401
CSC437	Cloud computing	3	CSC332
CSC438	Parallel and Distributed Computing	3	CSC332

Programme Intended Learning Outcomes

A. Knowledge and Understanding

A1	Demonstrate a critical knowledge and understanding of computing theories and mathematics concepts appropriate to discipline.
A2	Demonstrate critical practical knowledge of programming languages, tools, and techniques used to develop computer based applications in a wide range of familiar and ill-defined contexts.

Teaching and Learning Methods:

- 1- Interactive Lectures.
- 2- Individual/Group discussions.
- 3- Practical demonstrations
- 4- Directed and Independent learning

Assessment Methods:

- 1- Quizzes
- 2- Written examinations
- 3- Written Assignments
- 4- Practical tasks

B. Subject Specific (Practical) Skills

B1	Use specialist level skills to apply mathematical foundations, algorithmic principles, and computer science theory in problem solving in varying complexity.
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B2	Use specialist level skills to apply design ,development and testing principles in the construction of software systems in a way that demonstrates comprehension of the trade-offs involved in design choices.
Teaching and Learning Methods:	
<ul style="list-style-type: none"> 1- Interactive lectures 2- Provision of multiple examples of real- world situations during interactive lectures 3- Use of computer laboratories for practical teaching and demonstration 4- Fieldwork visits to the workplace 5- Internship 6- Projects 	
Assessment Methods:	
<ul style="list-style-type: none"> 1- Written Exam 2- Practical tasks 3- Problem solving exercises 4- Group and individual projects 5- Internship report 	
C. Critical Thinking Skills	
C1	Critically analyse computing problems in various context to identify the computing requirements appropriate to their solution.
C2	Use a wide range of approaches to critically identify and evaluate computing-based solutions to meet desired needs within realistic constraints.
Teaching and Learning Methods:	
<ul style="list-style-type: none"> 1- Interactive Lectures 2- Presentation of ideas through e.g. diagrams, mind maps, flow charts and diagrams and building UML models 3- Case studies requiring analysis and abstraction to diagnose problems and suggest solutions 4- Individual / group discussions 5- Brainstorming techniques and problem solving 	
Assessment Methods:	
<ul style="list-style-type: none"> 1- Written exams 2- Tests requiring information systems analysis and problem solving 3- Case analysis report 4- Individual/group participation in analyzing business problems 5- Examinations 	
D. General and Transferable Skills	

D1	Use special skills to communicate with peers and specialists in the field of Computer Science adapting the message to the audience and making appropriate use of ICT when making formal presentations.
D2	Operate autonomously at a specialist level to demonstrate individual ethical, legal, and social responsibility required to lead or participate in group projects to show leadership skills with the capacity to undertake lifelong learning.
Teaching and Learning Methods:	
1- Interactive lectures 2- Class based discussions 3- Group/Individual projects 4- Technical Writing 5- Internship	
Assessment Methods:	
1- Assessment of oral communication in class 2- Written Tasks 3- Oral Presentation 4- Group working 5- Report Writing 6- Systems and End User documentation	

Curriculum Mapping

Compulsory Courses			Knowledge and Understanding		Subject-Specific Skills		Cognitive (Intellectual) Skills		Transferable Skills	
Year	Course Code	Course Name	A1	A2	B1	B2	C1	C2	D1	D2
1	CSC101	Mathematics 1	✓		✓		✓			
1	CSC111	Structured Programming	✓	✓	✓	✓	✓			
1	CSC102	Discrete Mathematics	✓		✓		✓			
1	CSC103	Probability and Statistics	✓		✓	✓	✓			
1	CSC141	Communication Skills	✓		✓		✓		✓	✓
1	CSC142	Computer Ethics and Social Responsibility	✓		✓		✓		✓	✓
2	CSC202	Digital Logic	✓		✓	✓	✓		✓	✓
2	CSC203	Mathematics 2	✓		✓		✓			

2	CSC212	Object-Oriented Programming I		✓		✓	✓		✓	✓
2	CSC222	Software Engineering I	✓	✓		✓		✓	✓	✓
2	CSC215	Data Structures	✓			✓		✓	✓	✓
2	CSC221	Database Systems	✓		✓	✓	✓		✓	✓
2	CSC231	Computer Organization and Architecture	✓		✓	✓		✓	✓	✓
2	CSC241	Scientific Research Methods	✓		✓	✓		✓	✓	✓
3	CSC322	Web Based Software Development I		✓		✓	✓		✓	✓
3	CSC304	Artificial Intelligence	✓		✓	✓	✓		✓	✓
3	CSC314	Object Oriented Programming II		✓		✓		✓	✓	✓
3	CSC321	Systems Analysis and Design	✓		✓	✓	✓		✓	✓
3	CSC325	Database Development		✓		✓	✓		✓	✓
3	CSC331	Operating Systems	✓		✓		✓		✓	✓
3	CSC301	Numerical Analysis	✓		✓	✓	✓			
3	CSC302	Computational Theory	✓		✓		✓			
3	CSC323	Visual Programming		✓		✓		✓	✓	✓
3	CSC332	Data Communication and Computer Networks	✓			✓	✓		✓	✓
4	CSC401	Algorithm Design and Analysis		✓		✓		✓	✓	✓
4	CSC402	Compilers Design	✓			✓		✓	✓	✓
4	CSC425	Graduation Project 1	✓	✓	✓	✓	✓	✓	✓	✓
4	CSC441	Internship		✓		✓	✓	✓	✓	✓
4	CSC426	Graduation Project 2	✓	✓	✓	✓	✓	✓	✓	✓
4	CSC435	Ciphering and Computer Security	✓		✓	✓		✓	✓	✓
4	CSC436	Mobile Computing	✓	✓		✓		✓	✓	✓

Elective Courses			Knowledge and Understanding		Subject-Specific Skills		Cognitive (Intellectual) Skills		Transferable Skills	
Year	Course Code	Course Name	A1	A2	B1	B2	C1	C2	D1	D2
3	CSC204	Linear Algebra	✓		✓	✓	✓			
3	CSC305	Operations Research	✓		✓			✓		
3	CSC326	Mobile Application Development		✓		✓		✓	✓	✓
3	CSC327	Web Based Software Development II	✓	✓		✓		✓	✓	✓
3	CSC328	Human computer interaction	✓			✓	✓	✓	✓	✓
3	CSC329	Multimedia Systems	✓			✓		✓	✓	✓
3	CSC421	Software Engineering II	✓			✓	✓		✓	✓
4	CSC312	Programming Language Concepts		✓		✓		✓	✓	✓
4	CSC315	Data Mining		✓		✓		✓	✓	✓
4	CSC343	Special Topics in Computer Science		✓		✓	✓		✓	✓
4	CSC403	Image Processing	✓		✓	✓		✓	✓	✓
4	CSC411	Computer Graphics	✓	✓		✓		✓	✓	✓
4	CSC437	Cloud computing	✓	✓		✓		✓	✓	✓
4	CSC438	Parallel and Distributed Computing	✓	✓		✓	✓	✓	✓	✓

Course Description

Programme Compulsory Courses

CSC 101- Mathematics 1

This is the first course in calculus for computer science students. The course is intended to develop skills of the students in functions, differential and integral calculus. As well as it is intended to illustrate various applications of calculus to technical various problems. The rules of differentiation will introduce, and methods of differentiating various algebraic and transcendental functions will be developed. Methods of algebraic integration will be introduced, with both definite and indefinite integrals being determined for a variety functions. Also, topics include: function, limits, and continuity will be covered by the course.

(Prerequisite: None)

CSC 102- Discrete Mathematics

The course provides the student with a generalized knowledge of discrete structures fundamental to computer science, focusing on providing theoretical foundation of further work. Topics include: logic of compound statements, sets and binary operations, operations on sets, functions, relations, introduction to graph theory, diagraph and trees, sequence and series, simple proof techniques and mathematical induction.

(Prerequisite: None)

CSC 141- Communication Skills

The course covers issues related to effective technical communication, how to communicate with potential higher administrators, fellow, colleagues, and non-technical customers including: procedural (performing tasks), technical (using technology), personal (expressing identity), cooperative (interacting in groups), systems (interacting with organizations) and public (interacting with the wider community). **(Prerequisite: None)**

CSC 103- Probability and Statistics

This course introduces students to the detailed of Statistics and Probabilities. Topics include: introduction to concepts, tools, techniques and methods of probability and statistics. Presenting and describing of statistical data. Measures of central tendency and dispersion. Introduction to probabilities and their laws, sets, methods of counting. Random variables, probability distributions and sampling distributions. Correlation and Regression. **(Prerequisite: None)**

CSC 111- Structured Programming

This course will enable students to gain programming skills. It introduces computer programming methods and emphasis in problem solving on the fundamentals of structured design using the principles of top down problem solving strategy. The topics include: an introduction to computer programming, problem solving steps, program design modeling using pseudocode, algorithms, and flowcharts, also structured programming methods, constructs, and implementation using C++ programming language. **(Prerequisite: None)**

CSC 142- Computer Ethics and Social Responsibility

This course aims to provide students with a detailed knowledge and understanding of the principles and concepts which underpin a study of ethics and to give them in depth knowledge of how ethical concepts and actions impact on the field of information and communication technologies (ICT). The course focuses on the fundamental concepts of ethics, ethics theories, ethical standards of ICT, professionals and users of ICT, and ethical issues related to privacy and digital crimes. **(Prerequisite: ENG 111)**

CSC 241- Scientific Research Methods

The course introduces and develops the concepts, organizational structure and deliverables of a research project using qualitative and quantitative methods including: problem statement definition, research scope, research objectives, methodologies, results and discussion.

(Prerequisite: CS 103)

CSC 203 – Mathematics 2

Mathematics II course provides computer science students with detailed knowledge, basic and some advanced skills to deal with defined and some undefined problems in mathematics. The student will study algebraic and transcendental functions with an emphasis on integral calculus, sequences and series. The course will cover the main topics of definite and indefinite integrals, applications of integrals including areas, volumes and surface areas of solid revolution, arc length. Topics also include indeterminate form and L'Hopital's rule, techniques of integration, sequences, infinite series, power series and their convergence.

(Prerequisite: CSC 101)

CSC 212 – Object Oriented Programming I

The aim of this course is to explain in detailed the principles of the object-oriented paradigm, provide familiarity with approaches to object-oriented modelling and design, syntax, pointers, files, class, inheritance, object-oriented programming concepts, and characteristics, data types, information hiding, constructors, destructors, friend function and friend class, array of objects, manipulating object, and inheritance.

(Prerequisite: CSC 111)

CSC 202 – Digital Logic

This course provides students with detailed knowledge of design and implementation of digital circuits. Topics include: combinational and sequential logic circuits. Concepts of Boolean algebra, Karnaugh maps, flip-flops, registers, and counters along with various logic families and comparison of their behavior and characteristics. **(Prerequisite: CSC 102)**

CSC 215 – Data Structures

This course covers advanced data Structures concepts, fundamentals and characteristics of Data structures, Array, Linked list, Stack, Queue, Graph, tree. In addition, student will learn and practice the suitable algorithm to manipulate the required data structure. **(Prerequisite: CSC212)**

CSC 231 – Computer Organization and Architecture

In this course students will be provided with detailed knowledge and understanding about fundamentals of computer organization, design and architecture as a hierarchy of levels, each one performing some well-defined function: the digital logic level, the microarchitecture level, the instruction set architecture level, and the assembly language level. The topics of the course include: introduction to the basic components of a computer, digital logic level, memory organization, the architecture of the microarchitecture level and its control, ISA level, assembly language and the assembly process and new trends in computer architecture.

(Prerequisite: CSC 202)

CSC 221 – Database Systems

This course develops students' detailed knowledge and understanding in database systems. The students will be introduced to traditional files structure problems, database systems concepts, database systems evolution, database types, entity, attributes, relationship, and relationship degree, architecture, modeling methods using ERD, relational algebra, normalization and relational database constraints. SQL data definition and manipulation languages are also covered. **(Prerequisite: CSC 212)**

CSC 222 – Software Engineering I

This course provides students with detailed knowledge of the concepts and process models involved in software engineering. Students will learn principles of software engineering, evolving roles of software, software process, software product, process models and advanced models, requirements engineering: gathering, modeling and analysis, architectural design, component-level design, designing class-based components, component-level design for web applications, GUI, user interface design, web applications interface design. **(Prerequisite: CSC 141)**

CSC 321 – Systems Analysis and Design

This course provides students with an advanced knowledge and understanding of the concepts and practice of information systems analysis. The students will gain skills in Information Systems requirements analysis and logical system specifications. The student will also learn several systematic approaches and tools for the analysis process management and techniques that will enable them to analyze systems in a team environment. **(Prerequisite: CSC 221)**

CSC 331 – Operating Systems

This course presents and discusses advanced topics of operating systems including: virtual machines, real-time and embedded systems, distributed and parallel processing, file systems, fault tolerance, performance evaluation, management functions (memory, device (I/O), Process) and OS security/protection. **(Prerequisite: CSC 231)**

CSC 314 – Object Oriented Programming II

This course provides students with advanced skills of object-oriented programming (OOP). Topics include: programming techniques in designing and implementing an object-oriented program, implementing the characteristics and qualifiers of object-oriented programming to create programs for solving business problems with the application of some data structures using JAVA programming language. Students will gain experience in the application of structured programming in practice and, mirroring professional practice, this will be facilitated largely in a real based environment. Students will learn and practice via teamwork. **(Prerequisite: CSC 212)**

CSC 322 – Web Based Software Development I

This course provides students with advanced knowledge and understanding of the principles of the context of Web based software development. Topics include: creating a web site using HTML, CSS and JavaScript. Other topics such as, creating tables, page division, inserting animation and multimedia, using/creating templates, managing hosting and its control panel are also covered. **(Prerequisite: CSC 222)**

CSC 304 – Artificial Intelligence

This course provides students with advanced skills of Artificial intelligence (AI). Topics include: principles of intelligent systems, approaches used in AI field, problem solving strategies, knowledge representation and reasoning, uncertainty processing, learning and cooperation. **(Prerequisite: CSC 212)**

CSC 323 – Visual Programming

This course provides students with critical knowledge and understanding of visual programming(C#, Visual C++,VB,...) theories and concepts. The course emphasises on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools. In addition to event -driven Windows programming, data types, operators, objects and properties, menus, procedures, control structures, database file processing, using human computer interaction principles to enhance user interface design. **(Prerequisite: CSC 314 &CSC 221)**

CSC 332 – Data Communications and Computer Networks

This course aims at providing students with a critical knowledge and a firm foundation of about data communication and computer networking. A thorough understanding of concepts and mechanisms

underlying general telecommunications and networking is essential for students to be able to learn and grasp knowledge about other advanced and specific technologies and architectures. **(Prerequisite: CSC 331)**

CSC 302 – Computational Theory

This course emphasizes on advanced knowledge and understanding of computational and theoretical models. The topics include: concepts of automata, Finite Automata and Regular Expressions, Deterministic Finite Automata (DFA). Minimization of DFA; Non-Deterministic Finite Automata (NFA), Pumping Lemma, Mealy and Moore Machines, Ambiguity in Grammars and Languages. Standard Forms; Chomsky Normal Forms; Greibach Normal Forms, Pushdown Automata, Turing Machine. Computational Theory have direct bearing on practice, such as Automata on circuit design, verifying systems, compiler design, and search algorithms. **(Prerequisite: CSC 215)**

CSC 301 – Numerical Analysis

This course provides students with advanced skills of numerical analysis. Topics include, mathematical preliminaries: computer arithmetic, round-off error, source of errors, solution of equations in one variable: bisection method, fixed point method, false position method, secant method, Newton-Raphson method, interpolation and polynomial approximation, introduction to interpolation, direct methods for solving linear systems of equations, iterative methods for solving linear systems, iterative methods for solving nonlinear systems, and curve fitting techniques.

(Prerequisite: CSC 203)

CSC 325 – Database Development

The course provides students with advanced knowledge and understanding of the database development topics: practicing the database PL/SQL (Cursors, Triggers, Functions, Procedures...). Also the student will practice Database development tools such as: APEX, Oracle Developer: Forms, Reports and Graphics.

(Prerequisite: CSC 221)

CSC 436 – Mobile Computing

This course will provide students with both broad and in-depth knowledge, and a critical understanding of mobile computing and mobile communication from different viewpoints: infrastructures, principles and theories, technologies, and applications in different domains. In this course, the following topics will be discussed: basic issues in mobile computing, mobile communications, wireless networks, cellular network and architectures, communication protocols, mobile computing applications, smart phone technology, the application design and environment and the future of mobile computing. **(Prerequisite: CSC 332)**

CSC 401 – Algorithms Design and Analysis

Algorithms play the central role of both in science and practice of computing, It focusing on both the underlying mathematical theory and practice considerations of efficiency. This course introduces critical knowledge and understanding of concepts, theories, techniques to support the analysis and design of algorithms. Topics include analysis of algorithm efficiency, problem-solving: analysis and synthesis, analysis criteria, asymptotic growth rates, brute force and exhaustive search, time complexity, Sorting algorithms, graphs and Graph Traversals, Adjacency Matrix, Traversing Graphs, Breadth-first search and Depth-first search. **(Prerequisite: CSC 215)**

CSC 402 – Compilers Design

In this course, students will develop critical knowledge and understanding of specialist theories, principles and concepts of compilers design, major problems in translation of programming languages, compilation steps, difference among translators, Top-down versus bottom-up grammatical analysis, codes generation, and storage allocation strategies. It includes the building of translators, identifies and explores the main

issues of the design of translators, lexical analysis, parsing, symbol tables, declaration, code generation, and optimization techniques. **(Prerequisite: CSC 302)**

CSC 425 – Graduation Project 1

In Graduation Project (1, 2), student critically applies the accurate IT project development methodologies to develop either a software system with accompanying report or a comprehensive IT research report based on the research activity undertaken - oriented to real life problems. In this course (Graduation Project 1), the student identify specific problem (define the research questions), conducts a literature survey, analysis, and design for the proposed solution (an artifact) to the identified problem utilizing computer algorithms, software packages and/or hardware devices. This gives the opportunity for individual student, to take the responsibility of executing applied research in the CSC426-Graduation Project 2 with guidance from a supervisor. At the end of this course, the student will demonstrate the outcome of the project and will submit part one of graduation project report. **(Prerequisite: CSC241+90 credit hours)**

CSC 435 – Cipherring and Computer Security

In this course, students will be provided with a critical knowledge and understanding of algorithms and protocols from modern cryptology, computer security and secure communication, and equip the student to apply this theory to the problems of building secure applications. The topics of the course include: computer security concepts, security attacks, security services, security mechanisms, symmetric and asymmetric ciphers, block ciphers, DES, AES, block cipher operation, message confidentiality, public-key cryptography and message authentication, the RSA algorithm, Diffie-Hellman key exchange, key distribution, hash functions and user authentication. **(Prerequisite: CSC 332)**

CSC 426 – Graduation Project 2

In this course, the student has to use the outcomes of CSC425 Graduation Project 1 to implement and test the proposed solution. This will take place with guidance from a supervisor. At the end of the course, the student has to demonstrate the project findings and submit a complete graduation project report. Student will use knowledge and skills gained in earlier studied courses and implement them in this phase. Students will be required to plan their work and meet deadlines, they also need to demonstrate the outcome of their IT research/ software system and write a comprehensive report. **(Prerequisite: CSC 425)**

CSC 441 – Internship

The internship is a pre-arranged, credit-bearing work experience, which allows a student to achieve personal goals that are aligned with the goals of a supervising professional organisation or agency. Internships provide opportunities to explore career options, test career choices, and encourage the development of skills within a chosen field. An internship allows students to relate theory with practical job experience as well as develop new skills that will be transferable to future employers.

(Prerequisite: CSC321+90 credit hours)

Programme Elective Courses

CSC 204 – Linear Algebra

This course provides students with advanced skills of linear algebra to help them develop the ability to solve problems using linear algebra. This course includes: the study of systems of linear equations, matrices, determinants, vectors and vector spaces, linear transformations, eigenvalues and eigenvectors, and their applications. Linear algebra is a core course in many engineering, physics, mathematics, and computer science programs. Computer software will be used to enhance the learning and teaching of topics and techniques covered. **(Prerequisite: CSC 203)**

CSC 327 – Web Based Software Development II

This course provides students with advanced knowledge and understanding of web applications development. Topics include: web applications development, smart devices and Web design programming languages (i.e. PHP, ASP.NET and others), web hosting, file transfer protocol, control panel for local and remote servers, web development tools (i.e. Word Press, Yii frameworks, Dreamweaver and others). **(Prerequisite: CSC 322 & CSC 221)**

CS326 – Mobile Application Development

The course provides students with critical knowledge and understanding of the mobile application development. This course covers key technologies underlying mobile application development. Topics include mobile platforms, GUI design, mobile programming, web services processing, database access and event-driven programming. **(Prerequisite: CSC 322 & CSC 221)**

CSC 305 – Operations Research

Operations Research (OR) provides methodological tools which can support business managers in decisions making covering all aspects (internal and external). The purpose of the course is to provide students with advanced knowledge and some specialized tools to help them understand the operations research and mathematical modeling methods. These methods will help the students to solve problems in different environments that needs decisions. The course teach the students specialized methods of operations research and applications for optimization problems.

The course cover topics that include: OR models, solving the OR model, linear programming applications, the simplex method and sensitivity analysis, duality and post-optimal analysis, Transportation model, and Network model. **(Prerequisite: CSC 103)**

CSC 312 – Programming Language Concepts

This course focuses on programming languages' specifications and concepts which gives students critical knowledge that they can argue persuasively why a particular language is appropriate or inappropriate for a particular problem. Topics are: Concepts of programming languages, domains, evaluation, environments, syntax formal methods, attribute grammars, binding, scope, types (data, user-defined, record, tuple, list, union, pointer, and reference), arithmetic expressions, operators, conversions, programming statements, subprograms, parameter-passing methods, design issues for functions, user-defined overloaded operators, dynamic scoping, abstract data types, and object-oriented languages. **(Prerequisite: CSC 314)**

CSC 315 – Data Mining

This course provides students with advanced knowledge and understanding of Data Mining algorithms and computational paradigms that allow computers to find patterns and regularities in databases, perform prediction and forecasting, and generally improve their performance through interaction with data. The Data Mining process includes data selection, cleaning, coding, using different statistical and machine learning techniques, and visualization of the generated structures. The course will cover all these issues and will illustrate the whole process by examples. **(Prerequisite: CSC304)**

CSC 421 – Software Engineering II

This course is a continuation of the study of software engineering I (CSC222). While Software Engineering I focuses on software production topics such as processes, requirements and architectures, Software Engineering II focuses on a advanced knowledge and understanding of a broad set of principles and practices affecting the success and failure of software development. The topics of the course include: Quality Concepts, Reviews, Quality Assurance, Software Testing (Component Level, Integration Level, Specialized Testing for Mobility), Project Management Concepts and Risk Management. The last part of the course will cover the principles of software maintenance, the different strategies for changing software systems and reengineering. **(Prerequisite: CSC 222)**

CSC 328 – Human Computer Interaction

This course focuses on advanced topics in human computer interaction (HCI) development and use. The topics includes HCI analysis, design, implementation and evaluation of interactive computing system for human use; Ergonomics; Components of an interactive system; The Human; Input - output channels, the eye, hearing, touch, smell, taste, movement, memory; The computer: Interacting with computers, Virtual reality concept, Virtual reality for HW/SW, Virtual reality applications. **(Prerequisite: CSC222)**

CSC 329 – Multimedia Systems

This course provides students with advanced knowledge of multimedia systems. Topics include: multimedia system concepts, Color images and videos, Lossless Compression Algorithms, Lossy Compression Algorithms, Image Compression standards, Basics of digital Audio, Multimedia Network Applications, Internet multimedia content distribution, Multimedia over Wireless and Mobile Networks, Multimedia information sharing and retrieval. **(Prerequisite: CSC 322)**

CSC 343 – Special Topics In Computer Science

This course provides students with critical knowledge and understanding of the concepts and practice of the hottest topics and the latest research or technology in the field of Computer Science. The topic might be different from one run to another; an approval from the computer science department is required to select the course content whenever offering the course. **(Prerequisite: Department Approval)**

CSC 403– Image Processing

This course provides students with critical knowledge of concepts and applications image processing. Topics include image processing concepts, intensity transformations and spatial filtering, some basic intensity transformation functions, histogram processing image enhancement, image filtering, image restoration, image deblurring and denoising, color image processing, color models, The RGB Color Model, The CMY and CMYK Color, image compression and watermarking and morphological image processing. **(Prerequisite: CSC 401)**

CSC 411 – Computer Graphics

This course provides students critical knowledge of Computer Graphics. Topics include: concepts of computer graphics. It starts with an overview of interactive computer graphics, Rectangles Using Paths to Draw Line, Transformations scale and translate, Methods: Drawing Ellipses, Rotate Method: Creating an two dimensional system and mapping, then it presents drawing algorithm, two-dimensional transformation; Clipping, filling and an introduction to 3-D graphics. **(Prerequisite: CSC 401)**

CSC 437 – Cloud Computing

The course provides students with critical knowledge and understanding of the cloud computing technologies. Topics include cloud infrastructure, reference model, resource management, programming models, application models, system characterizations, and implementations, deployment of cloud computing systems, parallel processing in the cloud, distributed storage systems, virtualization, security in the cloud, and multicore operating systems. **(Prerequisite: CSC 332)**

CSC 438 – Parallel and Distributed Computing

This course provides students critical knowledge and understanding in theory of parallelism and distributed computing, communication, concurrency, hardware and software features, language features for concurrent and distributed systems, concurrent and distributed algorithms and middleware, coordination, sequential and parallel processing, parallel and scalable architecture, parallel decomposition, multiple simultaneous computations, and parallel computer models. **(Prerequisite: CSC 332)**



Bachelor Degree Bylaw

Article (1)

This bylaw is called the Bachelor Degree Bylaw in the Applied Science University, and is applicable to all University colleges effective from the date of approval. It is applied to enrolled students that are registered to obtain a Bachelor Degree.

Article (2)

1. The following words and expressions, as indicated in this bylaw, have the meanings allocated below; unless the context signifies otherwise.

A. President: University President

B. Council: University Council

C. College Dean: Dean of the College to which the student belongs

D. Study System: Credit Hours System

2. Credit Hours System:

The system of study is based on:

A. Number of credit hours that should be completed by the student and passed according to the level determined by the University as a condition for graduation in any academic programme.

B. Identification of academic fields in which such credit hours are distributed as per the provisions of this bylaw giving the student the freedom to select required courses based on his/her needs and readiness with the guidance from his/her academic advisor and within the range of minimum and maximum credit hours allowed per semester and according to the advising plan.

3. Credit Hours (Cr.):

Includes one theoretical hour of study per week or its equivalence in practical hours, within the full academic semester.

4. University Year:

The university year consists of two obligatory semesters and one optional summer semester.

5. Semester:

The duration of each semester is at least 14 weeks, including the examination period, and the duration of the summer semester is at least seven weeks, including the examination period. The University Council is entitled to change this duration as per public interest as viewed by the University Council, in a way that does not conflict with the bylaws and laws issued by the Higher Education Council.

6. University Requirements:

A set of compulsory and elective courses studied by all students in the University according to their approved plan of study.

7. College Requirements:

A set of compulsory and elective courses studied by all students in the College according to their approved plan of study.

8. Programme:

The total credit hours required to be studied by the student to obtain a Bachelor Degree in a certain specialty.

9. Programme Requirements:

A set of compulsory and elective courses studied by all students in the programme according to their approved plan of study.

10. Academic Level:

The academic level of the student is determined by the number of hours the student has passed successfully by virtue of the study plan.

11. Elective Courses:

These are a set of courses from which the student is entitled to select, as included in the elective courses list, and according to the approved plan of study in the University.

12. Compulsory Courses:

A group of courses that the student must complete as part of their approved study plan in the University.

13. Prerequisite:

An academic course that must be successfully completed by the student before enrolling in the more advanced course, according to the provisions of Article 8/2.

14. Study Load:

The number of credit hours registered by the student during the semester.

15. Study Plan:

This specifies the total number of credit hours distributed accordingly throughout the study period in order to obtain a Bachelor Degree.

16. Punctuality:

Attendance of lectures, discussions, and practical classes defined for each course in the study plan.

17. The Academic Advisor:

An Academic Staff who helps the student register the required courses after referring to their academic transcript and the study plan provisions, as well as the university bylaws, depending on the student's abilities and academic progress in the University.

18. Course Grade:

The total marks from the final exam, mid-term exam and classroom work, excluding courses that are on a (Pass) or (Fail) basis.

19. Semester Average:

The average of courses grades studied by the student in one semester, calculated to the nearest decimal points.

20. Grade Point Average (GPA):

The accumulative average of all the courses completed by the student, successfully or otherwise, as set in their study plan until the date at which the average is calculated. Courses that are not within the student's study plan are not included in the calculation of the GPA and are calculated to the nearest two decimal places.

21. Minimum Pass Mark:

The Minimum Pass Mark in the course is 50%, and the minimum final mark is 35% (University Zero Mark). This should take into account the fact that the mark should be a single overall integer mark.

22. Transcript:

A copy of the student's academic report, which the student receives at the end of each semester, indicating the number of credit hours studied, mark for each course, semester average and Grade Point Average (GPA).

23. Withdrawal:

- **Withdrawal from the course (W)**

This refers to the student's withdrawal from the academic course within the specified period.

- **Emergency Withdrawal (WE)**

This refers to the student's emergency withdrawal from all courses after the specified withdrawal period for compelling reasons, such as ill health, personal injury, or the death of a first or second degree relative.

- **Forced Withdrawal (WF)**

This refers to the student's withdrawal from the registered courses in a certain semester

in cases in which he has exceeded the permitted absenteeism percentage without providing an official excuse.

- **Automatic Withdrawal (WA)**

This refers to the student's withdrawal from the registered courses in a certain semester in cases which they have not attended any of the lectures of the course during the semester.

- **Cancel Registration (CR)**

This refers to the cancellation of a student's registered courses in a certain semester in case the misconduct committee issues a decision to cancel the registration.

24. Academic Warning:

A formal warning given to the student in cases where he has low GPA.

25. Hosted Programmes:

Hosted Programmes are academic programmes from higher education institutions from outside the Kingdom of Bahrain that are offered at Applied Science University under scientific agreements approved by the Higher Education Council of the Kingdom of Bahrain. These accredited programmes are validated by the parent university, including the adjustments needed to suit the educational and professional requirements of the Kingdom of Bahrain and the region.

Article (3):

The University Council declares the study plan that leads to obtaining of a Bachelor Degree in the specialities provided by the University Department, based on the recommendation of Councils of Colleges and appropriate Academic Departments, as well as proposals from the appropriate committees, so that the credit hours required for obtaining degrees are as follows:

1. College of Administrative Sciences:

A. Bachelor of Accounting	135 Credit Hours
B. Bachelor of Business Administration	135 Credit Hours
C. Bachelor of Accounting and Finance	135 Credit Hours
D. Bachelor of Management Information Systems	135 Credit Hours
E. Bachelor of Political Sciences	135 Credit Hours
F. B.A. (Hons) Management and Business Studies (Hosted)	135 Credit Hours
G. B.A. (Hons) Accounting and Finance (Hosted)	135 Credit Hours

2. College of Law

Bachelor of Law	135 Credit Hours
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3. College of Arts and Science

A. Bachelor of Computer Science	135 Credit Hours
B. Bachelor of Graphic Design	135 Credit Hours
C. Bachelor of Interior Design	132 Credit Hours

4. College of Engineering

A. B.Eng. (Hons) Civil and Construction Engineering (Hosted)	150 Credit Hours
B. B.Eng. (Hons) Architectural Design Engineering (Hosted)	150 Credit Hours

Article (4) Study Plan:

The study plan in each Bachelor Degree programme includes the following courses.

1. University requirements:

Number of credit hours needed to meet the University's requirements is 27 Cr., divided as follows:

A. University Compulsory Requirements: (21) Credit Hours:

Course no.	Course Name	Credit Hours
ARB101	Arabic Language	3
ENG101	English Language (1)	3
ENG102	English Language (2)	3
CS104	Computer Skills	3
HBH105	Bahrain Civilization and History	3
BA161	Introduction to Entrepreneurship	3
HR106	Human Rights	3

B. University Elective Requirements: (6) Credit Hours:

One course is to be selected from the first group (3 credit hours) and one course from the second group (3 credit hours).

Group	Course no.	Course Name	Credit Hours
First Group	ISL 101	Islamic Culture	3
	ISL 103	Islam and Contemporary Issues	3
	ISL 102	Islamic Ethics	3

Group	Course no.	Course Name	Credit Hours
Second Group	SOC 101	Introduction to Sociology	3
	MAN 101	Man and Environment	3
	LIB 101	Introduction to Library Science	3
	SPT 101	Special Topics	3
	CS 205	Computer Applications	3
	LFS102	Thinking & Communications Skills Development	3

Other courses may be added, and some of the courses mentioned above may be cancelled by a resolution of the University Council. The council forms a committee for each course, or a number of the required courses. These committees set the courses' curriculum according to the council's guidelines.

2. College Requirements:

The requirements of the College consist of the set of credit hours declared by the University Council, upon a recommendation of the College Council, as follows:

Colleges	Credit Hours
College of Administrative Sciences	27
College of Arts and Science	21 - 12
College of Law	21

3. Requirements of the programme and Supporting Courses:

The number of credit hours required is approved by the University Council upon a recommendation from the councils of colleges. These credit hours are distributed between compulsory and elective courses, as well as applied education and internships.

Article (5): Admissions Requirements and Placement tests for new students

1. University Admissions requirements:

- A. The student should obtain a Secondary School Certificate or its equivalent certified by the Ministry of Education in the Kingdom of Bahrain with an average of no less than 60% or equivalent.
- B. Students with averages below 60% may be admitted in the University, provided that they meet one of the following criteria:
 1. They are athletes and artists who represent the Kingdom of Bahrain internationally.

2. Those with at least one year of practical experience following their secondary school certificate.

3. In addition to that, the University Council has the right to decide on applicants with averages below 60%.

4. The number of students admitted according to this point (B) can be no more than 5% of the admitted students.

C. In some programmes, the students admitted from non-scientific secondary school fields should pass remedial courses.

2. All students admitted to the University should take a compulsory placement test - determined by the University- to determine their English language level. The levels admitted to the programmes are determined as follows, so that the admitted student studies the course listed according to their own ability level:

A. Programmes taught in English according to the following table:

Course	Level	Mark in the placement test
ENG 097	Elementary	0 - 34
ENG 098	Intermediate	35 - 50
ENG 111	Upper-Intermediate	51 - 120

B. Programmes taught in Arabic according to the following table:

Course	Level	Mark in the placement test
ENG 099	Remedial course	0 - 40
ENG 101	English 101	41 - 120

3. A student may be exempted from studying the English language courses in the following cases:

- The student is exempted from the courses ENG 097 and ENG 098 for programmes taught in English, and the course ENG 099 for programmes taught in Arabic if they have obtained (5) or higher in an IELTS test, or 450 and higher in a TOEFL test.
- The English language placement test is conducted in the semester in which the student is admitted. If the student does not attend the test, he will be given a mark of 0, and will not be allowed to postpone the test for any reason or under any circumstances unless he gets an approval from the University Council.
- Students transferred from other universities will be exempted from the English language placement test if they have taken an equivalent English course in their previous university.

Article (6): Credit Hours

- 1- Each course consists of three credit hours, excluding some courses that have practical requirements (for example, laboratory work), in which case, the number of credit hours for a course may reach five hours. The University Council may assign fewer or more hours for some courses, if required.
- 2- The credit hours for each course are assigned on the basis that one hour of theoretical weekly lecture equals one credit hour. In the case of laboratory or practical hours, the assessment is made separately for each course, where one credit hour constitutes no less than two practical hours or two laboratory hours.

Article (7): Levels of Study

- 1- The courses offered by each programme as well as the courses included in the study plans are classified into four levels, stating any prerequisites (if any) for each course. Each course is assigned a code that indicates its level. Moreover, every course must identify the number of lectures, weekly laboratory hours, and number of credit hours.
- 2- The students registered at the University under the Bachelor Degree are classified into four levels: first year, second year, third year, and fourth year, according to the number of credit hours they completed. It should be the case that a second year student has completed 33 credit hours, whereas a third year student will have completed 66 credit hours, and a fourth year student will have completed 99 credit hours.

Article (8): Prerequisites

1. The student is not allowed to study a course before studying its prerequisite courses.
2. The student is allowed to study a certain course and its prerequisite in the same semester if their graduation so requires, or if they have previously failed the prerequisite.
3. The meaning of studying a prerequisite which is mentioned in paragraphs 1 and 2 of this article- :the student should have registered ,attended and taken the exams of the prerequisite irrespective of passing or failing it ,provided that his grade is not less than 36%.

Article (9): Duration of Study:

1. The study duration to obtain a Bachelor Degree in any programme with a regular study load is four academic years.
2. Students are not allowed to obtain a Bachelor Degree in a period of less than three years.
3. The study duration to obtain the Bachelor Degree should not exceed eight academic years in all programmes.

Article (10): Study Load

The minimum number of credit hours a student may register for is 12 credit hours per semester ,and the maximum is 19 credit hours per semester .A student is allowed to register less than 12 credit hours only once during his studies .Moreover ,he is allowed to register less than the aforementioned minimum number of credit hours more than once on condition that he is considered a part-time student and that it should not count towards the minimum period of obtaining the degree .A student is allowed to register for extra credit hours ,provided that these hours do not exceed 21 credit hours ,and the following conditions are met:

-His GPA is not less than 84%.

-The student needs to study 21 credit hours to complete the requirements of graduation during that semester.

Article (11)

In the graduation semester ,the student may register any number of credit hours required for graduation ,without considering the minimum level of the prescribed study load.

Article (12): Punctuality

All registered students must regularly attend all lectures and actively participate in all classroom discussions .Furthermore ,the course instructor keeps a record of the students' absence and attendance in the Students Information System.

Article (13): Absence and Excuses

1. The student is not allowed to be absent for more than 25% of the course credit hours.
2. The course instructor submits the names of those students whose absenteeism exceeds 15%of the total hours of the course to the Head of the Department in order to take the necessary action.
3. If the student is absent for more than 25% of the total course credit hours without a reasonable excuse that is accepted by the College Dean ,they will not be allowed to attend their final exam and will be given the minimum pass mark ,i.e) .WF .(35 ,The student will then have to retake the course ,if it is compulsory .In all cases ,the grade will be included in the calculation of the student's accumulative and semester average for warning or dismissal purposes.
4. The Head of the Department submits to the College Dean a list of those students who are prohibited from taking the final examinations due to their absenteeism ,to inform the Directorate of Admissions and Registration to assign to those students the minimum grade for that course.

Article (14): Absence

1. If the student is absent for more than 25% of the course hours due to illness or any reasonable excuse that is accepted by the College Dean ,they will be considered as withdrawn from the course with a grade of) W ,(and the rules of withdrawal will apply. The Dean of College shall notify the Director of Admissions and Registration of that decision and assign) Withdrawal (to that course in the student’s academic records. Students who represent the Kingdom or the University in social activities shall be permitted to be absent for no more than 30% of the total course hours.
2. It is necessary that sick leave be issued by an approved medical authority and a certificate be submitted to the Dean of College within a period of two weeks from the date of the absence.

Article (15): Examinations

1. Any student absent from the final exam without an excuse that is accepted by the College Dean will be given a mark of zero.
2. The maximum number of) stamped (sick leave for out-patient students is five days if approved within two working days ,whereas for in-patient students ,approval must be sought within four working days from the period of absence.
3. If the student misses the final exam with a reasonable excuse that is accepted by the Dean of the College, the Dean is responsible for informing the Directorate of Admissions and Registration of the need to assign a grade of “incomplete”, where the course instructor will schedule a make-up exam within the first 2 weeks of the next semester unless the student has postponed that semester; this rule doesn’t apply to the summer semester since it is an optional semester. If this does not happen, the students will not be able to retake the exam, and he/she will be assigned zero in that exam.
4. It is possible to consider the student who has missed the final examination with an acceptable excuse as withdrawn from the course, provided that he successfully passed the Mid-Term exam and the coursework, and are not registered for the make-up exam during the period determined in Paragraph 3 above, and that the student did not miss a make-up exam scheduled by the department without providing an acceptable excuse to the Dean.

Article (16): Course Description

Academic Staff members prepare descriptions of their courses, which include the nature of the course, its objectives and timetable, the course requirements, exams and assessment dates, mark distribution, reading and references lists. These will be approved by the Department Council.

Article (17): Marks

1. The final mark for each course is the sum of the final exam mark and the coursework mark.
2. The coursework includes the following:
 - a) Oral and written quizzes, reports, research, group discussions, presentations and class participation, and counts for 20% of the overall course mark.
 - b) A mid-term written exam which counts for 30%.
3. The final exam for each course is held at the end of the semester and counts for 50% of the overall mark. The final exam is a written exam that covers the course material and may include oral or practical tests or a submitted report and the College Council determines, based on a recommendation from the concerned Department, its percentage from the final exam mark. This has to be announced to the student at the beginning of the semester.
4. The distribution of the marks for practical courses, or those which have a practical element, are determined by the College Council based on recommendations by the Department Council.
5. The Final exam, Mid-term exam grades and coursework may be re-distributed if recommended by the Department Council and the College Council and given an approval from the University Council.
6. The marks are calculated and recorded for each course using percentages, and the credit hours of the course should be clearly stated.
7. The final grade for each course is calculated from 100 to the nearest whole number.

Article (18): Examination Questions

The exam questions should be confidential and each academic staff member setting them should coordinate with his Head of Department and College Dean. The academic Staff should take full responsibility for the supervision, printing, copying, packing, and maintaining of the exam papers.

Article (19)

The course instructor is responsible for keeping a record of students' attendance of the exam, and the marking of papers.

Article (20)

The course instructor is responsible for accurately recording the students' marks in the Students Information System.

Article (21)

1. Mark Classifications are as follows:

Mark	Grade	Symbol in English
90 - 100%	Excellent	A
80 - 89%	Very Good	B
70 - 79%	Good	C
60 - 69%	Pass	D
50 - 59%	Poor	E
Below 50%	Fail	F

2. The Accumulative Averages are classified as follows:

GPA	Grade
92- 100%	Excellent with Honours
84 - less than 92%	Excellent
76 - less than 84%	Very Good
68 - less than 76%	Good
60 - less than 68%	Satisfactory

Article (22): Calculation of Semester and GPA Averages

1. The calculation of any semester or GPA averages is done by multiplying the percentage for each course by the number of credit hours for each course divided by the total number of credit hours.
2. In cases where the student has failed, their mark will be recorded by the course instructor as 35%, including all marks that fall below 35%.
3. All courses completed by the student are documented in their academic transcript.

Article (23): Appeals

1. Students have the right to appeal against their final examination mark for any course within ten days of the results being announced. The Dean will ensure the accuracy of the aggregation and transfer of marks and that no answers left unmarked. This is done by a committee formed by the College Dean, consisting of academic staff members but excluding the course instructor.
2. The student pays 10 Dinars for each appeal request.
3. The student has the right to appeal against his final mark for any course using the following steps:

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- A. The student submits an appeal request to the Directorate of Admissions and Registration within 10 days of the results announcement. The student then pays 10 Bahraini dinars - to be refunded if the mark is subsequently augmented.
 - B. The Head of the Academic Department forms a special committee that consists of two academic staff members to review the coursework results and re-mark the final exam paper; provided that the student's course instructor is not a member of the committee. If the committee cannot agree on the same result, it will be transferred to a third member to make the final decision.
 - C. The committee depends on the mark distribution that was provided by the course instructor.
 - D. The committee submits its report to the Head of the Academic Department within one week of its formation.
 - E. If the mark is changed following the committee report, it will be approved by the concerned Head of Department and College Dean. The report will then be delivered to the Directorate of Admissions and Registration to amend the mark prior to end of the Add/Drop period of the coming semester.
 - F. The Directorate of Admissions and Registration notifies the student of the result.
 - G. The student is not allowed to request an appeal on a course that was already reviewed. The first appeal's decision will be considered as a final decision.

Article (24): Adding or Dropping Courses

1. The student is allowed to withdraw from courses in which they are registered and add new courses within five working days of the beginning of the first and second semesters, and within three working days of the beginning of the summer semester. The courses dropped within those periods will not be included in the student's academic transcript.
2. Given the content of Clause (1) of this Article, the student is allowed to withdraw from a course within eight weeks of the beginning of the first and second semesters, and within four weeks of the beginning of the summer semester, provided that the student has not exceeded the percentage of the allowed absenteeism rate. The dropped course in this case would be included in the student's academic transcript with a note of 'withdrawn-W', and this course would not be included in the total credit hours they have studied in terms of passing, failing or graduation requirement. If the student has dropped the course after the mentioned period, the academic staff should include the student's result in his academic transcript. The withdrawal process should not decrease the number of credit hours registered by the student in terms of the minimum study load allowed according to these instructions, except in some compelling circumstances mentioned in these instructions.

Article (25): Withdrawal from and completion of courses

1. In cases where the student has withdrawn from a course, the note 'W withdrawn' will appear next to the course on his academic transcript.
2. The note 'incomplete' will appear next to the course if the student does not complete the requirements, or misses the final exam with an acceptable excuse.
3. If the student obtains the result of 'incomplete' in some courses, their averages will be calculated when the marks of the courses are complete. The averages are considered retroactively from the date of the student having obtained the 'incomplete' result, when it comes to academic warning or dismissal.

Article (26): Honorary Board

1. Each semester The President issues the names of students listed in the honorary board of the University. This includes names of students who have obtained semester averages of 92% and above, and the University honours them in a way that it deems appropriate.
2. The Dean places the names of the students who have obtained semester averages of 85% and above on the honorary board of the College, and notes this in their academic transcript, provided their load of study is no less than 12 credit hours.
3. The bylaw of the Honorary Board of the Excellent Students in the Applied Science University is applied to the students listed in the above Clauses 1 and 2.

Article (27): Academic Warning and Dismissal

1. The student is given an academic warning if his GPA is lower than the minimum required level for graduation in the academic programme at the end of any semester, except for his/her first semester at the University, the semester when the student changes his specialization (if it occurs) and also the summer semester; the Directorate of Admissions and Registration notifies the student via the method it deems appropriate.
2. The Student who receives an academic warning should resolve the issues that have caused him/her to be put under probation within a maximum period of three regular semesters after the semester because of which he/she was put under probation.
3. If the student receives an academic warning then was capable to increase his/her GPA to the required minimum, the effects of that warning are cancelled; and if his/her GPA decreases again at a later stage, he/she shall receive a new academic warning different from the previous warning (s).
4. The student who is subject to an academic warning is not allowed to register for more than four courses (12) credit hours in the semester, except with a recommendation from the Academic Advisor and the Head of Department.

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5. The student who is given an academic warning is not allowed to participate in any extra-curricular activities held at the University.
 6. The summer semester is not taken into consideration for the purposes of academic warning and dismissal, but the academic warning is cancelled if the student's GPA has increased to the minimum required level for graduation in the academic programme according to the result of the summer semester.
 7. If the student cannot resolve the issues that have caused him/her to be put under probation, by virtue of Clause (2) of this article, he/she will be dismissed from the academic programme, and maintains the right to move to another academic programme.
 8. Any student who has successfully completed (75%) of the credit hours required for the academic programme will not be dismissed. The student obtaining a GPA between 59.5% and 59.9% by the end of the third semester of the academic warning will also be excluded from dismissal and, in both cases, the student remains under probation until he/she manages to raise his/her GPA to the minimum required for graduation and is only dismissed if he/she exceeds the maximum permitted study duration in the university.
 9. A student who is dismissed from his/her initial academic programme and then denied registration at a new academic programme will be dismissed from the University.
 10. The student is not allowed to move to an academic programme from which he/she was dismissed in the past.
 11. In spite of the above, every student who exceeds the maximum permitted study duration in the university will be dismissed.

Article (28): Re-taking the Course

1. Student must re-take any of the compulsory courses that he has failed. If a student fails an elective course, he is allowed to study another course according to the study plan. The student is also allowed to re-take any course in which they have obtained a mark below 65%, in order to raise his GPA. In all of the cases indicated, the higher mark will be calculated for the student and the lower mark will be ignored.
2. In cases where the student re-takes a course due to an earlier failure or for any other reason, the credit hours of this course will be calculated only once within the number of hours required for graduation.
3. If the student completes more courses than the required elective courses in their study plan, the courses with the highest grades will be included in the calculation of their accumulative average, taking into account Paragraphs (1) and (2) of this article.

Article (29): Postponement of Study, Drop-out and Withdrawal from the University

1. The student is entitled to submit a postponement request prior to the commencement of the semester and provide reasons to convince the concerned body, according to the following criteria:
 - A. College Dean: if the postponement required is for a period of one semester and does not exceed four semesters, whether continuous or not.
 - B. College Council: if the postponement required is for a period exceeding four semesters, and for no more than six semesters, whether continuous or not.
2. A newly admitted or transferred student, whether from another university or from one programme to another within the university, is not allowed to postpone a semester or withdraw courses unless he has already completed one semester at the University, the semester of the programme remedial courses being excluded.
3. The period of the postponement is included in the maximum study duration specified for obtaining the Bachelor Degree.

Article (30): Attendance / Re-registration / Absence and Withdrawal from Courses

1. If the full-time student is not registered at the University for one or more semesters, and does not obtain written consent from the College Dean for the postponement of his study for this period, his admissions will be cancelled.
2. The University Council may re-register the enrolled student if he presents a reasonable excuse that is approved by the Council. After approval, the student may retain their entire previous academic transcript, provided that the postponement period is not more than four academic years and that they will be able to meet the graduation requirements within the permitted period.
3. The University Council, based on the recommendations of the College Council and the Directorate of Admissions and Registration, will determine the study plan for the re-registered student.
4. The student, whose total excused absences exceed (25%) of the credit hours for semester courses, is considered withdrawn from the semester and the note 'Withdrawn W' will appear on their transcript. This semester will be considered postponed.
5. The student may submit a request to the College Dean to withdraw from all courses registered in a specific semester. If approval from the Dean is obtained, that semester will be considered postponed, and the student should submit such a request at least four weeks prior to the date of the final exams.

Article (31): Transfer from one Academic Programme to Another

1. The student may transfer from one programme to another in the University, if there is a suitable vacancy, provided that his secondary school GPA qualifies him to study in such a programme.
2. When the student is transferred to another programme, he may be exempted from any courses of his choice that he completed in the previous programme if they are included in the study plan of the new programme. The marks of such courses are included in the student's semester and GPA average.
3. Each 15-credit-hour course selected, as per the previous clause, is calculated as one semester.
4. Transfer requests will be submitted to the Director of Admissions and Registration using the prescribed forms.
5. The transferred student receives the same treatment as the new student, for the purposes of postponement, warnings, and dismissal from the programme.

Article (32): Visiting Students

1. The visiting student is enrolled in his original university, but is a temporary student at the Applied Science University and is allowed to study specific courses in a certain semester. After the end of this semester, the University is not obligated to admit or transfer this student to any academic programme.

The conditions for dealing with the visiting student are as follows:

- A. The student should be a full-time enrolled student in a university
 - B. The visiting student should be studying at a recognised university as per the laws and bylaws of the Higher Education Council in Bahrain.
 - C. The student should be nominated by his original university to study specific courses, and at the end of the semester, his results will be sent to the responsible body in his original university.
 - D. A vacancy must be available in the courses that the visiting student is applying for.
 - E. Visiting students are registered after the period of registration and add/drop, and only in those courses that have available seats.
2. Students desiring to study as visiting students in another university, recognised by the national committee for the equalization of certificates by the Ministry of Education of the Kingdom of Bahrain, should obtain prior consent from the Directorate of Admissions and Registration in the University with the subjects to be studied based

on recommendations from the relevant academic department. This consent requires a submission of study request in the other university supported by the following documents:

- A. Description of the contents of the course to be studied as approved by the relevant body in the external university, to be submitted to the academic department concerned as per the controls declared by the University Council.
- B. A letter obtained from the Director of Admissions and Registration in the University addressed to the relevant body in the host University.
- C. The courses studied by the university student appear as "Pass" if the student has obtained a mark of no less than 70%.

Article (33)

If the first bachelor degree is obtained from the same university from which the student wants to get a bachelor degree in another programme, the University is not allowed to exempt the student from any of the University or College requirements.

Article (34): Transfer from Other Universities

Students may transfer to the University if there are vacancies available, provided that transfer requests are submitted to the Directorate of Admissions and Registration on the dates announced in each semester, and according to the following conditions:

1. Meeting the requirements of the admissions and registration of the University. In addition, the student must have an acceptable secondary school average or its equivalent for the programme to which he is transferred.
2. The student must be transferring from an accredited university, college, or higher education institute that is approved by the Equivalence Committee at the Ministry of Education in the Kingdom of Bahrain. The courses completed by the transfer student will be included in their study plan, provided that the credit hours accumulated from their previous university are no less than the credit hours of their new course in the Applied Science University.
3. They are a full-time student, and evidence of this is provided.
4. The student is not dismissed for disciplinary purposes from their previous university directly before submitting the transfer request.
5. Every 15 credit hours completed by the transfer student is equal to one semester, provided that the course marks are not calculated in the semester and GPA averages.

Article (35): Re-enrolling in the university

1. If a student who has withdrawn from the University wants to re-enroll, he must submit his application as a new student and, if admitted, he shall be subject to Article 37 related to course equivalence.
2. The student academic transcript will not be considered if the student postpones his study for more than four years.
3. In all cases, the student should study at least 1/3 credit hours with the Applied Science University.

Article (36): Requirements to obtain a Bachelor Degree

The Bachelor Degree is granted to students by the University Council after completion of the following:

1. Successfully passing all courses required for graduation in the study plan
2. Obtaining a GPA of no less than 60%
3. Spending the minimum duration required for graduation and not exceeding the maximum duration, as indicated in Article (9) of this bylaw

Article (37): Course Equivalence

The conditions for transferring courses in cases where a student has transferred from a Higher Education Institution to the Applied Science University:

1. The number of credit hours transferred should not exceed 66% (2/3rds) of the Bachelor Degree requirements, where the minimum study duration for a transferred student is two academic semesters and a minimum of 30 credit hours. Courses with a grade less than C are not transferred.
2. The number of credit hours required in order to be transferred cannot be less than the number of the credit hours of the equivalent course.
3. The course is equivalent to only one course.
4. An official and approved academic transcript is required to verify the student's successful completion of the course.
5. The equivalence of courses from academic degrees (previously obtained by the student) that are similar to the current academic degree in which the student has been enrolled is strictly prohibited.

Article (38): Issuing the Graduation Certificate

The graduation certificates are awarded upon the completion of the requirements at the end of each semester.

Article (39)

1. In cases where the student's graduation is dependent on one or two compulsory courses that are not listed in the semester schedule, or whose timing clashes with another compulsory course, or where the student has failed in the same course twice, the Dean of the College, in consultation with the Head of Department, may allow the student to enrol in an alternative course(s) that is (are) equivalent to the original one(s). The Directorate of Admissions and Registration should be notified accordingly.
2. If the student's graduation depends on one or two elective courses, and the student could not register them for a reason beyond his control, the Dean is entitled to approve the replacement of these courses with other appropriate courses of matching levels from the same or other college upon a recommendation from the concerned Head of Department. The Directorate of Admissions and Registration should be notified.
3. In all cases, whether the matter is related to compulsory and/or elective subjects, the number of alternative courses should be no more than two courses.
4. If the student did not register for a compulsory or elective course because it was not offered or because it clashed with another course, they are allowed to register for an equivalent course upon the recommendation of the Head of Department and the approval of the Dean.

Article (40)

1. The Head of Department and the Academic Advisor are responsible for following up the academic status of the students in co-ordination with the Directorate of Admissions and Registration, and to examine their fulfilment of the graduation requirements.
2. Any student who is expected to graduate at the end of any semester must fill out a graduation form with their department a semester before their graduating semester. This happens in coordination with the Directorate of Admissions and Registration in order to avoid any unexpected mistakes.

Article (41)

The student must obtain a No Liability certificate from the University in order to complete their graduation procedures.

Article (42)

The student does not have the right to claim that they were not aware of these bylaws, University announcements, or anything published on the University noticeboard regarding these instructions.

Article (43)

The Bachelor Degree bears the due date.

Article (44)

1. The student must pay the tuition fees and any required deposit at the time of their registration in each semester. The student registration will not be completed unless they pay all the required fees. The University has the right to amend the amount of fees and deposits required as it deems appropriate, after obtaining the approval of the responsible bodies.

2. Newly-admitted students who have applied to the University immediately after their graduation from secondary schools are entitled to a discount in their first semester. This discount relates to tuition fees only. Other fees such as books fees are excluded:

A. 30% for students who have obtained a GPA 95% and above.

B. 15% for students who have obtained a GPA 90-94.99%.

3. Tuition fees paid by students are as follows

A. Tuition fees per credit hour for students in bachelor's degree programmes in each of the following colleges:

1. College of Administrative Sciences

N°	Programmes	Credit Hours	Fees per Credit Hour
1	Bachelor's Degree in Accounting	135	BHD 92.700
2	Bachelor's Degree in Business Administration	135	BHD 92.700
3	Bachelor's Degree in Accounting and Finance Sciences	135	BHD 92.700
4	Bachelor's Degree in Management Information Systems	135	BHD 92.700
5	Bachelor's Degree in Political Sciences	135	BHD 92.700

2. College of Law

N°	Programmes	Credit Hours	Fees per Credit Hour
1	Bachelor's Degree in Law	135	BHD 92.700

3. College of Arts & Science

N°	Programmes	Credit Hours	Fees per Credit Hour
1	Bachelor's Degree in Computer Science	135	BHD 92.700
2	Bachelor's Degree in Graphic Design	135	BHD 92.700
3	Bachelor's Degree in Interior Design	132	BHD 92.700

4. Hosted Programmes

Hosted Programmes from Cardiff Metropolitan University			
N°	Programmes	Credit Hours	Fees per Credit Hour
1	B.A. (Hons) Management and Business Studies	135	BHD 160
2	B.A. (Hons) Accounting and Finance	135	BHD 160

Hosted Programmes from London South Bank University			
N°	Programmes	Credit Hours	Fees per Credit Hour
1	B.Eng. (Hons) Civil and Construction Engineering	150	BHD 180
2	B.Eng. (Hons) Architectural Design Engineering	150	BHD 180

B. Other non-refundable fees:

- 1) 10 BHD Application fee (paid once)
- 2) 100 BHD Registration fee (paid once; 110 BHD for Hosted Programmes)
- 3) 100 BHD Labs' fees per first and second semester for Computer Science, Interior Design and Graphic Design students.
- 4) 50 BHD labs' fees per summer Semester for Computer Science, Interior Design and Graphic Design students.
- 5) 5 BHD fees for English language placement test.
- 6) 5 BHD fees for an official academic transcript.
- 7) 5 BHD fees for issuing a graduation certificate.

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- 8) 5 BHD fees for a duplicate official academic transcript.
 - 9) 5 BHD fees for issuance student bona fide official student certificate.
 - 10) 10 BHD fees for course equivalence procedure.
 - 11) 10 BHD fees for appealing a final grade per course.
 - 12) 30 BHD Fees for submission of an incomplete exam (a valid excuse should be submitted in accordance with the procedures established in the University Regulations).
 - 13) 5 BHD fees to issue a new ID card or a replacement.
 - 14) 10 BHD for each extra copy of the graduation transcripts and certificate.
 - 15) In cases where a student loses or damages a book borrowed from the University Library, the fee applied is twice the price of the borrowed book
 - 16) 150 BHD graduation fees + graduation certificate Arabic - English + yearly book.
 - 17) 25 BHD graduation robe fees.

4. The newly-admitted student pays 650 BHD non-refundable for seat reservation and it consists of the following fees:

- a) 10 BHD one-time fee to submit the application as mentioned in item (1) of paragraph (b) of Article (44) of this Regulation.
- b) 100 BHD one-time registration fee as mentioned in item (2) of paragraph (b) of Article (44) of this Regulation.
- c) 5 BHD fee to issue a new university ID card and mentioned in item (13) of paragraph (b) of Article (44) of this Regulation
- d) 535 BHD part of the tuition fees of the admissions semester.

5. Financial instructions relating to the withdrawal of a student:

- a) Enrolled students have the right to withdraw totally or partially during the late registration period and the add/drop period (announced each semester by the Directorate of Admissions and Registration) and without any financial charges.
- b) Enrolled students have the right to withdraw totally or partially before the end of the second week of the approved study semester as announced every semester by the Directorate of Admissions and Registration and will have to pay the amount of 25% of the fees of the withdrawn courses, provided that the payment is processed before the approval of the courses by the Directorate of Admissions and Registration and after obtaining official approvals by the concerned parties in the college.

- c) Enrolled students have the right to withdraw totally or partially before the end of the third week of the approved study semester as announced every semester by the Directorate of Admissions and Registration and will have to pay the amount of 50% of the fees of the withdrawn courses, provided that the payment is processed before the approval of the courses by the Directorate of Admissions and Registration and after obtaining official approvals by the concerned parties in the college.
- d) Enrolled students have the right to withdraw totally or partially before the end of the fourth week of the approved study semester as announced every semester by the Directorate of Admissions and Registration and will have to pay the amount of 75% of the fees of the withdrawn courses, provided that the payment is processed before the approval of the courses by the Directorate of Admissions and Registration and after obtaining official approvals by the concerned parties in the college.
- e) In case the student withdraws partially or totally after the end of the fourth week, he shall pay the entire amount of registered credit hours fees.
- f) The student has the right to withdraw totally or partially without financial charges from courses that require prerequisites and were registered in the course registration form submitted by the student to the Directorate of Admissions and Registration.
- g) The student has the right to withdraw totally or partially from courses that have been equalized later on without financial charges.
- h) In case the student wishes to transfer to another programme after the regular add/drop period, he/she shall bear all the financial charges mentioned above.
- i) The student has the right to withdraw totally or partially from courses that have been registered beyond the limit allowed by the university and the Bahraini Higher Education Council without financial charges.
- j) If the university cancels or withdraws any courses registered by the student at any time, the amount of the paid fees will be credited to his account.
- k) The aforementioned regulations related to students' withdrawal do not apply to new students during admissions semester; they are governed by total withdrawal instructions issued by the university during the registration of an academic semester.

Article (45): Hours of Student Activities and Community Engagement

1. Regulations for granting a credit hour to the extracurricular activities and community engagement of students:

- A. The credit hour for student activities is an hour granted with a grade of 100% for participation in student activities through, for example, scientific student societies, students clubs, and student council committees, which are not considered to be an academic requirement.

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- B. The student granted this credit hour should be an effective member of a scientific society, student club, or any authority that cares for student activities, voluntary activities and community engagement, in coordination with Student Affairs.
 - C. The credit hour is not granted for student activities and community engagement for:
 - Students in the orientation programme.
 - Students receiving disciplinary action in the same semester.
 - D. The credit hour for student activities and community engagement counts towards the GPA along with the results of the academic courses at end of each semester through which the activities are practised.
 - E. The student is granted a maximum of one credit hour during their time of study in the University.

2. The criteria for granting the credit hour to student activities:

- A. The eligible student is granted one credit hour if the hours of participation are not less than 30 hours in one semester, as indicated in the forms of activity prepared for this purpose by the Student Affairs Deanship.
 - B. The activity should be indicated in the University form, Student Affairs Deanship, Colleges, Student Council, Clubs, or Societies, etc.
 - C. The students should perform well in the activity they are doing as approved by the organised authority and the declaration of the Student Affairs Deanship.
- ### **3. Mechanisms for granting the credit hour for student activities and community engagement:**
- A. The responsible body for the activity fills out a form allocated for the activities that is prepared by the Student Affairs Deanship, so that each student has a file that includes their activities that is kept in the Student Services Office.
 - B. The Student Services Office records all student performed activities in one form by end of the semester, in coordination with the body responsible for that activity.
 - C. The responsible body of the activity approves the student activity form and refers it to the Student Affairs Deanship.
 - D. The Deanship of Student Affairs approves the student activity form, then it is referred to the Directorate of Admissions and Registration before the end of the semester, for auditing and granting of one hour for activity, as per the system. The Directorate of Admissions and Registration is entitled to return the forms to the Student Affairs Dean to be reviewed once more in case of any errors.

E. Student activity and community engagement are not granted retroactively for activity in previous semesters.

Article (46): Amendment to Provisions of the bylaw

The University Council is entitled to amend the provisions of the articles of this bylaw according to recent updates and public interest, and per resolutions that do not reflect the bylaws and resolutions of the Higher Education Council in Bahrain.

Article (47): Instructions not indicated in this bylaw

The University Council settles the cases not provided for in the instructions and in disputes that may arise due to the application of such instructions, so as not to conflict with the bylaws and resolutions of the Higher Education Council. In emergency cases that cannot be delayed, the President of the University replaces the University Council for the settlement thereof.


Article (48): Implementation of the Provisions of this bylaw

The President, Vice Presidents, Academic and Non-Academic Deans are responsible for the implementation the provisions of these instructions.




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