ASU

جامعة العلوم التطبيقية

APPLIED SCIENCE UNIVERSITY

2024/2025

College of Arts and Science

College of Arts & Science

Handbook

2024/2025

Table of Contents

University Vision:

A leading university promoting excellence in applied education and research in Bahrain and the region.

University Mission:

ASU is dedicated to offering students and staff the opportunity to contribute to the sustainable development of society & community. In addition, ASU strives to be recognized nationally and internationally for its reputation in applied learning and teaching, research and community engagement. Furthermore, ASU is committed to enhancing graduates' employability through innovative approaches and entrepreneurial practices in order to help them compete in international markets.

Values:

1. Integrity: ASU's community values honesty, fairness and academic integrity as fundamental to its vision and mission, and uphold the values in all its endeavours.
2. Collaboration and Team Spirit: ASU's community places collaboration and team spirit at the heart of its institutional culture and promotes these values consistently.
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 engage with them in a thoughtful, respectful, responsible and meaningful manner.
5. Quality: ASU's community embraces, quality in all facets of its operations and interactions.
6. Innovation and Creativity: ASU acknowledges that enabling Innovation and creativity is an essential feature of a 21st century University and values the contribution this makes to sustainable community growth and development

Message from the Dean

Dear Students,

I am pleased to welcome you to the College of Arts and Science at the Applied Science University. The College was established in 2005/2006 and has three academic departments: The Department of Computer Science which offers the Bachelor in Computer Science, the Department of Design and Arts which offers the Bachelor in Interior Design and the Bachelor in Graphic Design, and the Department of General Studies, which provides general courses to all academic programmes in the university.

The College provides students with the necessary knowledge and practical skills required for successful employment through a continuous improvement process for the curricula and the courses of the offered programmes. 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 the fields of Computer Science, Interior Design, and Graphic Design. The academic programmes offered by the College focus on connecting information and concepts taught to real life contexts, through projects and practical applications in order to develop professional hands-on skills of students and meet the needs of local and regional labour markets. The college implements its programmes through a number of experienced academic staff members who actively engage with and advise students leading them to a successful academic journey and combines a sound theoretical foundation with a high level of practical expertise in all areas of the discipline via employing state-of-the-art facilities, including advanced design studios and computer labs.

I welcome you again to the College of Arts and Science and I invite you to visit the College webpage on the ASU website to find more information about the offered programmes and the College activities.

Dr. Omar ALZOUBI
Dean of the College of Arts and Science

College Vision:

To be one of the leading educational colleges locally and regionally by providing programmes according to international professional standards and in accordance with the framework of quality assurance

College Mission:

The College is committed to offering accredited, high-quality educational programmes in information technology and design and arts, adopting innovative applied practice that builds the integrated personality of graduates and enhances their employment opportunities in the market. It is also committed to providing a stimulating environment for learning and research to meet the needs of the national and regional communities and contribute to achieving sustainable development.

College Objectives:

1. Prepare specialized critical thinkers and reflective learners who have the ability to reflect critique, evaluate, and pursue an evidence-based approach to add valuable contributions to their community and to their workplace.
2. Provide students with up-to-date knowledge and skills in information technology and design & arts, which are relevant to the market needs.
3. Provide students with practical and research skills in their fields in order to qualify them to pursue postgraduate studies and compete for employment and entrepreneurship opportunities.
4. Provide an educational environment that encourages and stimulates research, creativity and innovation among students and qualifies them to work independently and as part of a team to communicate this clearly and effectively to diverse audiences.
5. Provide students with distinct skills in self-development and professional creativity of projects in order to hold a humanitarian vision, to responsibly and ethically contribute to achieving sustainable development at the local and regional levels.

Department of Design and Arts

Bachelor in Interior Design

Programme Description

The Program of Interior Design is a member of the International Federation of Interior Architects/Designers (IFI) , and The International Council of Design (ICoD). The programme and designed in alignment with the professional standards of the Council for Interior Design Accreditation (CIDA), the program supports interior designers to reflect on the human experience, and the way people perform and interact in the workplace, home, or in public life. Allowing them to focus on providing human well-being by improving the quality of life and protecting human health and safety through the design of indoor environment, so that they are ready to face the exciting challenges and opportunities of the new millennium. During the study, students 'abilities to practice the specialization are built, strengthened and developed through theoretical lectures, studio practice, and critical studies. The process of continued exchange of critique with fellow students and teachers is a major part of the learning process. It is worth mentioning that the Interior Design Programme was placed successfully on the National Qualifications Framework (NQF).

The Interior Design programme aims to:

1. Develop professional graduates in interior 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.
6.

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	2024-2025
Language of Study	Arabic
Mode of Study	Full Time
Programme Leader	Dr. Nader Sonpol Office No: 16036351 E-mail: nader.sonpol@asu.edu.bh Room No. 218

Programme Intended Learning Outcomes (PILOs):

Upon completion of this Programme, the graduate will be capable of the following:

- Clarifying administrative, financial, legal and ethical issues critically regarding their relation and impact on the interior design profession practice.
- Summarising the specialised knowledge of design, its history and theories to interpret them into creative design solutions.
- Demonstrating documents, specifications, environmental impact, methods of applying internal construction and its details, and modern building systems, and considering the relationship between a structural building system and its internal construction.
- Utilising design elements and principles to shape space and structure and to support advanced design concepts and solutions, including some complex contexts.
- Employing professionally the art and science of light and colour, and combining them into design processes to improve the human experiences.
- Selecting design elements from manufactured materials and products based on their various characteristics and aesthetic contribution and applying them to design solutions in a specialised manner.
- Contributing to the development of specialised strategies to achieve safety, comfort and proper performance within internal environments, considering the environmental impact of their design decisions.
- Applying laws, guidelines, and specialised standards that affect the development of solutions through the design process by recognising their role in protecting the health, safety and wellbeing of building occupants and the impact of various organisational entities on interior design practice.
- Analysing and evaluating information and data from various stakeholders and sources critically and contributing to successfully responding to users' needs and improving wellbeing and comfort.
- Formulating appropriate design questions based on various survey methods, data collection and critical analysis, and employing problem-solving methods throughout the design process to reach a comprehensive and integrated design solution.
- Responding professionally to environmental, social, economic and cultural changes in the context of interior design practice.
- Working in teams, realising the value of integrating design practice, and getting ready to take responsibility as a leader and work effectively in a team environment.
- Delivering persuasive, formal visual, verbal and written presentations using specialised applications, demonstrating the ability to listen and interpret external data, and communicating effectively in terms of style and content.

Admission Criteria:

1. 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.

2. Students with averages below 60% may be admitted in the University, provided that they meet one of the following criteria:

- They are athletes and artists who represent the Kingdom of Bahrain internationally.
- Those with at least one year of practical experience following their secondary school certificate.
- In addition, the University Council has the right to decide on applicants with averages below 60%.
- The number of students admitted according to this point (2) can be no more than 5% of the admitted students.

3. In addition to the above, students admitted to the Programme must undergo an interview and an assessment test that will entail three cases:

- If the interview result is “well prepared”: the applicant will be admitted directly to the Programme.
- If the interview result is “barely prepared”: the applicant will be admitted conditionally.
- If the interview result is: “unprepared": the student’s application will be transferred to other programmes at the University.

English Language Requirements

1. All students admitted to the Programme must attend the Compulsory English Test (specified by the University) to determine their English Level, according to the following:

- Students who score between (0-40), must attend Remedial English (ENG 099).
- Students who scored between (41-120), must attend English Language 1 (ENG101).

2. The student is exempted from the course ENG 099 if they have obtained (5) or higher in an IELTS test, or 450 and higher in a TOEFL test.

Progression Pathways and Opportunities:

The Specialised Interior Designer generally pursues to create innovative environments for living, work and leisure, bring life to the Interior, utilise his talents to improve economic and operational efficiency, protect public safety, promote health and social care for the interior spaces of various buildings, and develop practises and environments that can profoundly affect people's quality of life. From this point of view, the Interior Design Programme offered by the Applied Science University will provide its students with leadership and management skills, which will enable them to manage modern interior design institutions efficiently, as well as work and study opportunities in the following areas:

- Practice working as an Independent Designer in his office or as part of architecture firms and interior design studios (including exhibition design and furniture design).
- Practice interior design work on supplements, such as furniture and interior fittings (curtains, raw materials...etc.)
- Lighting design.
- Work in the fields of drawing and presenting various design projects in two and three dimensions.
- Work on-site to supervise the implementation of interior designs, prepare tables of specifications and quantities, and manage related work.

- Progress in scientific research and postgraduate studies in the specialisation and related disciplines.

Graduation Requirements:

According to ASU's "Bachelor Degree Bylaw", the bachelor degree is granted to students by the University Council upon fulfilment of all graduation requirements, represented by: passing all courses required for graduation (i.e. completion of the number of credit hours) with a cumulative average of no less than 60% after studying for a minimum period of 3 years, and not exceeding a maximum period of 8 years.

Programme Structure and Study Plan

The Interior Design Programme is designed based on 42 courses totalling 132 credit hours which are structured as follows: University Compulsory requirements (21 Cr), University Elective requirements (6 Cr), College Compulsory requirements (9 Cr), Major Compulsory requirements (81 Cr), and Major Elective requirements (15 Cr).

The Interior Design Programme comprises of Courses Levels according to the National Qualifications Framework (NQF) Courses levels with their prerequisite, divided into eight semesters distributed over four years as shown in the courses tree. The courses, along with their credit hours and NQF levels, are distributed in the Study Plan (as defined below). Interior Design Study Plan ensures that students' progress gradually from the first to the final year with a suitable study load. The Interior Design Programme's minimum and maximum study periods are three and eight years, respectively.

Study Plan

Programme Study Plan								
No.	Course Code	Course Title	Prerequisite	Lec	Lab	ASU Credit	NQF Credit	NQF Level
Year 1 – First Semester (18 Cr)								
1	ADE 1091	Introduction to Drawing	-	0	6	3	12	5
2	IND 1092	Principles of Architectural Drawing	-	1	4	3	12	6
3	ADE 1110	Design Fundamentals	-	1	4	3	12	5
4	CS 104	Computer Skills	-	2	2	3	12	5
5	ENG 101	English Language I	-	3	0	3	12	5
6	HR 106	Human Rights	-	3	0	3	12	5
Year 1 – Second Semester (18 Cr)								

1	IND 1071	Design and Environment Behavior	IND 1092	2	2	3	12	6
2	IND 1093	Presentation Techniques	IND 1092	1	4	3	12	6
3	IND 1094	Computer-Aided Design (CAD) I	IND 1092	1	4	3	12	6
4	ADE 1100	Historical Environments	ADE 1091	3	0	3	12	6
5	ENG 102	English Language II	ENG 101	3	0	3	12	5
6	HBH 105	Bahrain Civilization & History	-	3	0	3	12	6
Year 2 – First Semester (18 Cr)								
1	IND 2081	Interior Design Studio 1	IND 1071 & ADE 1110	1	4	3	12	6
2	IND 2131	Interior Materials & Finishes	IND 1094	2	2	3	12	6
3	IND 2095	Computer-Aided Design (CAD) II	IND 1094	2	2	3	12	7
4	ARB 101	Arabic Language	-	3	0	3	12	6
5	BA 161	Introduction to Entrepreneurship	-	3	0	3	12	6
6	-	University Elective (Group 1)	-	3	0	3	12	5
Year 2 – Second Semester (15 Cr)								
1	IND 2112	Interior Design Studio 2	IND 2081	1	4	3	12	6
2	IND 2151	Interior Structures & Constructions	IND 2131	2	2	3	12	7
3	IND 2121	Light & Color in Interior Environments	IND 2081	3	0	3	12	7
4	IND 3103	History of Interior Design	ADE 1100	3	0	3	12	7
5	-	University Elective (Group 2)	-	3	0	3	12	6
Year 3 – First Semester (18 Cr)								
1	IND 3113	Interior Design Studio 3	IND 2112	1	4	3	12	7

2	IND 3141	Building Systems and Codes	IND 2121	3	0	3	12	7
3	IND 3117	Furniture Design	IND 2112	2	2	3	12	7
4	IND 3152	Interior Structures & Constructions 2	IND 2151	2	2	3	12	7
5	-	Programme Elective (Group 1)	-	-	-	3	12	7
6	-	Programme Elective (Group 1)	-	-	-	3	12	7
Year 3 – Second Semester (15 Cr)								
1	IND 3114	Interior Design Studio 4	IND 3113	1	4	3	12	7
2	IND 3142	Sustainability in Design	IND 3113	3	0	3	12	7
3	IND 3051	Building Information Modeling (BIM) I	IND 2151	2	2	3	12	7
4	IND 3061	Ethics & Practice of the Profession	IND 3141	3	0	3	12	8
5	IND 4040	Internship (BID)	90Hrs&IND 3113	-	-	3	20	8
Year 4 – First Semester (15 Cr)								
1	IND 4115	Interior Design Studio 5	IND 3114&IND 2151	2	8	6	24	8
2	IND 4071	Programming and Research	IND 3114	3	0	3	12	8
3	IND 4062	Specification and Estimation	IND 3051	3	0	3	12	8
4	-	Programme Elective (Group 2)	-	-	-	3	12	8
Year 4 – Second Semester (15 Cr)								
1	IND 4116	Graduation Project	IND 4115&IND 4071	0	12	6	24	8
2	IND 4053	Design Collaboration	IND 3114	3	0	3	12	8
3	-	Programme Elective (Group 2)	-	-	-	3	12	8

4	-	Programme Elective (Group 2)	-	-	-	3	12	8

University Elective Courses

University Elective Courses (6 Cr)						
No.	Course Code	Course Title	Prerequisite	ASU Credit	NQF Credit	NQF Level
Group 1 (3 Cr)						
1	ISL 101	Islamic Culture	-	3	12	6
2	ISL 102	Islamic Ethics	-	3	12	6
3	ISL 103	Islam & Contemporary Issues	-	3	12	6
Group 2 (3 Cr)						
1	LIB 101	Introduction to Library Science	-	3	12	5
2	MAN 101	Man and Environment	-	3	12	5
3	SOC 101	Introduction to Sociology	-	3	12	5
4	SPT 101	Special Topics	-	3	12	5
5	CS 205	Computer Applications	CS 104	3	12	5
6	LFS 102	Thinking and communications skills development	-	3	12	5

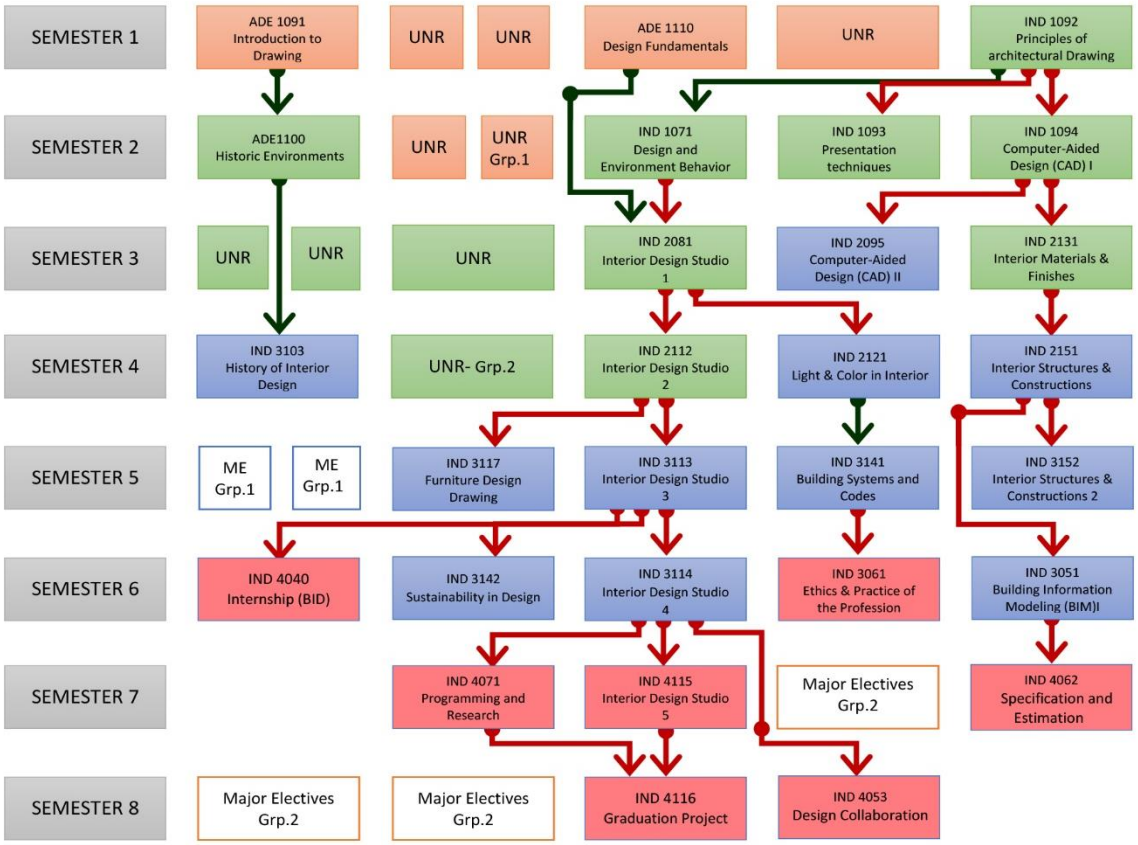
Programme Elective Courses

Programme Elective Courses (15 Cr)								
No.	Course Code	Course Title	Prerequisite	Lec	Lab	ASU Credit	NQF Credit	NQF Level
Group 1 (6 Cr)								
1	IND 1099	Advance Perspective	IND 1092	0	6	3	12	7
2	IND 2098	Digital Rendering of Architectural Drawings	IND 1094	2	2	3	12	7
3	IND 2103	Islamic Built Environment	ADE1100	3	0	3	12	7
4	IND 3116	Kitchen and Bath Design	IND 3141	2	2	3	12	7
5	IND 3118	Interior Plantations & Courtyard Design	IND 3113	1	4	3	12	7

6	IND 4162	Psychology & Sociology Design	IND 2081	3	0	3	12	7
Group 2 (9 Cr)								
1	IND 2096	Computer-Aided Design (CAD) III	IND 2095	2	2	3	12	8
2	IND 2097	3D Printing & 3D Scanning	IND 2095	2	2	3	12	8
3	IND 3000	Special Topics in Design	Dept. Approval	-	-	3	12	8
4	IND 3098	Interior Design Animation	IND 2095	2	2	3	12	8
5	IND 3115	Exhibition Design	IND 2121	2	2	3	12	8
6	IND 3122	Lighting Design	IND 2121	3	0	3	12	8
7	IND3133	Innovative Materials	IND2151	3	0	3	12	8
8	IND 3154	Rehabilitation of Heritage Buildings	IND 3142	3	0	3	12	8
9	IND 4111	Hospitality Design	IND 3113	1	4	3	12	8
10	IND 4041	Interior Design Advanced Internship "On-Site"	IND 4040	-	-	3	12	8
11	IND 4042	Interior Design Study Tours	IND 3103	2	2	3	12	8
12	IND 4043	Bahrain's Experience in Interior Design	IND 3103	3	0	3	12	8
13	IND 4052	Building Information Modeling (BIM) II	IND 3051	2	2	3	12	8
14	IND 4104	Critical Issues in Design	IND 3103	3	0	3	12	8

Courses Tree

Bachelor in Interior Design 2024-2025



Course Description

University Compulsory Courses

ARB 101 Arabic Language

This course deals with issues related to Arabic grammar and literature. It studies some basic linguistic issues in the vocabulary, morphology, syntax, and semantics of Arabic. It also studies stylistic and literary features through analyzing and discussing some selected texts from the Holy Quran and other literary masterpieces. (Prerequisite- None)

ENG 101 English Language I

This course is designed to help students to communicate effectively in English for academic purposes. It helps students to acquire some communication skills in reading, writing, and note-taking at pre-intermediate level using the appropriate grammar and vocabulary for this level. Finally, the course is intended to improve students' skills in English, so they get ready for a further English credit course (ENG102), and use English in their academic life. (Oxford test score > 40 or ENG099)

ENG 102 English Language II

This course is designed to help students to communicate effectively in English for academic purposes. It helps students to acquire some communication skills in reading and writing at intermediate level using the appropriate grammar and vocabulary for this level. Finally, the course is intended to improve students' skills in English, so they take credit courses taught in English and to use English in their academic life. (Prerequisite: ENG 101)

CS 104 Computer Skills

This course covers the following topics: basic information technology concepts, using the computer to manage files, word processing, spreadsheets, presentation and database. (Prerequisite- None)

BA 161 Introduction to Entrepreneurship

This course aims to study the concept of entrepreneurship, to explain its implications and significance, and to provide students with the knowledge and skills necessary to transform ideas into applied entrepreneurial projects in accordance with the rules of founding entrepreneurial projects. Moreover, the course aims to provide students with the core skills of an entrepreneur, starting from establishing the project, choosing the legal formula for it, planning, organizing, marketing, and financing until the whole process is fully managed while enabling students to submit proposals to establish a commercial project and to discuss it at the end of the semester. Finally, the course aims to study practical cases for pioneering projects in the Kingdom of Bahrain. (Prerequisite- None)

HBH 105 Bahrain Civilization & History

This course deals with the history of Bahrain from 1500-1800. It studies the stages of the Portuguese invasion of this part of the world and the international power struggle that erupted

after the invasion. It also deals with the ruling of Al-Utuub Tribe of Bahrain and the reign of Al Khalifa as their reign is characterized by propensity, wisdom, freedom, and modern state. (Prerequisite- None)

HR 106 Human Rights

This course discusses the basic principles of human rights. It acquaints the students with the nature of human rights, their realms, and sources, paying special attention to the international legal provisions concerning human rights included in the following documents: United Nations Charter, International Declaration of Human Rights, International Accord on Civil and Political Rights, International Accord on Social and Economic Rights, International agreement against torture and inhumane, disrespectful punishment, and Protection mechanisms and constitutional organization of public rights and freedoms in the Kingdom of Bahrain. (Prerequisite- None)

University Elective Courses

ISL 101 Islamic Culture

The course deals with the concept of "Culture" in general and the concept of "Islamic Culture" in particular, and other related concepts. Thus, the course studies the characteristics of the Islamic culture, its sources, fields of study, and its role in creating the "Islamic character". It also deals with the so-called "cultural invasion", its types, methodologies, and ways of confronting it. (Prerequisite- None)

ISL 102 Islamic Ethics

This course defines ethics and its aspects and how ethics plays an important role in our life in general and in workplaces in particular. It stresses the importance of ethics in Islam and the value Islam gives to ethics in general. This course deals with four aspects of ethics in Islam include its meaning, its significance, its effects, and its relation to work and work ethics. (Prerequisite- None)

ISL 103 Islam & Contemporary Issues

This course deals with the way Islam deals with contemporary issues such as extremism, determination of the Islamic calendar, alms tax (Zakat) on money and jewellery, democracy and government system, cloning, abortion, and other related issues. (Prerequisite- None)

SPT 101 Special Topics

This course deals with special contemporary topics that are important to university students. Such special topics help students understand their social, cultural, ethical, and economic environment so they are empowered with knowledge and skills. (Prerequisite- None)

LFS 102 Thinking and communications skills development

This course introduces students to the concept of thinking, its characteristics, its forms and its importance in the educational process. The course also deals with applying modern strategies and theories interpreted for different kinds of thinking. The course defines critical and creative thinking, differentiates between opinions and facts, hones students' skills in listening, negotiation

and persuasion, giving a speech, solving problems, preparing for an interview, and writing a CV. (Prerequisite- None)

SOC 101 Introduction to Sociology
The course introduces basic concepts in Sociology, its importance, approach, origin, and relation to other fields. Also, this course deals with scholars' contribution to Sociology. It also deals with topics related to Sociology such as social structure, culture, social systems, class, problems, and change. (Prerequisite- None)

MAN 101 Man and Environment
This course defines environment in general and the difference between natural environment and constructed environment. It also deals with issues related to how environment is important to humans and how humans should interact with their environment and how human behaviour influences environment and vice versa. Moreover, this course demonstrates the essential role of institutions in protecting environment and the role students play to save their environment. Students are required to do some research related to environment. (Prerequisite- None)

LIB 101 Introduction to Library Science
This course introduces students to the library sciences. It gives a general historical review of the development of libraries through the ages and sheds light on the importance of libraries in the development of knowledge and sciences. This course highlights the significance and function of information. Also, the course helps students to know how to use the library and its resources, digital database, and information systems. (Prerequisite- None)

CS 205 Computer Applications
This course includes the following topics: using a word processing program to write reports, a spreadsheet software program to create an elementary accounting program, and a database software program to design an elementary information system. (Prerequisite- CS104)

College Compulsory Courses

ADE1091 - 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, light and its gradation on different objects and materials. (Prerequisite- None)

ADE1110 - 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 of colour theory, and its practical applications and projects which contribute to the develop students' ability in the sensory perception of visual formations and stereotypes. (Prerequisite- None)

IND4053 – 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 IND3114)

Programme Compulsory Courses

ADE 1100 – Historical Environments
This course deals with the study of the history of architecture and the visual arts, with emphasis on the main models and styles of architecture, interior design, furniture, decoration, and the way in which designers and architects respond to the social, cultural, and environmental conditions affecting them. The time frame of this course extends from the Ancient Near East. Until the late Nineteenth Century (in Europe). This course is a prerequisite for 'History of Interior Design' Course. (Prerequisite: ADE 1091)

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: IND 1092)

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 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) I
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 behaviour in the context of the habitable environment. This course provides students with methodologies, design processes, use of colour, anthropometric and ergonomics and design elements related to interior design. (Prerequisite: IND 1071 & ADE 1110)

IND 2095 - Computer-Aided Design (CAD) II
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 2121 - Light & Color in Interior Environments
The course deals with the basics of interior lighting design and its relationship to colour 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 analyse 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 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 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 3051- Building Information Modeling (BIM) I
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 an introduction to the ethics and responsibilities of the interior designer. It presents topics such as the role of companies, technology transfer, small business management, marketing and promotion, scope of services, job description, contracts, ethics and auditing. The course includes studying project management contract documents from an ethical standpoint. (Prerequisite: IND 3141)

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 1100)

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 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)

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 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: IND 2121)

IND 3142 - 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)

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 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 Hrs & IND 3113)

IND 4062 – 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 4071 – Programming and Research
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)

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 2151)

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)

Programme Elective Courses

IND 1099 – Advance Perspective
This course focuses on the applications of perspective drawing, sketch of interior spaces with the help of engineering perspective techniques (perspective at a single vanishing point/ two points/and three points), as well as the study of shade and shadow projections in perspective. (Prerequisite: IND 1092)

IND 2096 - Computer-Aided Design (CAD) III
This course enhances student skills in the creation and study of computer aided 3D drawings after completing “Computer-Aided Design (CAD) II” Course, allowing students to build complex scenes, work in complex contexts, produce night and day scenes, and benefit from dedicated software for visualization and simulation of reality. (Prerequisite: IND 2095)

IND 2097 - 3D Printing & 3D Scanning
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 Scanning and related software which enables students to utilize these technologies in their future projects. (Prerequisite: IND 2095)

IND 2098- Digital Rendering of Architectural Drawings
This course helps the student to have the ability to use features of dedicated software using Bitmap technology for the processing of graphics and images and mixing them, and in the operations of displaying and printing various graphics and designs. (Prerequisite: IND 1094)

IND 2103 - Islamic Built Environment
This course sheds lighter 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 1100)

IND 3000 - Special Topics in 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: Dept. Approval)

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. (Prerequisite: IND 2095)

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 colour theories and taking into account the relevant standards. (Prerequisite: IND 2121)

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: IND 3141)

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 IND 3113)

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 3133 – Innovative Materials
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 2151)

IND 3154 - Rehabilitation of Heritage 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)

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 . (Prerequisite: IND 4040)

IND 4042 - Interior Design Study Tours
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 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 4052 - Building Information Modeling (BIM) II
The course builds on the principles and implementation principles learned in (BIM I), where the advanced BIM tools and applications are used in various fields such as joint cooperation in the project, lighting simulation, quantities calculation and detection of conflicts or interference. (Prerequisite: IND 3051)

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 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 3113)

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 behaviour, and finally its reflection in the development of design solutions. (Prerequisite: IND 2081)

Bachelor in Graphic Design

Programme Description

The Graphic Design Programme is a Professional Programme Member of the International Council of Design (ICoD), and it is a significant specialisation in the Bahraini labour market. The Programme Study Plan is designed according to the latest global professional versions of NASAD 2021 and according to benchmarking with international, regional and local universities to provide a practical scientific qualification according to the design curricula and innovative thinking in Graphic Design by analysing user behaviours, and interpreting them according to specialised design skills and their applications in publications, multimedia and computer technologies in various areas of Graphic Design to keep pace with the requirements of the Bahraini and regional labour market, enhance communication and use scientific research methods and modern communication technologies. It is worth mentioning that the Graphic Design Programme was placed successfully on the National Qualifications Framework (NQF).

The Graphic Design programme aims to:

1. Prepare a competent graduate who is capable of utilising design curricula, innovative thinking, and research methods in the fields of visual communication, understanding and analysing user behaviours, following up the education to solve graphic problems related to the market, commercial competition, the society and the environment needs, and preparing students to pursue postgraduate studies.
2. Provide a stimulating and creative study environment and equip the graduate with specialised design skills and design applications in publications, multimedia, video technologies, user interfaces, animation and computer technologies in various areas of Graphic Design to keep pace with the requirements of the local and regional labour market.
3. Enable the graduate to communicate and utilise modern communication techniques, fieldwork, leadership, work in a multidisciplinary team, take responsibility, consider intellectual property issues and contribute to building the local community.

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	2024-2025
Language of Study	Arabic
Mode of Study	Full Time
Programme Leader	Dr. Mohamed Yasser Abbar Office No: 16036139 E-mail: yasser.abbar@asu.edu.bh Room No. 129

Programme Intended Learning Outcomes (PILOs):

Upon completion of this Programme, the graduate will be capable of the following:

- Summarising specialised knowledge of the history and theories of art and design and their techniques.
- Providing critical explanations of communication theories, human behaviours, and concepts of semiology in various contexts of contemporary problems.
- Demonstrating critical professional practices, ethics and related intellectual property issues.
- Applying specialised drawing, visual organisation, typography and photogrammetry skills in advanced contexts and some complex formulations of Graphic Design Projects.
- Employing specialised technologies, software, and multimedia to build purpose-based visual representations.
- Using technology systems and specifications professionally to meet production and publishing techniques and sustainability requirements.
- Developing creative design alternatives in the context of planning to solve complex problems.
- Providing critical analysis based on various research methods or critical foundations of Graphic Design.
- Working professionally in changing environmental, social, and economic contexts while taking responsibility for the work of others within the scope of Graphic Design Practice.
- Communicating competently with the relevant authorities and presenting formal presentations using modern communication techniques.

Admission Criteria:

4. 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.
5. Students with averages below 60% may be admitted in the University, provided that they meet one of the following criteria:

- They are athletes and artists who represent the Kingdom of Bahrain internationally.
- Those with at least one year of practical experience following their secondary school certificate.
- In addition, the University Council has the right to decide on applicants with averages below 60%.
- The number of students admitted according to this point (2) can be no more than 5% of the admitted students.

6. In addition to the above, students admitted to the Programme must undergo an interview and an assessment test that will entail three cases:

- If the interview result is “well prepared”: the applicant will be admitted directly to the Programme.
- If the interview result is “barely prepared”: the applicant will be admitted conditionally.
- If the interview result is: “unprepared": the student’s application will be transferred to other programmes at the University.

English Language Requirements

3. All students admitted to the Programme must attend the Compulsory English Test (specified by the University) to determine their English Level, according to the following:

- Students who score between (0-40), must attend Remedial English (ENG 099).
- Students who scored between (41-120), must attend English Language 1 (ENG101).

4. The student is exempted from the course ENG 099 if they have obtained (5) or higher in an IELTS test, or 450 and higher in a TOEFL test.

Progression Pathways and Opportunities:

Competent graphic designers design and implement graphic advertising campaigns that serve the labour market, users, and consumers with the products and services. They also utilise their talents to increase economic and operational efficiency and educate the community about behaviours and habits that improve opportunities for safety, economy and efficiency and affect people's quality of life.

Accordingly, the Graphic Design Programme offered by ASU qualifies its graduates to work in advertising units and various media forms in the public and private sectors, in advertising offices and companies, and to be qualified to establish their projects in the Graphic Design and multimedia and to apply for postgraduate academic degrees in Graphic Design and related fields.

Examples of potential jobs for a graduate With Graphic Design Degrees include:

- Branding Design and Corporate Visual Identity Design.
- Designing Outdoor Advertisements and Road Signs.
- Designing Indoor Advertisements.
- Web Design.
- Designing Interactive Mobile Applications.
- Designing and Directing Various Publications.
- Designing Social Media Advertisements
- Technical and Creative Management of the Various Design Departments.
- Supervising the Implementation and Dissemination of Advertising and Advertising Work.
- Designing Directional Signs and Building Services Boards.

Graduation Requirements:

According to ASU's "Bachelor Degree Bylaw", the bachelor degree is granted to students by the University Council upon fulfilment of all graduation requirements, represented by: passing all courses required for graduation (i.e. completion of the number of credit hours) with a cumulative average of no less than 60% after studying for a minimum period of 3 years, and not exceeding a maximum period of 8 years.

Programme Structure and Study Plan

The Graphic Design Programme is designed based on 44 courses totalling 135 credit hours which are structured as follows: University Compulsory requirements (21 Cr), University Elective

requirements (6 Cr), College Compulsory requirements (9 Cr), Major Compulsory requirements (84 Cr), and Major Elective requirements (15 Cr).

The Graphic Design Programme comprises of Courses Levels according to the National Qualifications Framework (NQF) Courses levels with their prerequisite, divided into eight semesters distributed over four years as shown in the courses tree. The courses, along with their credit hours and NQF levels, are distributed in the Study Plan (as defined below). Graphic Design Study Plan ensures that students progress gradually from the first to the final year with a suitable study load. The Graphic Design Programme's minimum and maximum study periods are three and eight years, respectively.

Study Plan

Programme Study Plan								
No.	Course Code	Course Title	Prerequisite	Lec	Lab	ASU Credit	NQF Credit	NQF Level
Year 1 – First Semester (18 Cr)								
1	ADE 1091	Introduction to Drawing	-	0	6	3	12	5
2	ADE 1110	Design Fundamentals	-	1	4	3	12	5
3	GDE 111	Computer Graphics 1	-	1	4	3	12	5
4	CS 104	Computer Skills	-	2	2	3	12	5
5	HR 106	Human Rights	-	3	0	3	12	5
6	-	University Elective (Group 1)		-	-	3	12	5
Year 1 – Second Semester (18 Cr)								
1	GDE 120	History of Modern Art	-	3	0	3	12	6
2	GDE 214	Computer Graphic 2	GDE 111	1	4	3	12	6
3	GDE 116	Drawing & Painting	ADE 1091	0	6	3	12	6
4	GDE 113	Typography1	ADE 1110	1	4	3	12	6
5	ENG 101	English language I	-	3	0	3	12	5
6	HBH 105	Bahrain Civilization & History	-	3	0	3	12	6
Year 2 – First Semester (18 Cr)								

1	GDE 231	Principles of Graphic Design	GDE 113	1	4	3	12	6
2	GDE 211	Photography	ADE 1110	1	4	3	12	6
3	GDE 216	Computer Graphics 3	GDE 214	1	4	3	12	6
4	GDE 222	History of Graphic Design	GDE 120	3	0	3	12	7
5	ENG 102	English language II	ENG 101	3	0	3	12	5
6	ARB 101	Arabic Language	-	3	0	3	12	6
Year 2 – Second Semester (18 Cr)								
1	GDE 232	Branding Design	GDE 231	1	4	3	12	7
2	GDE 221	Communication Theory	GDE 120	1	0	3	12	7
3	GDE 315	3D Computer Graphic	GDE 214	1	4	3	12	7
4	GDE 334	Illustration 1	GDE 214 & GDE 116	1	4	3	12	7
5	GDE 237	Typography 2	GDE 113	1	4	3	12	7
6	BA 161	Introduction to Entrepreneurship	-	3	0	3	12	6
Year 3 – First Semester (18 Cr)								
1	GDE 336	Digital Video	GDE 211	1	4	3	12	7
2	GDE 333	Advertising Design	GDE 232	1	4	3	12	7
3	GDE 341	Printing Technology & Specifications	GDE 237	1	4	3	12	7
4	GDE 325	Design and Marketing	GDE 222	3	0	3	12	7
5	GDE 335	Design & Layout of Publications	GDE 216	1	4	3	12	7
6	-	University Elective (Group 2)	-	-	-	3	12	6
Year 3 – Second Semester (18 Cr)								

1	GDE 338	Packaging Design	GDE 341	1	4	3	12	8
2	GDE 339	Design for Multimedia	GDE 336	1	4	3	12	8
3	GDE 434	Outdoor Design & Symbols	GDE 333	1	4	3	12	8
4	GDE 343	Ethics & Practice of Profession	GDE 341	3	0	3	12	8
5	-	Programme Elective (Group 1)	-	-	-	3	12	7
6	-	Programme Elective (Group 1)	-	-	-	3	12	7
Year 4 – First Semester (15 Cr)								
1	GDE 431	Graduation Project Studies	GDE 333	3	0	3	12	8
2	GDE 442	Internship	90 Cr&GDE 335	-	-	3	20	8
3	IND 4053	Design Collaboration	GDE 339	3	0	3	12	8
4	GDE 432	Web Page Design	GDE 333	1	4	3	12	8
5	-	Programme Elective (Group 1)	-	-	-	3	12	7
Year 4 – Second Semester (12 Cr)								
1	GDE 433	Graduation Project	GDE 431	0	12	6	24	8
2	-	Programme Elective (Group 2)	-	-	-	3	12	8
3	-	Programme Elective (Group 2)	-	-	-	3	12	8

University Elective Courses

University Elective Courses (6 Cr)						
No.	Course Code	Course Title	Prerequisite	ASU Credit	NQF Credit	NQF Level
Group 1 (3 Cr)						

1	ISL 101	Islamic Culture	-	3	12	6
2	ISL 102	Islamic Ethics	-	3	12	6
3	ISL 103	Islam & Contemporary issues	-	3	12	6
Group 2 (3 Cr)						
1	LIB 101	Introduction to Library Science	-	3	12	5
2	MAN 101	Man and Environment	-	3	12	5
3	SOC 101	Introduction to Sociology	-	3	12	5
4	SPT 101	Special Topics	-	3	12	5
5	CS 205	Computer Applications	CS104	3	12	5
6	LFS 102	Thinking and communications skills development	-	3	12	5

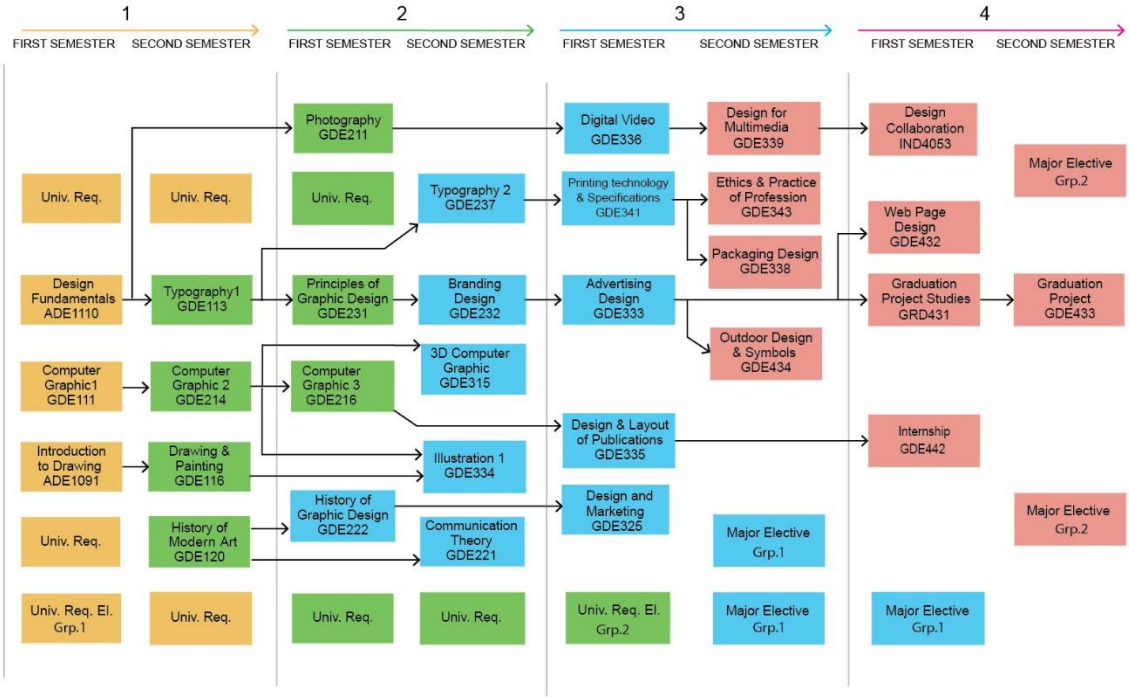
Programme Elective Courses

Programme Elective Courses (15 Cr)								
No.	Course Code	Course Title	Prerequisite	Lec	Lab	ASU Credit	NQF Credit	NQF Level
Group 1 (9 Cr)								
1	GDE 212	Digital Photography	GDE 211	1	4	3	12	7
2	GDE 217	Arabic Calligraphy	GDE 113	1	4	3	12	7
3	GDE 218	Anatomy Art	GDE 116	1	4	3	12	7
4	GDE 219	Geometry in Design	GDE 231	1	4	3	12	7
5	GDE 224	Design in Islamic Arts	GDE 120	3	0	3	12	7
6	GDE 225	Design Process	GDE 222	2	2	3	12	7
7	GDE 327	Industry & Art	GDE 222	1	4	3	12	7
8	GDE 312	Drawing & Painting 2	GDE 116	0	6	3	12	7
9	GDE 328	Psychology & Sociology Design	GDE 232	3	0	3	12	7
10	GDE 430	Digital Game Design	GDE 315	1	4	3	12	7
Group 2 (6 Cr)								
1	IND 2097	3D Printing & 3D Scanning	GDE 315	2	2	3	12	8

2	GDE 300	Special Topics in Graphic Design	GDE 333	2	2	3	12	8
3	GDE 421	Critical Issues in Design	GDE 221	3	0	3	12	8
4	GDE 436	Animation Design	GDE 334	1	4	3	12	8
5	GDE 437	Calligraphy & Design	GDE 237	1	4	3	12	8
6	GDE 438	Portfolio Design	GDE 335	1	4	3	12	8
7	GDE 439	Illustration 2	GDE 334	1	4	3	12	8

Courses Tree

Bachelor in Graphic Design 2024-2025



Course Description

University Compulsory Courses

ARB 101 Arabic Language

This course deals with issues related to Arabic grammar and literature. It studies some basic linguistic issues in the vocabulary, morphology, syntax, and semantics of Arabic. It also studies stylistic and literary features through analyzing and discussing some selected texts from the Holy Quran and other literary masterpieces. (Prerequisite- None)

ENG 101 English Language I

This course is designed to help students to communicate effectively in English for academic purposes. It helps students to acquire some communication skills in reading, writing, and note-taking at pre-intermediate level using the appropriate grammar and vocabulary for this level. Finally, the course is intended to improve students' skills in English, so they get ready for a further English credit course (ENG102), and use English in their academic life. (Oxford test score > 40 or ENG099)

ENG 102 English Language II

This course is designed to help students to communicate effectively in English for academic purposes. It helps students to acquire some communication skills in reading and writing at intermediate level using the appropriate grammar and vocabulary for this level. Finally, the course is intended to improve students' skills in English, so they take credit courses taught in English and to use English in their academic life. (Prerequisite: ENG 101)

CS 104 Computer Skills

This course covers the following topics: basic information technology concepts, using the computer to manage files, word processing, spreadsheets, presentation and database. (Prerequisite- None)

BA 161 Introduction to Entrepreneurship

This course aims to study the concept of entrepreneurship, to explain its implications and significance, and to provide students with the knowledge and skills necessary to transform ideas into applied entrepreneurial projects in accordance with the rules of founding entrepreneurial projects. Moreover, the course aims to provide students with the core skills of an entrepreneur, starting from establishing the project, choosing the legal formula for it, planning, organizing, marketing, and financing until the whole process is fully managed while enabling students to submit proposals to establish a commercial project and to discuss it at the end of the semester. Finally, the course aims to study practical cases for pioneering projects in the Kingdom of Bahrain. (Prerequisite- None)

HBH 105 Bahrain Civilization & History

This course deals with the history of Bahrain from 1500-1800. It studies the stages of the Portuguese invasion of this part of the world and the international power struggle that erupted

after the invasion. It also deals with the ruling of Al-Utuub Tribe of Bahrain and the reign of Al Khalifa as their reign is characterized by propensity, wisdom, freedom, and modern state. (Prerequisite- None)

HR 106 Human Rights

This course discusses the basic principles of human rights. It acquaints the students with the nature of human rights, their realms, and sources, paying special attention to the international legal provisions concerning human rights included in the following documents: United Nations Charter, International Declaration of Human Rights, International Accord on Civil and Political Rights, International Accord on Social and Economic Rights, International agreement against torture and inhumane, disrespectful punishment, and Protection mechanisms and constitutional organization of public rights and freedoms in the Kingdom of Bahrain. (Prerequisite- None)

University Elective Courses

ISL 101 Islamic Culture

The course deals with the concept of "Culture" in general and the concept of "Islamic Culture" in particular, and other related concepts. Thus, the course studies the characteristics of the Islamic culture, its sources, fields of study, and its role in creating the "Islamic character". It also deals with the so-called "cultural invasion", its types, methodologies, and ways of confronting it. (Prerequisite- None)

ISL 102 Islamic Ethics

This course defines ethics and its aspects and how ethics plays an important role in our life in general and in workplaces in particular. It stresses the importance of ethics in Islam and the value Islam gives to ethics in general. This course deals with four aspects of ethics in Islam include its meaning, its significance, its effects, and its relation to work and work ethics. (Prerequisite- None)

ISL 103 Islam & Contemporary Issues

This course deals with the way Islam deals with contemporary issues such as extremism, determination of the Islamic calendar, alms tax (Zakat) on money and jewellery, democracy and government system, cloning, abortion, and other related issues. (Prerequisite- None)

SPT 101 Special Topics

This course deals with special contemporary topics that are important to university students. Such special topics help students understand their social, cultural, ethical, and economic environment so they are empowered with knowledge and skills. (Prerequisite- None)

LFS 102 Thinking and communications skills development

This course introduces students to the concept of thinking, its characteristics, its forms and its importance in the educational process. The course also deals with applying modern strategies and theories interpreted for different kinds of thinking. The course defines critical and creative thinking, differentiates between opinions and facts, hones students' skills in listening, negotiation

and persuasion, giving a speech, solving problems, preparing for an interview, and writing a CV. (Prerequisite- None)

SOC 101 Introduction to Sociology
The course introduces basic concepts in Sociology, its importance, approach, origin, and relation to other fields. Also, this course deals with scholars' contribution to Sociology. It also deals with topics related to Sociology such as social structure, culture, social systems, class, problems, and change. (Prerequisite- None)

MAN 101 Man and Environment
This course defines environment in general and the difference between natural environment and constructed environment. It also deals with issues related to how environment is important to humans and how humans should interact with their environment and how human behaviour influences environment and vice versa. Moreover, this course demonstrates the essential role of institutions in protecting environment and the role students play to save their environment. Students are required to do some research related to environment. (Prerequisite- None)

LIB 101 Introduction to Library Science
This course introduces students to the library sciences. It gives a general historical review of the development of libraries through the ages and sheds light on the importance of libraries in the development of knowledge and sciences. This course highlights the significance and function of information. Also, the course helps students to know how to use the library and its resources, digital database, and information systems. (Prerequisite- None)

CS 205 Computer Applications
This course includes the following topics: using a word processing program to write reports, a spreadsheet software program to create an elementary accounting program, and a database software program to design an elementary information system. (Prerequisite- CS104)

College Compulsory Courses

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, 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), introduction of colour theory, and practical applications and projects which continue to the develop students' ability in the sensory perception of visual formations and stereotypes. (Prerequisite- None)

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 GDE 339)

Programme Compulsory Courses

GDE 111 - Computer Graphics 1
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 and relying on self-learning to cope with technical development. (Prerequisite: None)

GDE 113 - Typography1
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: ADE1110)

GDE 116 - Drawing & Painting
The course focuses on enhancing the student's ability to express different formations and materials using colour pencils. (Prerequisite: ADE1091)

GDE 120 – History of Modern Art
The course teaches history of art, architecture, graphic, sculpture, visual arts and design in Europe, and the different influences that impacted them like social and artistic influences which contributed to its development from the European Age of Enlightenment to present day, and the relevant environmental contexts. (Prerequisite: None)

GDE 211 - Photography
The course includes studying the camera, 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: ADE1110)

GDE 214 - Computer Graphics 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 216 - Computer Graphic 3
The course introduces the most important principles and basics of professional layout software, the practice on layout software, particularly InDesign, preparing and dividing the page and columns, inserting the titles, texts, images, and editing them with practical projects that deals with modelling and simulations for some newspapers and magazines. (Prerequisite: GDE 214)

GDE 221 - Communication Theory
The course explores the most important communication theories related to visual communication, analysis of mass communication problems, psychological factors, critical and semiotics theory. It also introduces the use of appropriate means to determine people's desires, needs, patterns of behaviour and propose appropriate communication solutions. (Prerequisite: GDE 120)

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: GDE 120)

GDE 231 - 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: GDE 113)

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 231)

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 labour market. (Prerequisite: GDE 113)

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 325 – Design and 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 222)

GDE 333 - 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, analysing the communication process and developing design responses that respect 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: GDE 232)

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: GDE 214 & GDE 116)

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 216)

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: GDE 211)

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)

GDE 339 – Design for Multimedia
The course includes the recognition of multimedia systems, and applications combining the use of text, graphics, sound, animation and video, to utilize them in the field of graphic communication. (Prerequisite: GDE 336)

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 behaviours, intellectual property issues such as patents, trademarks and copyrights, management, marketing and economics principles, business, contracts and globalization from a professional perspective. (Prerequisite: GDE 341)

GDE 431 - 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 behaviour of the target audience. This course also addresses strategies for alternative solutions that respect social, cultural and environmental rights. (Prerequisite: GDE 333)

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 333)

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 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 333)

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 labour 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 Cr & GDE 335)

Programme Elective Courses

IND 2097 - 3D Printing & 3D Scanning

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 Scanning and related software which enables students to utilize these technologies in their future projects. (Prerequisite: GDE 315)

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: GDE 211)

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: GDE 113)

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: GDE 116)

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: GDE 231)

GDE 224 - Design in Islamic Arts
The course focuses on the study of art, architecture, and design and their development during different Islamic eras. It analyses cultural and social contexts that influence the formation of the characteristics of this urbanity and the way designers respond to those conditions. (Prerequisite: GDE 120)

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 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 333)

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)

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 models, such as the lighting structures design, design containers and office equipment design. (Prerequisite: GDE 222)

GDE 328 - Psychology & Sociology 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: GDE 232)

GDE 421 - Critical Issues in 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)

GDE 430 – Digital Game Design
The course aims to teach students the basics of creating games using the Unreal Engine. Students will study ways to create environments related to first-person games, and develop game themes and ways to control their characters. The Course also aims to facilitate the game development learning curve for learners. (Prerequisite: GDE 315)

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 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 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, encyclopaedias, storyboard drawings, learning the diagram art and implementing designs and applied works for service or commercial buildings. (Prerequisite: GDE 334)

Department of Computer Science

Bachelor in Computer Science

Programme Description

Computer Science Programme (in English) is one of the fastest-growing disciplines in the Bahraini, regional and international labour market. The Computer Science Programme combines a sound theoretical foundation with a high level of practical expertise in all areas of the discipline, including the algorithms that formed the software, the interaction between software and hardware, software design, development and testing. The Programme focuses on laboratory, training and experience and promotes the cultivation of personal skills. The Programme complies with international standards of ACM/ IEEE Computer Science Curriculum. It is also regularly reviewed and benchmarked with local, regional and international universities, supported by an advisory board and formal/ informal market studies to ensure that the Programme and Curriculum stay relevant to trends in the labour market.

The Computer Science Programme is also a member of the British Computer Society BCS, and its staff are members of IEEE, BCS, and Oracle Academy. It is worth mentioning that the Computer Science Programme has received full confidence from the Bahrain Education and Training Quality Authority (BQA) – Cycle2 and was placed successfully on the National Qualifications Framework (NQF).

The Computer Science Programme is supported by many courses that require students to develop their theoretical and applied knowledge, refine analytical and critical thinking skills, and use scientific research methods and modern communication technologies to be prepared to face the challenges and opportunities of the Bahraini and Gulf market. Students' capabilities are built, strengthened and developed throughout the Programme. Therefore, they can practice what they learn through various courses in specialised computer laboratories and critical studies. A large part of the learning process is achieved through the constant exchange of discussion with fellow students and lecturers and the presentation and discussion of their work with peers and experts.

The Computer Science Programme aims to prepare a Graduate capable of:

- Competing and meeting the needs of the local and regional labour market.
- Utilising knowledge and skills in various computer fields to solve work problems and generate new ideas, creativity and innovation.
- Utilising knowledge of scientific research methodologies of Computer Science and analysing and interpreting results.
- Learning continuously through experience, implementation and collaboration.
- Communicating effectively, either orally or in writing
- Collaborating with others and working in a team.
- Carrying a human and ethical vision towards his community, respecting diversity in occupational and cultural requirements, and improving awareness towards the future to achieve sustainable development.

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	2024-2025
Language of Study	English
Mode of Study	Full Time

Programme Intended Learning Outcomes (PILOs):

Upon completion of the programme, the graduates should be able to:

- Demonstrate a critical knowledge and understanding of computing theories and mathematics concepts appropriate to discipline.
- 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.
- Use specialist level skills to apply mathematical foundations, algorithmic principles, and computer science theory in problem solving in varying complexity.
- 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.
- Critically analyse computing problems in various context to identify the computing requirements appropriate to their solution.
- Use a wide range of approaches to critically identify and evaluate computing-based solutions to meet desired needs within realistic constraints.
- 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.
- 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.

Admission Criteria:

7. 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.
8. Students with averages below 60% may be admitted in the University, provided that they meet one of the following criteria:

- They are athletes and artists who represent the Kingdom of Bahrain internationally.
- Those with at least one year of practical experience following their secondary school certificate.
- In addition, the University Council has the right to decide on applicants with averages below 60%.

- The number of students admitted according to this point (2) can be no more than 5% of the admitted students.

9. In addition to the above, admission to the Computer Science Programme is limited to students who have obtained a High School Certificate - 'Scientific Track' or its equivalent.

English language Requirements:

1. All students admitted to Computer Science Programme must attend the Compulsory English Test (specified by the University) to determine their English Level, according to the following:

- Students who scored between (0-34), must attend Elementary English (ENG097).
- Students who scored between (35-50), must attend Intermediate English (ENG098).
- Students who scored between (51-120), must attend Upper-Intermediate English (ENG111).

2. The student is exempted from the courses (ENG097) and (ENG098) if they have obtained (5) or higher in an IELTS test, or 450 and higher in a TOEFL test.

Progression Pathways and Opportunities:

The competent computer science graduate generally pursues to analyse, design and implement various computer programs that serve the labour market, users and customers with the necessary software. He also utilises his talents to increase economic and operational efficiency and educates the community about behaviours and habits that improve opportunities for safety, economy and efficiency and affect People's quality of life.

Accordingly, the Computer Science Programme offered by Applied Science University will qualify the graduates to work in the various departments related to information technology in public and private sectors and to be qualified to establish their projects in the field of various software development and apply for higher and professional academic degrees in Computer Science and related fields.

In addition to the above, there are many potential jobs for the Computer Science graduate, including:

- Applications Programmer.
- Teacher or Researcher in Computer Science.
- IT Consulting.
- Systems Analyst and Designer.
- IT Officer (in Government or Private Sector).
- Information Systems Administrator.
- Business System Analyst.
- Analyst, Designer and Database Developer.
- Computer Network Administrator.
- Software Engineer.
- Analyst, Designer and Web Applications Developer.
- Applications Manager.
- Software Testers.

In addition to all of the above, Computer Science graduates will be prepared for postgraduate studies and scientific research in Computer Science or related disciplines.

Graduation Requirements:

According to ASU's "Bachelor Degree Bylaw", the bachelor degree is granted to students by the University Council upon fulfilment of all graduation requirements, represented by: passing all courses required for graduation (i.e. completion of the number of credit hours) with a cumulative average of no less than 60% after studying for a minimum period of 3 years, and not exceeding a maximum period of 8 years.

Programme Structure and Study Plan

The CS Programme is designed based on 45 courses totalling 135 credit hours which are structured as follows: University Compulsory requirements (21 Cr), University Elective requirements (6 Cr), College Compulsory requirements (21 Cr), Major Compulsory requirements (72 Cr), and Major Elective requirements (15 Cr).

The CS Programme comprises of Courses Levels according to the National Qualifications Framework (NQF) Courses levels with their prerequisite, divided into eight semesters distributed over four years as shown in the courses tree. The courses, along with their credit hours and NQF levels, are distributed in the Study Plan (as defined below). CS Study Plan ensures that students progress gradually from first year to the final year with a suitable study load. The Computer Science Programme's minimum and maximum study periods are three and eight years, respectively.

Study Plan

Programme Study Plan								
No.	Course Code	Course Title	Prerequisite	Lec	Lab	ASU Credit	NQF Credit	NQF Level
Year 1 – First Semester (15 Cr)								
1	ENG 111	Upper-Intermediate English	Oxford test score > 50 /ENG 098	3	0	3	12	5
2	CS 104	Computer Skills	-	2	2	3	12	5
3	CSC 101	Mathematics 1	-	2	2	3	12	6
4	CSC 111	Structured Programming	-	2	2	3	12	6
5	CSC 103	Probability and Statistics	-	2	2	3	12	6
Year 1 – Second Semester (18 Cr)								
1	ENG 112	Advanced English	ENG 111	3	0	3	12	5
2	-	University Elective (Group 1)	-	3	0	3	12	5

3	HR 106	Human Rights	-	3	0	3	12	5
4	CSC 102	Discrete Mathematics	-	2	2	3	12	6
5	CSC 141	Communication Skills	-	3	0	3	12	6
6	CSC 142	Computer Ethics and Social Responsibility	ENG111	3	0	3	12	6
Year 2 – First Semester (18 Cr)								
1	-	University Elective (Group 2)	-	3	0	3	12	6
2	ARB 101	Arabic Language	-	3	0	3	12	6
3	CSC 202	Digital Logic	CSC 102	2	2	3	12	6
4	CSC 203	Mathematics 2	CSC 101	2	2	3	12	6
5	CSC 212	Object-Oriented Programming I	CSC 111	2	2	3	12	6
6	CSC 222	Software Engineering I	CSC 141	2	2	3	12	6
Year 2 – Second Semester (18 Cr)								
1	HBH 105	Bahrain Civilization and History	-	3	0	3	12	6
2	CSC 215	Data Structures	CSC 212	2	2	3	12	7
3	CSC 221	Database Systems	CSC 212	2	2	3	12	6
4	CSC 231	Computer Organization and Architecture	CSC 202	2	2	3	12	7
5	CSC 241	Scientific Research Methods	CSC 103	3	0	3	12	7
6	CSC 322	Web Based Software Development I	CSC 222	2	2	3	12	7
Year 3 – First Semester (18 Cr)								
1	CSC 304	Artificial Intelligence	CSC 212	2	2	3	12	7
2	CSC 314	Object Oriented Programming II	CSC 212	2	2	3	12	7
3	CSC 321	Systems Analysis and Design	CSC 221	2	2	3	12	7
4	CSC 325	Database Development	CSC 221	2	2	3	12	7
5	CSC 331	Operating Systems	CSC 231	3	0	3	12	7
6	-	Programme Elective (Group 1)	-			3	12	7
Year 3 – Second Semester (18 Cr)								
1	BA 161	Introduction to Entrepreneurship	-	3	0	3	12	6

2	CSC 301	Numerical Analysis	CSC 203	2	2	3	12	7
3	CSC 302	Computational Theory	CSC 102 & CSC 215	3	0	3	12	7
4	CSC 323	Visual Programming	CSC 314&CSC 221	2	2	3	12	8
5	CSC 332	Data Communication and Computer Networks	CSC 331	2	2	3	12	8
6	-	Programme Elective (Group 1)	-			3	12	7
Year 4 – First Semester (15 Cr)								
1	CSC 401	Algorithms Design & Analysis	CSC 102 & CSC 215	3	0	3	12	8
2	CSC 402	Compilers Design	CSC 302	3	0	3	12	8
3	CSC 425	Graduation Project 1	CSC 241&90 Hrs	3	0	3	12	8
4	CSC 441	Internship	CSC 321&90 Hrs	3	0	3	20	8
5	-	Programme Elective (Group 2)	-			3	12	8
Year 4 – Second Semester (15 Cr)								
1	CSC 426	Graduation Project 2	CSC 425	3	0	3	12	8
2	CSC 435	Ciphering and Computer Security	CSC 332	3	0	3	12	8
3	CSC 436	Mobile Computing	CSC 332	3	0	3	12	8
4	-	Programme Elective (Group 2)	-			3	12	8
5	-	Programme Elective (Group 2)	-			3	12	8

University Elective Courses

University Elective Courses (6 Cr)						
No.	Course Code	Course Title	Prerequisite	ASU Credit	NQF Credit	NQF Level
Group 1 (3 Cr)						
1	ISL101	Islamic Culture	-	3	12	6
2	ISL102	Islamic Ethics	-	3	12	6
3	ISL103	Islam & Contemporary Issues	-	3	12	6
Group 2 (3 Cr)						
1	LIB101	Introduction to Library Science	-	3	12	5
2	MAN101	Man and Environment	-	3	12	5
3	SOC101	Introduction to Sociology	-	3	12	5
4	SPT101	Special Topics	-	3	12	5

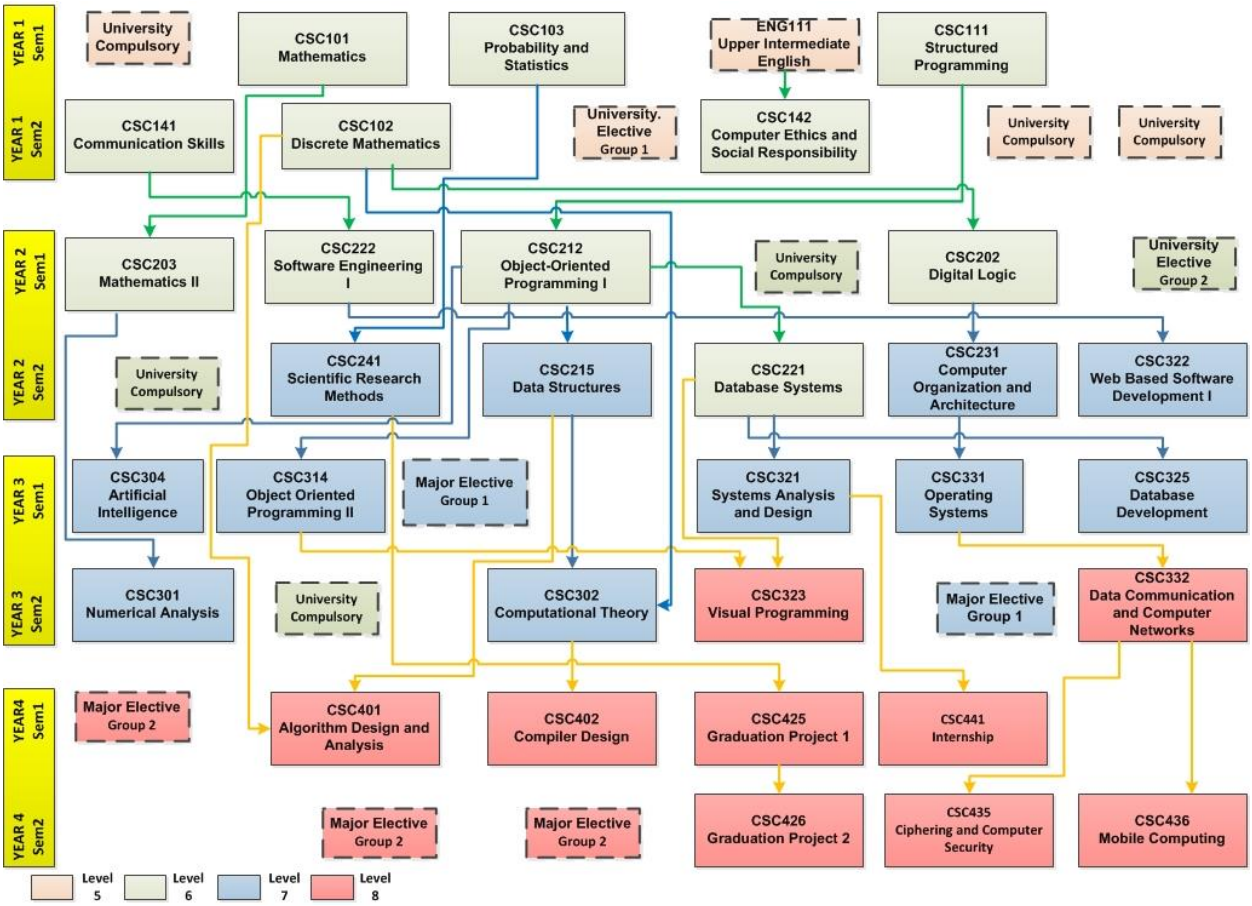
5	CS205	Computer Applications	CS104	3	12	5
6	LFS102	Thinking and communications skills development	-	3	12	5

Programme Elective Courses

Programme Elective Courses (15 Cr)								
No.	Course Code	Course Title	Prerequisite	Lec	Lab	ASU Credit	NQF Credit	NQF Level
Group 1 (6 Cr)								
1	CSC 204	Linear Algebra	CSC 203	2	2	3	12	7
2	CSC 305	Operations Research	CSC 103	3	0	3	12	7
3	CSC 326	Mobile Application Development	CSC 322&CSC 221	2	2	3	12	7
4	CSC 327	Web Based Software Development II	CSC 322&CSC 221	2	2	3	12	7
5	CSC 328	Human computer interaction	CSC 222	3	0	3	12	7
6	CSC 329	Multimedia Systems	CSC 322	2	2	3	12	7
7	CSC 421	Software Engineering II	CSC 222	2	2	3	12	7
Group 2 (9 Cr)								
1	CSC 312	Programming Languages Concepts	CSC 314	3	0	3	12	8
2	CSC 315	Data Mining	CSC 304	2	2	3	12	8
3	CSC 343	Special Topics in Computer Science	DEPT. APPROVAL	3	0	3	12	8
4	CSC 403	Image Processing	CSC 401	2	2	3	12	8
5	CSC 411	Computer Graphics	CSC 401	2	2	3	12	8
6	CSC 437	Cloud computing	CSC 332	2	2	3	12	8
7	CSC 438	Parallel and Distributed Computing	CSC 332	2	2	3	12	8

Courses Tree

Bachelor in Computer Science 2024-2025


YEAR 1 Sem1
YEAR 1 Sem2
YEAR 2 Sem1
YEAR 2 Sem2
YEAR 3 Sem1
YEAR 3 Sem2
YEAR4 Sem1
YEAR 4 Sem2
University Compulsory
CSC101 Mathematics
CSC103 Probability and Statistics
ENG111 Upper Intermediate English
CSC111 Structured Programming
CSC141 Communication Skills
CSC102 Discrete Mathematics
University. Elective Group 1
CSC142 Computer Ethics and Social Responsibility
University Compulsory
University Compulsory
CSC203 Mathematics II
CSC222 Software Engineering I
CSC212 Object-Oriented Programming I
University Compulsory
CSC202 Digital Logic
University Elective Group 2
University Compulsory
CSC241 Scientific Research Methods
CSC215 Data Structures
CSC221 Database Systems
CSC231 Computer Organization and Architecture
CSC322 Web Based Software Development I
CSC304 Artificial Intelligence
CSC314 Object Oriented Programming II
Major Elective Group 1
CSC321 Systems Analysis and Design
CSC331 Operating Systems
CSC325 Database Development
CSC301 Numerical Analysis
University Compulsory
CSC302 Computational Theory
CSC323 Visual Programming
Major Elective Group 1
CSC332 Data Communication and Computer Networks
Major Elective Group 2
CSC401 Algorithm Design and Analysis
CSC402 Compiler Design
CSC425 Graduation Project 1
CSC441 Internship
Major Elective Group 2
Major Elective Group 2
CSC426 Graduation Project 2
CSC435 Ciphering and Computer Security
CSC436 Mobile Computing
Level 5
Level 6
Level 7
Level 8

Course Description

University Compulsory Courses

ENG 111 Upper-Intermediate English

This course is a continuation of what students studied in Pre-Intermediate English, and it is designed for students who study in the English stream at the university. It aims to improve their English skills such as reading, writing and grammar and help them understand various English sentence structures and enrich their vocabulary. (Oxford test score > 50 or ENG098)

ENG 112 Advanced English

This course is a continuation of what students studied in Upper-Intermediate English, and it is designed for students who study in the English stream at the university. It aims to help students improve their English skills so they can comfortably use the language in their major, which is offered in English. Also, the course aims to help them improve reading, writing, and English sentence structures, so they use English in different contexts. (Prerequisite: ENG 111)

ARB 101 - Arabic Language

This course deals with issues related to Arabic grammar and literature. It studies some basic linguistic issues in the vocabulary, morphology, syntax, and semantics of Arabic. It also studies stylistic and literary features through analyzing and discussing some selected texts from the Holy Quran and other literary masterpieces. (Prerequisite: None)

CS 104 - Computer Skills

This course covers the following topics: basic information technology concepts, using the computer to manage files, word processing, spreadsheets, presentation and database. (Prerequisite- None)

BA 161 - Introduction to Entrepreneurship

This course aims to study the concept of entrepreneurship, to explain its implications and significance, and to provide students with the knowledge and skills necessary to transform ideas into applied entrepreneurial projects in accordance with the rules of founding entrepreneurial projects. Moreover, the course aims to provide students with the core skills of an entrepreneur, starting from establishing the project, choosing the legal formula for it, planning, organizing, marketing, and financing until the whole process is fully managed while enabling students to submit proposals to establish a commercial project and to discuss it at the end of the semester. Finally, the course aims to study practical cases for pioneering projects in the Kingdom of Bahrain. (Prerequisite: None)

HBH 105 - Bahrain Civilization & History

This course deals with the history of Bahrain from 1500-1800. It studies the stages of the Portuguese invasion of this part of the world and the international power struggle that erupted after the invasion. It also deals with the ruling of Al-Utuub Tribe of Bahrain and the reign of Al

Khalifa as their reign is characterized by propensity, wisdom, freedom, and modern state. (Prerequisite: None)

HR 106 - Human Rights

This course discusses the basic principles of human rights. It acquaints the students with the nature of human rights, their realms, and sources, paying special attention to the international legal provisions concerning human rights included in the following documents: United Nations Charter, International Declaration of Human Rights, International Accord on Civil and Political Rights, International Accord on Social and Economic Rights, International agreement against torture and inhumane, disrespectful punishment, and Protection mechanisms and constitutional organization of public rights and freedoms in the Kingdom of Bahrain. (Prerequisite: None)

University Elective Courses

ISL 101 - Islamic Culture

The course deals with the concept of "Culture" in general and the concept of "Islamic Culture" in particular, and other related concepts. Thus, the course studies the characteristics of the Islamic culture, its sources, fields of study, and its role in creating the "Islamic character". It also deals with the so-called "cultural invasion", its types, methodologies, and ways of confronting it. (Prerequisite: None)

ISL 102 - Islamic Ethics

This course defines ethics and its aspects and how ethics plays an important role in our life in general and in workplaces in particular. It stresses the importance of ethics in Islam and the value Islam gives to ethics in general. This course deals with four aspects of ethics in Islam include its meaning, its significance, its effects, and its relation to work and work ethics. (Prerequisite: None)

ISL 103 - Islam & Contemporary Issues

This course deals with the way Islam deals with contemporary issues such as extremism, determination of the Islamic calendar, alms tax (Zakat) on money and jewelry, democracy and government system, cloning, abortion, and other related issues. (Prerequisite: None)

SPT 101 - Special Topics

This course deals with special contemporary topics that are important to university students. Such special topics help students understand their social, cultural, ethical, and economic environment so they are empowered with knowledge and skills. (Prerequisite: None)

LFS 102 - Thinking and Communications Skills Development

This course introduces students to the concept of thinking, its characteristics, its forms and its importance in the educational process. The course also deals with applying modern strategies and theories interpreted for different kinds of thinking. The course defines critical and creative thinking, differentiates between opinions and facts, hones students' skills in listening, negotiation and persuasion, giving a speech, solving problems, preparing for an interview, and writing a CV. (Prerequisite- None)

SOC 101 - Introduction to Sociology

The course introduces basic concepts in Sociology, its importance, approach, origin, and relation to other fields. Also, this course deals with scholars' contribution to Sociology. It also deals with topics related to Sociology such as social structure, culture, social systems, class, problems, and change. (Prerequisite: None)

MAN 101 - Man and Environment

This course defines environment in general and the difference between natural environment and constructed environment. It also deals with issues related to how environment is important to humans and how humans should interact with their environment and how human behaviour influences environment and vice versa. Moreover, this course demonstrates the essential role of institutions in protecting environment and the role students play to save their environment. Students are required to do some research related to environment. (Prerequisite: None)

LIB 101 - Introduction to Library Science

This course introduces students to the library sciences. It gives a general historical review of the development of libraries through the ages and sheds light on the importance of libraries in the development of knowledge and sciences. This course highlights the significance and function of information. Also, the course helps students to know how to use the library and its resources, digital database, and information systems. (Prerequisite- None)

CS 205 - Computer Applications

This course includes the following topics: using a word processing program to write reports, a spreadsheet software program to create an elementary accounting program, and a database software program to design an elementary information system. (Prerequisite: CS104)

College 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 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 modelling using pseudocode, algorithms, and flowcharts, also structured programming methods, constructs, and implementation using C++ programming language. (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 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 students to advanced knowledge and understanding of the research 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: CSC 103)

Programme Compulsory Courses

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 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 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 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 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 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 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 102&CSC 215)

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 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 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 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 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 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 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 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 401 – Algorithms Design & 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 102&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 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 435 – Ciphering 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 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 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 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 teaches 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 Languages 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: CSC 304)

CSC 326 – 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 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)

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- Dept 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 a 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 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 an 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 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)

Master in Computer Science

Programme Description

The master in Computer Science program was designed based on the latest standards supported by market studies and benchmark comparisons with prestigious academic universities. This qualifies students to graduate with an academic qualification according to the latest standards and enhances their opportunities in the labour market. The program combines a sound theoretical foundation with a high level of practical experience in many areas of the specialization like Data Analytics, and Computer Security. In addition, the student will be able to do an applied project or a thesis research work which allows a tailored approach for each individual student aspirations.

The programme aims are to:

- Provide the graduate with critical knowledge of specialized theories, issues and current methods in computer science and scientific research to effectively contribute to qualitative development at the professional and societal levels in an environment characterized by rapid changes and lack of clarity.
- Prepare a graduate who is able to apply current theories and methods and specialized scientific research methods and carry out advanced studies and research to investigate complex problems in the business environment related computer science and to devise creative solutions to them.
- Develop the graduate's skills in thinking and critical analysis of computer science, interpretation and creative evaluation of new situations and problems, to assist business enterprises in formulating and implementing their strategies.
- Enable the graduate to use skills at the level of professionalism in an unpredicted and not clearly defined work environment to communicate effectively with others and to work in groups while sustaining responsibility towards others.

Programme Title	Master in Computer Science
Awarding Institution	Applied Science University
Teaching Institution	Applied Science University
Programme licensed by	Ministry of Education, Kingdom of Bahrain
Final Qualification	Master Degree
Academic Year	2024-2025
Language of Study	English
Mode of Study	Full Time
Programme Leader	Dr. Omar Alzoubi Office No : 16036256 e-mail : omar.alzoubi@asu.edu.bh Room No. 123

Programme Intended Learning Outcomes (PILOs):

Upon completion of the programme, the graduates should be able to:

- Demonstrate a critical theoretical and practical knowledge and understanding of specialized theories, methods and current issues in the discipline of Computer Science and scientific research based on ethical, legal, professional and social framework.
- Use professional skills to apply standard and specialised research methods and/or investigative techniques to deal with complex and unpredicted problems in the disciplines of Computer Science.B2.
- Use professional skills to apply creativity or originality and synthesise innovation in the application of knowledge in the disciplines of Computer Science and scientific research to plan and undertake significant projects of development, or investigation into new situations, issues and/or problems
- Use a combination of approaches to critically identify, analyse and/or synthesise information that extends existing knowledge and concepts in the discipline of Computer Science to demonstrate professional levels of insight, interpretation, research, originality and creativity.
- Use professional skills to develop original and creative responses to deal with challenging problems and complex issues in the discipline of Computer Science to evaluate a range of solutions and make informed judgements where data/information is limited and/or inconsistent.
- Use professional skills to communicate effectively verbally and in writing with a range of audiences through appropriate applications in a manner consistent with ethical and professional standards.
- Operate at a professional level with substantial responsibility for the work of individuals and groups in an unpredicted and not clearly defined work environment to show leadership skills with the capacity to undertake lifelong learning.

Admission Criteria

Firstly: to be admitted in Master in Computer Science Programme, the student must fulfil the following requirements:

1. Holding a Bachelor's Degree or its equivalent from a University or College recognized by the Ministry of Education in the Kingdom of Bahrain
2. The bachelor's degree programme should be in the same speciality as the master programme or a similar qualifying field according to the study plan of that speciality; otherwise, the student should pass a number of remedial courses approved by the University and specified by the Concerned Department.
3. The applicant should be the holder of a Bachelor's Degree with a GPA of not less than Good or its equivalent to be admitted.
4. It is required for the applicant to the Master in Computer Science programme to pass the English placement test adopted by the University or the applicant will have to provide a (TOEFL) score of (500) or equivalent. Otherwise, the student commits during the first year to study and pass two English remedial courses determined by the college, with a passing grade of 50%.

5. The applicant should pass an interview conducted by a committee in the Academic Department.
6. The applicant should pass any tests conducted by the Academic Department when required.
7. The applicant submits two recommendation letters one of which is preferred to be from an academic staff member from the University where the student has graduated.
8. The applicant should have experience of not less than one year in a relevant professional field, except those obtaining a GPA not less than Very Good or the equivalent, provided that the number of admitted applicants with this exception does not exceed 50% of the total number of students

Secondly: the student can be granted conditional admission in the Master in Computer Science Programme according to the number of seats determined by the University Council and according to the following:

1. He/she must hold a Bachelor's Degree with a GPA of not less than Good or its equivalent. If the applicant's GPA is less than that, the application shall be sent to the Committee of Appeal against Denial of Admissions, chaired by the Vice President for Academic Affairs and Development.
2. The applicant must have at least two years of experience in the related professional field.
3. The applicant must pass an interview conducted by the Committee of Appeal against Denial of Admissions.
4. The applicant must pass an interview conducted by a committee in the academic department.
5. The applicant must pass any tests carried out by the academic department when required.
6. The applicant must submit two recommendation letters one of which is preferred to be from an academic staff member from the University where the student has graduated.
7. The applicant must pass the English placement test adopted by the University or he/she will have to provide a (TOEFL) score of (500) or equivalent. Otherwise, the student commits during the first year to study and pass two English remedial courses determined by the college.
8. He/she must pass during the first semester after admission to the programme the remedial courses determined by the academic department with a score of not less than 70%, otherwise he/she will be dismissed from the programme.
9. The applicant must obtain the approval of the University Council or the person/body authorized by the Council in order to be admitted in the programme.

Progression Pathways and Opportunities:

The graduate of the Master in Computer Science program has broad opportunities after graduation to undertake administrative, academic and research tasks in leading local and regional organizations in various governmental and private sectors, These jobs include:

- Computer and Information Systems Managers
- Computer and Information Research Scientist
- Computer science educators.
- Market Research Analyst
- Computer Systems Analysts
- Information Security Analysts

In addition, graduates will be prepared to study for higher degrees in Computer Science or other fields.

Graduation Requirements:

Based on ASU's "Master Degree Bylaw", the Master's degree in Computer Sceince is granted upon fulfillment of all graduation requirements, represented by: passing all courses required for graduation (i.e. completion of the number of credit hours) with a cumulative average of no less than 75% after studying for a minimum period of 2 years, and not exceeding a maximum period of 4 years

Programme Structure and Study Plan

The Master in Computer Science Programme is designed based on 10-11 courses based on the Applied Project or thesis options, with a total of 36 credit hours. It is structured as follows:

- Applied project Option: Major Compulsory requirements (Cr 24), and Major Elective requirements (12 Cr).
- Thesis Option: Major Compulsory requirements (Cr 27), and Major Elective requirements (9 Cr).

The CS Programme comprises of Courses Levels according to the National Qualifications Framework (NQF) Courses levels with their prerequisite, divided into 4 semesters distributed over two years. The courses, along with their credit hours and NQF levels, are distributed in the Study Plan (as defined below).

Study Plan

No.	Course Code	Course Title	Prerequisite	Lec	Lab	ASU Credit	NQF credit	NQF level
First Year – First Semester (9 Credit Hours)								
1	MCS691	Scientific Research Methodology	-	**3**	**0**	3	12	9
2	MCS611	Advanced Analysis and Design of Algorithms	-	**3**	**0**	3	12	9
3	MCS612	Advanced Database Systems	-	**3**	**0**	3	12	9

First Year – Second Semester (9 Credit Hours)								
1	MCS613	Advanced Operating Systems	-	**3**	**0**	3	12	9
2	MCS624	Advanced Artificial Intelligence	-	**3**	**0**	3	12	9
3	MCS631	Advanced Computer Networks	-	**3**	**0**	3	12	9
Second Year: Option 1 Applied Project								
Second Year – First Semester (9 Credit Hours)								
1	MCS625	Data Driven Decision Making	-	**3**	**0**	3	12	9
2	MCS642	Cybersecurity	-	**3**	**0**	3	12	9
3	MCSxxx	Elective Course 1	-	**3**	**0**	3	12	9
Second Year – second Semester (9 Credit Hours)								
1	MCSxxx	Elective Course 2	-	**3**	**0**	3	12	9
2	MCS698	Applied Project	MCS691 + Pass 75% of the study plan courses	**0**	**12**	6	24	9
Second Year: Option 2 Thesis								
Second Year – First Semester (9 Credit Hours)								
1	MCS642	Cybersecurity	-	**3**	**0**	3	12	9
2	MCSxxx	Elective Course 1	-	**3**	**0**	3	12	9
3	MCSxxx	Elective Course 2	-	**3**	**0**	3	12	9
Second Year – second Semester (9 Credit Hours)								
1	MCS699	Thesis	MCS691 + Pass 75% of the study plan courses	0	18	9	36	9

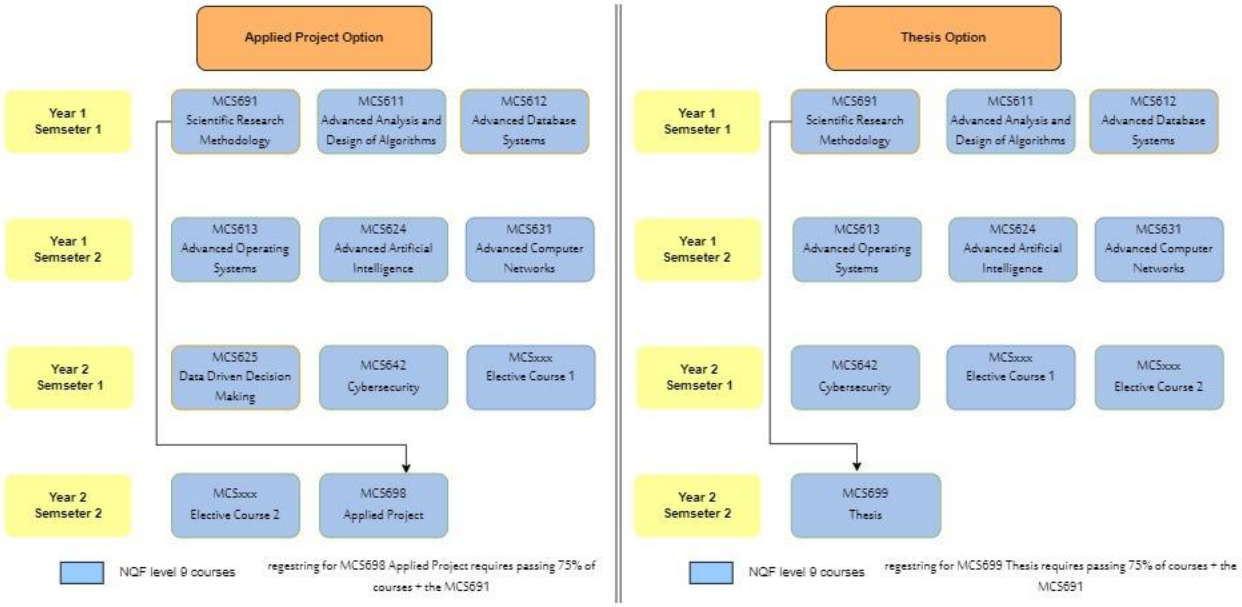
Programme Elective Courses

No.	Course Code	Course Title	Prerequisite	Lec	Lab	ASU Credit		NQF level
1	MCS614	Advanced Software Engineering	-	**3**	**0**	3	12	9
2	MCS621	Big Data Analytics	-	**3**	**0**	3	12	9
3	MCS622	Data Mining and Analysis	-	**3**	**0**	3	12	9
4	MCS623	Machine Learning	-	**3**	**0**	3	12	9

5	MCS632	Cloud Computing and Internet of Things	-	**3**	**0**	3	12	9
6	MCS643	Advanced Cryptography and Network Security	-	**3**	**0**	3	12	9
7	MCS692	Selected Topics in Computer Science	Dept Approval	**3**	**0**	3	12	9

Courses Tree

Master in Computer Science 2024-2025



Course Description

Programme Compulsory Courses

MCS 642 – Cyber Security

This course is designed to provide the student with the critical knowledge and professional skills needed for Cyber Security. The topics are Importance of Cybersecurity, Security Evolution — From Legacy to Advanced, to ML and AI, Learning Cybersecurity Technologies, Skills We Need for a Cybersecurity Career, Attacker Mindset, Understanding Reactive, Proactive, and Operational Security, Networking, Mentoring, and Shadowing, User Authentication, Network access control and cloud security, Transport level security, Web security consideration, Wireless network security, Electronic Mail Security, Knowledge Check and Certifications, Security Intelligence Resources. (Prerequisite-None)

MCS 624 – Advanced Artificial Intelligence

This course is designed to introduce students to advanced topics in Artificial Intelligence. Topics include reasoning under uncertainty, AI programming, machine learning, making simple and complex decisions, and natural language processing. (Prerequisite-None)

MCS 613 – Advanced Operating Systems

This course is designed to introduce students to advanced topics in standard, embedded and cloud operating systems. Topics include operating systems architecture, processes, threads, concurrency, memory management, file management, scheduling, embedded operating systems, operating systems security, IoT and cloud operating systems (Prerequisite-None)

MCS 612 – Advanced Database Systems

This course covers advanced aspects of database management systems including advanced normalization and denormalization, Database recovery, object-oriented and object-relational databases, concurrency control, transaction management, data integration (e.g., semi structured data and XML). Students will undertake a semester project that involves the design and implementation of a database system. (Prerequisite-None)

MCS 611 – Advanced Analysis and Design of Algorithms

This course introduces students to advanced algorithms analysis and design techniques used in Computer Science. The course is designed to provide students with a solid foundation in conceptual and formal models, efficiency, and levels of abstraction as used in the field of Computer Science. (Prerequisite-None)

MCS 631 – Advanced Computer Networks

This course is designed to provide the student with critical knowledge and professional skills to be a follow-up module to the advanced computer networks. This course will cover application layer protocols, Internet protocols, transport layer services and protocols, IP addressing, traffic analysis, flow and congestion control algorithms, Routing algorithms, internetworking, MPLS networking technology, security, network performance, Quality of Service and current topics of

research and development. This course will cover the practical aspects of computer networks, with emphasis on the layers protocols, IP addressing and Routing. (Prerequisite-None)

MCS 691 – Scientific Research Methodology
This course is designed to prepare students for advanced scientific research by examining how to plan, conduct, and report on research in the Computer Science field. Topics include: formulating research problems, Research Design, Qualitative and Quantitative Research, Measurement, Data Analysis, Interpretation of Data, code of ethics and plagiarism, writing scientific proposal, writing research papers and presenting a project/paper to audience. Students will also examine examples drawn from different research areas as case studies on various aspects of the principal methods(Prerequisite-None)

Programme Elective Courses

MCS 622 – Data Mining and analysis
This course provides students with critical knowledge and understanding of Data Mining algorithms. This course covers the theoretical and practical aspects in data mining. It includes some of topics are: Introduction to Data Mining, data preprocessing and cleaning, visualization, classification, clustering, association, using different statistical and machine learning techniques, current research in data mining and applications in data mining. (Prerequisite-None)

MCS 643 – Advanced Cryptography and Network Security
This course is designed to provide the student with the critical knowledge and professional skills needed to cover advanced topics in cryptography and network security. This course covers diverse topics on cryptography and network security techniques including conventional encryption, asymmetric and symmetric cryptology, digital signatures, certificates, key exchange, key management, authentication, network access control, cloud computing security, electronic mail security, advanced crypto primitives. This course focuses on both theoretical concepts and practical applications of cryptanalysis and network security techniques. (Prerequisite-None)

MCS 623 – Machine Learning
Machine Learning is a method to discover and predict some unobserved components and concerned with the data construction and its relationships. This course provides students with a detailed knowledge on machine Learning concepts in supervised and unsupervised learning, various machine learning techniques Regression and Statistical Models, Classification, Clustering, Decision Trees, Neural Networks, Bayesian Networks, Convolutional neural networks and Deep Learning , Support vector machine , Reinforcement Learning, Evolutionary computing in machine learning, Particle Swarm Intelligence techniques and latest researches in Machine Learning. (Prerequisite-None)

MCS 632 – Cloud Computing and Internet of Things
This course includes IoT topics: IoT Network Architecture and Design, Smart Objects: The “Things” in IoT, Connecting Smart Objects, IP as the IoT Network Layer, Application Protocols for IoT. As

well as this course includes the cloud computing topics: fundamental cloud computing, cloud computing mechanisms, cloud computing architecture, working with clouds and latest search in IoT and cloud computing. (Prerequisite-None)

MCS 621 – Big Data Analytics

This course covers advanced data science and big data analytics methodologies and technologies. The course emphasizes systems and algorithms for largescale advanced data processing and introduce the characteristics and challenges of the Big Data, state-of-the-art computing paradigms and platforms. The course covers: The data analytics lifecycle, fundamental and sophisticated analytics approaches, and developing big data technology, big data programming tools (e.g., Hadoop and MongoDB), big data extraction and integration, big data storage, scalable indexing for big data, big graph processing, big data stream techniques and algorithms, big probabilistic data management, big data privacy, big data visualizations, and big data applications (e.g., spatial, finance, multimedia, medical, health, and social data). (Prerequisite-None)

MCS 692 – Selected 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. It will address a variety of theoretical and/or technological issues related to computer science and provides an opportunity for students to undertake a term-long software development or research project. 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: Dept Approval)

MCS 614 – Advanced Software Engineering

This course is designed to provide the student with the critical knowledge and professional skills needed for software requirements engineering, design, implementation and testing and to cover advanced theoretical concepts in software engineering including: software reuse, component-based software engineering, distributed software engineering, service-oriented architecture, embedded software and aspect-oriented software engineering. The course involves hands-on experience in dealing with various issues in software development (Prerequisite-None)

MCS 698 – Applied Project

This course is designed to prepare the student to plan and implement a supervised master's applied project in computer science fields. It is prepared according to the steps of specialized scientific research. The student is expected to use higher-level skills to conduct critical evaluation of information to investigate a complex problem, devise and implement a creative solution to it, by adopting an organized methodology, reviewing literature and analyzing relevant data, to reach research conclusions and appropriate recommendations that hopefully contribute to applied project development at the professional and societal levels. The applied project, in its final version, is subject to the public defense and its evaluation is based on the written and oral presentation, which are prepared according to the thesis Master Thesis Guidelines at the Applied Sciences University. (Prerequisite: MCS691 + Pass 75% of the study plan courses)

MCS 699– Thesis

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. It will address a variety of theoretical and/or technological issues related to computer science and provides an opportunity for students to undertake a term-long software development or research project. 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- MCS691 + Pass 75% of the study plan courses)