College of Business Administration

Program Specification

Bachelor of Business Administration in Business Information Systems

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Team Prepared the Program	Dr. Christian Rauch
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1. INTRODUCTION

The 'Business Information Systems' ('BIS') program is a newly developed specialization within the Bachelor of Business Administration degree of the College of Business Administration at Umm Al Quwain University. It focuses on all aspects of technology in modern business, and how technological solutions support corporate organizations and -decisions. In doing so, the program will complement UAQU's existing business degree programs in Finance & Banking, Accounting and Human Resource Management, as well as its newly designed specialization in Digital Marketing.

In the following, this brochure explains all program goals, contents, learning outcomes, course offerings, and study plans.

1.1 Degree and Program Goals

The College of Business Administration of Umm Al Quwain University strives to offer educational programs that equip the bright young minds of our students will the skill and knowledge for a long, successful and prosperous career in all areas of business administration. Specifically, we formulate five goals that are the backdrop to all our course-, program- and degree offerings:

1. Knowledge: Obtain in-depth knowledge on all matters of business administration in general, the respective area of specialization in particular, as well as basic economics.
2. Skill: Build a 'tool box' of specialized and applied state-of-the-art methods and techniques that are used in modern-day companies to tackle and solve problems in any area of business administration.
3. Quantitative Reasoning: Be equipped with a sound understanding of quantitative methods and their applications in all areas of business administration.
4. Critical Thinking and the 'Entrepreneurial' Mindset: Develop a reflective and critical way of thinking, and learn how to apply an entrepreneurial and 'disruptive' mindset to derive new and innovative value-creating solutions in any business-related context.

5. The Future Economy: Be introduced to Digitalization and Sustainability in every area of business administration, and understand solutions to the challenges faced by companies in their quest to successfully transition into the future-based economy.

We pursue goals 1-3 to equip our students with the 'tool box' of technical knowledge and skill, required for whatever career they choose in business or economics. Goals 4 and 5, in turn, are the 'values' that we want to instill in our students, in addition to the technical skill and knowledge. These values are crucial to our educational programs. They expand students' knowledge horizons by emphasizing innovative thinking, entrepreneurial mindsets or 'spirits' in approaching problem solving, and the important aspects of the 'future-based economy', that is, digital transformation and sustainability. We believe that particularly the latter aspect is paramount to a holistic business education.

Based on these College-wide core goals, we establish the goals of the BIS program as follows:

1. Knowledge: Obtain a detailed understanding of the underlying concepts in all areas of Business Information Systems, both with respect to fundamental core tools, such as ERP techniques and software design, and cutting-edge advanced tools, such as machine learning-based processes and Artificial Intelligence.
2. Skill: Develop state-of-the-art know-how to develop and use software tools across the full tech stack, including back-end and front-end solutions, and for B2B or B2C businesses.
3. Quantitative Reasoning: Be able to perform sophisticated data analytics to support decision making in organizations, especially with modern techniques such as Big Data.
4. Innovation & Entrepreneurship: Learn to use BIS tools in an entrepreneurial context, to be able to support the start and growth of young startup businesses from an operational perspective, and to develop innovative software products for startups.
5. The Future Economy: Understand, and find solutions to, the current and future challenges for BIS, particularly with respect to aspects of digital transformation and sustainability, as well as ethical concerns in the area of Artificial Intelligence.

Jointly, our curriculum addresses these five goals. Early core courses will lay the theoretic knowledge foundation, more advanced courses will focus on skill and quantitative reasoning, and our electives allow students to find their 'niche' they want to specialize in. Across all courses in the curriculum, we place emphasis on Goal 4 and 5. To name but a few examples: One course is specifically designed to address 'Digital Entrepreneurship' (BIS 379), and 'Business Intelligence II: Artificial Intelligence' (BIS 411) will discuss the ethical concerns surrounding Generative AI, or possible safety considerations in the field of AGI developments.

As these goals show, we aim at educating future technology and BIS specialists that are highly skilled and well-versed in all areas of BIS. Besides understanding all intricacies of the tech industry and acquire basic coding skills, our graduates will be able to use all cutting-edge software tools such as, but not limited to, Mendix, PowerBI, Tableau, Jira, MS Power Apps, Apache Hadoop, Softr, or Oracle/SAP, that support various functions and processes in companies today. By connecting tech skill with business knowledge, our graduates will be able to not only understand the 'tech' part of IT, but also know how to use it to support smart strategic and operational decision-making in businesses. With this skill and knowledge, and upon completion of their studies, our graduates can pursue a variety of careers based on their interests or strengths in the field. These can be roles in the IT or BIS departments of corporations, specialist consulting- or developer jobs, or CTO roles in startup businesses.

In the following, we elaborate more on the learning outcomes, curriculum structure, study plan, as well as course overviews and -descriptions.

1.2 Program Learning Outcomes

Based on the overarching goals of the College of Business Administration and the more specific goals of the BIS program, we formulate a variety of specific learning outcomes for the BIS program. In lines with Standards of the UAE Ministry of Education, the UAE Commission For Academic Accreditation (CAA), and the 'QFEmirates' degree qualification framework, these outcomes are grouped into the three categories of 'Knowledge', 'Skill', and 'Competence. The program and its curriculum aim at addressing all of these outcomes equally, to ensure that students, upon successful completion of the program, have achieved every single outcome to the highest degree. As indicated in the right-most column 'Coverage', our curriculum addresses each the program learning outcomes fairly equally, and therefore ensures a balanced education across all desired learning outcomes.

Program Learning Outcomes (PLOs)

Upon successful completion of the program, students will be able to:

Category		PLO	Description	Coverage	
				CLOs[1]	Courses[2]
Knowledge		A.1	Understand the broad and underlying key concepts of the fundamentals of Business Information Systems (BIS), such as software design and -applications, ERP techniques, as well as data management and -analytics.	13	13
		A.2	Demonstrate an understanding of contemporary and advanced Business Information tools, such as big data management and -analytics, as well as Machine Learning-based and Artificial Intelligence tools.	14	14
		A.3	Understand the future challenges the tech industry faces on a local and global scale, in particular those brought by advancements in Artificial Intelligence, and the need for sustainable practices.	13	13
Skills		B.1	Critically analyze and select the right BIS tools and techniques to digitize the entire business process across various business disciplines and industries, aiming to process data for the purpose of informed decision-making.	12	12
		B.2	Apply state-of-the-art and contemporary BIS tools to solve complex business problems and address critical pain points across diverse industries, whether involving business-to-customer (B2C) or business-to-business (B2B) interactions.	17	14
Competence	A&R	C.1	Develop and justify the innovative use of contemporary/advanced BIS tools individually or in a group context with no or minimal supervision to address unfamiliar and complex business problems.	15	14
	Role in Context	C.2.1	Adapt to the professional environment in the BIS/Technology industry, speak like a tech insider, and offer valuable work alongside BIS/Technology industry professionals.	11	11
		C.2.2	Apply advanced BIS tools across in an entrepreneurial context, and understand the importance of technological advancements for entrepreneurship and innovation.	10	10
	Self-Development	C.3	Combine the development of technical expertise with continuous personal growth to thrive in dynamic business and technological environments, while critically reflecting on the ethical standards of the BIS/tech industry, including challenges posed by cybersecurity/information security and the responsible development and deployment of AI/ML technologies.	14	14

[1] Indicates total number of CLOs (across all courses) covering each respective PLO
[2] Indicates total number of courses covering each respective PLO

2. PROGRAM STRUCTURE

To successfully graduate with a bachelor degree in Business Administration in the specialization of BIS from UAQU, students have to complete a variety of different course 'categories'. First, there are 'General Education' requirements which are compulsory for all students at UAQU, irrespective of their College of program specialization. These comprise 10 courses (3 credit hours each), of which 8 are compulsory and two are electives. Second, there are 'Business Requirement' courses which are compulsory for all students at the College of Business Administration, irrespective of the major or program specification they are enrolled in. These are a total of 20 courses, 18 of which are compulsory and two are electives. Finally, students in the BIS program have to complete the so-called 'Major Requirement' which comprises only BIS courses and is therefore only compulsory for students enrolled in the BIS program. These are 9 compulsory courses all BIS students have to take, and 2 more electives from the BIS subject area. Totally, students have completed 41 separate courses across the different categories (123 credit hours) upon graduation.

	Compulsory		**Electives**		**Free Electives**		**Total**	
	Credit Hours	Courses	Credit Hours	Courses	Credit Hours	Courses	Credit Hours	Courses
General Education Requirement (GED)	24	8	6	2	-	-	30	10
Business Requirement	54	18	-	-	6	2	60	20
Major Requirement	27	9	6	2	-	-	33	11
Total Credit Hours	105	35	12	4	6	2	123	41

2.1 General Education Requirements

The General Education Requirement ('GED') courses lay a basic foundation of university studies for all students at UAQU, irrespective of their college or subject area specialization. Purposes is to provide students with basic academic skills and knowledge required for all future careers in a wide field of study. Some of those are directly career-related ('Block 1'), such as English language skills

in a professional context, others ('Block 2') are *Studium Generale* courses that introduce students to the local culture and heritage, or other scientific areas ('Block 3') such as psychology. An important part of the GED curriculum is the 'Innovation, Creativity and Entrepreneurship' course which, early on in the studies, introduces students to an entrepreneurial mindset that helps foster a creative way of thinking to derive innovative solutions to a range of applied problem sets.

It is important to note that, out of 'Block 3', students only have to choose two courses out of the five offered courses. They either take GED 130 or 140, and take any one of the three GED 150, 160, or 180 courses.

Code	Type	Name	Prerequisite
Block 1			
CIT 100	Compulsory	Computer Concepts and Applications	-
ENG 101	Compulsory	Composition and Modern English I	-
ENG 102	Compulsory	Composition and Modern English II	ENG 101
MTH 100	Compulsory	College Algebra	-
IEC 111	Compulsory	Innovation, Creativity and Entrepreneurship	-
Block 2			
GED 100	Compulsory	Islamic Studies	-
GED 110	Compulsory	UAE Society	-
GED 120	Compulsory	Communication Skills in Arabic	-
Block 3			
GED 130	Choose 1 out of 2	Introduction to GIS	-
GED 140		Conceptual Physics	-
GED 150	Choose 1 out of 3	Critical Thinking	-
GED 160		Psychology in Everyday Life	-
GED 180		Human Behavior and Socialization	-

2.2 Business Core Requirements

The 'Business Core' requirements are compulsory for all students enrolled in the College of Business Administration, irrespective of their major or area of specialization. Purpose is for all students to have a solid foundation and background in general business knowledge, across all areas of business administration and economics. Students acquire foundational and advanced quantitative skills ('Block 1'), core knowledge in the main areas of business operations ('Block 2'), basic knowledge in economics ('Block 3'), and advanced computer and communication skills

('Block 4'). Additionally, students have to take an internship as part of their studies, and pass the final applied 'Capstone' course of the program, both of which are designed to equip graduates with 'desk-readiness' upon graduation ('Block 5'). Lastly, students are required to take two so-called 'Free Elective' courses, that is, any course that is being offered outside the College of Business Administration. Purposes of these courses is to allow students to delve into subject areas such as Law or Mass Communications, to broaden their academic horizons or complete a course related to their core studies but delivered from a different angle. Examples could be courses in corporate law, or mass communication courses that closely tie in with certain BIS studies.

Code	Name	Prerequisite
Block 1		
MTH 120	Business Calculus	MTH 100
QM 241	Business Statistics I	MTH 100
QM 341	Business Statistics II	QM 241
BUS 360	Business Analytics	CIT 100, QM 241
BUS 380	Business Research Methods	QM 241
Block 2		
MKT 290	Principles of Marketing	-
MGT 271	Principles of Management	-
OBV 290	Organizational Behavior	MGT 271
LAW 231	Legal and Ethical Environment of Business	-
ACT 191	Principles of Accounting I	-
ACT 292	Principles of Accounting II	ACT 191
FIN 331	Managerial Finance	ACT 292
Block 3		
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	ECO 251
Block 4		
ENG 202	Business Communication	ENG 102
CIT 200	Introduction to Information Systems	CIT 100
Block 5		
BUS 390	Internship	90 CHs, ≥2.0 GPA
MGT 476	Strategic Management	Senior Standing
Block 6		
Free Choice	Free Elective I	-
Free Choice	Free Elective II	-

2.3 Major (Business Information Systems) Core Courses

The BIS core courses are listed below. All students enrolled in the BIS subject area specialization must complete them. Jointly, they cover all relevant areas of the area, and address all Program Learning Outcomes (PLOs), as introduced above.

Code	Name	Prerequisite
BIS 310	Introduction to Software Engineering	CIT 200
BIS 334	Enterprise Resource Planning	CIT 200
BIS 394	Technology Project Management	CIT 200
BIS 402	Enterprise Cloud Computing	BIS 334, BIS 310
BIS 406	Mobile Apps Development for Enterprise	BIS 310
BIS 407	E-Commerce Applications (Web & Mobile)	BIS 310
BIS 410	Business Intelligence I: Machine Learning Applications	BUS 360
BIS 411	Business Intelligence II: Artificial Intelligence	BIS 410
BIS 450	Software Application Design & Implementation (Capstone)	BIS 310, BIS 402

2.4 Major (Business Information Systems) Elective Courses

In addition to the 9 BIS core courses laid out in Part 2.3 above, students enrolled in the BIS program must complete 2 electives in the subject area. At UAQU, students can choose 2 out of the 5 courses offered below. Purposes is to allow students to pick-and-choose a specialized subject area within the realm of BIS, in line with their intellectual interest of desired career path.

Code	Name	Prerequisite
BIS 375	Information Security in E-Business	CIT 200
BIS 420	IT Infrastructure and Networking	CIT 200
BIS 430	IT Product Management	CIT 200
BIS 379	Digital Entrepreneurship	CIT 200
BIS 440	Advanced Tech Stack	BIS 310, BIS 406

3. STUDY PLAN

At the College of Business Administration, we guide students through their programs via a fixed semester study plan that all students must follow. In doing so, UAQU's College of Business Administration differs slightly from other Colleges and Universities in the region that allow students a more 'loose' compilation of their courses across the semesters. We believe this is not ideal, and therefore pursue a more 'High School'-type structure to the curriculum.

Purpose of this strategy is threefold. First, following the fixed study plan guarantees that students can graduate 'on time' within the pre-designated 8-semester study period without having to worry about graduation delays due to, for example, erroneous course selections and/or missing credit hours. Second, it ensures that students are exposed to knowledge gradually and in the correct order. We at UAQU like to envision the study plan like building a knowledge 'house' for students: the knowledge basement has to be built first, so that the higher and more advanced knowledge 'floors' have a solid foundation to rest on. To accomplish that, we carefully lay out the correct order of courses for all students, and ensure that certain courses are completed before others – that build on that foundation – are introduced. Third, a positive side effect of this fixed study plan is the communal and social learning environment that it creates amongst students, as students that start their studies in the same intake or 'cohort' will go through their study plan jointly, and can therefore support each other better in their studies. Part of that is also that students in any given course have a rather homogenous skill set, which lets lecturers tailor the contents to whatever foundational knowledge all course participants have acquired prior to taking the course. This avoids going 'too slow' for students with more advanced knowledge, or going 'too fast' for students with less advanced knowledge.

The study plan we propose for our students is shown in the table below.

3.1 First Year

The first year lays the foundation of knowledge, with students taking a variety of General Education courses, as well as the first introductory courses to Business Administration. The knowledge of all those early courses is paramount for the deeper understanding of later courses, and must therefore be established early. Goal is for students to have completed the ten courses as indicated in the study plan table below. Should students wish to cut back on the 5/5 course load in the first year, we only allow for the General Education classes GED 100 or GED 130/140 to

be cut. Students that wish to increase the course load can take LAW 231 from the second year already in the first year. It is important to note that all students must complete the following courses to be admitted into Year 2: MGT 271, (ii) ECO 251, (iii) ACT 191, (iv) CIT 100, (v) IEC 111, (vi) MTH 100, (vii) ENG 101.

3.2 Second Year

The second year places a heavier emphasis on the Business Core courses, to deepen students knowledge in this area. Students also have to complete the GED requirements and take the first of the two free electives of their choice. Particularly the completion of the GED courses is important, to ensure that students have sufficient capacity to predominantly focus their attention on the major courses in Years 3 and 4. Should students have opted not to take the designated-for-drop GED courses from the study plan in Year 1 (GED 100, GED 130/140), these must be completed by the end of Year 2. Furthermore, to be able to be admitted into Year 3, students must complete the following courses at the end of year 2: (i) GED 150/160/180, (ii) GED 130/140, (iii) QM 241, (iv) ENG 102, (v) ACT 292, (vi) CIT 200, (v) MKT 290. These courses are of particular importance as they are requirements for subsequent courses taken in Years 3 and 4. Not completing them by the end of Year 2 will lead to disruptions in the study plan, and prevent students from graduation within 8 semesters 'on time'.

3.3 Third Year

In the third year, students taken the most advanced Business Core courses, and begin taking the first courses from their respective majors. In BIS, this is Introduction to Software Engineering (BIS 310), Enterprise Resource Planning (BIS 334), and Technology Project Management (BIS 394). These are foundational courses students need to be exposed to early in their studies, as a basis for further and more technical/detailed courses later. Also, we let students choose their first BIS elective, to indulge in whatever sub-area within BIS they are most interested in. This is particularly important as students take the Internship early in the fourth year (as explained below), and should therefore be able to 'specialize' in Semester 6 as the basis for their desired field/industry/area of Internship. At the end of the third year, students must have completed BIS 334 and BIS 310 in order to be admitted to the fourth year.

3.4 Fourth Year

The fourth year is students' last year of study. All remaining core courses in their subject area are taken, along with the Capstone business course, and all remaining electives. While students are only required to take two electives in their subject area, we plan on including four electives in their study plan. This ensures that students can either gain insights into more sub-areas in the field of BIS, or improve their GPA by picking-and-choosing their best two of the four (or even five, depending on choice) electives they take. It is important to note that the eight semester in particular features all the most advanced courses that introduce students to the latest in BIS such as courses on Artificial Intelligence (BIS 411), or cutting-edge software application design or mobile app development (BIS 450, BIS 406 & 407). It is therefore required that students complete all 'basic' and more foundational courses prior to the eights semester, particularly BIS 410 and BIS 402.

Fixed Semester Study Plan

1st Year	**1st Semester**	1	BBA	Core	ACT 191	Principles of Accounting I	-
		2	GED		CIT 100	Computer Concepts and Applications	-
		3	GED		ENG 101	Composition and Modern English I	-
		4	GED		MTH 100	College Algebra	-
		5	GED		GED 100	Islamic Studies[1]	-
	2nd Semester	1	BBA	Core	ECO 251	Principles of Microeconomics	-
		2	BBA	Core	MGT 271	Principles of Management	-
		3	GED		IEC 111	Innovation, Creativity and Entrepreneurship	-
		4	GED		GED 120	Communication Skills in Arabic	-
		5	GED		GED 130/140	1st GED Elective[1]	-

Courses that must be taken before year 2: (i) MGT 271, (ii) ECO 251, (iii) ACT 191, (iv) CIT 100, (v) IEC 111, (vi) MTH 100, (vii) ENG 101

2nd Year	**3rd Semester**	1	BBA	Core	MKT 290	Principles of Marketing	MGT 271
		2	BBA	Core	ACT 292	Principles of Accounting II	ACT 191
		3	BBA	Core	CIT 200	Introduction to Information Systems	CIT 100
		4	BBA	Core	MTH 120	Business Calculus	MTH 100
		5	BBA	Core		Free Elective (1 out of 2)	-
		6	GED		ENG 102	Composition and Modern English II	ENG 101
	4th Semester	1	BBA	Core	LAW 231	Legal and Ethical Environment of Business[2]	-
		2	BBA	Core	ECO 252	Principles of Macroeconomics	ECO 251
		3	BBA	Core	QM 241	Business Statistics I	MTH 100
		4	GED		GED 110	UAE Society	-
		5	GED		GED 150/160/180	2nd GED Elective	-

Courses that MUST be taken before year 3: (i) GED 150/160/180, (ii) GED 130/140, (iii) QM 241, (iv) ENG 102, (v) ACT 292, (vi) CIT 200

[1] Only possible drop to reduce course load.
[2] Can be taken in first year to increase course.

3rd Year	**5th Semester**	1	BBA	Core	FIN 331	Managerial Finance	ACT 292
		2	BBA	Core	ENG 202	Business Communication	ENG 102
		3	BBA	Core	QM 341	Business Statistics II	QM 241
		4	BBA	Core	OBV 290	Organizational Behavior	MGT 271
		5	BBA	Core		Free Elective (2 out of 2)	
	6th Semester	1	BBA	Core	BUS 360	Business Analytics	CIT 100, QM 241
		2	BIS	Core	BIS 310	Introduction to Software Engineering	CIT 200
		3	BIS	Core	BIS 334	Enterprise Resource Planning	CIT 200
		4	BIS	Core	BIS 394	Technology Project Management	CIT 200
		5	BIS	Elective		BIS Elective I	CIT 200

Courses that MUST be taken before year 4: (i) BIS 334, (ii) BIS 310

4th Year	**7th Semester**	1	BBA	Core	BUS 380	Business Research Methods	QM 241
		2	BBA	Core	BUS 390	Internship	90 CHs, ≥2.0 GPA
		3	BIS	Core	BIS 402	Enterprise Cloud Computing	BIS 334, BIS 310
		4	BIS	Core	BIS 410	Business Intelligence I: Machine Learning Appl.	BUS 360
		5	BIS	Elective		BIS Elective II	CIT 200
		6	BIS	Elective		BIS Elective III	CIT 200
	Courses that MUST be taken before 8th semester: (i) BUS 410, (ii) BIS 402						
	8th Semester	1	BBA	Core	MKT 476	Strategic Management (Capstone)	Senior Standing
		2	BIS	Core	BIS 450	Software Application Design & Implementation	BIS 310, BIS 402
		3	BIS	Core	BIS 406	Mobile Apps Development for Enterprise	BIS 310
		4	BIS	Core	BIS 411	Business Intelligence II: Artificial Intelligence	BIS 410
		5	BIS	Core	BIS 407	E-Commerce Applications (Web & Mobile)	BIS 310
		6	BIS	Elective		BIS Elective IV	CIT 200

4. ADMISSION CRITERIA

Every applicant is required to submit the following documents:

- UAE High School Secondary Certificate as follows or equivalent in Standardized International.

Elite Track	Advanced Track	General Track
70%	70%	75%

- English proficiency, Arabic language and mathematics requirements as follows:

IELTS	TOEFL ITP	EmSAT	Arabic Language EmSAT	Mathematics EmSAT
5	500	1,100	600	600

Note: College of Business international students can register for a non-credited Basic Arabic Language course at the UAQU

- Students must pass a personal interview at the College, and fully pay registration fees.

5. COMPLETION REQUIREMENTS

- Graduation requirements include the successful completion of the major credit hours.
- Satisfaction of the internship requirement.
- A minimum CGPA of 2.0.
- A successful completion of the internship.
- Degree requirements must be completed within 16 semesters of initial enrollment at UAQU.

6. DELIVERY MODE

This program and all its courses are delivered according to the credit hours' system implemented in the UAQU on campus. Only full time students are accepted in the program, all courses are delivered in-person, twice a week, for 15 weeks.

7. PROGRAM LEARNING AND STUDENT SUPPORT

UAQU supports students in different aspects during their academic progress. The technical support unit with IT specialist is available 24/7 to manage IT facilities in UAQU and to give guidance, advice and support to students and staff in all related issues. The university's E-learning system MOODLE

facilitates teaching and learning processes, and provides students with, for example, course syllabi and lecture materials. Our library has specialist employees available to give support to students regarding available library resources and the online library systems. The university offers a number of laboratories which are used for different courses to provide students with a more hands-on and/or IT-based learning experience. Finally, UAQU has an academic advising systems in place. Under this system, each faculty member acts as academic advisor to students, to provide advice on course registrations, semester planning, and other related academic issues. UAQU is keen to ensure that students are supported at all stages of their program including the academic advising, which ensures effective measures to support student progress and provide appropriate academic guidance and which stipulates the allocation to each registered student of an academic advisor.

8. FACILITIES

The campus of UAQU is located in a modern building with state-of-the-art learning and teaching equipment. The classrooms are designed in different ways to accommodate different teaching requirements including rooms that can seat up to 50 students. All classrooms are equipped with a computer, projector and (e-)whiteboard/touchscreen. There are seating areas for students to relax. A large auditorium is built to support conferences and external events coming to the University.

All labs are equipped with new computers, and are regularly scheduled for teaching and learning sessions. Free lab time is available for all students. During these periods, students can use the laboratory to work independently on assignments, and to access online resources to engage in self-directed learning. All laboratories have technical staff available at all times during the study hours to support students and ensure that the laboratory is well maintained. The BIS program will be equipped with state-of-the-art software tools such as Mendix, PowerApps, PowerBI, Fabric, Softr, Jira, Apache Hadoop and many more.

The library supports academic work by having dedicated offices for academic research activity. The library has exceeded 3,000 titles with around 6,000 copies for different disciplines in both English and Arabic language, there are a number of computers located in the Library for the use of UAQU students to search for resources in the UMQU Library, E-library and the online databases. The Library subscribes to periodicals in both English and Arabic which help students in their study.

The periodicals paid and free access available for the business programs are as follows:

- Business Source Complete.
- Regional Business News.
- eBook Academic Collection.
- eBook Arabic Collection.
- eBook Collection.
- The Directory of Open Access Books.
- The Directory of Open Access Journals.
- The Directory of Free Open Access Journals.

9. EVALUATING AND IMPROVING STANDARDS OF TEACHING AND LEARNING

UAQU engages in ongoing, integrated, and institution-wide research-based planning and evaluation processes that incorporate a systematic review of programs and services that (a) result in continuing improvement, and (b) demonstrate that each College / department /unit is effectively accomplishing the UAQU mission. Documenting the institutional effectiveness through systematic and ongoing assessment provides the guidance for decision-making and concrete evidence that UAQU is committed to continuous improvement.

The Institutional Effectiveness Unit focuses on data collection, analysis and reporting of the results obtained. The unit also collects data from students, alumni, faculty members, assisting staff, and assisting departments. These data are used in evaluating the institutional performance and planning in relation to the strategic objectives of UAQU. The Institutional Effectiveness unit measures the Key Performance Indicators of each of the university units on a semester basis and re-transmits these results to the various university units and follow them up in order to close the cycle of the evaluation process. In addition, the Institutional Effectiveness Unit evaluates, measures and determines the improvement of the quality of academic programs and administrative services, including how the follow-up and implementation process as well as improving the effectiveness of the teaching process.

10. FACULTY

10.1 Faculty Satisfaction

The Institutional Effectiveness Unit creates surveys to measure the faculty satisfaction on an annual or semi-annual basis as required by the educational process. The faculty satisfaction includes measuring several criteria related to the educational process and the educational environment in general for the sake of continuous improvement based on the analysis output (results).

After analyzing the survey, a report of the results is prepared, providing that it includes a comparison table with the results of the previous survey to reflect the success of the implementation plan that was developed after the results of the previous survey analysis and the extent of this reflection on the improvement process in order to identify the positive and negative impact in order to work on it and follow-up in order to close the loop. Measured are:

- Academic policies.
- The appropriateness of the teaching load.
- Promotion policy
- UAQU support to the scientific research.
- Learning resources.
- Information technology
- The work environment

10.2 Faculty Research Support

UAQU considers the importance of research as a tool for quality improvement in teaching. UAQU is supporting faculty in publishing in leading international journals. In addition, UAQU encourages faculty research, by providing annual research excellence awards.

10.3 Faculty Performance Evaluation

Faculty performance evaluation, a comprehensive self-evaluation of faculty performance is submitted at the end of the academic year. The faculty performance for the year is evaluated on teaching, research and publications, involvement in college development, community services and student advising services. This all-round self –evaluation provides faculty an understanding of his / her performance during the year and improvement needed during the coming academic year. This helps the faculty to identify the areas of improvements. Continuous self-evaluation support to maintain quality in teaching learning process, other academic activities and extracurricular activities of the university.

11. STUDENTS

11.1 Student Satisfaction

The Institutional Effectiveness Unit runs several surveys to measure student satisfaction on an annual basis or biannual, as required by the educational process. The survey is based on measuring the students 'satisfaction with the various units and departments, then the results of this survey are analyzed and distributed and the implementation of the improvement required to close the loop.

On the other hand, the Institutional Effectiveness Unit works continuously to evaluate and improve the quality of academic programs and administrative services through various methods as follows:

11.2 Student Feedback of the Course and Instructor

Student Feedback for the course and the instructor is conducted at the end of each semester provides feedback on course instructions, course delivery, assessment methods, relevance of topics, usage of learning resources, feedback on quality of teaching, approach to students, response to student's queries and related teaching learning aspects. The results and recommendations of the analysis of the students' feedback are sent to the faculty for their comments, action plan and improvement for the accepted recommendations.

11.3 Teaching Report

In order to review and ensure the level of implementation of the course syllabus, the faculty should submit teaching report in the seventh week (before midterm exam) and the final teaching report in 14th week (before the final exam). The report is reviewed and discussed with the faculty by the head of the department for further development in class management for the current and coming semesters.

11.4 Course File Report

A course file report is prepared by the instructor on completion of the course. The report provides a comprehensive instructor review of the implementation of the course, achievement level of CLOs, the challenges faced by the instructor and corrective actions required for implementation from the coming semester in addition to the follow up process to ensure the implementation of the action plan.

11.5 Implementation and Monitoring Process

Based on the student feedback, faculty evaluation, course review reports and the teaching reports, the areas for improvement in teaching effectiveness are identified, and reported to respective faculty members. Measures are taken for the proper implementation of recommendations from the feedback. This process is approved and implemented at the college level as part of the improvement to the quality of academic programs, which is monitored by the IE department and Head of department. This is evident from the above details.

11.6 Learning Management Systems

Through the Implementation of eLearning Management Systems (LMS) there exist a proper control and coordination for class management for all subjects offered at UAQU. In addition, UAQU is implemented Plagiarism software to check the plagiarism and its linked with LMS to review student submissions for proper management of student course works. This has enhanced student capacity for independent/group thinking and in submitting their own quality works.

11.7 Grading Rubrics

Grading rubrics is implemented for all formative and summative assessment of course works. This enhance teaching effectiveness in proper delivery of the course works through proper evaluation of both formative and summative assessments.

11.8 Moderation for Final Exams

The Final Exam Question Papers and Answer schemes are moderated by the department prior to the exams. This helps to standardize the question papers and to improve the quality of the examinations, as well as to observe that the course delivery is meeting the level as expected from the courses and the coverage of the CLOs.

11.9 Measurement of PLO - CLO achievement

From the Course Learning Outcome Assessment Mapping, the CLOs achievement is measured. The shortcomings in CLO achievements is discussed with the faculty. Matrics contains the matrix of the PLO – CLO achievement, review on program effectiveness, and action plan for further improvement in course delivery.

11.10 Academic Advising and Office Hours

Office hours are allocated for faculty members to follow up with the students even for those who are enrolled in their courses or for their advisee list. This enable them to provide the academic advising to the students, and other auxiliary administrative and academic activities.

11.11 Alumni Survey

UAQU is regularly conducted the alumni survey for every academic year and the results is matched with other reports and UAQU is taken and implemented necessary action(s).

12. TEACHING AND LEARNING METHODS

The delivery modes for the program include lectures, workshops, class presentations, seminars, case analyses and forum discussions. Each student is expected to deliver individual assignments, case studies, project presentations based on the topics assigned to him / her. The program embraces continuous assessment of the student learning through quizzes, midterm exam and final exam in addition to the assignments / projects / case study provided by the instructor from time to time. An important part of teaching and learning methods in the BIS program will be lab-based. While courses typically start with the foundational groundwork being delivered in-class, the more applied skill will be delivered in lab sessions where students work with software tools to learn hands-on style.

Assessment plan for program learning outcomes:

1. Mid Term and Final Exam:

Mid Term exams are scheduled for halfway through the semester and are accompanied by a preparation/revision class just prior to the exam, and a debrief class after the exam in which the grade distribution, grading scheme and model solutions will be discussed. Each exam is a combination of short-answer questions, essay-based or long-form questions, numerical problems (if applicable), case-based problems (if applicable), and true/false questions. The specifics of each exam are tailored to the respective course, and discussed by the lecturer at the beginning of the semester. Final Exams are a two-hour examination scheduled after week 15. The final exam is comprehensive, covering all material of the course. Structure and form are identical to the mid-term exams.

2. Quiz / Quizzes

Students should prepare to take up Quiz / Quizzes as decided by the Course Instructor. The Instructor can decide any number of Quizzes of diversified types namely short answers, descriptive answers, and similar models as deemed fit for the subject and the topic of discussions.

3. Take-Home Projects and Group Work

As part of a thorough student assessment, students are asked to work on and complete projects outside of the classroom, either individually or in groups. The deliverables are a written essay-based answer detailing the students' solutions to the problem sets or case studies they received, development-related projects such as code writing or web development, and in-class presentations of their solutions. The purpose of these assessments is threefold: first, to assess students' ability to apply the learned knowledge and skill to a potentially unfamiliar and complex (real world-) problem. For example, can students identify why certain *actual* IT projects did not yield the desired outcome based on their theoretical knowledge on the success factors of project management in BIS. Second, to assess students' ability to give interesting, insightful and professionally structured and -delivered presentations. And third, in the case of group projects, the degree to which students can work in teams. In detail, the deliverables/structures of these projects is as follows:

3.1 Written Essay-Based Papers

The major deliverable of course work projects are long-form written essays in which students explain the problem they were tasked with solving or addressing, followed by their solutions. The provided solutions should be based on students' knowledge on a given topic and include students' justifications of their solutions as well as perhaps – if applicable – a personal and educated opinion of the students. Depending on what the project is, these essays might take different formats. In an open case-based problem, the students need to determine the structure and emphasis of their essay largely by themselves. This is deliberate part of the assessment; for example: if given factual information on a real world scenario, can students understand the problems that are to be solved themselves? And, can they derive sensible solutions for it? Part of the challenge of solving the problems is students' ability to perform their own research on topics. Research-based findings, prior case-based examples or real world scenarios, or outside-the-box references need to be found by the students themselves to support their input for solving the cases and/or problem sets. For this deliverable, students should be given sufficient time during the semester during which they can seek the lecturers' input and support while completing the given tasks themselves. The final deliverable should be professionally formatted, in line with general academic publication standards (including correct citations, references, appendices etc.). If the projects are group-based, part of the students' challenge is to distribute the work amongst themselves.

3.2 Presentations

Following handing in their written deliverables, students might be asked to give an in-class presentation of their projects, to verbally present the results of their work including posed questions, problems, solutions and opinions. This presentation should be based on the written essay, but can go beyond that by e.g. including group discussions or Q&A sessions with other students. Students are assessed based on the presentation content as well as on its delivery. Part of the assessment might include having to answer follow-up questions either from the lecturer or the students attending the class. As for the written case work, students will be provided with a rubric to understand which criteria matter for grading purposes, and how their performance is assessed. More details on the specific assignments are being given in the course syllabi and by the lecturer at the beginning of the course. Upon completion, students will be able to obtain feedback from the lecturer on their presentations and written work, in order to improve future project- or case-based work – both written or presented – in the future.

3.3 Lab-Based Assignments

In lab-based assignments, students will be asked – either in groups or individually – to work in a hands-on way on creating any kind of IT- and software-related 'products', such as websites or apps, or work on applied problems such as, for example, website analytics or the visualization of big data. The deliverable will be the actual developed 'product' which is assessed based on its functionality, design, problem-solving ability, alignment with initial proposals, and the way it addresses the task given by the lecturer. As with written essay-based work, students might be asked to complement their deliverable with a short verbal explanation and/or present and defend it via an in-class presentation.

13. COURSE DESCRIPTIONS

BIS 310 Introduction to Software Engineering Core Course	
Course Description	**Course Objectives**
This course provides students with an overview of the fundamental knowledge and skills required to code applications and software development. The goal of this course is to provide a theoretical and practical foundation for understanding the basic concepts of software development and programming. It aims to establish a foundational understanding of program design, coding, the implementation of algorithms code hosting on GitHub to solve problems ranging from simple to complex.	Objective of the course is to provide students with a foundational understanding of software development and programming, encompassing program design, coding, algorithm implementation, and code hosting on GitHub, enabling them to solve a wide range of problems, from simple to complex.

BIS 334 Enterprise Resource Planning Core Course	
Course Description	**Course Objectives**
This course offers an in-depth examination of the essential field of Enterprise Resource Planning (ERP). It offers a thorough and comprehensive exploration of ERP systems and their central role in optimizing business operations and elevating organizational effectiveness. Throughout this course, students will delve into key subjects such as ERP modules, seamless data integration, detailed business process mapping, and the art of change management within the context of ERP implementation. Moreover, students will gain insights into practical applications through engaging case studies, providing a holistic understanding of how ERP systems are successfully deployed in real-world business settings.	Objective of the course is to equip students with the knowledge and skills needed to proficiently design and manage ERP modules, integrate data seamlessly, optimize business processes, and master change management within ERP adoption, and fostering enhanced organizational efficiency.

BIS 375 Information Security in E-Business Elective	
Course Description	**Course Objectives**
This course titled provides students with a deep understanding of foundational information security concepts such as confidentiality, integrity, and availability, along with practical applications including authentication, authorization, access control, and email phishing detection and prevention. Students explore multifactor authentication, legal and regulatory frameworks, operational security, network design, operating system security, and vulnerability testing techniques. The course also delves into cyber risk management from a business perspective, emphasizing the strategic importance of cybersecurity in E-Business and addressing emerging concerns such as ransomware, cloud computing, and the Internet of Things.	Objective of the course is to equip students with the knowledge and skills to identify, assess, and mitigate cybersecurity and information security vulnerabilities in E-Business environments, ensuring the protection of digital assets and the maintenance of data integrity and customer trust.

BIS 379 Digital Entrepreneurship Elective	
Course Description	**Course Objectives**
In today's rapidly evolving digital world, opportunities and challenges abound for aspiring entrepreneurs. This course in digital entrepreneurship will equip students with the knowledge and practical skills needed to thrive in the digital landscape. This course provides a journey from ideation to the launch of a digital business venture. By the end of this course, students will have not only gained the knowledge and skills required to start and manage a successful digital business but also developed a strategic mindset to adapt to the ever-changing digital landscape.	Objective of the course is to equip students with the essential knowledge and practical skills to conceptualize, launch, and manage successful digital business ventures in the dynamic digital entrepreneurship landscape.

BIS 394 Technology Project Management Core Course	
Course Description	**Course Objectives**
The course is designed to equip students with the fundamental skills and knowledge required to proficiently plan, execute, and govern technology-driven projects within the dynamic realm of Information Technology (IT). In this course, students will delve into the principles and practices of project management and governance tailored specifically to the IT sector.	Objective of the course is to equip students with the understanding of the strategic significance of project management and governance within the context of Information Technology (IT), and recognizing its profound impact on business growth. Students will learn how to skillfully apply Jira, a project management tool, along with governance principles and methodologies, to plan, execute, and monitor technology projects, ensuring alignment with organizational goals, strategies, and compliance requirements. Upon completion of the course students will be able to evaluate potential risks and challenges inherent to technology and BIS projects and develop robust strategies for risk mitigation and contingency planning to ensure project resilience within governance guidelines.

BIS 402 Enterprise Cloud Computing Core Course	
Course Description	**Course Objectives**
Cloud computing is a critical component of modern business enterprises; it has transformed the way networking, data storage and processing, enterprise application development, and infrastructure provisioning are accomplished. In this course, we delve into the fundamental concepts of core cloud services, architecture, and cloud support, and then provide hands-on learning. This course introduces various cloud options such as AWS, Azure, and Alibaba Cloud to examine the various services available for accessing databases in the cloud. It also provides an understanding of virtualization concepts and exposure to different virtualization solutions, as well as security challenges related to the cloud. Additionally, it introduces resources and capacity monitoring and teaches how to respond to problems to optimize both performance and cost efficiency.	Objective of the course is to equip students with a comprehensive conceptual and practical understanding of cloud computing's significant role in modern business operations, taking into consideration core cloud services, architecture, and cloud support, and providing them with hands-on experience with platforms such as AWS, Azure, and Alibaba Cloud for accessing cloud databases.

BIS 406 Mobile Apps Development for Enterprise Core Course	
Course Description	**Course Objectives**
This course provides a comprehensive exploration of "Mobile Apps Development for Enterprise," shedding light on the pivotal role mobile applications play in driving business innovation and addressing the unique challenges faced by enterprise IT. Throughout the course, students will gain a comprehensive understanding of how the enterprise mobile app lifecycle compares and contrasts with conventional development practices. Delve deep into the art of designing mobile business apps that not only meet strategic objectives but also delight users. Explore a variety of mobile development techniques, programming languages, and architectural approaches to create robust and scalable enterprise mobile apps. Master the optimization of crucial linkages between mobile front-ends and enterprise back-end systems and navigate the complexities of testing in ever-changing device environments. Additionally, discover the power of implementing DevOps principles to accelerate the entire app development lifecycle, from ideation to rapid delivery, enhancing overall value.	Objective of the course is to equip students with the knowledge and skills to excel in enterprise mobile app development, fostering innovation, user-centric design, and seamless integration within a dynamic business environment.

BIS 407 E-Commerce Applications (Web & Mobile) Core Course	
Course Description	**Course Objectives**
This course provides a comprehensive introduction and hands-on experience in modern e-commerce UI/UX design, secure payment gateways, and web and mobile commerce applications. It explores a wide spectrum of technologies, open-source tools, protocols, and techniques essential for crafting thriving e-commerce websites and mobile applications. Commencing with an overview of mobile and web e-commerce, it swiftly progresses to explain security and the utilization of cutting-edge technologies to build web and mobile apps, whether custom or through open-source systems. Grounding this technical expertise within a	Objective of the course is to equip students with a comprehensive understanding and hands-on over modern e-commerce, focusing on UI/UX design, secure payment gateways, and web and mobile commerce applications.

business framework, the course guides students through tangible e-commerce applications, spanning UI/UX design, secure payment gateways for checkouts, as well as data capture to gain meaningful insights into users and visitors.	

BIS 410 Business Intelligence: Machine Learning Applications Core Course	
Course Description	**Course Objectives**
The course provides a strong foundation in both Business Intelligence (BI) and Machine Learning (ML) concepts and tools. Throughout this course, students will gain essential knowledge and practical skills to harness data for informed decision-making, data visualization, and predictive analytics using ML models.	Objective of the course is to provide students with an understanding of the fundamental concepts of Business Intelligence (BI) and Machine Learning (ML). Students will be able to understand key differences between supervised and unsupervised ML methods, and analytics techniques, including statistics, data warehousing, regression analysis, and tools like Knime, Rapid Miner, Tableau and Power BI. In an applied way, students will use ML models and analytics tools (e.g., Power BI, Tableau, Rapid Miner, Knime, Weka, Microsoft Fabric) to design and develop solutions for real-world business problems, and analyze and interpret data using ML models, BI tools, and advanced analytics techniques to draw meaningful insights for business growth and decision-making.

BIS 411: Business Intelligence II: Artificial Intelligence Core Course	
Course Description	**Course Objectives**
This course enables students to leverage Business Intelligence (BI) for corporate growth, increased efficiency, and enhanced decision-making. This hands-on course, enriched with practical examples explores the dynamic intersection of AI and BI. Students will delve into AI's most pertinent applications in BI, such as advanced forecasting, automated classification, and AI-driven recommendations. Moreover, they will master the art of extracting actionable insights from unstructured data sources, including text, documents, and image files.	Objective of the course is to make students understand the fundamental concepts of Artificial Intelligence in Business Intelligence (BI) and its applications in corporate growth, efficiency, and decision-making, and to provide them with knowledge of key AI concepts and their relevance in the BI landscape. Students will analyze data using AI models to derive meaningful insights that contribute to informed business decisions and evaluate the effectiveness and efficiency of AI-driven analytics solutions in improving sustainable business growth.

BIS 420 IT Infrastructure and Networking Elective	
Course Description	**Course Objectives**
The course explores the foundations of IT infrastructure and networking. Specifically, it covers network topologies, hardware components, protocols, and services, as well as essential concepts like TCP/IP, IPv4, IPv6, and DNS. Students will gain valuable insights into network security and management, setting the stage for a successful career in the IT industry. Also, this course provides network security principles with a focus on industry-leading solutions like Fortinet, Palo Alto Networks, and Checkpoint.	Objective of the course is to equip students with a strong foundation in IT infrastructure and networking, integrating industry-standard security solutions. Students will understand networking fundamentals to assess the difference between Internet, Intranet, and Extranet and basic security features including firewalls, DMZ, VPNs, and Microsoft security zones. Students will also understand Local Area Networks (LANs) and Wide Area Networks (WANs) and components fundaments and their importance while recognize various network topologies and their characteristics. In an applied way, students will develop the ability to differentiate between various network hardware components, including switches, routers, and cables and able to configure network devices from Fortinet, Palo Alto Networks, and Check Point, and be able to analyze OSI model layers and their functions in network communication to evaluate the role of TCP/IP in modern networking.

BIS 430 IT Product Management Elective	
Course Description	**Course Objectives**
This comprehensive course offers a holistic 360-degree understanding of user experience (UX) design, equipping individuals with the skills to create exceptional products tailored to user needs and market demands. Throughout this journey, students will delve into fundamental UX principles and gain hands-on experience in crafting user interfaces (UI) for web and mobile. Beyond technical and design proficiency, this course places a strong emphasis on mastering the interpersonal aspects of the role. As UX professionals, student will often find themselves in a pivotal position, bridging the gap between engineering, marketing, and various cross-functional teams. This course will empower them with the essential business acumen and soft skills required for effective IT product management. By completing this course, individuals will emerge as part of a select group of technically capable IT product managers who possess the unique ability to seamlessly connect with. Their expertise will extend beyond designing user-friendly products; they'll also excel in the art of collaboration and communication, making them invaluable assets to any organization.	Objective of the course is to provide a comprehensive understanding of IT product management skills, enabling students to create user-friendly, market-fit products, and collaborate effectively across teams.

BIS 440 Advanced Tech Stack Elective	
Course Description	**Course Objectives**
Choosing the right technology stack can affect development time, cost, application quality, and scalability, which is why it's important to make the right decision, even if it needs to spend more time analyzing the pros and cons of the available solutions. This course provides students with a higher level of conceptual and practical understanding of various technology stacks used to develop enterprise solutions, whether on desktop, web, mobile, or the cloud side, to meet diverse business requirements in an ever-changing technological landscape. It covers all the highly sought-after technology stacks that businesses are	Objective of the course is to enable students to acquire dynamic skill sets and the ability to rationalize the choice of ever-changing advanced technology stacks that enable businesses to meet their evolving technology needs and make informed decisions.

actively seeking to address their challenges. Furthermore, this course prepares students to effectively respond to inquiries from business leaders during the digital transformation process for their organizations, helping them determine which technology stack should be adopted and providing strong, rational, and logical reasoning to support their decisions.	

BIS 450 Software Application Design & Implementation (Capstone) Core Course	
Course Description	**Course Objectives**
Software Application Design & Implementation is the capstone project at the end of the degree program. In this course, students are required to work individually or in small teams to integrate, apply, and demonstrate the skills and knowledge they have acquired throughout the degree program to address a real-world industry problem. The capstone project consists of two phases. In Phase 1, students undertake a detailed requirements analysis and propose a preliminary design that is validated through a feasibility analysis. Students then develop an implementation plan that they will execute in Phase 2 of the capstone project.	Objective of the course is to enable students to apply their acquired skills and knowledge from BBIS degree program to address real-world industry problems through a comprehensive software application design and implementation project.

14. PLO-CLO MAP BY COURSE

BIS 310 Introduction to Software Engineering									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	1								
K2		2							
S1					3				
S2					3				
C1						6			
C2							5	5	
C3									6

BIS 334 Enterprise Resource Planning									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	2	2							
K2			2						
S1				3					
S2					4				
C1						5			
C2								6	
C3									6

BIS 375 Information Security in E-Business									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	2		2						
K2		1							
S1					3				
S2				4					
C1						5			
C2							5	6	
C3									6

BIS 379 Digital Entrepreneurship									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	2		2						
K2		1							
S1					3				
S2				4					
C1						5			
C2								5	
C3									6

BIS 394 Technology Project Management									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	1		2						
K2		2							
S1					3				
S2					3				
C1						5			
C2							4	6	
C3									6

BIS 402 Enterprise Cloud Computing									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1		2							
K2			1						
S1					3				
S2				4					
C1						6			
C2						4			
C3									5

BIS 406 Mobile Apps Development for Enterprise									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	2								
K2		1	2						
S1					3				
S2				4					
C1						5			
C2							5		
C3									6

BIS 407 E-Commerce Applications (Web & Mobile)									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	2		2						
K2		1							
S1					3				
S2				4					
C1						5			
C2							6		
C3									6

BIS 410 Business Intelligence I: Machine Learning Applications									
	A1	A2	A3	B1	B2	C1	C21	C22	C3

K1	2		2						
K2		2							
S1				3	3				
S2					4				
C1						5			
C2							5	6	
C3									6

BIS 411 Business Intelligence II: Artificial Intelligence

	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	2		2						
K2		1							
S1					3				
S2				4					
C1						5			
C2							5	6	
C3									6

BIS 420 IT Infrastructure and Networking

	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	1		2						
K2		2							
S1					3				
S2				4					
C1						6			
C2							6		
C3									6

BIS 430 IT Product Management

	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	1								
K2		2	2						
S1					3				
S2				4		4			
C1							5		
C2								6	
C3									6

BIS 440 Advanced Tech Stack

	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	1		2						
K2		2							
S1					3				

S2				4					
C1							5	5	
C2						6			
C3									6

BIS 450 Software Application Design & Implementation (Capstone)									
	A1	A2	A3	B1	B2	C1	C21	C22	C3
K1	1		1						
K2		2			3				
S1									
S2				4					
C1						5			
C2							5		
C3								6	6