



Sana'a University



Faculty: Computer & Information Technology

Department: Information Systems

Master of Science in Information Systems Program Specifications

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Date of preparation :



Contents

PROGRAM SPECIFICATION DOCUMENT -----	خطأ! الإشارة المرجعية غير معروفة.
ANNEX- 1, SURVEY OF SIMILAR ACCREDITED PROGRAMS AT NATIONAL AND INTERNATIONAL UNIVERSITIES (BENCHMARKS) -----	1خطأ! الإشارة المرجعية غير معروفة.
ANNEX- 2, SURVEY OF PILOS FOR SIMILAR ACCREDITED PROGRAMS AT NATIONAL AND INTERNATIONAL UNIVERSITIES -----	2خطأ! الإشارة المرجعية غير معروفة.
ANNEX- 3, SURVEY OF NUMBER OF COURSES AND CREDIT HOURS OF SIMILAR PROGRAMS - معروفة.	3خطأ! الإشارة المرجعية غير معروفة.
ANNEX- 4, COMPARISON OF PROGRAM COURSES AND SIMILAR PROGRAMS COURSES -----	175
ANNEX- 5, CODING SYSTEM -----	8خطأ! الإشارة المرجعية غير معروفة.
ANNEX- 6, MATRIX OF MAPPING PROGRAM PILO'S WITH COURSES -----	29
ANNEX- 7, CVS FOR THE PREPARATION COMMITTEE-----	33

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1. General Information:

1.	Program Name	Master of Science in Information Systems (MSIS)
2.	Program Type	Mixed Mode (Courses + Thesis)
3.	Total Credit Hours	36 Credit Hours
4.	Program Period	2 Years (Full-time)
5.	Awarding Institution	Sana'a University
6.	Awarded Degree	Master of Science in Information Systems
7.	Study System:	Full-time
8.	Teaching language	English (with Arabic support if needed)
9.	Departments participating in the program:	Department of Information Systems, Faculty of Computer & IT
10.	Location of teaching:	Faculty of Computer & Information Technology, Sana'a University
11.	Date of current development of the program:	2025
12.	Prepared by:	Prof. Fadl Muraher Ba-Alwi, Prof. Mansoor N. Ali, Assoc. Prof. Mokhtar Ghilan, Dr. Ebrahim Al-Haddad, Dr. Abdulrahman Alsabri
13.	Council Approval Date	

2. Introduction:

The **Master of Science in Information Systems (MSIS)** program is designed to prepare graduates with advanced knowledge and applied skills in **information systems, data analytics, artificial intelligence, big data, business intelligence, and digital transformation**. The program integrates technical, managerial, and ethical perspectives, enabling students to design innovative IS solutions, support data-driven decision making, and lead digital transformation across industries.

The MSIS program is benchmarked against the **ACM/AIS MSIS 2016 Global Competency Model** and leading international MSIS programs, ensuring alignment with global best practices



and the needs of the Yemeni and regional labor markets. Graduates will be equipped to contribute to sustainable development, scientific research, and community service.

Promising Jobs:

- 1- Business Intelligence Analyst
- 2- Data Analytics & AI Specialist
- 3- Information Systems Consultant
- 4- Enterprise Architect / Digital Transformation Manager

3. University Vision, Mission, Values, and Objectives:

University vision:

To excel in providing high-quality education, pioneering scientific research, and impactful community service.

University mission:

Sana'a University is dedicated to delivering high-quality education, promoting scientific research, contributing to community development by producing highly qualified graduates according to international quality standards, addressing the labor market needs, and striving for excellence and competitiveness locally and regionally.

University Objectives:

- 1- Enhancing the University's academic and administrative performance to support the educational process.
- 2- Elevating the quality of the educational process.
- 3- Developing a robust framework for scientific research.
- 4- Providing opportunities for innovation and creativity that contribute to sustainable development.
- 5- Strengthening the University's partnerships with the community.

4. Faculty Vision, Mission, Values, and Objectives:

Vision:

To achieve a leading position locally and excellence regionally in education, research, innovation, and community impact in the fields of computing and technology.

Mission:

Providing distinguished education in the fields of computing and technology to prepare qualified graduates committed to professional ethics and produce innovative research, within a stimulating learning environment and effective community partnerships, addressing labour-market needs and contributing to the achievement of sustainable development and digital transformation.

Faculty Objectives:

1. Providing distinguished education in the fields of computing and technology to graduate qualified professionals committed to professional ethics, capable of competing and



innovating in the labour market, and contributing to sustainable development and digital transformation.

2. Designing and developing distinguished academic and research programs, aligned with quality and accreditation standards, and responsive to evolving challenges and labor-market needs.
3. Offering and improving a stimulating academic environment that fosters active learning, teaching, research, innovation, creativity, and entrepreneurship.
4. Producing innovative research and technological solutions in computing and technology that contribute to sustainable development.
5. Developing and attracting distinguished cadres to enhance education, scientific research, and community service.
6. Building and sustaining effective academic and community partnerships that enhance education, learning, and scientific research.
7. Providing technical consultations, specialized training, and spreading digital culture to empower various sectors and support digital transformation.

5. Department Vision, Mission, and Objectives :

Vision of the Department :

To achieve a leading position locally and excellence regionally in education, scientific research, innovation, and community service in the field of Information Systems.

Mission of the Department:

Providing high-quality education to prepare qualified, ethically committed professionals in Information Systems, and producing innovative research through a supportive educational and research environment and effective community partnerships that support the achievement of digital transformation and sustainable development.

Objectives of the Department:

1. Providing and developing distinguished academic and research programs in Information Systems, aligned with accreditation standards and responsive to labor-market needs.
2. Delivering high-quality education in Information Systems to supply society with qualified professionals who are committed to professional ethics, capable of competing innovatively in the labor market, and contributing to sustainable development and digital transformation.
3. Providing a stimulating academic environment that supports active learning, teamwork, innovation, and entrepreneurship.



4. Producing innovative research and solutions in Information Systems that address national priorities and support sustainable development and digital transformation.
5. Developing and attracting distinguished academic and research talents, thereby reinforcing excellence in education and research.
6. Building effective academic and industry partnerships that enhance education, research, employment, and innovation.
7. Providing consultancy and training and promoting technological awareness to raise digital competency across sectors.

6. Master of Science in Information Systems Program Mission and Objectives:

Program Mission:

Preparing qualified professionals in Information Systems, equipped with advanced knowledge and skills, committed to professional ethics, and capable of critical thinking and innovation, to deliver practical and research-driven solutions that meet national and regional labor-market needs, through a stimulating educational and research environment and active community engagement.

Program Objectives:

1. Preparing qualified professionals—distinguished academically and in research—in Information Systems, committed to professional ethics and capable of innovation and competition locally and regionally.
2. Equipping students with advanced knowledge and skills in Information Systems within a stimulating environment that develops their scientific and research capacities, critical thinking, and teamwork.
3. Delivering specialized, practical, and research solutions aligned with national and regional labor-market needs and societal challenges.
4. Providing effective community service that addresses the specific needs of national and regional contexts.

7. Program Standards & Benchmarks:

Academic Standards:

1. The program complies with the **National Academic Reference Standards (NARS-Yemen)** for postgraduate studies in Information Systems and Computing, as issued by the Council for Accreditation and Quality Assurance (CAQA-Yemen).
2. The program adheres to the **Unified Regulations for Student Affairs** of the Ministry of Higher Education and Scientific Research, ensuring consistency with national policies governing graduate programs.



(See Annex 2: Academic Standards Curriculum Criteria of Accreditation Board, and Annex 3: Unified Regulations for Student Affairs.)

Program Benchmarks:

The Master of Science in Information Systems (MSIS) program is benchmarked against:
The ACM/AIS MSIS 2016 Global Competency Model for Graduate Degree Programs in Information Systems. Accredited international MSIS programs, such as:

1. **Carnegie Mellon University – Master of Information Systems Management (MISM)**
<https://www.heinz.cmu.edu/programs/information-systems-management>
2. **Indiana University – MS in Information Systems (Kelley School of Business)**
<https://kelley.iu.edu/programs/ms-information-systems/>
3. **University of Melbourne – Master of Information Systems**
<https://study.unimelb.edu.au/find/courses/graduate/master-of-information-systems/>
4. **National University of Singapore – MSc in Information Systems Management**
<https://www.comp.nus.edu.sg/programmes/pg/mit/>
5. **King Saud University – MSc in Information Systems**

8. Graduate Attributes:

Upon successful completion of the **Master of Science in Information Systems (MSIS)** program, graduates will be able to:

1. Demonstrate advanced knowledge in information systems, with strong competence in big data, data analytics, artificial intelligence, and business intelligence to support data-driven decision making.
2. Apply critical thinking and research skills to analyze complex IS problems, design innovative solutions, and contribute to academic and professional knowledge.
3. Lead and manage IS initiatives, showing effective teamwork, communication, and project management skills in diverse organizational and global contexts.
4. Integrate ethical, legal, and social responsibility into professional IS practice, with particular attention to information assurance, cybersecurity, and responsible AI.
5. Innovate with emerging technologies such as cloud platforms, IoT, and digital transformation tools to enhance organizational performance and competitiveness.
6. Adapt to lifelong learning, staying current with the rapid evolution of IS technologies, methods, and practices.

9. Program Intended Learning Outcomes (PILOs):

A. Knowledge and Understanding:

Upon completion of the MSIS program, graduates will be able to:



A1. Demonstrate advanced knowledge of theories, models, techniques, and emerging trends in information systems, data analytics, big data, business intelligence, and digital transformation.

B. Cognitive/ Intellectual Skills:

B1. Analyze and document complex organizational problems and propose **data-driven IS solutions**.

B2. Evaluate frameworks, models, tools, techniques, and standards, and propose research and projects that integrate current trends in information systems and analytics to improve organizational processes and performance.

C. Practical and Professional Skills:

C1. Develop innovative information systems and analytics solutions that address organizational challenges and capitalize on opportunities by leveraging AI-powered, data-driven approaches and research methods.

C2. Conduct advanced research in the field of information systems by utilizing research methodologies and employing both quantitative and qualitative methods in data collection and analysis to generate new knowledge or support informed decision-making.

D. General and Transferable Skills:

D1. Collaborate effectively in teams by demonstrating leadership, critical thinking, negotiation, and professional and intercultural communication.

D2. Demonstrate commitment to lifelong learning, ongoing self-improvement, and the ethical responsibility to stay adaptable in the face of technological change and progress.

Program PILOs	Program Objectives			
	PObj1	PObj2	PObj3	Pobj4
A1	✓	✓		
B1	✓	✓	✓	✓
B2	✓	✓	✓	✓
C1	✓	✓	✓	✓
C2	✓	✓	✓	✓
D1	✓	✓		✓
D2	✓	✓		✓

Teaching Strategy	Description
Lectures & Interactive Lectures	Weekly sessions are supported by multimedia presentations, whiteboard problem-solving, and guided discussions to explain theories, models, and frameworks in IS, data analytics, AI, BI, and digital transformation.
Seminars & Projects	Individual and group projects are assigned in each course. Students prepare reports and presentations, which are then discussed in seminars to promote peer learning, feedback, and research-oriented thinking.



Teaching Strategy	Description
Case Studies	Real-world IS and analytics case studies are used to enable students to analyze organizational problems, identify solutions, and link theory to practice.
Problem-Solving Activities	Structured exercises and applied tasks designed to develop data-driven decision-making, AI applications, and innovative IS solutions.
Tutorials & Hands-on Sessions	Small-group activities, lab exercises, and workshops to reinforce tools and methods, particularly in analytics, BI, and IS project work.
Discussions & Reflective Learning	Guided discussions and reflection sessions to encourage critical thinking, creativity, and ethical awareness in IS and analytics practice.

Assessment Strategy	Description
Written Exams (mid-term & final)	Mid-term in week 8 and final at course end; closed-book. Assess theoretical knowledge and application of IS concepts.
Quizzes & Assignments	Short, periodic checks to reinforce continuous learning, problem-solving, and exam readiness.
Presentations	Evaluation of research/project understanding, analytical depth, and professional communication.
Research Articles & Term Projects	Authored papers or applied projects in selected courses, emphasizing big data, AI, analytics, and IS applications .
Case Studies & Problem-Solving	Real organizational scenarios to assess analysis, synthesis, and innovative solution design.
Master's Thesis	Assessed via proposal defense, progress milestones, final defense, and written thesis; demonstrates research capability and integration of advanced IS knowledge.



10. Alignment of Program Intended Learning Outcomes (PILOs) to Teaching Strategies and Assessment Methods:

PILOs	Teaching Strategy	Assessment Methods
Knowledge and Understanding A1,A2	Interactive lectures, tutorials, seminars, case studies	Written exams (mid & final), quizzes, research articles
Intellectual Skills B1, B2	Case studies, problem-solving activities, discussions, research seminars	Written exams, project reports, research articles, presentations
Professional & practical skills C1, C2	Project-based learning, hands-on labs, applied case studies, internships/capstone supervision	Project evaluations, research reports, presentations, thesis assessment
General & Transferable Skills D1, D2	Group projects, teamwork activities, oral presentations, reflective learning	Participation, oral presentations, written reports, portfolios

11. Program Structure:

No	Requirements		No. of Courses	Credit Hours	Rational Weight %
1.	Program Requirements	Compulsory	8	24	66.67%
		Elective	2	6	16.67%
2.	Thesis	Compulsory	1	6	16.67%
	Total:		11	36	100%



11.1. Program Structure:

Compulsory Courses

No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1			Digital Business Analysis	تحليل الأعمال الرقمية	3				
2			Research Methods	مناهج البحث	3				
3			Digital Transformation	التحول الرقمي	3				
4			Advanced Data & Information Management	إدارة البيانات والمعلومات المتقدمة	3				
5			Cloud Computing & Emerging Technologies	الحوسبة السحابية والتقنيات الناشئة	3				
6			Business intelligence and data analytics	ذكاء الأعمال وتحليلات البيانات	3				
7			Information Assurance, Security & Ethics	ضمان المعلومات والأمن والأخلاقيات	3				
8			Enterprise Architecture	العمارة المؤسسية	3				
Total					24				

Elective Courses

No	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1			Elective I	اختياري 1	3	3	-	-	-
2			Elective II	اختياري 2	3	3	-	-	-
Total					6				

Thesis

No	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1			Thesis	الرسالة	6				
Total					6				

Elective Courses

No	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1			Machine Learning & Artificial Intelligence for IS	التعلم الآلي والذكاء الاصطناعي لنظم المعلومات	3	3			
2			Big Data Analytics & Cloud Platforms	تحليلات البيانات الضخمة ومنصات الحوسبة السحابية	3	3			



3			Data Visualization & Visual Analytics	تصور البيانات والتحليلات البصرية	3	3			
4			Cybersecurity & Risk Management	الأمن السيبراني وإدارة المخاطر	3	3			
5			Digital Governance & Policy	الحكومة الرقمية والسياسات	3	3			
6			Emerging Technologies in IS	التقنيات الناشئة في نظم المعلومات	3	3			
7			Digital Innovation & Entrepreneurship	الابتكار الرقمي وريادة الأعمال	3	3			
8			E-Government & Smart Cities Systems	الحكومة الإلكترونية وأنظمة المدن الذكية	3	3			
Total					24	24			

12. Study Plan:

Level 1

Term 1

No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1			Digital Business Analysis	تحليل الأعمال الرقمية	3	3			
2			Research Methods	مناهج البحث	3	3			
3			Digital Transformation	التحول الرقمي	3	3			
4			Advanced Data & Information Management	إدارة البيانات والمعلومات المتقدمة	3	3			
5			Elective I	اختياري I	3	3			
Total					15	15			

Term 2

No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1			Cloud Computing & Emerging Technologies	الحوسبة السحابية والتقنيات الناشئة	3	3			
2			Business intelligence and data analytics	ذكاء الأعمال وتحليلات البيانات	3	3			
3			Information Assurance, Security & Ethics	ضمان المعلومات والأمن والأخلاقيات	3	3			
4			Enterprise Architecture	العمارة المؤسسية	3	3			
5			Elective II	اختياري II	3	3			
Total					15	15			



Level 2

Term 1&2									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1			Thesis	الرسالة	6				--
Total					6				

13. Bridging Courses:

Term 1									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1			Programming Fundamentals	أساسيات البرمجة					
2			Computer Programming	برمجة الحاسوب					
3			Data Structures and Algorithms	هياكل البيانات والخوارزميات					
4			Database Fundamentals	أساسيات قواعد البيانات					
5			Database Management Systems	نظم إدارة قواعد البيانات					
6			Systems Analysis and Design	تحليل وتصميم النظم					
7			Probabilities and Statistics	الإحصاء والاحتمالات					
8			Computer Networks	شبكات الحاسوب					

14. Admission/Selection/Transfer Requirements:

Admission Requirements:

To be eligible for admission into the Master of Information Systems program, applicants must fulfill the following criteria:

1. Academic Qualifications:

- Hold a bachelor's degree in information systems, Computer Science, Information Technology, Data Science, Software Engineering, or a closely related field from an accredited university.
- A minimum overall undergraduate GPA of **"Good"** or equivalent is required.

2. Language Proficiency:



- Applicants must demonstrate proficiency in English (the language of instruction) through standardized language tests (e.g., TOEFL, IELTS) or through successful completion of previous studies delivered in English.

3. Entrance Examination/Interview:

- Applicants must successfully pass the department's entrance exam, assessing fundamental knowledge of Information Systems concepts.
- Qualified candidates will be invited for a personal interview to assess their motivation, research interests, and suitability for graduate studies.

4. Documents Required:

- Completed the application form provided by Sana'a University.
- Certified copies of academic transcripts and degree certificates.
- Curriculum vitae (CV).
- Statement of Purpose outlining the applicant's research interests and objectives for pursuing graduate studies.
- Two academic reference letters from previous professors or employers familiar with the applicant's academic or professional capabilities.

Selection Criteria:

Selection is competitive and based on:

- Academic qualifications and GPA.
- Results of the entrance examination and personal interview.
- Relevance of the applicant's previous education and experience to the program.
- Applicant's demonstrated capability for independent research and analytical thinking.

Transfer Requirements:

Students wishing to transfer from other accredited institutions or programs into the Master of Information Systems program must:

- Be enrolled in a related Master's program at an accredited university.
- Have completed at least one semester in their current program.
- Have a minimum GPA of "**Good**" or equivalent in the completed courses.
- Submit official academic transcripts, detailed course descriptions, and syllabi of courses completed.
- Obtain approval from the Graduate Studies Committee within the Faculty of Computer and Information Technology at Sana'a University.



The Graduate Studies Committee will evaluate transfer requests based on course equivalency, academic performance, and availability of places within the program. A maximum of **30%** of the total credit hours may be accepted for transfer.

15. Graduation Requirements:

To qualify for graduation from the Master of Science in Information Systems program, students must fulfill the following requirements:

1. **Coursework Completion:**

Complete all compulsory and elective courses with a minimum cumulative GPA of **"Good" (75%)**.

2. **Credit Hours:**

Complete a total of **36 credit hours**, distributed as follows:

- **24 credit hours** from compulsory courses.
- **6 credit hours** from elective courses.
- **6 credit hours** dedicated to the Master's Thesis.

3. **Master's Thesis:**

Complete and defend an original thesis in the area of Information Systems under the supervision of an assigned faculty member and approval of an examination committee.

4. **Research Publication:**

Submit evidence of acceptance or publication of at least one research article derived from the thesis in a recognized academic journal or a peer-reviewed conference.

5. **Administrative and Financial Clearance:**

Obtain clearance from the relevant university departments and pay all due fees as required by Sana'a University regulations.

Upon meeting these requirements, the student will be awarded the degree " Master of Science in Information Systems " by Sana'a University.

16. Grading System:

From 90% to 100% of total marks	Excellent
From 80% to less than 90%	Very Good
From 75% to less than 80%	Good
From 65% to less than 75%	Pass
Less than 50%	Poor/Fail



17. Facilities Required for Running the Program:

1. Lecture & Seminar Facilities

- Smart classrooms with projectors, smart boards, video conferencing for seminars.
- Case-study resources for Digital Transformation and Responsible AI courses.

2. Advanced Computer Labs

- High-performance PCs with sufficient RAM/GPUs for analytics, AI, and ML workloads.
- Licensed software: SPSS, R, Python, SAS, Tableau, Power BI, ArchiMate, Sparx EA, ERP/CRM demo systems (SAP, Odoo).

3. Database & Cloud Labs

- Dedicated servers and DBMS software (Oracle, MySQL, SQL Server, PostgreSQL).
- Cloud access (AWS Educate, Azure, Google Cloud) with virtualized environments.
- IoT kits (Raspberry Pi, Arduino) for Cloud & IoT course.

4. Cybersecurity & Assurance Lab

- Secure sandbox with penetration testing tools, auditing software, and monitoring systems.
- Case-study library for ethics and responsible AI.

5. Library & Digital Learning Resources

- Subscriptions to IEEE, ACM Digital Library, ScienceDirect, Springer, Emerald.
- Access to e-learning platforms (Coursera, edX, LinkedIn Learning).
- Plagiarism-detection software (Turnitin or equivalent).

6. Research & Thesis Support

- Research methods lab with survey software and data-collection platforms.
- Secure data storage and backup systems for research datasets.
- Printing, binding, and presentation facilities for theses.

7. General Student Support Facilities

- Graduate student discussion rooms and project collaboration spaces.
- Counseling, academic advising, and accessibility support (ramps, adaptive tech).

18. Program Assessment:

	Type of the Sample who Assess the program	Instruments used	Sample
1	Students	Questionnaires, course evaluations, focus groups	A representative sample of enrolled students across all levels (Year 1 & 2)
2	Alumni	Alumni survey, tracer studies	Graduates from the past 3–5 years



3	Faculty Members	Structured feedback forms, peer review reports	All teaching staff in the program
4	Employers / Labor Market Representatives	Employer satisfaction surveys, interviews	Selected employees of program graduates and industry partners
5	External Reviewers (Academic peers)	External examiner reports, benchmarking studies	At least one external reviewer from a recognized university/program
6	Quality Assurance Unit	Internal audit reports, KPI dashboards	QA Unit of the Faculty and University

19. Program Policies:

Based on University Regulations

1.	(Class Attendance): A student should attend not less than 75 % of total hours of the subject; otherwise, he/she will not be able to take the exam and will be considered as exam failure. If the student is absent due to illness, he/she should bring a proof statement from university Clinic. If the absence is more than 25% of a course total contact hour, student will be required to retake the entire course again.
2.	(Tardy) : For late in attending the class, the student will be initially notified. If he repeated lateness in attending class, he/she will be considered absent.
3.	(Exam Attendance/Punctuality) : A student should attend the exam on time. He/she is permitted to attend an exam half an hour from exam beginning, after that he/she will not be permitted to take the exam, and he/she will be considered absent from the exam.
4.	(Assignments & Projects) : Assignments and projects are given as per course specification; the student has to submit all the assignments for checking on time, mostly one week after given the assignment.
5.	(Cheating) : For cheating in exam, a student will be considered fail. In case the cheating is repeated three times during his/her study the student will be disengaged from the faculty.
6.	(Plagiarism) : Plagiarism is the attending of a student the exam of a course instead of another student. If the examination committee proved a plagiarism of a student, he/she will be disengaged from the



	faculty. The final disengagement of the student from the faculty should be confirmed from the Student Council Affair of the university or according to the university roles.
7.	(Other policies) : - Mobile phones are not allowed to use during a class lecture. It must be closed; otherwise the student will be asked to leave the lecture room. - Mobile phones are not allowed in class during the examination. - Lecture notes and assignments might be given directly to students using soft or hard copy.

Annex- 1, Survey of Similar Accredited Programs at National and International Universities (Benchmarks)

Program No.	The Academic Program	The University	Website	The Faculty	The Department	The Country	Degree Award at Program Completion	Program Accrediting Body	Year of Accreditation	Study Duration
Current Program	Master of Science in Information Systems	Sana'a University	–	Faculty of Computer & IT	Information Systems	Yemen	Master of Science	CAQA (Yemen)	In progress (2025)	2 years (4 semesters)
The 1 st Program	Master of Information Systems Management (MISM)	Carnegie Mellon University	Link	Heinz College of Information Systems & Public Policy	Information Systems	USA	Master of Science	MSCHE	Accredited	16–20 months (3–4 semesters)
The 2 nd Program	MS in Information Systems	Indiana University – Kelley School of Business	Link	Kelley School of Business	Operations & Decision Technologies	USA	Master of Science	AACSB	Accredited	1 year (2 semesters)
The 3 rd Program	Master of Information Systems	University of Melbourne	Link	Faculty of Engineering & Information Technology	School of Computing & Information Systems	Australia	Master of Information Systems	TEQSA / AACSB	Accredited	2 years (4 semesters)
The 4 th Program	MSc in Information Systems Management	National University of Singapore (NUS)	Link	School of Computing	Information Systems & Analytics	Singapore	Master of Science	AACSB / EQUIS	Accredited	1.5–2 years
The 5 th Program	Master of Science in Information Systems	King Saud University	Link	College of Computer & Information Sciences (CCIS)	Information Systems Department	Saudi Arabia	Master of Science	NCAAA (Saudi Arabia)	Accredited (2021)	2 years (4 semesters)

Head of Department Quality Unit Dean of the Faculty Center of Development & Quality Assurance

Dr. Ebraheem M.Alhaddad

Rector

Annex- 2, Survey of PILOs for Similar Accredited Programs at National and International Universities

Program PILOs	Similar Accredited Programs					Accreditation Bodies	
	Carnegie Mellon (MISM)	Indiana (MSIS)	Melbourne (MIS)	NUS (ISM)	King Saud (MSIS)	NARS	International (if any)
A1	✓	✓	✓	✓	✓		MSIS2016, ABET
B1	✓	✓	✓	✓	✓		AACSB, ABET
B2	✓	✓	✓		✓		MSIS2016, ABET
C1	✓		✓	✓	✓		MSIS2016, ABET
C2		✓	✓	✓	✓		AACSB
D1	✓	✓	✓	✓	✓		AACSB
D2	✓	✓	✓	✓	✓		QAA

Head of Department Quality Unit Dean of the Faculty Center of Development & Quality Assurance

Dr. Ebraheem M.Alhaddad

Rector

Annex- 3, Survey of Number of Courses and Credit Hours of Similar Programs

University		Carnegie Mellon (MISM/BIDA)		Indiana University		University of Melbourne		Singapore		King Saud		Average	
Total Courses and Cr. Hrs.		Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses
Program	Compulsory	48	16	24	8	37.5	12	28	7	24 (Thesis) / 33 (Non-Thesis)	8 / 11	~35	~10–11
	Percentage	73%	73%	80%	80%	75%	75%	70%	70%	57% (Thesis) / 79% (Non-Thesis)	57% / 79%	~75%	~75%
	Electives	12	4	6	2	6.25	2	6	2	12 (Thesis) / 9 (Non-Thesis)	4 / 3	~7	~2
	Percentage	18%	18%	20%	20%	12.5%	12.5%	15%	15%	29% (Thesis) / 21% (Non-Thesis)	29% / 21%	~15%	~15%
	Thesis	6	2	—	—	6.25	2	6	1	6 (Thesis only)	1	~6	~1
	Percentage	9%	9%	—	—	12.5%	12.5%	15%	15%	14% (Thesis) / —	14% / —	~11%	~11%
Total		Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses		
		66	22	30	10	50	16	40	10	42	13–15		

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Annex- 4, Comparison of Program Courses and Similar Programs Courses

#	Current Program		King Saud Univ.				Univ. of Melbourne				NUS (Singapore)				Carnegie Mellon (MISM)				Indiana Univ.			
	Course	CH	Course	Course Hours C H			Course	Course Hours C H			Course	Course Hours C H			Course	Course Hours C H			Course	Course Hours C H		
1	Digital Business Analysis	3	Advanced IS Analysis & Design				IS Project & Change Mgmt				Digital Business & Strategy				Business Process Management				Business Systems Analysis			
2	Research Methods	3	Research Project / Thesis Prep				IS Research Project				Research Methods in IS				Applied Data Analysis				Research in Business IS			
3	Digital Transformation	3	Selected Topics in Digital Transformation				IS Strategy & Digital Transformation				Digital Innovation & Transformation				Digital Transformation Mgmt				Digital Business Innovation			
4	Advanced Data & Information Mgmt	3	Advanced Topics in Databases, Big Data Analytics				Data & Info Management				Data Management & Governance				Data Architecture & Mgmt				Data & Database Systems			
5	Cloud Computing & Emerging Tech	3	Enterprise Cloud Computing, Distributed Systems				Cloud & Emerging IS Tech				Cloud Computing & Platforms				Cloud Computing for IS				Emerging IS Technologies			
6	Business Intelligence & Data Analytics	3	Data Mining & Knowledge Discovery, Adv. Data Science				Business Analytics				Analytics for IS				Business Intelligence & Analytics				Data Analytics & Decision Support			
7	Information Assurance, Security & Ethics	3	Information Security Governance, Cybersecurity				IS Security & Risk				Cybersecurity & Ethics				Information Security Mgmt				IT Governance & Security			
8	Enterprise Architecture	3	Advanced ERP, Enterprise Systems				Enterprise Architecture				Enterprise Systems Design				Enterprise Architecture & Strategy				Enterprise Systems			
9	Electives (AI/ML, Big Data, Visualization, Cybersecurity, Smart Cities, etc.)	3	Machine Learning, Blockchain, IoT, FinTech				IS Electives (AI, Big Data, IoT, Cybersecurity)				IS Electives (AI, Analytics, Smart Cities)				Specialized IS Tracks (Analytics, Cybersecurity, IoT)				IS Electives (Data Science, Security, Innovation)			
10	Thesis	3	Thesis / Research Project				Minor Thesis				MSc Dissertation				Capstone Project / Thesis				Research Project			

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Sana'a UNIVERSITY

Master of Science in Information Systems (MSIS) Program Specifications

Head of Department
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Master of Science in Information Systems (MSIS) Program Specifications

Annex- 5, Coding System

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Annex- 6, Matrix of Mapping Program PILO's with Courses

I =Introduced; P=Practiced; M/A=Mastered/Advanced

#	Course Code	Course Title	Program Intended Learning Outcomes (PILOs)											
			A. Knowledge & Understanding			B. Intellectual Skills			C. Practical Skills			D. Transferable Skills		
			A1			B1	B2		C1	C2		D1	D2	
1		Digital Business Analysis	I			I	P		P	P		P	P	
2		Research Methods	I			P	P		P	M		P	P	
3		Advanced Data & Information Management	I			I	P		P	P		P	P	
4		Cloud Computing & Emerging Technologies	I				P		P	P		P	P	
5		Business Intelligence & Data Analytics	P			P	M		P	M		P	P	
6		Digital Transformation	P			P	M		P	P		P	P	
7		Information Assurance, Security & Ethics	I				P		P			M	P	
8		Enterprise Architecture	P			P	M		P	M		P	P	
9		Elective I	(depends on choice)											
10		Elective II	(depends on choice)											
11		Thesis	M			M	M		M	M		M	P	

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Annex- 7, CVs for the Preparation Committee

Attached separately.