



Faculty: faculty of Computer Science and Technology

Department: Computer Science

Master of Computer Science and Artificial Intelligence Program Specifications

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1. General Information:

1.	Program Name	Master of Computer Science and Artificial Intelligence
2.	Program Type	Master
3.	Total Credit Hours	36
4.	Program Period	2 years
5.	Awarding Institution	Sana'a University - Faculty of Computer and IT
6.	Awarded Degree	Master
7.	Study System:	Regular
8.	Teaching language	English/Arabic
9.	Departments participating in the program:	Department of Computer Science
10.	Location of teaching:	Faculty of Computer and IT
11.	Date of current development of the program:	9/12/2025
12.	Prepared by:	1. Dr.Malek Nasser Ali Algabri 2. Dr.Ahmed Abdullah Alashalby 3. Dr.Abdullamaged Alkholidy
4.	Council Approval Date	

2. Introduction:

The rapid advancement in computer science and artificial intelligence has had a profound impact on various aspects of social, economic, and technological life. Artificial intelligence, alongside advanced computing, has become a cornerstone in driving innovation and improving quality of life through smart applications, big data analytics, prediction, and knowledge-based decision-making. Consequently, societies face an urgent need to keep pace with these accelerating transformations and to develop qualitative solutions that contribute to

the advancement of the scientific, research, cultural, economic, and administrative environment.

Today, the lives of individuals and organizations are directly tied to intelligent and computer-based systems, whether in information exchange, storage, and protection, or in automating tasks, enhancing productivity, and assisting decision-makers in formulating accurate and effective decisions through AI-powered systems and modern computing technologies.

In recognition of this importance, the Faculty has launched a distinctive postgraduate program, the Master of Computer Science and Artificial Intelligence Program, to meet the growing needs of local, regional, and global markets. This program is designed to be competitive and integrative, combining two main tracks: Computer Science and Artificial Intelligence, thereby enabling graduates to acquire advanced knowledge and skills that empower them to contribute effectively to scientific research, innovation, and sustainable development.

إن التطور والنمو المتسارع في علوم الحاسوب والذكاء الاصطناعي قد أحدث تأثيرات جوهرية في مختلف مجالات الحياة الاجتماعية والاقتصادية والتقنية. فقد أصبح الذكاء الاصطناعي، إلى جانب الحوسبة المتقدمة، ركيزة أساسية في دعم الابتكار وتحسين جودة الحياة من خلال التطبيقات الذكية، وتحليل البيانات الضخمة، والتنبؤ واتخاذ القرارات المبنية على المعرفة. وعليه برزت الحاجة الملحة لدى المجتمعات إلى مواكبة هذه التحولات المتسارعة وصياغة حلول نوعية تساهم في تطوير البيئة العلمية والبحثية والثقافية والاقتصادية والإدارية.

لقد أصبحت حياة الأفراد والمؤسسات مرتبطة بشكل مباشر بالأنظمة الحاسوبية والذكاء، سواء في تبادل المعلومات أو تخزينها أو حمايتها، أو في أتمتة المهام وتعزيز الإنتاجية، فضلاً عن مساعدة متخذي القرار في صياغة قرارات دقيقة وفعالة من خلال النظم المدعومة بالذكاء الاصطناعي وتقنيات الحوسبة الحديثة.

وانطلاقاً من هذه الأهمية، فقد سعت الكلية إلى فتح برنامج دراسات عليا نوعي يتمثل في برنامج ماجستير علوم الحاسوب والذكاء الاصطناعي، ليوافق الاحتياجات المتنامية للسوق المحلية والإقليمية والدولية، وليكون برنامجاً تنافسياً يجمع بين المسارين الرئيسيين: علوم الحاسوب والذكاء الاصطناعي، بما يمكن الخريجين من امتلاك المعارف والمهارات المتقدمة للمساهمة بفاعلية في البحث العلمي والابتكار والتنمية المستدامة.

Promising Jobs:

1. Core Software Development

- **Software Developer / Engineer** – Build applications, platforms, and enterprise solutions.
- **Full Stack Developer** – Work on both front-end and back-end systems.
- **Mobile Application Developer** – Design and build apps for Android, iOS, and cross-platform.

2. Artificial Intelligence & Machine Learning

- **AI/ML Engineer** – Develop and optimize intelligent algorithms, models, and systems for tasks such as natural language processing, computer vision, and predictive analytics.
- **Data Scientist** – Analyze complex datasets, apply statistical and AI models, and generate insights for decision-making.
- **AI Research Scientist** – Conduct cutting-edge research in deep learning, reinforcement learning, and generative AI.

3. Systems & Infrastructure

- **Systems Analyst** – Analyze organizational needs and design IT solutions.
- **Network Administrator / Engineer** – Design, manage, and secure computer networks.
- **Database Administrator (DBA)** – Manage, optimize, and secure organizational databases.

- **Cloud Engineer** – Deploy and maintain cloud-based systems (AWS, Azure, GCP).

4. Cybersecurity & IT Governance

- **Information Security Analyst** – Protect systems against cyberattacks.
- **Penetration Tester / Ethical Hacker** – Test and improve system security.
- **Security Operations Center (SOC) Analyst** – Monitor and respond to incidents.
- **IT Auditor / Compliance Specialist** – Ensure systems comply with ISO, NIST, GDPR, etc.

5. Intelligent Software & Systems Engineering

- **Software Engineer (AI-Enhanced Systems)** – Build next-generation applications integrating machine learning modules.
- **Robotics & Autonomous Systems Engineer** – Design and program intelligent robots, drones, and self-driving technologies.
- **AI Systems Architect** – Create architectures that integrate cloud, IoT, and AI-driven services for scalable solutions.

6. Cloud, Big Data & Business Intelligence

- **Big Data Engineer** – Manage and process large-scale datasets using AI-based optimization.
- **Cloud AI Specialist** – Deploy and manage AI workloads on platforms like AWS, Azure, or Google Cloud.
- **Business Intelligence Analyst (AI-powered)** – Enhance business decision-making through predictive and prescriptive analytics.

7. Data & Information Management

- **Data Analyst** – Analyze datasets to inform business decisions.
- **Database Designer / Data Engineer** – Build data pipelines and ensure data availability.
- **Business Intelligence (BI) Specialist** – Generate reports and dashboards for decision-makers.

8. Emerging & Interdisciplinary Roles

- **DevOps Engineer** – Automate deployment, monitoring, and integration workflows.
- **IoT Developer** – Develop applications and platforms for connected devices.
- **Game Developer** – Design and program computer and mobile games.
- **UI/UX Designer with Computing Focus** – Design user interfaces and experience.

9. Academia & Research

- **Computer Science Lecturer / Teaching Assistant** – Academic teaching and supervision.
- **Research Assistant / Research Scientist** – Work on computer science research projects.
- **PhD Studies** – Further specialization in algorithms, systems, or computing theory.

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

University vision:

Sana'a University aspires to achieve national leadership in education, learning, scientific research, and community service, and to be among the best regional universities as well as the house of expertise in Yemen.

تطمح جامعة صنعاء الى الريادة الوطنية في التعليم والتعلم والبحث العلمي وخدمة المجتمع وأن تكون من أفضل الجامعات الإقليمية وبيت الخبرة في اليمن.

University mission:

To contribute to the efforts of sustainable development by providing a higher education environment that meets quality standards and offers distinguished research services, within the

framework of fruitful national partnerships based on transparency, professionalism, and creativity.

الإسهام في جهود التنمية المستدامة من خلال توفير بيئة تعليم عال يحقق معايير الجودة وخدمات بحثية متميزة في ظل شراكة وطنية مثمرة تركز على الشفافية والمهنية والإبداع.

University Core values:

التميز الأكاديمي – Academic Excellence

Upholding the highest standards in teaching, learning, and research.

الالتزام بأعلى معايير الجودة في التعليم والتعلم والبحث العلمي.

النزاهة والشفافية – Integrity and Transparency

Promoting honesty, fairness, and accountability in all practices.

تعزيز الصدق والعدالة والمساءلة في جميع الممارسات.

الإبداع والابتكار – Innovation and Creativity

Encouraging creative thinking and innovative solutions in education, research, and community service.

تشجيع التفكير الإبداعي وتقديم حلول مبتكرة في التعليم والبحث العلمي وخدمة المجتمع.

الالتزام بالجودة – Commitment to Quality

Ensuring continuous improvement and adherence to academic and institutional quality standards.

ضمان التحسين المستمر والالتزام بمعايير الجودة الأكاديمية والمؤسسية.

خدمة المجتمع – Community Engagement

Strengthening the university's role in community development and societal responsibility.

تعزيز دور الجامعة في خدمة المجتمع والمساهمة في التنمية المستدامة.

التنوع والشمول – Diversity and Inclusion

Respecting cultural diversity and ensuring equal opportunities for all.

احترام التنوع الثقافي وضمان تكافؤ الفرص للجميع.

الاستدامة – Sustainability

Promoting practices that support environmental, social, and economic sustainability.

تبني ممارسات تعزز الاستدامة البيئية والاجتماعية والاقتصادية.

الشراكة والتعاون – Partnership and Collaboration

Building strong partnerships with national, regional, and international institutions.

بناء شراكات قوية مع المؤسسات الوطنية والإقليمية والدولية.

University Objectives:

- 1- Provide students with advanced and specialized study opportunities in various fields of knowledge to meet the country's needs for specialists, technicians, and experts.
- 2- Promote the Arabic language, teach, develop, and disseminate it as a scientific and educational language across different fields of knowledge and sciences, considering it a cultural vessel for the values and ethics of Arab and Islamic civilization.
- 3- Advance knowledge by conducting scientific research in various fields, whether individually or collectively, and direct it to serve the needs of society and development plans.
- 4- Focus on the development and utilization of technology to enhance societal development.
- 5- Encourage authorship, translation, and publishing in various fields of knowledge, with special emphasis on Yemeni heritage.
- 6- Contribute to the advancement of literature, arts, and sciences.
- 7- Provide an academic climate that supports freedom of thought, expression, and publication within the framework of Islamic values and noble principles.
- 8- Strengthen ties with universities and public and private institutions within the country to ensure mutual and constructive exchange of knowledge, expertise, and resources, thereby contributing to comprehensive development.
- 9- Consolidate scientific and cultural relations with Arab and foreign universities, scientific bodies, and research and development centers to help develop the university and enhance its standing.
- 10- Provide studies and specialized technical consultations to various state institutions and public or mixed-sector organizations.
- 11- Contribute to the development of policies and work methodologies in state institutions and the public and private sectors, and provide innovative models and experiences for solving different problems.
- 12- Enhance the efficiency of employees in state institutions and the public and private sectors by contributing to in-service preparation and training programs.

1. إتاحة الفرص الدراسية المتخصصة والمتعمقة للطلبة في ميادين المعرفة المختلفة لتلبية لاحتياجات البلاد من التخصصات والفنيين والخبراء.

2. العناية باللغة العربية وتدريبها وتطويرها وتعميم استعمالها كلغة علمية وتعليمية في مختلف مجالات المعرفة والعلوم وذلك باعتبارها الوعاء الحضاري للمعاني والقيم والأخلاق للحضارة العربية والإسلامية.

3. تطوير المعرفة بإجراء البحوث العلمية في مختلف مجالات المعرفة سواء على المستوى الفردي أو الجماعي، وتوجيهها لخدمة احتياجات المجتمع وخطط التنمية.

4. الاهتمام بتنمية التقنية "التكنولوجيا" وتطويرها والاستفادة منها في تطوير المجتمع.

5. تشجيع حركة التأليف والترجمة والنشر في مختلف مجالات المعرفة مع التركيز بوجه خاص على التراث اليمني.

6. الاسهام في رقي الآداب والفنون وتقديم العلوم.

7. توفير المناخ الأكاديمي المساعد على حرية الفكر والتعبير والنشر بما لا يتعارض مع الإسلام وقيمه السامية ومثلها العليا.

8. تقوية الروابط مع الجامعات والمؤسسات العامة والخاصة في البلاد بما يكفل التفاعل المتبادل والبناء للمعارف والخبرات والموارد والمشاركة التي تكفل الاسهام الفعال في إحداث التنمية الشاملة في البلاد.

9. توثيق الروابط العلمية والثقافية مع الجامعات والهيئات العلمية ومراكز البحوث والتطوير العربية والأجنبية بما يساعد على تطوير الجامعة وتعزيز مكانتها.

10. تقديم الدراسات والاستشارات الفنية والمتخصصة لمختلف أجهزة الدولة ومؤسساتها العامة والمختلطة.

11. المساهمة في تطوير السياسات وأساليب العمل في مؤسسات وأجهزة الدولة والقطاعين العام والخاص وتقديم النماذج والتجارب المبتكرة لحل المشاكل المختلفة.

12. رفع كفاءة العاملين في مؤسسات وأجهزة الدولة والقطاعين العام والخاص، وذلك من خلال المساهمة في برامج الإعداد والتأهيل أثناء الخدمة.

6. 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.

الريادة وطنياً والتميز إقليمياً في التعليم والبحث والابتكار والأثر المجتمعي في مجالات الحوسبة والتكنولوجيا.

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 labor-market needs and contributing to the achievement of sustainable development and digital transformation.

تقديم تعليم نوعي في مجالات الحوسبة والتكنولوجيا لإعداد كوادر مؤهلة ملتزمة بأخلاقيات المهنة، وإنتاج بحوث مبتكرة، ضمن بيئة مُحفزة وشراكات مجتمعية فاعلة، تلبي متطلبات سوق العمل وتسهم في تحقيق التنمية المستدامة والتحول الرقمي.

Values:

Academic Excellence – التميز الأكاديمي

السعي الدائم لتحقيق جودة عالية في التدريس والتعلم والبحث العلمي.

Striving for high quality in teaching, learning, and scientific research.

Integrity and Responsibility – النزاهة والمسؤولية

الالتزام بالشفافية والمساءلة والأمانة العلمية في جميع الممارسات الأكاديمية والإدارية.

Commitment to transparency, accountability, and academic honesty in all practices.

Innovation and Creativity – الإبداع والابتكار

تعزيز التفكير النقدي والإبداعي لتطوير حلول علمية وتكنولوجية مبتكرة.

Encouraging critical and creative thinking to develop innovative scientific and technological solutions.

خدمة المجتمع – Community Service

توظيف المعرفة والبحث العلمي للمساهمة في خدمة المجتمع وتنميته.

Employing knowledge and research to contribute to community service and development.

التعاون والشراكة – Collaboration and Partnership

بناء شراكات فاعلة مع الجامعات والمراكز البحثية والقطاعين العام والخاص.

Building effective partnerships with universities, research centers, and both public and private sectors.

الجودة المستدامة – Sustainable Quality

الالتزام بالتحسين المستمر وضمان الجودة الأكاديمية والإدارية.

Commitment to continuous improvement and ensuring academic and administrative quality.

التنوع والعدالة – Diversity and Equity

احترام التنوع الثقافي والعلمي وضمان تكافؤ الفرص لجميع الطلبة وأعضاء هيئة التدريس.

Respecting cultural and scientific diversity and ensuring equal opportunities for all students and faculty members.

القيادة والمسؤولية الأخلاقية – Leadership and Ethical Responsibility

إعداد خريجين يتمتعون بروح القيادة وقيم أخلاقية راسخة في مجالات الحاسوب والذكاء الاصطناعي.

Preparing graduates with leadership qualities and strong ethical values in computer science and artificial intelligence.

القيم الجوهرية للكلية – Faculty Core Values

1. التميز الأكاديمي – Academic Excellence

السعي الدائم لتحقيق جودة عالية في التدريس والتعلم والبحث العلمي.

Striving for high quality in teaching, learning, and scientific research.

2. النزاهة والمسؤولية – Integrity and Responsibility

الالتزام بالشفافية والمساءلة والأمانة العلمية في جميع الممارسات الأكاديمية والإدارية.

Commitment to transparency, accountability, and academic honesty in all practices.

3. الابتكار والإبداع – Innovation and Creativity

تعزيز التفكير النقدي والإبداعي لتطوير حلول علمية وتكنولوجية مبتكرة.

Encouraging critical and creative thinking to develop innovative scientific and technological solutions.

4. خدمة المجتمع – Community Service

توظيف المعرفة والبحث العلمي للمساهمة في خدمة المجتمع وتنميته.

Employing knowledge and research to contribute to community service and development.

5. التعاون والشرابة – Collaboration and Partnership

بناء شراكات فاعلة مع الجامعات والمراكز البحثية والقطاعين العام والخاص.

Building effective partnerships with universities, research centers, and both public and private sectors.

6. الجودة المستدامة – Sustainable Quality

الالتزام بالتحسين المستمر وضمان الجودة الأكاديمية والإدارية.

Commitment to continuous improvement and ensuring academic and administrative quality.

7. التنوع والعدالة – Diversity and Equity

احترام التنوع الثقافي والعلمي وضمان تكافؤ الفرص لجميع الطلبة وأعضاء هيئة التدريس.

Respecting cultural and scientific diversity and ensuring equal opportunities for all students and faculty members.

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إعداد خريجين يتمتعون بروح القيادة وقيم أخلاقية راسخة في مجالات الحاسوب والذكاء الاصطناعي.

Preparing graduates with leadership qualities and strong ethical values in computer science and artificial intelligence.

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 labor 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.

1. تقديم تعليم نوعي في مجالات الحوسبة والتكنولوجيا لرشد المجتمع بكوادر مؤهلة ملتزمة بأخلاقيات المهنة قادرة على المنافسة والإبداع في سوق العمل تُسهم في تحقيق التنمية المستدامة والتحول الرقمي.
2. تصميم وتطوير برامج أكاديمية وبحثية نوعية، متوافقة مع معايير الجودة والاعتماد، وتواكب التحديات والتطورات واحتياجات سوق العمل.
3. توفير وتطوير بيئة أكاديمية محفزة تُنمّي التعلّم النشط، والتعليم، والبحث، والابتكار، والإبداع، وريادة الأعمال.
4. إنتاج بحوث مبتكرة وحلول تقنية في الحوسبة والتكنولوجيا تسهم في تحقيق التنمية المستدامة.
5. تطوير واستقطاب الكفاءات المتميزة بما يعزّز التعليم والبحث العلمي وخدمة المجتمع.
6. بناء وإدامة شراكة أكاديمية ومجتمعية فاعلة تعزز التعليم والتعلم والبحث العلمي.
7. تقديم الاستشارات التقنية والتدريب المتخصص، ونشر الثقافة الرقمية لتمكين القطاعات المختلفة ودعم التحول الرقمي.

7. 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 Computer Science.

الريادة المحلية والتميز الإقليمي في التعليم والبحث العلمي والابتكار وخدمة المجتمع في مجالات علوم الحاسوب.

Mission of the Department:

Offering high-quality education that balances theoretical foundations with practical application in Computer Science to prepare qualified professionals, capable of upholding professional ethics, and producing innovative research—through a stimulating environment and effective academic-industry partnerships—that meet labor-market needs and contribute to the achievement of sustainable development and digital transformation.

تقديم تعليم نوعي يوازن بين الأسس النظرية والتطبيق العملي في مجالات علوم الحاسوب لإعداد كوادر مؤهلة وملتزمة بأخلاقيات المهنة، وإنتاج بحوث مبتكرة، من خلال بيئة محفزة وشراكات أكاديمية وصناعية فاعلة، تلبي متطلبات سوق العمل وتساهم في تحقيق التنمية المستدامة والتحول الرقمي.

Objectives of the Department:

- 1) Delivering high-quality education that balances theoretical foundations with practical skills in Computer Science to supply society with qualified professionals who uphold professional ethics, are capable of competing and innovating in the labor market locally and regionally, and contribute to achieving sustainable development and digital transformation.
- 2) Providing and developing high-quality academic and research programs, in accordance with quality standards, that keep pace with ongoing challenges and developments in the fields of Computer Science.
- 3) Contributing to a stimulating academic environment that nurtures active learning, research, innovation, and entrepreneurship.
- 4) Producing scientific research and technological solutions in Computer Science that address the needs of society and various sectors, 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 industrial partnerships that enhance teaching, learning, research, and community service.

1. تقديم تعليم نوعي يوازن بين الأسس النظرية والمهارات التطبيقية في مجالات علوم الحاسوب لرفد المجتمع بكوادر مؤهلة ملتزمة بأخلاقيات المهنة قادرة على المنافسة والإبداع في سوق العمل محلياً وإقليمياً تساهم في تحقيق التنمية المستدامة والتحول الرقمي.
2. تقديم وتطوير برامج أكاديمية وبحثية نوعية وفقاً لمتطلبات الجودة تواكب التحديات والتطورات المستمرة في مجالات علوم الحاسوب.
3. الإسهام في توفير بيئة أكاديمية محفزة تنمي التعلم النشط، والبحث، والابتكار، وريادة الأعمال.
4. إنتاج بحوث علمية وحلول تقنية في مجالات علوم الحاسوب مرتبطة باحتياجات المجتمع والقطاعات المختلفة وتساهم في التنمية المستدامة والتحول الرقمي.
5. تطوير واستقطاب الكوادر الأكاديمية والبحثية المتميزة، بما يعزز التميز التعليمي والبحثي.
6. بناء شراكات أكاديمية وصناعية فاعلة تعزز التعليم والتعلم والبحث وخدمة المجتمع.
7. تقديم الاستشارات التقنية والتدريب المتخصص ونشر المعرفة الرقمية في مجالات علوم الحاسوب وتطبيقاتها لتمكين القطاعات المختلفة ودعم التحول الرقمي.

Providing technical consultancy, specialized training, and disseminating digital knowledge in Computer Science and its applications to empower different sectors and enhance digital transformation.

8. Master of Computer Science and Artificial Intelligence Program Mission

Program Mission:

Preparing distinguished researchers and professionals in Computer Science and Artificial Intelligence, equipped with advanced specialized knowledge and skills, committed to professional ethics, and capable of producing innovative computing solutions and scientific research, through a stimulating environment and active community engagement, to meet national and regional labor-market needs.

تأهيل باحثين وكوادر متميزة في مجالات علوم الحاسوب والذكاء الاصطناعي مزودين بالمعارف والمهارات التخصصية المتقدمة وملتزمة بأخلاقيات المهنة، تنتج حلول حاسوبية وبحوث علمية مبتكرة، من خلال بيئة محفزة وخدمة مجتمعية فاعلة، تلبي احتياجات سوق العمل الوطني والإقليمي.

Program Values:

Faculty Core Values – Master of Computer Science and Artificial Intelligence Program

1. الابتكار البحثي – Research Innovation

تشجيع البحث العلمي التطبيقي والإبداع في تطوير حلول جديدة في مجالات الذكاء الاصطناعي وعلوم الحاسوب.

Encouraging applied research and innovation in developing new solutions in AI and Computer Science.

2. الأمن السيبراني كقيمة محورية – Cybersecurity as a Core Value

الالتزام بتضمين مبادئ الأمن السيبراني وحماية المعلومات في جميع مخرجات التعليم والبحث.

Committing to embedding cybersecurity and information protection principles across all teaching and research outcomes.

3. الذكاء الاصطناعي المسؤول – Responsible Artificial Intelligence

غرس قيم الاستخدام الأخلاقي والمسؤول لتقنيات الذكاء الاصطناعي بما يضمن العدالة والشفافية.

Instilling the ethical and responsible use of AI technologies, ensuring fairness and transparency.

4. التميز الأكاديمي – Academic Excellence

السعي لتحقيق معايير عالية في التدريس، والإشراف، والبحث العلمي في مجالات علوم الحاسوب والذكاء الاصطناعي.

Striving for high standards in teaching, supervision, and research in Computer Science and Artificial Intelligence.

5. التعاون والشراكات البحثية – Research Collaboration and Partnerships

تعزيز الشراكات مع الجامعات والمراكز البحثية محلياً وعالمياً لدعم التبادل العلمي والتطور المعرفي.

Enhancing partnerships with universities and research centers locally and globally to foster scientific exchange and knowledge development.

6. الاستدامة الرقمية – Digital Sustainability

تطوير حلول ذكية تساهم في التنمية المستدامة والتحول الرقمي للمجتمع.

Developing intelligent solutions that contribute to sustainable development and digital transformation of society.

7. **خدمة المجتمع عبر التقنية – Community Engagement through Technology**

توظيف الذكاء الاصطناعي وعلوم الحاسوب لخدمة المجتمع وحل مشاكله عبر حلول تكنولوجية عملية.

Leveraging AI and Computer Science to serve communities and address societal challenges with practical technological solutions.

Program Objectives:

1. Preparing qualified professionals—distinguished academically and in research—in Computer Science and Artificial Intelligence, committed to professional ethics and capable of innovation and competition locally and regionally.
2. Equipping students with advanced knowledge and skills in Computer Science and Artificial Intelligence within a stimulating research environment that develops their 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.

1. إعداد كوادر مؤهلة ومتميزة علمياً وبحثياً في علوم الحاسوب والذكاء الاصطناعي، ملتزمة بأخلاقيات المهنة، وقادرة على الإبداع والمنافسة محلياً وإقليمياً.

2. تزويد الطلبة بالمعارف والمهارات المتقدمة في مجالات علوم الحاسوب والذكاء الاصطناعي ضمن بيئة بحثية محفزة تُثَمِّي قدراتهم البحثية، التفكير النقدي، العمل الجماعي.

3. تقديم حلول عملية وبحثية متخصصة ومرتبطة باحتياجات سوق العمل الوطني والإقليمي والتحديات المجتمعية.

4. تقديم خدمة مجتمعية فاعلة تلبي الاحتياجات المحددة للسياقات الوطنية والإقليمية.

9. Program Standards & Benchmarks:

Academic Standards:

1. -----
خطأ! لم يتم العثور على مصدر المرجع.
1. -----
خطأ! لم يتم العثور على مصدر المرجع.

Program Benchmarks:

1. -----

<https://www.----->
2. -----

<https://www.----->
3. -----

<https://www.----->

4. -----
-----.

<https://www.----->

5. -----
-----.

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10. Graduate Attributes:

The Graduate Attributes of Master of Computer Science and Artificial Intelligence program, graduates will be able to:

Attribute 1. Deep Knowledge and Comprehensive Understanding

- **English:** Graduates possess deep knowledge and a comprehensive understanding of facts, computing principles, tools, techniques, and theories related to computer science and artificial intelligence.
- **عربي:** يمتلك الخريجون معرفة عميقة وفهماً شاملاً للحقائق والمبادئ والأدوات والتقنيات والنظريات المرتبطة بعلوم الحاسوب والذكاء الاصطناعي.

Attribute 2. Intellectual, Creative, and Critical Thinking, and Problem-Solving

- **English:** Graduates are effective analysts and problem-solvers; able to analyze and evaluate the impact of computing and AI on society, and to solve real-world computing problems.
- **English:** They are also effective developers, critical and creative thinkers, able to apply scientific research, critical reasoning, and innovative thinking in developing, designing, integrating, and implementing computer and AI systems.
- **عربي:** يتميز الخريجون بقدرتهم على التحليل وحل المشكلات بفعالية، وتحليل وتقييم تأثير الحوسبة والذكاء الاصطناعي على المجتمع، وحل مشكلات حاسوبية واقعية. كما يتميزون بكونهم مطورين ومفكرين نقديين وإبداعيين قادرين على توظيف البحث العلمي والتفكير الابتكاري في تطوير وتصميم ودمج وتنفيذ الأنظمة الحاسوبية والذكاء.

Attribute 3. Communication, Leadership, and Teamwork Skills

- **English:** Graduates demonstrate effective communication skills; able to convey ideas and information professionally in various contexts.
- **English:** They engage in teamwork and leadership, able to work independently or collaboratively within a team, and are expected to pioneer and assume leadership roles to accomplish common goals.
- **عربي:** يمتلك الخريجون مهارات اتصال فعالة تمكنهم من نقل الأفكار والمعلومات باحترافية في سياقات متعددة. كما يشاركون بفاعلية في العمل الجماعي والقيادة، ويستطيعون العمل بشكل مستقل أو ضمن فريق، ومن المتوقع أن يكونوا رواداً ويتحملوا أدواراً قيادية لتحقيق الأهداف المشتركة.

Attribute 4. Values, Professional and Practical Skills, and Social Responsibilities

- **English:** Graduates conduct themselves with professional ethics and values, acting as responsible members of society and in their professional positions.

- **English:** They also possess practical skills, able to apply theoretical and practical knowledge, standards, tools, and techniques to design, implement, and maintain computing systems.
- **عربي:** يتحلى الخريجون بالأخلاقيات المهنية والقيم، ويمارسون مسؤولياتهم كأعضاء فاعلين في المجتمع وفي مواقع العمل. كما يمتلكون المهارات العملية اللازمة لتطبيق المعارف النظرية والعملية والمعايير والأدوات والتقنيات لتصميم وتنفيذ وصيانة الأنظمة الحاسوبية.

Attribute 5. Information Management, Research, and Lifelong Learning Skills

- **English:** Graduates acquire strong information management, research, and lifelong learning skills; able to apply scientific research methods to solve computing problems.
- **English:** They are committed to lifelong learning and continuous professional development in scientific research and postgraduate studies.
- **عربي:** يمتلك الخريجون مهارات متميزة في إدارة المعلومات والبحث العلمي والتعلم مدى الحياة، وقادرون على توظيف أساليب البحث العلمي لحل المشكلات الحاسوبية. كما يلتزمون بالتعلم المستمر وتطوير قدراتهم في البحث العلمي والدراسات العليا.

11. Program Intended Learning Outcomes (PILOs):

A. Knowledge and Understanding:

Upon successful completion of the undergraduate Master of Computer Science and Artificial Intelligence Program, the graduates will be able to:

A1: Demonstrate deep understanding of advanced theoretical knowledge, research methodology, tools, and techniques related to computer science and artificial intelligence.

يبين الخريجون فهماً عميقاً للمعارف النظرية المتقدمة، ومنهجية البحث العلمي، والأدوات والتقنيات المرتبطة بعلوم الحاسوب والذكاء الاصطناعي.

A2: Describe and discuss advanced knowledge of the impact of artificial intelligence and computing on society, ethical and legal considerations, emerging applications, and the role of intelligent systems in solving complex real-world problems.

يصف الخريجون ويناقشون المعرفة المتقدمة المتعلقة بأثر الذكاء الاصطناعي والحوسبة على المجتمع، والاعتبارات الأخلاقية والقانونية، والتطبيقات الحديثة، ودور الأنظمة الذكية في حل المشكلات الواقعية المعقدة.

A3: Recognize and identify challenges and limitations in AI-driven systems; evaluate computational and data requirements; and apply suitable algorithms, models, and techniques to design and implement effective AI-based solutions.

يتعرف الخريجون على التحديات والقيود في الأنظمة المعتمدة على الذكاء الاصطناعي، ويقيمون المتطلبات الحسابية والبيانية، ويطبقون الخوارزميات والنماذج والتقنيات المناسبة لتصميم وتنفيذ حلول فعالة قائمة على الذكاء الاصطناعي.

B. Cognitive/ Intellectual Skills:

Upon successful completion of the undergraduate Master of Computer Science and Artificial Intelligence Program, the graduates will be able to:

B1: Explore and recognize computing system requirements, challenges, and formulate complex problems for designing and implementing effective AI-based solutions.

يستكشف الخريجون متطلبات أنظمة الحاسوب وتحدياتها ويصيغون المشكلات المعقدة لتصميم وتنفيذ حلول فعالة قائمة على الذكاء الاصطناعي.

B2: Analyze the impact of computing and artificial intelligence on society, ethical considerations, and emerging challenges, to design and optimize intelligent systems.

يحلل الخريجون أثر الحوسبة والذكاء الاصطناعي على المجتمع والاعتبارات الأخلاقية والتحديات المستجدة لتصميم أنظمة ذكية وتحسينها.

B3: Create, adapt, and integrate suitable algorithms, tools, and techniques to address complex computing and AI system problems, considering practical limitations and constraints.

يُنشئ الخريجون ويطورون ويكاملون الخوارزميات والأدوات والتقنيات المناسبة لمعالجة المشكلات المعقدة في أنظمة الحاسوب والذكاء الاصطناعي، مع مراعاة القيود العملية.

C. Practical and Professional Skills:

Upon successful completion of the undergraduate Master of Computer Science and Artificial Intelligence Program, the graduates will be able to:

C1: Apply theoretical and practical knowledge of computing, appropriate tools, techniques, professional ethics, responsibilities, and standard practices to solve complex computing and AI system problems.

يطبق الخريجون المعرفة النظرية والعملية في الحوسبة، باستخدام الأدوات والتقنيات المناسبة، مع الالتزام بالأخلاقيات والمسؤوليات المهنية والممارسات القياسية لحل المشكلات المعقدة في أنظمة الحاسوب والذكاء الاصطناعي.

C2: Use research-based knowledge of computer science and artificial intelligence, and research methods including experimental design, data analysis, and interpretation to investigate and solve AI-related challenges.

يوظف الخريجون المعرفة البحثية في علوم الحاسوب والذكاء الاصطناعي، باستخدام منهجيات البحث بما في ذلك تصميم التجارب، وتحليل البيانات، وتفسيرها للتحقيق في التحديات المرتبطة بالذكاء الاصطناعي وحلها.

C3: Manage, operate, and optimize computing systems and AI applications effectively, considering practical resource limitations and constraints.

يدير الخريجون أنظمة الحاسوب وتطبيقات الذكاء الاصطناعي ويشغلونها ويحسنونها بفعالية، مع مراعاة القيود والموارد المتاحة.

D. General and Transferable Skills:

Upon successful completion of the undergraduate Master of Computer Science and Artificial Intelligence Program, the graduates will be able to:

D1: Communicate effectively in diverse contexts, including technical and non-technical audiences.

يتواصل الخريجون بفعالية في سياقات متنوعة، سواء مع جمهور تقني أو غير تقني.

D2: Function efficiently in various environments, both as an individual and as a member or leader of a team, to achieve common goals.

يعمل الخريجون بكفاءة في بيئات مختلفة سواء كأفراد أو كأعضاء أو قادة فرق لتحقيق أهداف مشتركة.

D3: Demonstrate commitment to professional ethics, responsibilities, and standard practices, while engaging in continuous learning to adapt to ongoing technological advancements.

يظهر الخريجون التزاماً بالأخلاقيات والمسؤوليات المهنية والممارسات المعيارية، مع انخراطهم في التعلم المستمر لمواكبة التطورات التكنولوجية المتجددة..

Program PILOs	Program Objectives				
	PObj1	PObj2	PObj3	PObj4	PObj5
A1	√				
A2		√			
A3		√			
B1	√				
B2			√		
B3		√	√		
C1	√			√	
C2	√		√		
C3			√	√	
D1				√	
D2				√	
D3					√

Teaching Strategy	Description
Interactive lectures	Engage students with dynamic discussions, questioning, and active participation rather than passive listening, to foster critical thinking and deeper understanding of concepts.
Seminars & Workshops	Small-group sessions that encourage students to present, discuss, and critique ideas, research papers, or case studies related to computer science and AI.
Problem-Based Learning (PBL)	Students learn through solving complex, real-world computing and AI problems, enhancing analytical and problem-solving skills.
Project-Based Learning	Students work on medium-to-large projects, individually or in teams, applying theoretical knowledge to practical scenarios (e.g., AI system design, research prototypes).
Case Studies & Simulation	Real or simulated scenarios in computing/AI are analyzed to connect theory with professional practice and decision-making.
laboratory & Practical Sessions	Hands-on sessions in labs to implement algorithms, experiments, and simulations using AI and computer science tools.
E-Learning & Blended Learning	Integration of online platforms, digital resources, and virtual collaboration to complement face-to-face learning.

Teaching Strategy	Description
Research-Oriented Learning	Training students in research methodology, critical analysis, and scholarly writing to prepare them for thesis work and publications.
Peer Learning & Group Work	Collaborative exercises where students learn from each other through teamwork, discussions, and shared problem-solving.
Industry Engagement (Guest Lectures/Internships)	Bringing in industry experts for seminars or involving students in short-term applied research/internships to connect academic knowledge with market needs.

Assessment Strategy	Description
Written tests (mid and final terms and quizzes)	Mid-term test is conducted in the 8 th week and final exam is conducted at the end of each course. Both tests are closed book, closed notes. quizzes are related to past as well as topics discussed in the period. This helps students develop self-confidence, readiness, and accuracy in major exams.
Assignments & Homework	Individual or group assignments are given regularly to reinforce course concepts, promote independent study, and assess the ability to apply knowledge in practical contexts.
Laboratory / Practical Work	Hands-on exercises and lab sessions are used to evaluate students' ability to apply theoretical knowledge in real-world or simulated computing and AI environments.
Presentations & Seminars	Students prepare and deliver presentations on selected topics or research papers, which assess their communication skills, critical analysis, and depth of understanding.
Project Work (Course Projects & Capstone Projects)	Projects require students to design, implement, and evaluate computing and AI solutions, thereby testing creativity, innovation, teamwork, and application of knowledge.
Research Papers / Reports	Students prepare scientific reports and research papers to demonstrate their ability to conduct literature reviews, apply research methodology, and present findings in a scholarly format.

Assessment Strategy	Description
Participation & Class Engagement	Active involvement in class discussions, group activities, and seminars is assessed to encourage continuous engagement and collaborative learning.
Master's Thesis / Dissertation	A comprehensive research project undertaken at the final stage of the program to demonstrate advanced knowledge, research skills, innovation, and the ability to contribute to the field of Computer Science and Artificial Intelligence.

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

PILOs	Teaching Strategy	Assessment Methods
Knowledge and Understanding A1, A2, A3	- Interactive lectures - Seminars & workshops - Case studies - E-learning & blended learning	- Written tests (mid-term, final, quizzes) - Assignments & homework - Class participation - Research papers/reports
Intellectual Skills B1, B2, B3	- Problem-based learning (PBL) - Project-based learning - Critical analysis of case studies - Research-oriented learning	- Projects & presentations - Research papers - Oral exams/seminars - Problem-solving assignments
Professional & practical skills C1, C2, C3	- Laboratory/practical sessions - Project-based learning - Industry engagement (guest lectures, internships) - Simulation & hands-on activities	- Lab reports & practical exams - Capstone projects - Demonstrations & prototypes - Thesis/dissertation
General & Transferable Skills D1, D2, D3	- Group work & peer learning - Presentations & seminars - Team projects - Leadership roles in collaborative tasks	- Presentations & communication tasks - Teamwork evaluation - Class participation - Continuous assessment of leadership/team activities

13. Project Assessment:

Each project will be assessed as follows:

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Item	Marks Distribution
Literature Review & Theoretical Foundation (depth of review, critical analysis, proper referencing)	10
Methodology & Design (clarity of approach, justification of methods, appropriateness of tools/algorithms)	20
Implementation & Technical Work (quality of coding/design, correctness, innovation, use of appropriate tools and technologies)	20
Results & Analysis (quality of results, interpretation, discussion, evaluation against objectives)	15
Report Writing & Documentation (structure, clarity, formatting, academic writing standards)	10
Presentation & Communication Skills (oral presentation, use of visual aids, ability to answer questions)	10
Teamwork & Project Management (collaboration, time management, role distribution, leadership)	5
Originality, Innovation, and Ethical Considerations (novelty, creativity, adherence to research ethics)	10
Total	100

14. Training Course Assessment (if any):

The training course will be assessed through the following components:

- Attendance and Commitment (10%)
Regular attendance, punctuality, and adherence to training rules and schedule.
- Technical Performance (30%)
Ability to apply theoretical knowledge in practical tasks, correct use of tools/technologies, and task completion.
- Project / Task Assignments (30%)
Completion of assigned projects, problem-solving skills, creativity, and quality of work during training.
- Report Writing & Documentation (15%)
Submission of a professional training report documenting objectives, activities, challenges, and outcomes.
- Presentation & Oral Defense (15%)
Final presentation of the training outcomes, communication skills, and ability to answer evaluators' questions.

Total: 100 Marks

15. Intended Learning Outcomes Mapping:

16. Program Structure:

No	Requirements	No. of Courses	Credit Hours	Rational Weight %
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1.	University Requirements	Compulsory	--	--	---%
		Elective	--	--	
2.	Faculty Requirements	Compulsory	--	--	---%
		Elective	--	--	
3.	Department Requirements	Compulsory	--	--	---%
		Elective	--	--	
4.	Program Requirements	Compulsory	8–10	24–30	60% 15%
		Elective	2–4	6–12	
5.	Field Training (if any)	Compulsory	--	--	---%
6.	Research Project Courses	Compulsory	1	6	20%
Total:			--	36 credit hours	100%

16.1. University Requirements

Compulsory Courses

No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L*	T**	P***	Prerequisites, Co-requisites
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
Total									

* L= lecture ** T=tutorial/seminar, *** P= lab/workshop/training/clinical

Elective Courses:

No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L*	T*	P*	Prerequisites, Co-requisites
1.									
2.									
3.									
4.									
5.									

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6.									
7.									
8.									
9.									
10.									
Total									

16.2. Faculty Requirements

Compulsory Courses

No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
7									
8									
9									
Total									

Compulsory Courses

No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
7									
8									
9									
Total									

Elective Courses:

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

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2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
Total									

1. Master of Computer Science and Artificial Intelligence

Semester 1

Course Code	Course Title	Prerequisites	Recommended Prerequisites - optional	Undergraduate-Level Requirement
CSAI 600	Research Methods in Computing			
CSAI 610	Algorithms & Complexity for AI Systems			Data Structures; Discrete Math; Programming.
CSAI 620	Machine Learning			Linear Algebra; Probability/Statistics; Programming.
CSAI 630	Data Systems for AI			Databases; Data Structures; Programming/SQL.
	Elective 1			

Semester 2

Course Code	Course Title	Prerequisites	Recommended Prerequisites - optional	Undergraduate-Level Requirement
CSAI 641	Neural Networks and Deep Learning	CSAI 620	CSAI 610	Linear Algebra.
CSAI 661	Distributed Systems & Cloud Computing	Term 1 / Term 2		
	Elective 3			
	Elective 4			
	Elective 5			

- Elective Course List**

Course Code	Course Title	Term	Prerequisites	Recommended Prerequisites - optional	Undergraduate-Level Requirement
CSAI 642	Natural Language Processing	Term 2	CSAI 620	CSAI 630	Probability/Statistics; Programming.
CSAI 643	Computer Vision	Term 2	CSAI 620	CSAI 641	Linear Algebra; Programming.
CSAI 644	Reinforcement Learning	Term 2	CSAI 620		Probability/Statistics; basic Optimization; Programming.
CSAI 645	Smart Systems & Computational Intelligence	Term 2	CSAI 620	CSAI 610, CSAI 630, CSAI 641	Linear Algebra; Discrete Math; Probability/Statistics; Data Structures; Programming.

CSAI 651	Data Mining & Knowledge Discovery	Term 2	CSAI 620	CSAI 630	Databases.
CSAI 652	Information Retrieval & Search	Term 2	CSAI 610		—
CSAI 653	Big Data Systems & Analytics	Term 2	CSAI 630		Databases; Programming.
CSAI 662	Operating Systems & Virtualization	Term 1 / Term 2			Computer Organization/Architecture; Programming.
CSAI 663	High-Performance Computing & GPU Programming	Term 2	CSAI 610	parallel computing concepts.	Advanced Programming; Data Structures.
CSAI 664	Software Engineering	Term 1 / Term 2	CSAI 620, CSAI 630		Software Engineering; Programming.
CSAI 671	Advanced Theory for ML (Optimization & Generalization)	Term 2	CSAI 620		Linear Algebra; Probability/Statistics.

CSAI 681	Human–AI Interaction	Term 2	CSAI 620		HCI (recommended).
CSAI 682	Robotics & Perception	Term 2		CSAI 643	Linear Algebra; Probability; Programming.
CSAI 683	Autonomous Driving	Term 2	CSAI 620, CSAI 641, CSAI 643	CSAI 661, CSAI 663,	Linear Algebra; Discrete Math; Probability/Statistics; Data Structures; Programming.
CSAI 690	Selected Topics in CS/AI	Term 2	CSAI 610, CSAI 620		—

- قائمة المتطلبات الاستدراكية
- Artificial Intelligence
- Discrete Math
- Linear Algebra
- Probability/Statistics
- Programming
- Advanced Programming
- Computer Organization/Architecture
- Data Structures and Algorithms
- Databases
- Networks
- Operating Systems
- Software Engineering

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- قائمة مقررات تحسين المستوى
 - Data Structures and Algorithms
 - Artificial Intelligence
 - Advanced Programming
 - Computer Organization and Architecture
 - Database Management Systems
 - Software Engineering
 - Algorithms and Analysis
 - Computer Networks
 - Operating Systems
 - Discrete Math
 - Linear Algebra
 - Probability/Statistics

• Peer Programs

Univer sity	Country/R egion	Program	Degr ee	Accreditation (type)	Focus areas (CS/AI)	Notes
Americ an Univer sity of Beirut (AUB)	Lebanon (Arab World)	M.S. in Computer Science	MS	MSCHE (Institutional)	Algorithms, Databases, Machine Learning, AI Topics	Strong CS core with AI electives.
The Americ an Univer sity in Cairo (AUC)	Egypt (Arab World)	M.Sc. in Computer Science	MSc	MSCHE (Institutional)	Advanced DB, Parallel Algorithms, Security, Data Mining, Intelligent Systems	CS breadth with multiple AI- related options.
King Abdull ah Univer sity of Science & Techno logy (KAUS T)	Saudi Arabia (Arab World)	M.S. in Computer Science	MS	WSCUC (Institutional)	AI, High- Performance Computing, Systems	Thesis/pr oject structure ; strong research orientati on.
Lebane se Americ an Univer sity (LAU)	Lebanon (Arab World)	M.S. in Computer Science	MS	NECHE (Institutional)	Algorithms, Data Science Fundamentals, ML/Security/F orensics electives	Solid CS core with applied AI/securi ty options.

Khalifa University	United Arab Emirates (Arab World)	M.Sc. in Computer Science	MSc	UAE CAA (Institutional/Program Licensing)	Algorithms, Artificial Intelligence, Machine Learning, Data Mining, Security, Bioinformatics	Clear CS–AI blend; regional industry ties.
Carnegie Mellon University (CMU)	United States	M.S. in Computer Science	MS	MSCHE (Institutional)	Systems, Theory, AI (qualifying categories)	Requires AI-category coursework; research-focused options.
Georgia Institute of Technology (Georgia Tech)	United States	M.S. in Computer Science (Specializations incl. Interactive Intelligence)	MS	SACSCOC (Institutional)	AI, ML, Knowledge-Based AI, NLP, Robotics	Multiple AI tracks; strong applied orientation.
National University of Singapore (NUS)	Singapore (Asia)	Master of Computing (Artificial Intelligence Specialisation)	MComp	Institutional (national); AI specialisation within MComp	Neural Networks & DL, Theory & Algorithms for ML, Uncertainty in AI, Trustworthy ML, AI Ethics & Governance	Structured AI specialisation including ethics/trust.

RWTH Aachen University	Germany (Europe)	M.Sc. Computer Science (AI & Data track available)	MSc	German QA system; ASIIN (program/system context)	AI & Data, Software & Systems, Graphics & Interaction	Flexible track system; strong engineering integration.
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• **Course–Program Mapping (equivalence/parallelism)**

(Illustrative mapping to peer programs referenced earlier: AUB, AUC, KAUST, LAU, Khalifa Univ., CMU, Georgia Tech, NUS, RWTH. “≈” means closest content/intent match.)

Our Course	AUB (MS CS)	AUC (M.Sc. CS)	KAUST (MS CS)	LAU (MS CS)	Khalifa Univ. (MS CS)	CMU (MS/ML/CS)	Georgia Tech (MS CS)	NUS (MComp AI)	RWTH (CS MSc Tracks)
CSAI 600 Research Methods	Grad Seminar/Research Methods ≈	Research Methodology ≈	Graduate Seminar / Research Practices ≈	Research Methods ≈	Research Methods ≈	10-915/17-Research Practicum ≈	CS 7000 Grad Intro/Seminar ≈	IS5010 AI Ethics & Governance (methods/ethics elements) ≈	Methods/Seminar modules ≈
CSAI 610 Algorithms & Complexity	Analysis of Algorithms	Parallel/Advanced Algorithms	Algorithms (200-level core)	Design & Analysis of Algorithms	Algorithms	15-750 Algorithms	CS 6515 Intro to Grad Algorithms	CS5339 Theory & Algorithms for ML (theory-heavy)	Theoretical CS modules
CSAI 620 Machine Learning	Machine Learning	Intelligent Systems	Machine Learning	Fundamentals of Data	Machine Learning	10-601/10-701 ML	CS 7641 ML	CS5242 Neural Nets	AI & Data track

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Our Course	AUB (MS CS)	AUC (M.Sc. CS)	KAUST (MS CS)	LAU (MS CS)	Khalifa Univ. (MS CS)	CMU (MS/ML/CS)	Georgia Tech (MS CS)	NUS (MComp AI)	RWTH (CS MSc Tracks)
Learning		/ Data Mining	(track AI)	Science / ML				& DL (DL)	modules
CSAI 630 Data Systems for AI	Databases / Advanced DB	Advanced DB / Big Data	Data Management / Big Data ≈	Databases	Databases / Data Mining	15-445/645 DB Systems (content parallel)	CS 6400 DB / 7210 Dist. Comp.	CS6101/CS6103 Topics (Data Eng.)	Data & Info Systems modules
CSAI 641 Deep Learning	Topics in AI (DL)	Intelligent Systems (DL content)	Deep Learning (AI track)	ML electives	AI/Data Science electives	11-785 Intro to DL	CS 7643 DL	CS5242 NN & DL	AI & Data module (DL)
CSAI 642 NLP	Topics in AI (NLP)	IR / Intelligent Systems (NLP)	NLP (AI focus)	Elective (NLP)	AI elective (NLP)	11-411/11-611 NLP	CS 7650 NLP	CS4248 NLP	AI & Data module (NLP)
CSAI 643 Computer Vision	Topics in AI (CV)	CV elective	CV (AI track)	Elective (CV)	AI elective (CV)	16-720/16-385 CV	CS 6476/6475 CV	CS4243 CV	Graphics/AI tracks
CSAI 644 Reinforcement	Topics in AI	AI elective	RL elective	Elective	AI elective	10-703/10-707 RL	CS 7642 RL	CS5349 Reinforcement	AI & Data track

Our Course	AUB (MS CS)	AUC (M.Sc. CS)	KAUST (MS CS)	LAU (MS CS)	Khalifa Univ. (MS CS)	CMU (MS/ML/CS)	Georgia Tech (MS CS)	NUS (MComp AI)	RWTH (CS MSc Tracks)
ent Learning								nt Learning	
CSAI 646 Trustworthiness & Responsible AI	Research ethics module	Academic integrity & ethics	AI Ethics topics	Ethics modules	AI/Security elective	10-xxx Fairness/Robustness seminars	CS 8803 Responsible AI (special topics)	CS5562 Trustworthy ML	Ethics/societal impact modules
CSAI 651 Data Mining	Data Mining	Data Mining	Data Mining	Data Science	Data Mining	10-605 ML w/ Large Datasets	CSE 6242 Data & Visual Analytics	CS5228 Knowledge Discovery	Data & Analytics modules
CSAI 652 Information Retrieval	IR	IR	IR elective	IR	IR	11-442 Search Engines	CS 4540/8803 IR	CS5246 Text IR	IR modules
CSAI 661 Distributed	Systems	Advanced Processors	Distributed	Networks/Systems	Cloud/Distributed	15-719 Advanced DS	CS 6210 Advanced	CS5223 Distributed	Systems/Software

Our Course	AUB (MS CS)	AUC (M.Sc. CS)	KAUST (MS CS)	LAU (MS CS)	Khalifa Univ. (MS CS)	CMU (MS/ML/CS)	Georgia Tech (MS CS)	NUS (MComp AI)	RWTH (CS MSc Tracks)
distributed Systems	electives	distributed	Systems				distributed OS / CS 4255 Cloud	distributed Systems	are track
CSAI 664 Software Engineering	Software Eng.	Software Eng.	Software Dev. for Research	Software Eng.	Software Eng./AI Eng.	17- Software for AI (project courses)	CS 6300 SE + ML MLOps projects	CS6203/CS5322 Topics (MLOps)	Software & Systems

16.3. Program Major

Compulsory Courses

No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									

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No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
Total									

Field Training Courses (if any)									
No	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
Total									

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Research Project Courses									
No	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
Total									

17. Study Plan:

Level 1

Term 1									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
7									
8									
Total									

Term 2									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
7									
8									
Total									

Level 2

Term 1									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									--
2									
3									
4									
5									
6									
7									
Total									

Term 2									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
7									
Total									

Level 3

Term 1									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
7									
Total									

Term 2									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
7									
8									
Total									

Level 4

Term 1									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
Total									

Term 2									
No.	Level-Sem.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P	Prerequisites, Co-requisites
1									
2									
3									
4									
5									
6									
Total									

18. Distribution of Total Credit Hours:

Courses		No of Courses, CH, %	First level		Second level		Third level		Fourth level		Total	%
			1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd		
University Requirements	Compulsory	No. of courses										
		Credit Hours										
		%										
	Electives	No. of courses										
		Credit Hours										
		%										
Faculty Requirements	Compulsory	No. of courses										
		Credit Hours										
		%										
	Electives	No. of courses										
		Credit Hours										
		%										
Department Requirements	Compulsory	No. of courses										
		Credit Hours										
		%										
	Electives	No. of courses										
		Credit Hours										
		%										
Program Requirements	Compulsory	No. of courses										
		Credit Hours										
		%										
	Electives	No. of courses										
		Credit Hours										
		%										
Field training		No. of courses										
		Credit Hours										
		%										
Research Project		No. of courses										
		Credit Hours										
		%										
Total		No. of courses										
		Credit Hours										
		%										
	Level	%										

Courses	No. of Courses	Credit Hours (CH)	%	Level Distribution (1st year → 2nd year)
University Requirements	Compulsory: 1	3	8.3%	1st year / Sem. 1
	Electives: –	–	–	–
Faculty Requirements	Compulsory: 1	3	8.3%	1st year / Sem. 1
	Electives: –	–	–	–
Department Requirements	Compulsory: 2	6	16.7%	1st year (Sem. 1–2)
	Electives: –	–	–	–
Program Requirements	Compulsory: 4	12	33.3%	1st year (Sem. 1–2)

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Courses	No. of Courses	Credit Hours (CH)	%	Level Distribution (1st year → 2nd year)
	Electives: 4	12	33.3%	2nd year (Sem. 2)
Field Training	—	—	—	—
Research Project (Thesis)	1	6	16.7%	2nd year
Total	13 courses	36 CH	100%	2 years (4 semesters)

19. Admission/Selection/Transfer Requirements:

Admission / Selection / Transfer Requirements

متطلبات القبول / المفاضلة / التحويل .

1) General Admission Requirements – متطلبات القبول العامة

- **Degree:** A recognized Bachelor's degree in Computer Science, Computer Engineering, IT, or related fields.
بكالوريوس معترف به في علوم الحاسوب، هندسة الحاسوب، تقنية المعلومات أو تخصصات ذات صلة: الدرجة.
- **Minimum GPA: Good (or equivalent)** as a minimum; higher GPA may be required if demand exceeds capacity.
جيد على الأقل (أو ما يعادله)، وقد يُشترط معدل أعلى عند زيادة الطلب: المعدل الأدنى.
- **Prerequisites (Leveling):** Applicants from non-CS backgrounds may be conditionally admitted with required bridging/leveling courses (e.g., Data Structures, Algorithms, Discrete Math, Operating Systems, Probability/Statistics, and Programming).
هياكل بيانات، خريجو تخصصات غير حاسوبية قد يُقبلون قبولاً مشروطاً مع مقررات تأهيلية: المتطلبات التكميلية (خوارزميات، رياضيات متقطعة، نظم تشغيل، احتمالات/إحصاء، برمجة).
- **English Proficiency:** Evidence of proficiency (e.g., institutional placement test or equivalent).
إثبات الكفاءة اللغوية وفق اختبارات الجامعة أو ما يعادلها: إجابة اللغة الإنجليزية.
- **References/Statement:** Statement of Purpose and two academic/professional references.
خطاب الدوافع ومرجعان أكاديميان/مهنيان: مستندات داعمة.
- **Compliance:** All conditions align with Unified Regulations for Student Affairs (see Annex-3).
(راجع الملحق-3) جميع الشروط متوافقة مع اللائحة الموحدة لشؤون الطلاب: الالتزام.

2) Selection Criteria & Process – معايير وإجراءات المفاضلة

- **Weighting (typical guidance):**
 - Academic record (GPA, major relevance) – 40%
 - Entrance assessment and/or technical test – 25%
 - Interview (research fit, motivation, communication) – 25%
 - References/Statement of Purpose – 10%
- السجل الأكاديمي 40%، اختبار/تقييم قبلي 25%، المقابلة 25%، خطابات التزكية/الدوافع: الأوزان الإرشادية 10%.

- **Interview Panel:** Department committee evaluates **research alignment, readiness, and ethical awareness** in CS/AI.
تقييم الملاءمة البحثية والجاهزية والالتزام الأخلاقي: لجنة المقابلات.
- **Capacity & Quotas:** Admission is **competitive** and subject to **annual capacity** and quality standards.
القبول تنافسي ويخضع للطاقة الاستيعابية السنوية ومعايير الجودة: الطاقة الاستيعابية.

3) Conditional Admission – القبول المشروط

- Applicants missing specific prerequisites may be required to complete **bridging courses** (non-credit or credit-bearing) within a defined timeframe (e.g., first semester) with a minimum passing grade.
استكمال المقررات التأهيلية خلال مدة محددة (مثل الفصل الأول) وبحد أدنى للنجاح: استيفاء المتطلبات.
- Failure to satisfy conditions leads to **revocation** or **deferral** per regulations.
يؤدي إلى إلغاء القبول أو تأجيله وفق اللوائح: عدم الاستيفاء.

4) Transfer & Credit Equivalency – التحويل ومعادلة المقررات

- **Eligibility:** Transfer from **accredited programs** only.
التحويل من برامج معتمدة فقط: الأهلية.
- **Maximum Transfer:** Up to **30% of program credit hours** (e.g., up to 10–11 CH in a 36-CH program), subject to department approval.
من الساعات (مثل 10–11 ساعة من أصل 36)، وبموافقة القسم 30% حتى: الحد الأقصى للمعادلة.
- **Recency/Equivalence:** Courses must be **recent (≤ 5 years)**, **equivalent in content and level**, and graded at least **Good/B**.
الحدثا (5 سنوات $\geq$)، تكافؤ المحتوى والمستوى، ودرجة لا تقل عن جيد: الحدثا والتكافؤ.
- **Residency Requirement:** Students must complete at least **50% of CH** and the **thesis** at the home university.
من الساعات والرسالة داخل الجامعة 50% $\geq$ إنجاز: الإقامة الأكاديمية.
- **Non-duplicative:** No double credit for substantially similar courses.
يمنع احتساب ساعات لمقررات متشابهة جوهرياً: عدم الازدواج.

5) Readmission / Deferral – إعادة القيد / تأجيل القبول

- Allowed per **university regulations**, with a maximum deferral window (e.g., up to **one academic year**).
السماح بتأجيل القبول حتى عام أكاديمي (كمثال) وفق الضوابط: وفق اللوائح.
- Returning students must meet **current curriculum** and **policy requirements**.
الالتزام بالمنهج والسياسات السارية وقت العودة: العودة للدراسة.

6) Program Progression – التقدم في البرنامج

- **Full-time Load:** Typical **9–12 CH/semester**.
ساعة/فصل 9–12 عادة: العبء الدراسي.
- **Good Standing:** Maintain minimum **GPA** per university policy (e.g., **B- average**).
الحفاظ على حد أدنى وفق سياسة الجامعة (مثال: المعدل التراكمي B-).

- **Maximum Duration:** 2–4 years total (program + thesis), according to regulations.
سنوات إجمالاً وفق اللوائح 2–4: المدة القصوى

7) Thesis/Project Admission – متطلبات بدء الرسالة/المشروع

- Completion of a minimum **core CH** (e.g., 18 CH) and **Research Methodology** with a passing grade.
واجتياز منهجية البحث (ساعة 18 إنجاز حد أدنى من الساعات الأساسية) مثال: الاشتراطات
- **Supervisor Assignment:** Based on **research alignment** and **faculty availability**.
حسب الملاءمة البحثية وتوفر أعضاء هيئة التدريس: تعيين المشرف
- **Proposal Defense:** Formal **proposal presentation and approval** by the department committee.
عرض وموافقة اللجنة القسمية رسميًا: مقترح الرسالة

8) Documentation – المستندات المطلوبة

- Application form, official transcripts, copy of degree certificate, ID/passport, curriculum vitae, Statement of Purpose, two references, English proficiency proof (if applicable), and any **equivalency/transfer** documents.
استمارة القبول، السجلات الأكاديمية، شهادة التخرج، الهوية/الجواز، السيرة الذاتية، خطاب الدوافع، النماذج والمستندات مرجعان، إثبات اللغة الإنجليزية (إن لزم)، وأوراق المعادلة/التحويل

9) Special Cases – حالات خاصة

- **Working Professionals:** May study part-time upon approval and subject to maximum duration rules.
إمكانية الدراسة دوام جزئي بموافقة وضمن المدة القصوى: المهنيون
- **Scholarships/Financial Aid:** Priority per **university policy** and academic merit.
أولوية وفق سياسة الجامعة والتميز الأكاديمي: المنح

20. Graduation Requirements:

Graduation Requirements – متطلبات التخرج

1) Academic Requirements – المتطلبات الأكاديمية

- **Completion of Courses:** The student must successfully complete all compulsory and elective courses specified in the study plan.
يجب على الطالب إتمام جميع المقررات الإلزامية والاختيارية المحددة في الخطة الدراسية بنجاح: إنهاء المقررات
- **Credit Hours:** The student must complete a minimum of **36 credit hours** (or as specified in the program), distributed as:
 - Core/Compulsory Courses: ~24 CH
 - Elective Courses: ~6 CH
 - Master's Thesis/Project: 6 CH
 ساعة معتمدة (أو وفق ما يحدده البرنامج) موزعة كالتالي 36 يجب أن يتم الطالب ما لا يقل عن: الساعات المعتمدة

- المقررات الإلزامية/الأساسية: ~24 ساعة
- المقررات الاختيارية: ~6 ساعات
- الرسالة/المشروع البحثي: 6 ساعات
- Passing Grade:** Each course must be passed with a minimum grade of **C+ or equivalent**; the overall **cumulative GPA must not fall below "Good / B-"** according to university regulations. أو ما يعادلها، ويجب ألا يقل المعدل التراكمي العام عن جيد C+ يجب ألا تقل درجة النجاح في كل مقرر عن: درجة النجاح (B-) حسب لوائح الجامعة.

2) Thesis / Research Project – الرسالة / المشروع البحثي

- Students must successfully prepare, submit, and defend a **Master's Thesis/Project (6 CH)** under supervision of a faculty member.
على الطالب إعداد وتقديم ومناقشة رسالة ماجستير/مشروع بحثي (6 ساعات) تحت إشراف عضو هيئة تدريس: الرسالة
- The thesis defense must be conducted before a **committee of faculty members and external examiner(s)** according to university policy.
تتم مناقشة الرسالة أمام لجنة علمية من أعضاء هيئة التدريس ومحكمين خارجيين وفق سياسة الجامعة: المناقشة

3) Timeframe – المدة الزمنية

- Minimum duration:** 2 academic years (4 semesters).
- Maximum duration:** 4 academic years, as per university regulations.
الحد الأدنى لإنهاء البرنامج عامان دراسيان (4 فصول)، والحد الأقصى أربع سنوات وفق لوائح الجامعة: المدة

4) Additional Conditions – شروط إضافية

- Fulfillment of all **university and faculty requirements** (including seminars, academic writing workshops, and research methodology course).
- Good conduct** and compliance with ethical and academic integrity standards.
استيفاء جميع متطلبات الجامعة والكلية (بما في ذلك الندوات وورش الكتابة الأكاديمية ومقرر منهجية البحث)، شروط أخرى والالتزام بالسلوك الجيد ومعايير النزاهة الأكاديمية.

21. Grading System – نظام التقديرات

	Excellent
	Very Good
	Good
	Pass
	Poor/Fail

Grade	Percentage Range	GPA Equivalent	Description (English)	الوصف (عربي)
Excellent	90 – 100%	A (4.0)	Outstanding performance, mastery of course outcomes.	ممتاز: أداء متميز وإتقان كامل لمخرجات المقرر.

Grade	Percentage Range	GPA Equivalent	Description (English)	الوصف (عربي)
Very Good	80 – 89%	B+ (3.5)	Above-average performance, strong achievement.	جيد جدًا: أداء فوق المتوسط وتحقيق قوي للمخرجات.
Good	75 – 79%	B (3.0)	Satisfactory performance, meeting requirements.	جيد: أداء مرضٍ يحقق متطلبات المقرر.
Pass (Acceptable)	65 – 74%	C (2.0)	Minimum acceptable performance, partial mastery.	مقبول: الحد الأدنى المقبول للأداء مع استيعاب جزئي.
Poor / Fail	0 – 64%	F (0.0)	Failure to achieve course learning outcomes.	ضعيف / راسب: عدم تحقيق مخرجات التعلم.

22. Facilities Required for Running the Program:

المرافق المطلوبة – Facilities Required for Running the Program – لتشغيل البرنامج

1) Classrooms and Lecture Halls – القاعات الدراسية والمحاضرات

- Equipped with modern teaching technologies (projectors, smart boards, high-speed internet).
 - Flexible seating for seminars, discussions, and group work.
- مزودة بتقنيات تعليم حديثة (شاشات عرض، سبورات ذكية، إنترنت سريع) مع مقاعد مرنة مناسبة للندوات والمناقشات والعمل الجماعي.

2) Computer Laboratories – معامل الحاسوب

- High-performance computing labs with **modern PCs/Workstations** capable of running AI/ML frameworks.
 - Specialized labs for **Networking, Cybersecurity, Data Science, and AI Simulation**.
- معامل حاسوب متطورة بأجهزة حديثة تدعم تشغيل بيئات الذكاء الاصطناعي والتعلم الآلي، مع معامل متخصصة للشبكات، الأمن السيبراني، علم البيانات والمحاكاة.

3) Software and Tools – البرمجيات والأدوات

- Licensed software for **AI/ML, Data Mining, Deep Learning, NLP, Computer Vision** (e.g., MATLAB, Python, TensorFlow, PyTorch, R).
 - Virtualization and Cloud tools (VMware, Docker, AWS, Azure).
- (مثل MATLAB، Python، TensorFlow، PyTorch، R) برمجيات مرخصة للذكاء الاصطناعي والتعلم الآلي، بالإضافة إلى أدوات المحاكاة الافتراضية والسحابة (VMware، Docker، AWS، Azure).

4) Library and Digital Resources – المكتبة والموارد الرقمية

- Access to **digital libraries** (IEEE, ACM, Springer, Elsevier/Scopus).
 - Availability of **printed and e-books** in Computer Science and AI.
- ، إلى جانب الكتب الورقية والإلكترونية في Elsevier/Scopus وSpringer وACM وIEEE إتاحة مكتبات رقمية مثل علوم الحاسوب والذكاء الاصطناعي.

5) Research Facilities – مرافق البحث العلمي

- Dedicated **Research & Innovation Center** for CS/AI projects.
- Access to **high-performance computing clusters** and **GPU servers**.
مراكز بحث وابتكار مخصصة لمشاريع علوم الحاسوب والذكاء الاصطناعي، مع إتاحة خوادم حوسبة عالية الأداء ووحدات GPU للبحوث المتقدمة.

6) Student Support Facilities – مرافق دعم الطلاب

- Academic advising and research supervision offices.
- Study spaces, seminar rooms, and collaborative work environments.
- Online platforms for **e-learning, assignments, and research collaboration**.
مكاتب إرشاد أكاديمي وإشراف بحثي، غرف دراسية وندوات ومساحات تعاونية، ومنصات إلكترونية للتعليم والتكليفات والتعاون البحثي.

7) Administrative and Support Infrastructure – البنية التحتية الإدارية

- Program coordination office and departmental administration.
- IT support services to maintain hardware, software, and digital platforms.
مكاتب إدارية للتنسيق الأكاديمي وخدمات دعم تقني لصيانة الأجهزة والبرمجيات والمنصات الرقمية.

23. Program Assessment – تقييم البرنامج

Type of the Sample who Assess the program		Instruments used	Sample
1		Questionnaire	
2			
3			
4			
5			
6			

Type of the Sample who Assess the Program	Instruments Used	Sample
Students (Current & Graduates)	Questionnaire (Course & Program evaluation forms), Focus group discussions	Randomly selected across different semesters and graduating cohorts
Faculty Members	Structured surveys, peer-review checklists, course file review	Full-time and part-time teaching staff involved in the program
Alumni	Alumni survey, tracer studies, feedback forms	Graduates (1–3 years after completion)
Employers / Industry Partners	Employer satisfaction surveys, interviews, advisory board feedback	Selected employers from ICT/AI industry sectors hiring graduates

Type of the Sample who Assess the Program	Instruments Used	Sample
External Examiners / Accreditation Bodies	Evaluation reports, accreditation review instruments	External reviewers, accreditation agencies
Quality Assurance Office (Internal)	Program self-evaluation report (SER), benchmarking matrices	QA unit in faculty/university

24. Program Policies:

Based on University Regulations

1.	1. Class Attendance – الحضور للمحاضرات Policy (EN): Students must attend at least 75% of the total contact hours of each course. Falling below this percentage results in denial of exam entry and course failure. Absence due to illness must be documented by a medical report from the University Clinic. If absence exceeds 25%, the student must retake the entire course. - من الساعات الدراسية المقررة. إذا تجاوزت نسبة 75% يجب على الطالب حضور ما لا يقل عن السياسة (عربي) 25% الغياب المرضي. في حالة الغياب المقرر كاملاً. ويلزم بإعادة المقرر. ويجب تقديم تقرير طبي من عيادة الجامعة.
2.	Tardiness – التأخير عن المحاضرات Policy (EN): Repeated lateness will be recorded as absence after initial notification. - في حال تكرار التأخير بعد التنبيه الأول، يُسجل الطالب غائباً: السياسة (عربي)
3.	3. Exam Attendance & Punctuality – حضور الامتحانات والانضباط الزمني Policy (EN): Students must attend exams on time. Entry is allowed only within the first 30 minutes after the exam begins. After that, entry is prohibited and the student is considered absent. - يجب على الطالب الحضور في الموعد المحدد للامتحان. يسمح بدخول الامتحان خلال النصف ساعة الأولى فقط، وبعدها يُمنع الدخول ويُعتبر الطالب غائباً: السياسة (عربي)
4.	Assignments & Projects – التكليفات والمشاريع Policy (EN): Assignments and projects must be submitted on time as per the course specification, usually within one week. Late submission may result in grade penalties. - يجب على الطالب تسليم التكليفات والمشاريع في المواعيد المحددة (عادة خلال أسبوع من تاريخ: السياسة (عربي) التكليف). التأخير يؤدي إلى خصم درجات
5.	Cheating – الغش الأكاديمي Policy (EN): Cheating in exams leads to immediate course failure. Repetition up to three times results in dismissal from the Faculty. - الغش في الامتحان يؤدي إلى رسوب مباشر في المقرر، وتكرار الغش ثلاث مرات يؤدي إلى: السياسة (عربي) فصل الطالب من الكلية.

6.	. Plagiarism – الانتحال العلمي • Policy (EN): Plagiarism in coursework, thesis, or assignments is strictly prohibited. Proven cases lead to academic failure and possible dismissal, subject to review by the University Student Affairs Council. • الانتحال العلمي في الأبحاث أو الرسائل أو التكاليفات ممنوع منعًا باتًا. ثبوت حالة انتحال يؤدي إلى: السياسة (عربي) رسوب أكاديمي، وقد يترتب عليه فصل من الكلية بعد مراجعة مجلس شؤون الطلاب بالجامعة.
7.	Other Policies – سياسات أخرى • Policy (EN): ○ Mobile phones must be switched off during lectures and exams; violation may result in dismissal from class/exam. ○ Lecture notes and assignments may be delivered in hard or soft copy formats. • السياسة (عربي): ○ يمنع استخدام الهواتف المحمولة أثناء المحاضرات أو الامتحانات ويجب إغلاقها، وفي حال المخالفة يُطلب من الطالب مغادرة القاعة. ○ قد يتم تسليم المحاضرات والتكاليفات في شكل ورقي أو إلكتروني.

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 Computer Science and Artificial Intelligence	Sana'a University	https://su.edu.ye/en/studentsservices/	Faculty of computer science and technology	Department of Computer Science	Yemen	Master of Computer Science and Artificial Intelligence			36 credits
The 1 st Program	M.S. in Computer Science	American University of Beirut (AUB)	https://www.aub.edu.lb/Registrar/catalogue/Pages/graduate-computer-science.aspx	Faculty of Arts and Sciences (FAS)	Department of Computer Science	Lebanon	Master of Science (M.S.) in Computer Science	Middle States Commission on Higher Education (MSCHE) "institutional accreditation (Last reaffirmation 2019)"	2019 (last reaffirmation); next self-study 2027-2028	Credit-based; commonly ~2 years full-time depending on thesis/project option
The 2 nd Program	M.Sc. in Computer Science	The American University in Cairo (AUC)	https://catalog.aucegypt.edu/preview_program.php?catoid=38&poid=6620	School of Sciences and Engineering (SSE)	Department of Computer Science and Engineering	Egypt	Master of Science (M.Sc.) in Computer Science	Middle States Commission on Higher Education (MSCHE) "institutional accreditation (Most recent	2018 (last reaffirmation); next evaluation 2027-2028	Course work + thesis; credit-based (minimum 24 course

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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
								reaffirmation 2018)		credits + thesis); typically ~2 years full time
The 3 rd Program	M.S. in Computer Science	King Abdullah University of Science and Technology (KAUST)	https://kaust.smartcatalogiq.com/en/2023-2024/program-guide/division-of-computer-electrical-and-mathematical-science-and-engineering-cemse/computer-science-cs/computer-science-ms-program	Division of Computer, Electrical & Mathematical Sciences & Engineering (CEMSE)	Computer Science Program (within CEMSE Division)	Saudi Arabia	Master of Science (M.S.) in Computer Science	Saudi national quality assurance framework via ETEC/NCAAA (institutional QA).	Not publicly listed; institution follows ETEC/NCAAA QA framework	36 credits; typically 3 semesters + 1 summer (~1.5 years)
The 4 th Program	M.S. in Computer Science	Lebanese American University (LAU)	https://soas.lau.edu.lb/academics/programs/ms-computer-science.php	School of Arts and Sciences	Department of Computer Science and Mathematics	Lebanon	Master of Science (M.S.) in Computer Science	New England Commission of Higher Education (NECHE) institutional accreditation (reaffirmed 2018)	2018 (reaffirmed); current cycle active	30 credits (core + electives + thesis/project); typically ~2 years

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
										full-time
The 5 th Program	M.Sc. in Computer Science	Khalifa University	https://ku-ae.smartcatalogiq.com/en/2023-2024/graduate-catalog/college-of-engineering/m-sc-in-computer-science	College of Engineering	Computer Science Program (College of Engineering)	United Arab Emirates	Master of Science (M.Sc.) in Computer Science	Commission for Academic Accreditation (CAA), UAE Ministry of Education “institutional accreditation	Current (institutionally accredited)	36 credits; typical full-time duration ~2 years
	MS in Computer Science (MSCS)	Carnegie Mellon University	https://csd.cmu.edu/academics/masters	School of Computer Science (SCS)	Computer Science Department	United States	Master of Science (MS) in Computer Science	Middle States Commission on Higher Education (MSCHE) “institutional accreditation	2018 (last reaffirmation); next self-study 2026-2027	Course work program; typically 3-4 semesters full-time (varies by track)
	MS in Computer Science (on-campus)	Georgia Institute of Technology	https://www.c.c.gatech.edu/degree-	College of Computing	Administered by the College of Computing (Schools	United States	Master of Science (MS)	Southern Association of Colleges and	Reaffirmation cycle 2025	30 credit hours;

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
			programs/master-science-computer-science		of Computer Science, Interactive Computing, etc.)		in Computer Science	Schools Commission on Colleges (SACSCOC) "institutional accreditation"	(per Institute timeline)	commonly ~1.5"2 years full-time
	Master of Computing (MComp), Artificial Intelligence Specialisation	National University of Singapore (NUS)	https://www.comp.nus.edu.sg/programmes/pg/mcomp/programme/ai/	School of Computing	Department of Computer Science (administers AI specialisation)	Singapore	Master of Computing (MComp) with AI Specialisation	Institutional recognition by Singapore Ministry of Education; national QA via QAFU "not program-specific"	Ongoing (national university; institutional QA)	Expected full-time 1.5 years (max 3 years); part-time 2.5 years (max 4 years)
	M.Sc. Computer Science (AI & Data track available)	RWTH Aachen University	https://www.rwth-aachen.de/cms/root/Studium/Angebot/Courses-of-Study/whats-new/~noo/Computer-Science-M-Sc-/?lidx=1	Faculty of Mathematics, Computer Science and Natural Sciences	Computer Science Department (Informatik)	Germany	Master of Science (M.Sc.) in Computer Science	Germany: System Accreditation "RWTH self-accredits programs under German Accreditation Council; ASIIN system seal (re-accredited 2025)"	2019 (initial system accreditation); 2025 (re-accreditation)	4 semesters (2 years), 120 ECTS

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

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

Program PILOs	Similar Accredited Programs					Accreditation Bodies	
	University of	University of	University of	University of	University of	NARS	International (if any)
A1							
A2							
A3							
B1							
B2							
B3							
C1							
C2							
C3							
D1							
D2							
D3							

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

University		 University		---		---		---		---		Average	
Total Courses and Cr. Hrs.		Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses
University	Compulsory	--	--	--	--	--	--	--	--	--	--	--	--
	Electives	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%
Faculty	Compulsory	--	--	--	--	--	--	--	--	--	--	--	--
	Electives	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%
Department	Compulsory	--	--	--	--	--	--	--	--	--	--	--	--
	Electives	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%
Program	Compulsory	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%
	Electives	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%
	Graduation Project	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%

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University		 University		---		---		---		---		Average	
Requirements	Summer Training	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%
	Industrial Training	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%
	Practical Skills	--	--	--	--	--	--	--	--	--	--	--	--
	Percentage	---%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%	--%
Other Courses		--	--	--	--	--	--	--	--	--	--	--	--
Total		Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses	Cr. Hrs.	Courses		
		--	--	--	--	--	--	--	--	--	--		

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

#	Current Program					University of -----					University of -----					University of -----					University of -----					University of -----				
	Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours			
		CH	L	T	P		CH	L	T	P		CH	L	T	P		CH	L	T	P		CH	L	T	P		CH	L	T	P
1	Arabic Language I	2	2	0	0	Arabic Language					Arabic Language																			
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#	Current Program					University of -----					University of -----					University of -----					University of -----					University of -----				
	Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours			
		CH	L	T	P		C H	L	T	P		C H	L	T	P		C H	L	T	P		C H	L	T	P		C H	L	T	P
26																														
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#	Current Program					University of -----					University of -----					University of -----					University of -----					University of -----				
	Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours				Course	Course Hours			
		CH	L	T	P		C H	L	T	P		C H	L	T	P		C H	L	T	P		C H	L	T	P		C H	L	T	P
59																														
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66																														
67																														
68																														

#	Current Program (CSAI Sana'a)	AUB (MS CS)	AUC (MSc CS)	KAUST (MS CS)	LAU (MS CS)	Khalifa Univ. (MS CS)	CMU (MS CS)	Georgia Tech (MS CS)	NUS (MComp AI)	RWTH (MSc CS)
1	CSAI 600 Research Methods	Research Methods	Research Methodology	Graduate Seminar	Research Methods	Research Methods	Research Practicum	Graduate Seminar	AI Ethics & Governance (methods)	Seminar modules
2	CSAI 610 Algorithms & Complexity	Analysis of Algorithms	Parallel/Adv. Algorithms	Algorithms	Design & Analysis	Algorithms	15-750 Algorithms	CS6515 Algorithms	Theory & Algorithms for ML	Theoretical CS
3	CSAI 620 Machine Learning	Machine Learning	Intelligent Systems / Data Mining	Machine Learning	Data Science Fundamentals	ML	10-701 ML	CS7641 ML	CS5242 Neural Nets & DL	AI & Data modules

#	Current Program (CSAI Sana'a)	AUB (MS CS)	AUC (MSc CS)	KAUST (MS CS)	LAU (MS CS)	Khalifa Univ. (MS CS)	CMU (MS CS)	Georgia Tech (MS CS)	NUS (MComp AI)	RWTH (MSc CS)
4	CSAI 630 Data Systems for AI	Advanced DB	Big Data / Advanced DB	Data Management	Databases	Data Mining	DB Systems	CS6400 DB Systems	Data Eng. Topics	Data & Info Systems
5	CSAI 641 Neural Nets & DL	AI Topics (DL)	Intelligent Systems	Deep Learning	ML electives	AI electives	11-785 DL	CS7643 DL	CS5242 NN & DL	DL modules
6	CSAI 661 Distributed Systems & Cloud	Systems electives	Advanced/Parallel Systems	Distributed Systems	Networks/Systems	Cloud/Distributed	Advanced DS	CS6210 Adv. OS / Cloud	Distributed Systems	Systems track
7	CSAI Electives (NLP, CV, RL, Data Mining, Big Data, IR, HCI, Robotics, etc.)	AI electives (NLP, CV, etc.)	Intelligent Systems (NLP, CV)	NLP, CV, RL electives	Electives	AI electives	NLP/IR/RL courses	AI Track (NLP, CV, RL, Robotics)	NLP, CV, IR, Trustworthy AI	AI & Data track
8	Master's Thesis (6 CH)	Thesis	Thesis	Thesis	Thesis	Thesis	Thesis	Thesis	Thesis	Thesis

Annex- 5, Coding System

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	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3
1	MCSAI601	Research Methods in Computing	P	I	I	I	I	P	I	M/A		P	I	M/A
2	MCSAI602	Algorithms & Complexity for AI Systems	M/A		P	P		M/A	P	I		I		I
3	MCSAI603	Machine Learning	P		M/A	P	P	M/A	P	P	I	I	I	
4	MCSAI604	Data Systems for AI	P		P	P			P		P		I	
5	MCSAI6E1	Elective 1 (e.g., Data Mining & Knowledge Discovery)	P		P			P	P	P		I		
6	MCSAI701	Neural Networks and Deep Learning	P		M/A			M/A	P	P	P			
7	MCSAI702	Distributed Systems & Cloud Computing	P	P	P	P	I		P		M/A		P	
8	MCSAI7E3	Elective 3 (Natural Language Processing)	P		M/A			M/A	P	P		P		
9	MCSAI7E4	Elective 4 (Computer Vision)	P		M/A			M/A	P	P				
10	MCSAI7E5	Elective 5 (Reinforcement Learning)	P		M/A		P	M/A	P	P				
11	MCSAI7E6	Elective: Big Data Systems & Analytics	P		P				P		M/A			
12	MCSAI7E7	Elective: Information Retrieval & Search	P		P	P		P	P			P		
13	MCSAI7E8	Elective: High-Performance Computing & GPU Programming	P		P			P	P		M/A			
14	MCSAI7E9	Elective: Software Engineering		P		P			P			P	P	
15	MCSAI7E10	Elective: Human–AI Interaction		M/A			P		P			M/A	P	

Head of Department

Quality Unit

Dean of the Faculty

Center of Development & Quality Assurance

Rector

#	Course Code	Course Title	Program Intended Learning Outcomes (PILOs)											
			A. Knowledge & Understanding			B. Intellectual Skills			C. Practical Skills			D. Transferable Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3
16	MCSAI7E11	Elective: Selected Topics in CS/AI	P	P	P		P	M/A	P	P		P		
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Annex- 7, CVs for the Preparation Committee

1. Dr.malek Nasser Ali Algabri

Attached separately.