Program Specification

— (Bachelor)

Program:	**Bachelor of Science in Artificial Intelligence**
Program Code (as per Saudi university ranking):	**061901**
Qualification Level:	Undergraduate
Department:	Computer Science
College:	College of Science
Institution:	Northern Border University
Program Specification:	New ☒ updated* ☐
Last Review Date:	April 7, 2025

Table of Contents

A. Program Identification and General Information

1. Program's Main Location:

College of Science, Arar

2. Branches Offering the Program (if any):

NIL

3. Partnerships with other parties (if any) and the nature of each:

NIL

4. Professions/jobs for which students are qualified

- AI applications Developer
- Machine Learning Engineer
- Data Scientist
- AI Data Analyst
- Research Scientist
- Software Developer
- Programmer Robotics Designer / Developer

5. Relevant occupational/ Professional sectors:

- Banking and Finance
- Cloud AI Companies
- King Abdul Aziz City for Science and Technology
- King Fahd Medical Research Centre (KFMRC)
- Expert systems and software developer
- The Ministry of Communications and Information

6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1.		
2.		
3.		

7. Exit Points/Awarded Degree (if any):

exit points/awarded degree	Credit hours
1. Intermediate Diploma in Artificial Intelligence (AI)	64

8. Total credit hours: (129)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

To provide high-quality education, foster innovative research, and deliver impactful community services in the field of artificial intelligence, preparing graduates to contribute effectively to an AI-driven society.

2. Program Goals:

1. Deliver comprehensive education in artificial intelligence theories and technologies.
2. Promote applied research to develop intelligent solutions across various sectors.
3. Engage students in community service through AI-driven initiatives and consultation.
4. Enhance students' practical and professional skills to meet market and societal needs.

3. Program Learning Outcomes*

Knowledge and Understanding

K1	Demonstrate understanding of computing and mathematical principles relevant to the field of artificial intelligence.
K2	Explain core concepts and technologies in artificial intelligence, including machine learning, natural language processing, computer vision, and robotics.

Skills

S1	Analyze complex computing problems and apply appropriate computing principles and interdisciplinary knowledge to identify effective solutions.
S2	Design, implement, and evaluate AI-based solutions that meet specified requirements within the context of the discipline.
S3	Collect, process, and interpret large-scale data to build and optimize artificial intelligence models.
S4	Communicate ideas and technical information effectively in diverse professional settings.
S5	Apply contemporary AI algorithms, tools, and methodologies to solve advanced machine learning and artificial intelligence problems.

Values, Autonomy, and Responsibility

V1	Demonstrate ethical and legal awareness and make responsible decisions in computing practices.
V2	Work effectively both independently and as a member or leader of a multidisciplinary team in the development of AI solutions.
V3	Engage in continuous professional development and apply emerging AI technologies through lifelong learning strategies.

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	5	10	7.75%
	Elective	2	4	3.10%
College Requirements	Required	11	36	27.91%

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
	Elective	0	0	%0.0
Program Requirements	Required	19	57	44.19%
	Elective	4	12	9.30%
Capstone Course/Project		2	4	3.10%
Field Training/ Internship		1	2	1.55%
Residency year				0.0%
Others		2	4	3.10%
Total		46	129	%100.0

* Add a separated table for each track (if any).

2. Program Courses

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Program)
Level 1	LNGT101	English 1	Required		4	College
	MATH101	Calculus 1	Required		4	College
	PHYS101	General physics 1	Required		4	College
	-	Islamic Culture 1	Required		2	Institution
	IT100	Digital Culture	Required		2	Institution
Level 2	LNGT102	English 2	Required		4	College
	CS101	Programming Fundamentals	Required		3	College
	IT101	Introduction to Computing	Required		3	College
	LNGT103	English for scientific and engineering purposes	Required		2	College
	GNCR100	University Skills	Required		2	Institution
Level 3	--	University Elective 1	Elective		2	Institution
	CS203	Data Structures	Required	CS101	3	College
	MATH474	Discrete Mathematics	Required	MATH101	3	College
	CS202	Object Oriented Programming	Required	CS101	3	College
	PHYS210	Electronic Circuits	Required		3	Program
	AI251	Artificial Intelligence Fundamentals	Required	CS101	3	Program
Level 4	AI231	Database	Required	CS101	3	Program
	AI221	Algorithms Design and Analysis	Required	CS203	3	Program
	AI211	Computer Architecture and Organization	Required	IT101	3	Program
	-	Islamic Culture 2	Required		2	Institution
	STAT131	Introduction to Statistics	Required		3	College
	AI222	Artificial Intelligence Algorithms	Required	AI251	3	Program

	AI301	Data Mining	Required	AI231	3	Program
Level 5	AI341	Software Engineering	Required	AI231	3	Program
	AI361	Computer Networks	Required	AI210	3	Program
	AI371	Introduction to Computer Vision and Robotics	Required	AI222	3	Program
	AI312	Operating Systems	Required	AI210	3	Program
	HR100	Entrepreneurship	Required		2	Institution
Level 6	--	University Elective 2	Elective		2	Institution
	AI381	Machine Learning	Required	AI301	3	Program
	AI372	Natural Language Processing	Required	--	3	Program
	AI391	Artificial Intelligence Applications Programming	Required	AI371	3	Program
	AI323	Advance Probability Theory	Required	STAT131	3	Program
	MATH222	Linear Algebra	Required	MATH101	3	Program
	AI494	Field Training	Required	90 Units & Program Approval	2	Program
Level 7	--	Free Course-1	Elective		2	Free
	AI473	Introduction to Deep Learning	Required	AI391	3	Program
	AI462	Cyber Security	Required	AI361	3	Program
	-	Program Elective-1	Elective		3	Program
	AI492	Graduation Project 1	Required	90 Units & Department Approval	1	Program
	AI482	Robot Kinematics and Dynamics	Required	AI381	3	Program
Level 8	-	Program Elective-2	Elective		3	Program
	-	Program Elective-3	Elective		3	Program
		Free Course-2	Elective		2	Free
	AI493	Graduation Project 2	Required	AI492	3	Program
	-	Program Elective-4	Elective		3	Program

* Include additional levels (for three semesters option or if needed).
** Add a table for the courses of each track (if any)

3. Course Specifications:
Insert hyperlink for all course specifications using NCAAA template (T-104)

AI Courses

4. Program learning Outcomes Mapping Matrix:
Align the program learning outcomes with program courses, according to the following desired levels of performance
(I = Introduced & P = Practiced & M = Mastered).

Course Code & No.	Program learning Outcomes

Course	Knowledge and understanding					Skills						Values, Autonomy, and Responsibility		
	K1	K2				S1	S2	S3	S4	S5		V1	V2	V3
LNGT101						I								
MATH101	I													
PHYS101	I	I				I								
IT100	I	I						I				I		
-														
LNGT102	I													
CS101	I					I	I	I						
IT101	I							I				I		
LNGT103														
3102120									I			I	I	
-														
CS202	I					I	I	I						
MATH474	I					I	I		I				I	
CS203	I					I	I	I						
PHYS210	I	I						I					I	
AI251	I	I				I							I	
-														
AI231	P						P	P				I		
AI221	I					I	P	P						
AI210	I	I					P	P					I	
STAT131	I													
AI222	I	I				P	P		P				P	
-														
AI301	I	I				I	I	I					P	
AI341	I					P	P					P	I	
AI371	M	M				M			M				M	
AI361	I					P		P				P		
AI312	P					P		P				I		
--														
AI381		M					M	M					M	
AI372	M	M					M		M	M			M	
AI391		M				M	M		M				M	
MATH222	P					P								
AI323	M					M	M							

Course	1	2	3	4	5	6	7	8	9	10	11	12	13	14
--														
AI473		M				M	M	M		M			M	
AI462	M				M	M				M				
AI492		M				M	M		M			M	M	
AI482	M	M				M	M						M	
--														
AI493		M				M	M		M			M	M	
AI494	M				M		M		M				M	
AI452	M	M				M			M	M			M	
AI453		M				M	M			M			M	
AI474		M				M	M			M			M	
AI463		M				M	M	M					M	
AI496		M						M		M			M	
AI475		M				M	M	M		M			M	

* Add a separated table for each track (if any).

5. Teaching and learning strategies applied to achieve program learning outcomes.

Describe teaching and learning strategies, including curricular and extra-curricular activities, to achieve the program learning outcomes in all areas.

5.1 General Track:

PLOs		Teaching& Learning Strategies
Knowledge:		
K1	Demonstrate understanding of computing and mathematical principles relevant to the field of artificial intelligence.	• Class / Group • discussion • Reciprocal teaching • Problem-based learning • Collaborative learning • Self-learning • Observation
K2	Explain core concepts and technologies in artificial intelligence, including machine learning, natural language processing, computer vision, and robotics.	
Skills:		
S1	Analyze complex computing problems and apply appropriate computing principles and interdisciplinary knowledge to identify effective solutions.	• Generative learning • Problem-based learning • Generative learning • Lab-based learning • Model-based learning • Observation • Self-learning • Storytelling
S2	Design, implement, and evaluate AI-based solutions that meet specified requirements within the context of the discipline.	
S3	Collect, process, and interpret large-scale data to build and optimize artificial intelligence models.	
S4	Communicate ideas and technical information effectively in diverse professional settings.	

S5	Apply contemporary AI algorithms, tools, and methodologies to solve advanced machine learning and artificial intelligence problems.	
Values, Autonomy and Responsibility:		
V1	Demonstrate ethical and legal awareness and make responsible decisions in computing practices.	• Problem-based learning • Scientific research • Model-based learning • Self-learning
V2	Work effectively both independently and as a member or leader of a multidisciplinary team in the development of AI solutions.	
V3	Engage in continuous professional development and apply emerging AI technologies through lifelong learning strategies.	

5.2 Exit Point 1: **Intermediate Diploma Program**

PLOs		Teaching& Learning Strategies
Knowledge:		
K1	Explain the fundamentals of computing and mathematics appropriate to the discipline	• Class / Group • discussion • Reciprocal teaching • Problem-based learning • Collaborative learning • Self-learning • Observation
K2	Identify the core concepts in artificial intelligence.	
Skills:		
S1	Analyse a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	• Generative learning • Problem-based learning • Generative learning • Lab-based learning • Model-based learning • Observation • Self-learning • Storytelling
S2	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	
S3	Collect, analyse, and interpret large datasets, and use this data to develop and improve Artificial Intelligence (AI) models.	
S4	Communicate effectively in a variety of professional contexts	
Values, Autonomy and Responsibility:		
V1	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	• Problem-based learning • Scientific research • Model-based learning • Self-learning
V2	Function effectively in teams to accomplish a common goal	
V3	Acquire and apply recent technology as needed, using appropriate lifelong learning strategies.	

6. Assessment Methods for program learning outcomes.

Describe assessment methods (Direct and Indirect) that can be used to measure the achievement of program learning outcomes in all areas.

The program should devise a plan for assessing Program Learning Outcomes (all learning outcomes should be assessed at least twice in the bachelor program's cycle and once in other degrees).

6.1 General Track:

PLOs		Assessment Methods (Direct and Indirect)
Knowledge:		
K1	Demonstrate understanding of computing and mathematical principles relevant to the field of artificial intelligence.	**Direct:** • Written exams (essay) • Objective exams • Checklist. • Case Study. • self-assessment • Oral exams • Reports • Presentations **Indirect:** Program assessment survey
K2	Explain core concepts and technologies in artificial intelligence, including machine learning, natural language processing, computer vision, and robotics.	
Skills:		
S1	Analyze complex computing problems and apply appropriate computing principles and interdisciplinary knowledge to identify effective solutions.	**Direct:** • Written exams (essay), • Objective Structured Practical Examination (OSPE) • Laboratory Exams • Case Study • Debate • Discussion • self-assessment • Presentations • Projects, • Questionnaires and Surveys • Problem-based Assessment **Indirect:** Program assessment survey
S2	Design, implement, and evaluate AI-based solutions that meet specified requirements within the context of the discipline.	
S3	Collect, process, and interpret large-scale data to build and optimize artificial intelligence models.	
S4	Communicate ideas and technical information effectively in diverse professional settings.	
S5	Apply contemporary AI algorithms, tools, and methodologies to solve advanced machine learning and artificial intelligence problems.	
Values, Autonomy and Responsibility:		
V1	Demonstrate ethical and legal awareness and make responsible decisions in computing practices.	**Direct:** • Objective Structured Practical Examination (OSPE) • Laboratory Exams
V2	Work effectively both independently and as a member or leader of a multidisciplinary team in the development of AI solutions.	

V3	Engage in continuous professional development and apply emerging AI technologies through lifelong learning strategies.	• Reports • Problem-based Assessment **Indirect:** Program assessment survey

6.2 Exit Point 1: **Intermediate Diploma Program**

PLOs		Assessment Methods (Direct and Indirect)
Knowledge:		
K1	Explain the fundamentals of computing and mathematics appropriate to the discipline	**Direct:** • Written exams (essay) • Objective exams • Checklist. • Case Study. • self-assessment • Oral exams • Reports • Presentations **Indirect:** Program assessment survey
K2	Identify the core concepts in artificial intelligence.	
Skills:		
S1	Analyse a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	**Direct:** • Written exams (essay), • Objective Structured Practical Examination (OSPE) • Laboratory Exams • Case Study • Debate • Discussion • self-assessment • Presentations • Projects, • Questionnaires and Surveys • Problem-based Assessment **Indirect:** Program assessment survey
S2	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	
S3	Collect, analyse, and interpret large datasets, and use this data to develop and improve Artificial Intelligence (AI) models.	
S4	Communicate effectively in a variety of professional contexts	
Values, Autonomy and Responsibility:		
V1	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	**Direct:** • Objective Structured Practical Examination (OSPE) • Laboratory Exams
V2	Function effectively in teams to accomplish a common goal	

V3	Acquire and apply recent technology as needed, using appropriate lifelong learning strategies.	• Reports • Problem-based Assessment **Indirect:** Program assessment survey

D. Student Admission and Support:

1. Student Admission Requirements

To be considered for admission, the applicant shall meet the following requirements:

1) The applicant shall hold a high school certificate or an equivalent certificate from inside or outside the Kingdom of Saudi Arabia.

2) The applicant shall have obtained the secondary school certificate, or its equivalent, in a period of less than five years. Nonetheless, the University Council may exempt applicant from this condition if a convincing reason presented.

3) The applicant should have a certificate of good conduct.

4) The applicant should successfully pass any examination or interview deemed necessary by the University Council.

5) The applicant shall be medically fit.

6) An approval shall be obtained from the applicant's employer, if the applicant is an employee in any government or private institution.

7) The applicant shall meet any other requirements specified by the University Council and announced at the time of application.

2. Guidance and Orientation Programs for New Students

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).

• The new students will be invited to an academic guidance meeting, in the first week, aimed to shed some light on the regulations and the registration process at the faculty of science, computer science department.

• An agenda will be introduced to the new students that provide an introduction to student's rights and responsibilities. In addition, some information about the university life through campus; visits, meetings, lectures, and other activities. This could be done via the cooperation with different academic & support departments in the faculty.

3. Student Counseling Services

(Academic, professional, psychological and social)

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).

> - ❖ Each student is assigned an academic advisor at the start of the program to ensure that students enrolled in the program fulfill all the university, faculty and department requirements and graduate on time. To realize this, academic performance and progress of the students is continuously monitored.
> - ❖ The advisor meets with the student's multiple times during a semester to discuss the following tasks.
>   - ▪ Selection of courses to meet the degree requirements.
>   - ▪ Credit transfer processes.
>   - ▪ Adding/Dropping courses.
>   - ▪ Withdrawing from a course or a complete semester.
>   - ▪ Selecting the appropriate elective courses.
>   - ▪ Resolving any scheduling conflicts
> - ❖ During their years of enrollment, students are invited to visit other universities and local companies to provide them with a better understanding of their future professional role and potential career paths.
>
> - ❖ To facilitate the students as per the latest demands, we have career guidance counselors, one for the boy's section and one for the girl's section. The students can discuss their career goals and aspirations with the career guidance counselors. They can additionally receive career advice from their supervisor during their graduation project.

4. Special Support

(Low achievers, disabled, gifted, and talented students).

1. The teaching staff member should take into account the individual differences between the students who are low achievers and talented ones during their lectures.
2. The low achievers' students can take advantage of the office hours of the teaching staff member which have been defined since the beginning of the semester.
3. The talented students have the chance to finish their studies in short times compared to their peers.
4. Urged the employees of the college not to use the facilities and equipment meant for people with special needs. Besides, the availability of facilities for people with special needs in all buildings of the college and parking.
5. Preparing and approving plans for preventive and curative awareness programs.

6. Each academic advisor, through periodic meetings with students, follows up on psychological and social problems and raises them to the Academic Advising Committee (The Link).

E. Faculty and Administrative Staff:

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professor	Computer Science	- Artificial Intelligence (AI)		2	2	4
Associate Professor	Computer Science	-Software Engineering -Algorithms - Data Mining and Information Retrieval - Artificial Intelligence Programming		1	2	3
Assistant Professor	Computer Science	Computer Vision and Robotics, -Cyber Security, - Natural Language Processing, - Machine Learning, Deep Learning		3	3	6
Lecturer	Computer Science	-Computer Architecture, -Computer Graphics, - Artificial Intelligence Programming, - Computer Security, -Probability		2	2	4
Teaching Assistant	Computer Science	-Programming Language -Operating systems, -Computer Architecture, -Computer Graphics, -Networking -Computer Security		1	1	1

		-Software Engineering				
Technicians and Laboratory Assistant	Computer Science	Networking, Programmer		1	1	2
Administrative and Supportive Staff	Computer Science	Data Science, Artificial Intelligence (AI) developer		1	1	2
Others (specify)						

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

Learning resources required by the Program (textbooks, references, and e-learning resources and web-based resources, etc.)

- Required Textbook
- Essential Reference Material
- Electronic Resources- Websites, Blackboard: Communications between students and faculty members is usually done via Blackboard (BB) web portal (www. https://lms.nbu.edu.sa/) . Blackboard is a very powerful tool that allows posting course materials, announcements, assignments, discussion forums and virtual classes.

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

- Library
The boys' section of the campus contains a main library. The Main library contains a variety of information resources such as books, periodicals, digital libraries, documents, manuscripts and digital resources. For students it is the main source of accessing their required reading materials. The library is responsible for organizing (classifying, cataloging, indexing, and shelving) books, and making them available to the University faculty and students in both boys' and girls' sections, through a range of services such as reading areas and a digital library system. Accounts are provided to both faculty members and students to access these online resources. The Deanship of Library Affairs is the governance body for the main library. The Deanship of Library affairs arrange all the latest required books and reading materials.

- Laboratories
All computing labs in the boy section are located on the second floor. There exist 6 regular computer labs of varying capacities and equipment, and a specialized "digital logic and design lab". The equipment in these labs is described in the next section. In addition to the computing resources, "Digital Logic and Design

Lab'' includes resource for the design, analysis and testing of digital circuits as well as programmable 8086 processors for the study of machine language.

Labs in the girl section are located on second and third floor. There are 6 regular computer labs of varying capacities and equipment, and a "digital logic and design lab". The labs in the girls' section are very similar to the labs in the boys' section in terms of computing resources and capacity.

- Classrooms

There are 12 lecture rooms in the boy section. As the computing labs are also equipped with the same facilities as the classrooms, they are also used for lectures. There is an auditorium in the boys' section which can accommodate up to 200+ students. The auditorium is equipped with an extra-large white screen and a modern projection system. To comply with the Kingdom's norms regarding gender separation in the workplace and to encourage the higher education of females while respecting the cultural norms of the region, there are two types of classrooms in the girls' section: the classrooms which are equipped to host male instructors and female-only classrooms. There are 12 classrooms of the former type. These classrooms have a separate entrance to be used by male instructors and there is a separation glass.

between male instructor and female students. These classrooms are equipped with a multimedia projector on the students' side and two white boards, one on the students' side and the other on the male instructor's side. These classrooms can be used like a standard classroom by female instructors.

There are 21 female-only classrooms, located on the second and third floors of the girls' section building. The faculty of computing and IT shares these classrooms with other colleges in the campus. There is a large hall in the girl section which can accommodate 200+ students and is used for cultural events.

All classrooms in both boys and girl sections have a maximum capacity of around 35 students. Each classroom is equipped with a large whiteboard, individual chairs for students, an instructor desk and a high-resolution multimedia projector. Internet access is available in all the classrooms through both wireless and wired networks. The whole building (classrooms, offices, and labs) is centrally heated/cooled and hence provides a comfortable working environment to students, faculty and other staff (temperatures outside can be as high as 50°C in summer and as low as -1°C in winter).

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

The facilities, computing resources, and equipment comply with the national legislation and regulations pertaining to fire, building, and safety requirements and health codes. The compliance to these standards is verified on a regular basis by the authorized services of the University. The University additionally includes a safety department and an emergency response team that regularly carries out fire drills and lockdown procedures. Finally, in case of a health hazard or emergency, the University possesses medical facilities and can also request the assistance of public hospitals which includes an emergency service. Both health facilities are located at a walking distance from the campus.

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to quality assurance manual.

Quality System is used to evaluate and measure the promises and achievements of any institution provided in **mission** and vision statement and reflected in the strategic directions of that institution. The main idea is to evaluate the satisfaction level of various stakeholders and increase their confidence by **established** procedures and methods. The Faculty of Computing and Information Technology is committed to quality education to fulfill the published mission and vision.

The Quality System manual for Faculty of Artificial Intelligence program has been designed in line with the Quality System Manual (QS) of Northern Border University (NBU) as well as considering the guidelines of NCAAA stated in the Quality Handbook.

The Quality System described in this manual defines the various policies and procedures that ensure quality assurance and management activities in line with good practices of NCAAA standards are implemented and evaluated. It clearly describes the responsibilities, scope, and domain of various activities.

This manual considers the application of a system of processes throughout the college as well as the identification and interaction of these processes, and their management. This Quality Management System is in line with the regulations and requirements described by the NCAAA .

The policies and procedure defined here are applicable throughout all the activities and level of organization and various units, committees and members are responsible for ensuring the implementation of this Quality System.

The Quality System manual for Faculty of Computing and Information Technology has been designed in line with the Quality System Manual (QS) of Northern Border University (NBU) as well as considering the guidelines of NCAAA stated in Quality Handbook. (The Link).

2. Procedures to Monitor Quality of Courses Taught by other Departments

1. Courses are reviewed periodically to ensure the continuity of their relevance to the needs of computer science students.
2. The program is coordinating with all departments concerned, both within the College of Science and with programs outside the College.
3. The quality committee ensures that the course outcomes of other program courses are compatible with the mission, goals and objectives of the program.
4. The course specifications of other department courses are collected and verified by the quality committee at the beginning of the semester. The CLOs of other courses are mapped to the PLOs of program in program specification.
5. The teaching & learning activities and assessment of students are done by the course coordinators / HOD of other departments.

The course reports of other program courses are collected and verified by the quality committee at the end of the semester, and these are duly considered in preparation of annual program report.

3. Procedures Used to Ensure the Consistency between Main Campus and Branches (including male and female sections).

1. The syllabus of all courses is available online to all instructors and students.
2. Checking the course outlines for both male and female sections for all university branches to ensure the consistency.
3. Identify a coordinator for each course to maintain quality and consistency for all sections in all branches.
4. For all sections open to a given course, it's mandatory to follow the same assessment plan.

4. Assessment Plan for Program Learning Outcomes (PLOs),

1. Assessment plan for Program Learning Outcomes (PLOs):
   - The department council has approved a two-year cycle where each PLO is assessed each semester.
   - The timeline illustrated in the following table demonstrates the assessment plan that provides four cycles of PLOs assessment for the two academic years.
     1) Learning outcomes are measured at the program level annually by direct method (all kinds of tests) and indirect method (surveys).
     2) Calculating performance indicators of learning outcomes annually.
     3) Based on the results of measuring learning outcomes and performance indicators of learning outcomes, an improvement and development plan that is applied in the following year has been prepared and a report of this plan is written in the program report for the following year.

PLOs	Academic year 1		Academic year 2		Academic year 3		Academic year 4	
	Term1	Term2	Term1	Term2	Term1	Term2	Term1	Term2
K1	X		X		X		X	
K2	X		X		X		X	
S1		X		X		X		X
S2		X		X		X		X
S3		X		X		X		X
S4		X		X		X		X
S5		X		X		X		X
V1	X		X		X		X	
V2	X		X		X		X	
V3	X		X		X		X	

Mechanisms of Using its Results in the Development Processes
- The CLO-PLO based assessment provides summary of PLOs attainments during a semester. This summary is used by Assessment and Evaluation Committee to identify possible following corrective course of actions:
  - Revision in pre-requisite as inadequate pre-requisite knowledge.

- Revision in course or course material or provide more helping material, modification in text or reference material.
  - Modifications in course assessment methods.
  - Revision of the learning accomplishments of a course.
  - The graduation project addresses most of the Program Learning Outcomes and missing in the presented evaluation. It is the terminal comprehensive activity and provides students with the opportunity to exhibit the acquired skills and knowledge during the program.
- The Quality and Academic Accreditation Unit (QAAU) of the faculty of Computing and Information Technology (FCIT) have implemented the required forms for direct and indirect assessment with the help of Assessment and Evaluation Committee.
  - The assessment committee is looking into the CLO based assessment method for the student outcomes and determines the reasons of non-achievements. The trigger is initiated with not achievement of PLO in a particular course.
  - Later, details analysis of course files to assess the achievement of CLO is performed. Then, the Assessment and Evaluation Committee requires from the instructor to provide Continuous Improvement Plan and Strategies.
- Track program graduates and taking their feedback and suggestions and use these suggestions for making decision regarding any plan modification.
- Holding regular surveys for current and graduated students to evaluate the program, and to focus on problems that they faced during studying and after graduation.
- Consult organizations in the field of this program to find out their requirements and what they expect from our graduates.

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Teaching performance	Students	Surveys	End of each semester
Leadership	Faculty members	Surveys	End of each semester
Learning Resources	Students and faculty members	Meetings and surveys	During the semester
Graduates' performance	Faculty members	Meetings and surveys	End of academic years
Program plan	Faculty members graduates, external reviewers from the industry	Meetings and surveys	End of academic years
Student field training	Faculty members	Visits	During the training program

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, services, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others.
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of the academic year, etc.)

6. Program KPIs*

The period to achieve the target (__4__) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-P-01	Students' Evaluation of quality of learning experience in the program	NA	Exit survey should be conducted among the final year students to assess the Quality of learning experiences. The percentage of students who strongly agree or agree to the statements in the survey is to be calculated.	End of each academic year
2	KPI-P-02	Students' evaluation of the quality of the courses	NA	Online Course Survey should be conducted to the students towards the end of the semester to assess their registered courses. The percentage of respondents who strongly agree or agree is to be calculated from the survey.	End of each semester
3	KPI-P-03	Completion rate	NA	Data regarding the number of students who registered in the 1st semester of the year 1 (N1) and number of students who completed the graduation at the end of the year 5 (N2) are to be collected. The percentage (N1/N2) *100 has to be calculated.	End of each academic year
4	KPI-P-04	First-year students retention rate	NA	Data regarding the number of students who registered at the start of the first academic program year (N1) and number of students who registered at the start of the second academic program year (N2) are to be collected. The percentage (N1/N2) *100 has to be calculated	End of each academic year
5	KPI-P-05	Students' performance in the professional and/or national examinations	NA	Data regarding the number of students who participated in the national and professional exam (N1) and number of students who have succeeded in the exam (N2) are to be collected. The percentage (N1/N2) *100 has to be calculated	End of each academic year
6		Graduates' employability and enrolment	NA	Data regarding the number of students who graduated (N) at the end of each year, and number of students who are employed (N1)	

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
	KPI-P-06	in postgraduate programs		and the number of students enrolled in graduate studies programs (N2) are to be collected. The percentage (N1+N2)/N)*10 has to be calculated.	Start of each next academic year
7	KPI-P-07	Employers' evaluation of the program graduates' proficiency	NA	An employer survey (Q-GA) should be conducted to assess the proficiency of the graduates. The percentage of employers who strongly agree or agree to the statements in the survey has to be calculated.	End of each academic year
8	KPI-P-08	Ratio of students to teaching staff	NA	Data should be collected regarding the number of faculty members and the number of students assigned for each course. The ratio between the number of teachers and the students assigned for each course has to be calculated.	End of each academic year
9	KPI-P-09	Percentage of publications of faculty members	70%	Data regarding the total number of teaching staff and number of teaching staff who have at least one research publications	End of each academic year
10	KPI-P-10	Rate of published research per faculty member	2.5	Data regarding the total number of teaching staff and the total number of research publications should be collected from NBU research deanship and percentage should be calculated	End of each academic year
11	KPI-P-11	Citations rate in referred journals per faculty member	1.5	Data regarding the total number of teaching staff who have research publications and the total number of citations in research publications should be collected from NBU research deanship and percentage should be calculated.	End of each academic year

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	COMPUTER SCIENCE DEPARTMENT COUNCIL
Reference No.	
Date	