هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-103
2022

Program Specification

Program Name:	Computer Science
Program Code (as per Saudi university ranking):	1105
Qualification Level:	bachelor's degree (Level 6)
Department:	Computer Science
College:	College of Science
Institution:	Northern Border University
Program Specification:	New ☐ updated* ☒
Last Review Date:	January 28, 2023

*Attach the previous version of the Program Specification.

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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

General Track

- Programmer
- Software Analyst
- Data Analyst
- Web Developer
- Network Administrator
- Cybersecurity Administrator
- Software Developer.
- Database Developer
- Database Administrator
- Research Assistant
- Instructor

SE Track

- Software Engineer
- Software Analyst
- Software project manager
- Mobile Application Developer
- Database Developer
- User Interface Designer
- User Experience Designer
- Instructor

AI Track

- AI Developer
- Machine Learning Specialist
- Natural Language Processing (NLP) Specialist
- Computer Vision Engineer
- AI Research Assistant
- AI Project Manager
- AI Analyst
- AI UX/UI Designer
- AI Consultant
- AI Trainer/Annotation Specialist
- Instructor

Cybersecurity Track

- Information Security Analyst
- Cybersecurity Engineer
- Security Consultant
- Chief Information Security Officer (CISO)
- Threat Intelligence Analyst
- Penetration Tester
- Network Security Engineer
- Security Operations Center (SOC) Analyst
- Incident Response Specialist
- Vulnerability Management Analyst
- Identity and Access Management (IAM) Engineer
- Cyber Security Manager
- Cybersecurity Risk Analyst
- Compliance Manager
- Data Privacy Officer
- Security Trainer/Educator.
- Instructor

5. Relevant occupational/ Professional sectors:

For relevant occupational see Section 4 above.
The graduate can work in all public and private sectors.

6. Major Tracks/Pathways (if any):

Major track/pathway	**Credit hours** (For each track)	**Professions/jobs** (For each track)
1. Software Engineering	24	
2. Artificial Intelligence	24	
3. Cyber Security	24	
4. General	61	

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

exit points/awarded degree	**Credit hours**
1. Exit Point (general)	68
2. Exit Point (Specialization)	80

8. Total credit hours: (135)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:	
Providing distinguished education in computer science that qualifies graduates for labor market, community services, and encourage research and innovation.	
2. Program Objectives:	
PO1	Providing graduates with the state-of-the-art knowledge, skills, and techniques in the field of computer science.
PO2	Preparing qualified graduates for labor market.
PO3	Participating in community services.
PO4	Encouraging research and innovation.

3. Program Learning Outcomes*	
3.1 Program Learning Outcomes* (Track: General)	
Knowledge and understanding	
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the Computer Science discipline
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Computer Science discipline
Skills	
S1	Apply computer science theory and software development fundamentals to produce computing-based solutions
S2	Solve relatively complex computing problems and apply standard principles of computing and other relevant disciplines to identify creative solutions, and support research and innovation
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Computer Science discipline.
Values, Autonomy, and Responsibility	
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to the Computer Science discipline
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance the Computer Science discipline in society

3.2 Program Learning Outcomes* (Track: Software Engineering)	
Knowledge and understanding	
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the Software Engineering discipline
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Software Engineering discipline
Skills	
S1	Apply computer science theory and software development fundamentals to produce computing-based solutions
S2	Solve relatively complex computing problems and apply standard principles of computing and other relevant disciplines to identify creative solutions, and support research and innovation
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Software Engineering discipline.
Values, Autonomy, and Responsibility	
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to the Software Engineering discipline
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance the Software Engineering discipline in society

3.3 Program Learning Outcomes* (Track: Artificial Intelligence)	
Knowledge and Understanding	
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences.
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the artificial intelligent discipline.
K3	Demonstrate specialized knowledge and understanding informed by current developments in an artificial intelligent discipline
Skills	
S1	Apply computer science theory and Artificial Intelligence fundamentals to produce computing-based solutions.

S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Artificial Intelligence discipline.
Values, Autonomy, and Responsibility	
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to artificial intelligent discipline
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance the artificial intelligent discipline in society.

3.4 Program Learning Outcomes* (Track: Cyber Security)	
Knowledge and understanding	
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to Cybersecurity discipline
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Cybersecurity discipline.
Skills	
S1	Apply computer science theory and Cybersecurity fundamentals to produce computing-based solutions.
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Cybersecurity discipline
Values, Autonomy, and Responsibility	
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to Cybersecurity discipline
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance Cybersecurity discipline in society.

3.5 Program Learning Outcomes* (Track: Exit Point 1)	
Knowledge and understanding	
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to computer science.
Skills	
S1	Apply computer science theory to produce computing-based solutions.
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.
S3	Design, implement, evaluate, and communicate computing-based solutions.
Values, Autonomy, and Responsibility	
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others
V2	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles.

3.6 Program Learning Outcomes* (Track: Exit Point 2)	
Knowledge and understanding	
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to relevant discipline.
Skills	
S1	Apply computer science theory to produce computing-based solutions.
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.
S3	Design, implement, evaluate, and communicate computing-based solutions requirements in the context of specialization.
Values, Autonomy, and Responsibility	
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others
V2	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles.

C. Curriculum

1. Curriculum Structure

1.1. Curriculum Structure (Track: General)

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	5	10	7.4%
	Elective	2	4	3.0%
College Requirements	Required	8	28	20.7%
	Elective	2	4	3.0%
Program Requirements	Required	20	61	45.2%
	Elective	6	18	13.4%
Capstone Course/Project	Required	2	3	2.2%
Field Training/ Internship	Required	1	3	2.2%
Residency year				0.0%
Others (Free Courses)	Elective	2	4	3.0%
Total		48	135	100.0%

1.2. Curriculum Structure (Track: Software Engineering)

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	5	10	7.4%
	Elective	2	4	3.0%
College Requirements	Required	8	28	20.7%
	Elective	2	4	3.0%
Program Requirements	Required	15	46	34.1%
	Elective	3	9	6.7%
Track Requirements	Required	5	15	11.1%
	Elective	3	9	6.7%
Capstone Course/Project	Required	2	3	2.2%
Field Training/ Internship	Required	1	3	2.2%
Residency year				0.0%
Others (Free Courses)	Elective	2	4	3.0%
Total		48	135	100.0%

1.3. Curriculum Structure (Track: Artificial Intelligence)

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	5	10	7.4%
	Elective	2	4	3.0%
College Requirements	Required	8	28	20.7%
	Elective	2	4	3.0%
Program Requirements	Required	15	46	34.1%
	Elective	3	9	6.7%
Track Requirements	Required	5	15	11.1%
	Elective	3	9	6.7%

Capstone Course/Project	Required	2	3	2.2%
Field Training/ Internship	Required	1	3	2.2%
Residency year				0.0%
Others (Free Courses)	Elective	2	4	3.0%
Total		48	135	100.0%

1.4. Curriculum Structure (Track: Cyber Security)

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	5	10	7.4%
	Elective	2	4	3.0%
College Requirements	Required	8	28	20.7%
	Elective	2	4	3.0%
Program Requirements	Required	15	46	34.1%
	Elective	3	9	6.7%
Track Requirements	Required	5	15	11.1%
	Elective	3	9	6.7%
Capstone Course/Project	Required	2	3	2.2%
Field Training/ Internship	Required	1	3	2.2%
Residency year				0.0%
Others (Free Courses)	Elective	2	4	3.0%
Total		48	135	100.0%

1.5. Curriculum Structure: (Exit Point 1: Intermediate Diploma in Computer Science)

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	5	10	14.7%
	Elective	1	2	2.9%
College Requirements	Required	6	20	29.4%
	Elective	1	2	2.9%
Program Requirements	Required	11	34	50.0%
	Elective	0	0	0.0%
Track Requirements	Required	0	0	0.0%
	Elective	0	0	0.0%
Capstone Course/Project	Required	0	0	0.0%
Field Training/ Internship	Required	0	0	0.0%
Residency year				0.0%
Others (Free Courses)	Elective	0	0	0.0%
Total		24	68	100.0%

1.6. Curriculum Structure: (Exit Point 2: Intermediate Diploma in respected specialization)

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage

Institution Requirements	Required	5	10	9.8%
	Elective	1	2	3.9%
College Requirements	Required	6	20	19.6%
	Elective	1	2	2.0%
Program Requirements	Required	15	46	45.1%
	Elective	1	3	2.9%
Track Requirements	Required	3	9	8.8%
	Elective	1	3	2.9%
Capstone Course/Project	Required	0	0	0.0%
Field Training/ Internship	Required	1	3	2.9%
Residency year				0.0%
Others (Free Courses)	Elective	1	2	2.0%
Total		36	102	100.0%

2. Program Courses (General Track)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	1105103	Programming1	Required		3	College
	1104101	Calculus 1	Required		4	College
	1606101	English 1	Required		3	College
	1	Islamic Culture 1	Required		2	Institution
Level 2	1105104	Programming 2	Required	1105103	3	Program
	1101101	General Physics1	Required		4	College
	2	Islamic Culture 2	Required		2	Institution
	CLE1	College Elective 1	Elective		2	College
Level 3	1606102	English 2	Required	1606101	3	College
	1105121	Digital Logic Design	Required	1105103	3	Program
	1104131	Introduction to Statistics	Required		3	College
	3	University Skills	Required		2	Institution
Level 4	1105231	Discrete Mathematics	Required	1104101	3	Program
	4	Digital Culture	Required		2	Institution
	1105241	Data Structures and Algorithms	Required	1105104	4	Program
	1105205	Object-Oriented Programming	Required	1105104	3	Program
Level 5	1105232	Theory of Computation	Required	1105231	3	Program
	5	Entrepreneurship	Required		2	Institution
	1105223	Computer Systems Architecture	Required	1105121	3	Program
	1105242	Database Systems	Required	1105104	3	Program
Level 6	1105230	Artificial Intelligence Fundamentals	Required	1105205	3	Program

	1105240	Software Engineering Fundamentals	Required	1105103	3	Program
	1105250	Cybersecurity Fundamentals	Required	1105103	3	Program
	6	University Elective1	Elective		2	Institution
Level 7	1105360	Computer Graphics	Required	1105241	3	Program
	1105350	Cryptography Principles	Required	1105231	3	Program
	PRE1	Program Elective 1	Elective	1105230	3	Program
	1105332	Python For AI	Required	1105230	3	Program
Level 8	1105370	Computer Networks	Required	1105121	3	Program
	1105361	Operating Systems	Required	1105223	3	Program
	1104222	Linear Algebra	Required	1104101	3	Program
	1105306	Web Programming	Required	1105242	3	Program
Level 9	7	University Elective2	Elective		2	Institution
	10	Free Course1	Elective		2	Institution
	1105391	Field Training	Required	Dept. Approval	3	Program
	1105363	Compiler Construction	Required	1105361	3	Program
Level 10	CLE2	College Elective 2	Elective		2	College
	1103101	General Biology1	Required		4	College
	1105441	Web Engineering	Required	1105306+1105341	3	Program
	PRE2	Program Elective 2	Elective		3	Program
Level 11	PRE3	Program Elective 3	Elective		3	Program
	1105470	Distributed Computing Systems	Required	1105371	3	Program
	1105492	Graduation Project 1	Required	Dept. Approval	2	Program
	1102101	General Chemistry1	Required		4	College
Level 12	PRE4	Program Elective 4	Elective		3	Program
	PRE5	Program Elective 5	Elective		3	Program
	1105493	Graduation Project 2	Required	1105492	1	Program
	FRE2	Free Course 2	Elective		2	Institution

Program Electives	1105380	Data Science	Elective	1105230	3	Program
	1105382	Advanced Database	Elective	1105242	3	Program
	1105383	Soft Computing	Elective	1105230	3	Program
	1105384	Cloud Computing	Elective	1105230	3	Program
	1105385	Internet of Things	Elective	1105230	3	Program
	1105480	Image Processing	Elective	1105230	3	Program
	1105481	Modelling & Simulation	Elective	1105230	3	Program
	1105482	Smartphones Applications Programming	Elective	1105205	3	Program
	1105483	Network Administration	Elective	1105370	3	Program
	1105484	Operation Research	Elective	1105241	3	Program
	1105486	Data Mining	Elective	1105230	3	Program
	1105487	Pattern Recognition	Elective	1105230	3	Program

	1105488	Human-Computer Interaction	Elective	1105205	3	Program
	1105489	Selected Topics	Elective	230+240+250	3	Program

AI Track Required Courses	1105331	Computer Vision	Required	1105230	3	Program
	1105332	Python For AI	Required	1105230	3	Program
	1105333	Machine Learning	Required	1105332	3	Program
	1105434	Deep Learning	Required	1105333	3	Program
	1105435	Robotics	Required	1105333	3	Program

AI Track Elective Courses	1105436	Natural Language Processing	Elective	1105230	3	Track
	1105437	AI for Cyber Security	Elective	1105333	3	Track
	1105438	Advanced AI	Elective	1105333	3	Track
	1105439	Fuzzy Logic and Expert System	Elective	1105333	3	Track
	1105430	Swarm Intelligence and Optimization	Elective	1105333	3	Track

SE Required Courses	1105341	Software Requirements Engineering	Required	1105240	3	Program
	1105342	Software Project Management	Required	1105240	3	Program
	1105343	Software Design and Construction	Required	1105341	3	Program
	1105441	Web-Engineering	Required	1105306 +1105341	3	Program
	1105442	Software Testing and Quality Assurance	Required	1105343	3	Program
SE Elective Courses	1105443	Secure Software Development	Elective	1105240 + 1105306	3	Track
	1105444	Mobile Application Development	Elective	1105441	3	Track
	1105445	Software Engineering Tools and Methodologies	Elective	1105343	3	Track
	1105446	Software Engineering for cloud computing	Elective	1105442	3	Track
	1105447	Advanced Software Engineering	Elective	1105442	3	Track

Cyber Security track required Courses	1105350	Cryptography Principles	Required	1105231	3	Program
	1105351	Operating Systems Security	Required	1105250	3	Program
	1105352	Network Security	Required	1105351	3	Program
	1105450	Penetration Testing	Required	1105352	3	Program
	1105451	Information Security Management	Required	1105240	3	Program

Cyber Security	1105452	Digital Forensics	Elective	1105350	3	Track
	1105453	Malware Analysis	Elective	1105352	3	Track

Track Elective Courses	1105454	Special Topics in Cybersecurity	Elective	1105352	3	Track
	1105455	Network Programming	Elective	1105352	3	Track
	1105456	Web Application Security	Elective	1105306 +1105250	3	Track
	1105457	Threat Analysis and Response	Elective	1105450	3	Track

University Elective Courses		Kingdom & Its Pioneering Role	Elective		2	Institution
		Academic Writing Skills	Elective		2	Institution
		Fitness and Sport Science	Elective		2	Institution
		Sustainable Development	Elective		2	Institution
		Lifelong learning skills	Elective		2	Institution
		Kingdom & Its Pioneering Role	Elective		2	Institution

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

Track1: (Software Engineering)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	1105103	Programming1	Required		3	College
	1104101	Calculus 1	Required		4	College
	1606101	English 1	Required		3	College
	1	Islamic Culture 1	Required		2	Institution
Level 2	1105104	Programming 2	Required	1105103	3	Program
	1101101	General Physics1	Required		4	College
	2	Islamic Culture 2	Required		2	Institution
	CLE1	College Elective 1	Elective		2	College
Level 3	1606102	English 2	Required	1606101	3	College
	1105121	Digital Logic Design	Required	1105103	3	Program
	1104131	Introduction to Statistics	Required		3	College
	3	University Skills	Required		2	Institution
Level 4	1105231	Discrete Mathematics	Required	1104101	3	Program
	4	Digital Culture	Required		2	Institution
	1105241	Data Structures and Algorithms	Required	1105104	4	Program
	1105205	Object-Oriented Programming	Required	1105104	3	Program
Level 5	1105232	Theory of Computation	Required	1105231	3	Program
	5	Entrepreneurship	Required		2	Institution

	1105223	Computer Systems Architecture	Required	1105121	3	Program
	1105242	Database Systems	Required	1105104	3	Program
Level 6	1105230	Artificial Intelligence Fundamentals	Required	1105205	3	Program
	1105240	Software Engineering Fundamentals	Required	1105103	3	Program
	1105250	Cybersecurity Fundamentals	Required	1105103	3	Program
	6	University Elective1	Elective		2	Institution
Level 7	1105341	Software Requirements Engineering	Required	1105240	3	Program
	1105342	Software Project Management	Required	1105240	3	Program
	DPE1	Program Elective 1	Elective	1105230	3	Program
	1105XXX	Track Elective 1	Elective	1105332	3	Program
Level 8	1105370	Computer Networks	Required	1105121	3	Program
	1105261	Operating Systems	Required	1105223	3	Program
	1104222	Linear Algebra	Required	1104101	3	Program
	1105306	Web Programming	Required	1105242	3	Program
Level 9	7	University Elective2	Elective		2	Institution
	10	Free Course1	Elective		2	Institution
	1105491	Field Training	Required	Dept. Approval	3	Program
	1105343	Software Design and Construction	Required	1105341	3	Program
Level 10	CLE2	College Elective 2	Elective		2	College
	1103101	General Biology1	Required		4	College
	1105441	Web-Engineering	Required	1105306 +1105240	3	Program
		Program Elective 2	Elective		3	Program
Level 11	1105XXX	Program Elective 3	Elective		3	Program
	1105442	Software Testing and Quality Assurance	Required	1105343	3	Program
	1105492	Graduation Project 1	Required	Dept. Approval	2	Program
	1102101	General Chemistry1	Required		4	College
Level 12	1105XXX	Track Elective 2	Elective		3	Program
	1105XXX	Track Elective 3	Elective		3	Program
	1105493	Graduation Project 2	Required	1105492	1	Program
	FRE2	Free Course 2	Elective		2	Institution

Program Electives	1105380	Data Science	Elective	1105230	3	Program
	1105360	Computer Graphics	Elective	1105241	3	Program
	1105382	Advanced Database	Elective	1105242	3	Program
	1105383	Soft Computing	Elective	1105230	3	Program
	1105384	Cloud Computing	Elective	1105230	3	Program

	1105385	Internet of Things	Elective	1105230	3	Program
	1105480	Image Processing	Elective	1105230	3	Program
	1105481	Modelling & Simulation	Elective	1105230	3	Program
	1105482	Smartphones Applications Programming	Elective	1105205	3	Program
	1105483	Network Administration	Elective	1105370	3	Program
	1105363	Compiler Construction	Elective	1105223	3	Program
	1105486	Data Mining	Elective	1105230	3	Program
	1105487	Pattern Recognition	Elective	1105230	3	Program
	1105488	Human-Computer Interaction	Elective	1105205	3	Program
	1105489	Selected Topics	Elective	1105230	3	Program

SE Elective Courses	1105443	Secure Software Development	Elective	1105240 + 1105306	3	Track
	1105444	Mobile Application Development	Elective	1105441	3	Track
	1105445	Software Engineering Tools and Methodologies	Elective	1105343	3	Track
	1105446	Software Engineering for cloud computing	Elective	1105442	3	Track
	1105447	Advanced Software Engineering	Elective	1105442	3	Track

University Elective Courses		Kingdom & Its Pioneering Role	Elective		2	Institution
		Academic Writing Skills	Elective		2	Institution
		Fitness and Sport Science	Elective		2	Institution
		Sustainable Development	Elective		2	Institution
		Lifelong learning skills	Elective		2	Institution
		Kingdom & Its Pioneering Role	Elective		2	Institution

Track2: (Artificial Intelligence)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	1105103	Programming1	Required		3	College
	1104101	Calculus 1	Required		4	College
	1606101	English 1	Required		3	College
	1	Islamic Culture 1	Required		2	Institution
Level 2	1105104	Programming 2	Required	1105103	3	Program
	1101101	General Physics1	Required		4	College

	2	Islamic Culture 2	Required		2	Institution
	CLE1	College Elective 1	Elective		2	College
Level 3	1606102	English 2	Required	1606101	3	College
	1105121	Digital Logic Design	Required	1105103	3	Program
	1104131	Introduction to Statistics	Required		3	College
	3	University Skills	Required		2	Institution
Level 4	1105231	Discrete Mathematics	Required	1104101	3	Program
	4	Digital Culture	Required		2	Institution
	1105241	Data Structures and Algorithms	Required	1105104	4	Program
	1105205	Object-Oriented Programming	Required	1105104	3	Program
Level 5	1105232	Theory of Computation	Required	1105231	3	Program
	5	Entrepreneurship	Required		2	Institution
	1105223	Computer Systems Architecture	Required	1105121	3	Program
	1105242	Database Systems	Required	1105104	3	Program
Level 6	1105230	Artificial Intelligence Fundamentals	Required	1105205	3	Program
	1105240	Software Engineering Fundamentals	Required	1105103	3	Program
	1105250	Cybersecurity Fundamentals	Required	1105103	3	Program
	6	University Elective1	Elective		2	Institution
Level 7	1105331	Computer Vision	Required	1105230	3	Program
	1105332	Python For AI	Required	1105230	3	Program
	DPE1	Program Elective 1	Elective	1105230	3	Program
	1105XXX	Track Elective 1	Elective	1105332	3	Program
Level 8	1105370	Computer Networks	Required		3	Program
	1105361	Operating Systems	Required	1105223	3	Program
	1104222	Linear Algebra	Required	1104101	3	Program
	1105306	Web Programming	Required	1105242	3	Program
Level 9	7	University Elective2	Elective		2	Institution
	10	Free Course1	Elective		2	Institution
	1105391	Field Training	Required	Dept. Approval	3	Program

	1105333	Machine Learning	Required	1105332	3	Program
Level 10	CLE2	College Elective 2	Elective		2	College
	1103101	General Biology1	Required		4	College
	1105434	Deep Learning	Required	1105333	3	Program
		Program Elective 2	Elective		3	Program
Level 11	1105XXX	Program Elective 3	Elective		3	Program
	1105435	Robotics	Required	1105333	3	Program
	1105492	Graduation Project 1	Required	Dept. Approval	2	Program
	1102101	General Chemistry1	Required		4	College
Level 12	1105XXX	Track Elective 2	Elective		3	Program
	1105XXX	Track Elective 3	Elective		3	Program
	1105493	Graduation Project 2	Required	1105492	1	Program
	FRE2	Free Course 2	Elective		2	Institution

Program Electives	1105380	Data Science	Elective	1105230	3	Program
	1105360	Computer Graphics	Elective	1105241	3	Program
	1105382	Advanced Database	Elective	1105242	3	Program
	1105383	Soft Computing	Elective	1105230	3	Program
	1105384	Cloud Computing	Elective	1105230	3	Program
	1105385	Internet of Things	Elective	1105230	3	Program
	1105480	Image Processing	Elective	1105230	3	Program
	1105481	Modelling & Simulation	Elective	1105230	3	Program
	1105482	Smartphones Applications Programming	Elective	1105205	3	Program
	1105483	Network Administration	Elective	1105370	3	Program
	1105363	Compiler Construction	Elective	1105223	3	Program
	1105486	Data Mining	Elective	1105230	3	Program
	1105487	Pattern Recognition	Elective	1105230	3	Program
	1105488	Human-Computer Interaction	Elective	1105205	3	Program
	1105489	Selected Topics	Elective	1105230	3	Program

AI Track Elective Courses	1105436	Natural Language Processing	Elective	1105230	3	Track

	1105437	AI for Cyber Security	Elective	1105333	3	Track
	1105438	Advanced AI	Elective	1105333	3	Track
	1105439	Fuzzy Logic and Expert System	Elective	1105333	3	Track
	1105430	Swarm Intelligence and Optimization	Elective	1105333	3	Track

University Elective Courses		Kingdom & Its Pioneering Role	Elective		2	Institution
		Academic Writing Skills	Elective		2	Institution
		Fitness and Sport Science	Elective		2	Institution
		Sustainable Development	Elective		2	Institution
		Lifelong learning skills	Elective		2	Institution
		Kingdom & Its Pioneering Role	Elective		2	Institution

Track3: (Cyber Security)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	1105103	Programming1	Required		3	College
	1104101	Calculus 1	Required		4	College
	1606101	English 1	Required		3	College
	1	Islamic Culture 1	Required		2	Institution
Level 2	1105104	Programming 2	Required	1105103	3	Program
	1101101	General Physics1	Required		4	College
	2	Islamic Culture 2	Required		2	Institution
	CLE1	College Elective 1	Elective		2	College
Level 3	1606102	English 2	Required	1606101	3	College
	1105121	Digital Logic Design	Required	1105103	3	Program
	1104131	Introduction to Statistics	Required		3	College
	3	University Skills	Required		2	Institution
Level 4	1105231	Discrete Mathematics	Required	1104101	3	Program
	4	Digital Culture	Required		2	Institution
	1105241	Data Structures and Algorithms	Required	1105104	4	Program
	1105205	Object-Oriented Programming	Required	1105104	3	Program
Level 5	1105232	Theory of Computation	Required	1105231	3	Program
	5	Entrepreneurship	Required		2	Institution

	1105223	Computer Systems Architecture	Required	1105121	3	Program
	1105242	Database Systems	Required	1105104	3	Program
Level 6	1105230	Artificial Intelligence Fundamentals	Required	1105205	3	Program
	1105240	Software Engineering Fundamentals	Required	1105103	3	Program
	1105250	Cybersecurity Fundamentals	Required	1105103	3	Program
	6	University Elective1	Elective		2	Institution
Level 7	1105350	Cryptography Principles	Required	1105231	3	Program
	1105351	Information Security Management	Required	1105250	3	Program
	DPE1	Program Elective 1	Elective	1105230	3	Program
	1105XXX	Track Elective 1	Elective	1105332	3	Program
Level 8	1105371	Computer Networks	Required		3	Program
	1105361	Operating Systems	Required	1105223	3	Program
	1104222	Linear Algebra	Required	1104101	3	Program
	1105306	Web Programming	Required	1105242	3	Program
Level 9	7	University Elective2	Elective		2	Institution
	10	Free Course1	Elective		2	Institution
	1105491	Field Training	Required	Dept. Approval	3	Program
	1105352	Network Security	Required	1105351	3	Program
Level 10	CLE2	College Elective 2	Elective		2	College
	1103101	General Biology1	Required		4	College
	1105450	Penetration Testing	Required	1105352	3	Program
		Program Elective 2	Elective		3	Program
Level 11	1105XXX	Program Elective 3	Elective		3	Program
	1105451	Operating Systems Security	Required	1105361+1105240	3	Program
	1105492	Graduation Project 1	Required	Dept. Approval	2	Program
	1102101	General Chemistry1	Required		4	College
Level 12	1105XXX	Track Elective 2	Elective		3	Program
	1105XXX	Track Elective 3	Elective		3	Program
	1105493	Graduation Project 2	Required	1105492	1	Program
	FRE2	Free Course 2	Elective		2	Institution

Program Electives	1105380	Data Science	Elective	1105230	3	Program
	1105360	Computer Graphics	Elective	1105241	3	Program
	1105382	Advanced Database	Elective	1105242	3	Program
	1105383	Soft Computing	Elective	1105230	3	Program
	1105384	Cloud Computing	Elective	1105230	3	Program
	1105385	Internet of Things	Elective	1105230	3	Program
	1105480	Image Processing	Elective	1105230	3	Program
	1105481	Modelling & Simulation	Elective	1105230	3	Program
	1105482	Smartphones Applications Programming	Elective	1105205	3	Program
	1105483	Network Administration	Elective	1105370	3	Program
	1105363	Compiler Construction	Elective	1105223	3	Program
	1105486	Data Mining	Elective	1105230	3	Program
	1105487	Pattern Recognition	Elective	1105230	3	Program
	1105488	Human-Computer Interaction	Elective	1105205	3	Program
	1105489	Selected Topics	Elective	1105230	3	Program

Cyber Security Track Elective Courses	1105452	Digital Forensics	Elective	1105350	3	Track
	1105453	Malware Analysis	Elective	1105352	3	Track
	1105454	Special Topics in Cybersecurity	Elective	1105352	3	Track
	1105455	Network Programming	Elective	1105352	3	Track
	1105456	Web Application Security	Elective	1105306 +1105250	3	Track
	1105457	Threat Analysis and Response	Elective	1105450	3	Track

University Elective Courses		Kingdom & Its Pioneering Role	Elective		2	Institution
		Academic Writing Skills	Elective		2	Institution
		Fitness and Sport Science	Elective		2	Institution
		Sustainable Development	Elective		2	Institution
		Lifelong learning skills	Elective		2	Institution
		Kingdom & Its Pioneering Role	Elective		2	Institution

2.2. Exit Point 1 Courses:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	1105103	Programming1	Required		3	College
	1104101	Calculus 1	Required		4	College
	1606101	English 1	Required		3	College
	1	Islamic Culture 1	Required		2	Institution
Level 2	1105104	Programming 2	Required	1105103	3	Program
	1101101	General Physics1	Required		4	College
	2	Islamic Culture 2	Required		2	Institution
	CLE1	College Elective 1	Elective		2	College
Level 3	1606102	English 2	Required	1606101	3	College
	1105121	Digital Logic Design	Required	1105103	3	Program
	1104131	Introduction to Statistics	Required		3	College
	3	University Skills	Required		2	Institution
Level 4	1105231	Discrete Mathematics	Required	1104101	3	Program
	4	Digital Culture	Required		2	Institution
	1105241	Data Structures and Algorithms	Required	1105104	4	Program
	1105205	Object-Oriented Programming	Required	1105104	3	Program
Level 5	1105232	Theory of Computation	Required	1105231	3	Program
	5	Entrepreneurship	Required		2	Institution
	1105223	Computer Systems Architecture	Required	1105121	3	Program
	1105242	Database Systems	Required	1105104	3	Program
Level 6	1105230	Artificial Intelligence Fundamentals	Required	1105205	3	Program
	1105240	Software Engineering Fundamentals	Required	1105103	3	Program
	1105250	Cybersecurity Fundamentals	Required	1105103	3	Program
	6	University Elective1	Elective		2	Institution

University Elective Courses		Kingdom & Its Pioneering Role	Elective		2	Institution
		Academic Writing Skills	Elective		2	Institution
		Fitness and Sport Science	Elective		2	Institution
		Sustainable Development	Elective		2	Institution
		Lifelong learning skills	Elective		2	Institution
		Kingdom & Its Pioneering Role	Elective		2	Institution

2.2. Exit Point 2 Courses:

Track1: (Software Engineering)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	1105103	Programming1	Required		3	College
	1104101	Calculus 1	Required		4	College
	1606101	English 1	Required		3	College
	1	Islamic Culture 1	Required		2	Institution
Level 2	1105104	Programming 2	Required	1105103	3	Program
	1101101	General Physics1	Required		4	College
	2	Islamic Culture 2	Required		2	Institution
	CLE1	College Elective 1	Elective		2	College
Level 3	1606102	English 2	Required	1606101	3	College
	1105121	Digital Logic Design	Required	1105103	3	Program
	1104131	Introduction to Statistics	Required		3	College
	3	University Skills	Required		2	Institution
Level 4	1105231	Discrete Mathematics	Required	1104101	3	Program
	4	Digital Culture	Required		2	Institution
	1105241	Data Structures and Algorithms	Required	1105104	4	Program
	1105205	Object-Oriented Programming	Required	1105104	3	Program
Level 5	1105232	Theory of Computation	Required	1105231	3	Program
	5	Entrepreneurship	Required		2	Institution
	1105223	Computer Systems Architecture	Required	1105121	3	Program
	1105242	Database Systems	Required	1105104	3	Program
Level 6	1105230	Artificial Intelligence Fundamentals	Required	1105205	3	Program
	1105240	Software Engineering Fundamentals	Required	1105103	3	Program
	1105250	Cybersecurity Fundamentals	Required	1105103	3	Program
	6	University Elective1	Elective		2	Institution
Level 7	1105360	Computer Graphics	Required	1105241	3	Program
	1105350	Cryptography Principles	Required	1105231	3	Program
	PRE1	Program Elective 1	Elective	1105230	3	Program
	1105332	Python For AI	Required	1105230	3	Program
Level 8	1105370	Computer Networks	Required	1105121	3	Program
	1105361	Operating Systems	Required	1105223	3	Program
	1104222	Linear Algebra	Required	1104101	3	Program
	1105306	Web Programming	Required	1105242	3	Program
	7	University Elective2	Elective		2	Institution

Level 9	10	Free Course1	Elective		2	Institution
	1105491	Field Training	Required	Dept. Approval	3	Program
	1105343	Software Design and Construction	Required	1105341	3	Program

University Elective Courses		Kingdom & Its Pioneering Role	Elective		2	Institution
		Academic Writing Skills	Elective		2	Institution
		Fitness and Sport Science	Elective		2	Institution
		Sustainable Development	Elective		2	Institution
		Lifelong learning skills	Elective		2	Institution
		Kingdom & Its Pioneering Role	Elective		2	Institution

Track2: (Artificial Intelligence)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	1105103	Programming1	Required		3	College
	1104101	Calculus 1	Required		4	College
	1606101	English 1	Required		3	College
	1	Islamic Culture 1	Required		2	Institution
Level 2	1105104	Programming 2	Required	1105103	3	Program
	1101101	General Physics1	Required		4	College
	2	Islamic Culture 2	Required		2	Institution
	CLE1	College Elective 1	Elective		2	College
Level 3	1606102	English 2	Required	1606101	3	College
	1105121	Digital Logic Design	Required	1105103	3	Program
	1104131	Introduction to Statistics	Required		3	College
	3	University Skills	Required		2	Institution
Level 4	1105231	Discrete Mathematics	Required	1104101	3	Program
	4	Digital Culture	Required		2	Institution
	1105241	Data Structures and Algorithms	Required	1105104	4	Program
	1105205	Object-Oriented Programming	Required	1105104	3	Program
Level 5	1105232	Theory of Computation	Required	1105231	3	Program
	5	Entrepreneurship	Required		2	Institution
	1105223	Computer Systems Architecture	Required	1105121	3	Program
	1105242	Database Systems	Required	1105104	3	Program
Level 6	1105230	Artificial Intelligence Fundamentals	Required	1105205	3	Program
	1105240	Software Engineering Fundamentals	Required	1105103	3	Program

	1105250	Cybersecurity Fundamentals	Required	1105103	3	Program
	6	University Elective1	Elective		2	Institution
Level 7	1105331	Computer Vision	Required	1105230	3	Program
	1105332	Python For AI	Required	1105230	3	Program
	DPE1	Program Elective 1	Elective	1105230	3	Program
	1105XXX	Track Elective 1	Elective	1105332	3	Program
Level 8	1105370	Computer Networks	Required		3	Program
	1105361	Operating Systems	Required	1105223	3	Program
	1104222	Linear Algebra	Required	1104101	3	Program
	1105306	Web Programming	Required	1105242	3	Program
Level 9	7	University Elective2	Elective		2	Institution
	10	Free Course1	Elective		2	Institution
	1105391	Field Training	Required	Dept. Approval	3	Program
	1105333	Machine Learning	Required	1105332	3	Program

University Elective Courses		Kingdom & Its Pioneering Role	Elective		2	Institution
		Academic Writing Skills	Elective		2	Institution
		Fitness and Sport Science	Elective		2	Institution
		Sustainable Development	Elective		2	Institution
		Lifelong learning skills	Elective		2	Institution
		Kingdom & Its Pioneering Role	Elective		2	Institution

Track3: (Cyber Security)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	1105103	Programming1	Required		3	College
	1104101	Calculus 1	Required		4	College
	1606101	English 1	Required		3	College
	1	Islamic Culture 1	Required		2	Institution
Level 2	1105104	Programming 2	Required	1105103	3	Program
	1101101	General Physics1	Required		4	College
	2	Islamic Culture 2	Required		2	Institution
	CLE1	College Elective 1	Elective		2	College
Level 3	1606102	English 2	Required	1606101	3	College
	1105121	Digital Logic Design	Required	1105103	3	Program
	1104131	Introduction to Statistics	Required		3	College
	3	University Skills	Required		2	Institution
	1105231	Discrete Mathematics	Required	1104101	3	Program

Level 4	4	Digital Culture	Required		2	Institution
	1105241	Data Structures and Algorithms	Required	1105104	4	Program
	1105205	Object-Oriented Programming	Required	1105104	3	Program
Level 5	1105232	Theory of Computation	Required	1105231	3	Program
	5	Entrepreneurship	Required		2	Institution
	1105223	Computer Systems Architecture	Required	1105121	3	Program
	1105242	Database Systems	Required	1105104	3	Program
Level 6	1105230	Artificial Intelligence Fundamentals	Required	1105205	3	Program
	1105240	Software Engineering Fundamentals	Required	1105103	3	Program
	1105250	Cybersecurity Fundamentals	Required	1105103	3	Program
	6	University Elective1	Elective		2	Institution
Level 7	1105350	Cryptography Principles	Required	1105231	3	Program
	1105351	Information Security Management	Required	1105250	3	Program
	DPE1	Program Elective 1	Elective	1105230	3	Program
	1105XXX	Track Elective 1	Elective	1105332	3	Program
Level 8	1105371	Computer Networks	Required		3	Program
	1105361	Operating Systems	Required	1105223	3	Program
	1104222	Linear Algebra	Required	1104101	3	Program
	1105306	Web Programming	Required	1105242	3	Program
Level 9	7	University Elective2	Elective		2	Institution
	10	Free Course1	Elective		2	Institution
	1105491	Field Training	Required	Dept. Approval	3	Program
	1105352	Network Security	Required	1105351	3	Program

University Elective Courses		Kingdom & Its Pioneering Role	Elective		2	Institution
		Academic Writing Skills	Elective		2	Institution
		Fitness and Sport Science	Elective		2	Institution
		Sustainable Development	Elective		2	Institution
		Lifelong learning skills	Elective		2	Institution
		Kingdom & Its Pioneering Role	Elective		2	Institution

* 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)

Link

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 = PracticedM = Mastered).*

4.1. General Track.

Course Code & No.	(Computer science -Main Track) learning Outcomes								
	Knowledge and understanding			Skills			Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	V1	V2	V3
1105103	I	I		I	I	I			I
1104101	I	I		I					
1606101	I			I	I				
1105104	I	I		I	I	I			I
1101101	I	I		I		I			
1606102					P	P			
1105121		I		I		I		I	
1104131	I		I			I			
1105231	I				I				I
1105241	P	P			P	P			P
1105205	P	P		P	P				P
1105232			P		P	P			P
1105223	P	P			P	P			P
1105242		P		P	P				P
1105230	I					I			P
1105240	I			I			I		
1105250	I		I	I	I		P		
1105360	P	P		P		P			P
1105350			P	P			P		
1105332	P		P	P	P	P	P		
1105350	I			P			P		
1105351	P			P	P		P		
1105451	I	M		P			P	M	
1105370	P				P	P		P	
1105261	M				M	M		M	
1104222	M	M		M					
1105306	M	M				M	M		
1105391	M	M	M	M	M	M		M	
1105363		M			M	M		M	
1103101	I				I		I		
1105441	M				M	M		M	

1105470	M	M		M	M				M
1105492	M			M	M		M		
1102101	P	P		P	P		M	M	
1105493	M			M	M	M	M		M

4.2. Software Engineering Track.

Course Code & No.	(Computer science - Software Engineering Track) learning Outcomes								
	Knowledge and understanding			Skills			Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	V1	V2	V3
1105103	I	I		I	I	I			I
1104101	I	I		I					
1606101	I			I	I				
1105104	I	I		I	I	I			I
1101101	I	I		I		I			
1606102					P	P			
1105121		I		I		I		I	
1104131	I		I			I			
1105231	I				I				I
1105241	P	P			P	P			P
1105205	P	P		P	P				P
1105232			P		P	P			P
1105223	P	P			P	P			P
1105242		P		P	P				P
1105230	I					I			P
1105240	I			I			I		
1105250									
1105341	I					I	I		
1105342	I			I				M	
1105370	P				P	P		P	
1105261	M				M	M		M	
1104222	M	M		M					
1105306	M	M				M	M		
1105391	M	M	M	M	M	M		M	
1105343			I			P			P
1103101	I				I		I		

1105441	I			P					P
1105442	I	I		I			I	I	
1105492	M			M	M		M		
1102101	P	P		P	P		M	M	
1105493	M			M	M	M	M		M

4.3. Artificial Intelligence Track.

Course Code & No.	(Computer science -AI Track) learning Outcomes								
	Knowledge and understanding			Skills			Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	V1	V2	V3
1105103	I	I		I	I	I			I
1104101	I	I		I					
1606101	I			I	I				
1105104	I	I		I	I	I			I
1101101	I	I		I		I			
1606102					P	P			
1105121		I		I		I		I	
1104131	I		I			I			
1105231	I				I				I
1105241	P	P			P	P			P
1105205	P	P		P	P				P
1105232			P		P	P			P
1105223	P	P			P	P			P
1105242		P		P	P				P
1105230	I					I			P
1105240	I			I			I		
1105250	I		I	I	I		P		
1105331	P		P	P	P			P	
1105332	P		P	P	P	P	P		
1105370	P				P	P		P	
1105361	M				M	M		M	
1104222	M	M		M					
1105306	M	M				M	M		
1105391	M	M	M	M	M	M		M	

1105333		M			M	M			M
1103101	I				I		I		
1105434	M	M			M				M
1105435	M	M	M	M		M		M	
1105492	M			M	M		M		
1102101	P	P		P	P		M	M	
1105493	M			M	M	M	M		M
1105380	I	I		P		I			I
1105360	P	I		I		P			I
1105382	I		I	P		P		P	
1105383		I	I	P	P	P		P	
1105384		I		P	P				P
1105385	I			P	P		P		
1105480	P	P		P		P			P
1105481	I	I		P	P				P
1105482		I	I	P	P	P		P	
1105483	P			P	P				P
1105363		M			M	M		M	
1105486	I	P		P	P			P	
1105487		P	P	P	P	P		P	
1105488		P		P		P			P
1105489		M	M	P	P	P		P	

4.4. Cyber Security Track.

Course Code & No.	(Computer Science -Cyber Security Track) learning Outcomes								
	Knowledge and understanding			Skills			Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	V1	V2	V3
1105103	I	I		I	I	I			I
1104101	I	I		I					
1606101	I			I	I				
1105104	I	I		I	I	I			I
1101101	I	I		I		I			
1606102					P	P			
1105121		I		I		I		I	
1104131	I		I			I			

1105231	I				I				I
1105241	P	P			P	P			P
1105205	P	P		P	P				P
1105232			P		P	P			P
1105223	P	P			P	P			P
1105242		P		P	P				P
1105230	I					I			P
1105240	I			I			I		
1105250	I		I	I	I		P		
1105350	I			P			P		
1105351	P			P	P		P		
1105332	P		P	P	P	P	P		
1105352	P			P	P	P			
1105371									
1105452	P			P	P		P		
1105370	P				P	P		P	
1105261	M				M	M		M	
1104222	M	M		M					
1105306	M	M				M	M		
1105391	M	M	M	M	M	M		M	
1105450	P			P	P		M		
1103101	I				I		I		
1105451	M	M		M			M	M	
1105492	M			M	M		M		
1102101	P	P		P	P		M	M	
1105493	M			M	M	M	M		M

4.5. Exit Point 1.

Course Code & No.	(Computer science -General Track) learning Outcomes								
	Knowledge and understanding			Skills			Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	V1	V2	V3
1105103	I	I		I	I	I			I
1104101	I	I		I					
1606101	I			I	I				
1105104	I	I		I	I	I			I
1101101	I	I		I		I			
1606102					P	P			

1105121		I		I		I		I	
1104131	I		I			I			
1105231	I				I				I
1105241	P	P			P	P			P
1105205	P	P		P	P				P
1105232			P		P	P			P
1105223	P	P			P	P			P
1105242		P		P	P				P
1105230	I					I			P
1105240	I			I			I		
1105250	I		I	I	I		P		

4.5. Exit Point 2.

Course Code & No.	(Computer science -General Track) learning Outcomes								
	Knowledge and understanding			Skills			Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	V1	V2	V3
1105103	I	I		I	I	I			I
1104101	I	I		I					
1606101	I			I	I				
1105104	I	I		I	I	I			I
1101101	I	I		I		I			
1606102					P	P			
1105121		I		I		I		I	
1104131	I		I			I			
1105231	I				I				I
1105241	P	P			P	P			P
1105205	P	P		P	P				P
1105232			P		P	P			P
1105223	P	P			P	P			P
1105242		P		P	P				P
1105230	I					I			P
1105240	I			I			I		
1105250	I		I	I	I		P		
1105360	P	P		P		P			P
1105350			P	P			P		
1105332	P		P	P	P	P	P		
1105350	I			P			P		

1105351	P			P	P		P		
1105451	I	M		P			P	M	
1105370	P				P	P		P	
1105261	M				M	M		M	
1104222	M	M		M					
1105306	M	M				M	M		
1105391	M	M	M	M	M	M		M	
1105363		M			M	M		M	

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

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

5.1 General Track

PLOs		Assessment Methods (Direct and Indirect)
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Class / Group discussion • Problem-based learning • Reciprocal teaching • Self-learning • Collaborative learning • Observation • Storytelling • Peer learning
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the Computer Science discipline	
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Computer Science discipline	
Skills:		
S1	Apply computer science theory and software development fundamentals to produce computing-based solutions	• Problem-based learning • Reciprocal teaching • Lab-based learning • Model-based learning • Self-learning • Observation • Peer learning • Collaborative learning • Storytelling • Generative learning
S2	Solve relatively complex computing problems and apply standard principles of computing and other relevant disciplines to identify creative solutions, and support research and innovation	
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Computer Science discipline.	
Values, Autonomy and Responsibility:		

V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Problem-based learning • Model-based learning • Collaborative learning • Self-learning • Peer learning • Generative learning
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to the Computer Science discipline	
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance the Computer Science discipline in society	

5.2 Software Engineering Track

PLOs		Teaching& Learning Strategies
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Class / Group discussion • Problem-based learning • Reciprocal teaching • Self-learning • Collaborative learning • Observation • Storytelling • Peer learning
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the Software Engineering discipline	
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Software Engineering discipline	
Skills:		
S1	Apply computer science theory and software development fundamentals to produce computing-based solutions	• Problem-based learning • Reciprocal teaching • Lab-based learning • Model-based learning • Self-learning • Observation • Peer learning • Collaborative learning • Storytelling • Generative learning
S2	Solve relatively complex computing problems and apply standard principles of computing and other relevant disciplines to identify creative solutions, and support research and innovation	
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Software Engineering discipline.	
Values, Autonomy and Responsibility:		

V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Problem-based learning • Model-based learning • Collaborative learning • Self-learning • Peer learning • Generative learning
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to the Software Engineering discipline	
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance the Software Engineering discipline in society	

5.3 Artificial Intelligence Track

PLOs		Teaching& Learning Strategies
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences.	• Class / Group discussion • Problem-based learning • Reciprocal teaching • Self-learning • Collaborative learning • Observation • Storytelling • Peer learning
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the artificial intelligent discipline.	
K3	Demonstrate specialized knowledge and understanding informed by current developments in an artificial intelligent discipline	
Skills:		
S1	Apply computer science theory and Artificial Intelligence fundamentals to produce computing-based solutions.	• Problem-based learning • Reciprocal teaching • Lab-based learning • Model-based learning • Self-learning • Observation • Peer learning • Collaborative learning • Storytelling • Generative learning
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.	
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Artificial Intelligence discipline.	
Values, Autonomy and Responsibility:		

V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Problem-based learning • Model-based learning • Collaborative learning • Self-learning • Peer learning • Generative learning
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to artificial intelligent discipline	
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance the artificial intelligent discipline in society.	

5.4 Cyber Security Track

PLOs		Teaching& Learning Strategies
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Class / Group discussion • Problem-based learning • Reciprocal teaching • Self-learning • Collaborative learning • Observation • Storytelling • Peer learning
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to Cybersecurity discipline	
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Cybersecurity discipline.	
Skills:		
S1	Apply computer science theory and Cybersecurity fundamentals to produce computing-based solutions.	• Problem-based learning • Reciprocal teaching • Lab-based learning • Model-based learning • Self-learning • Observation • Peer learning • Collaborative learning • Storytelling • Generative learning
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.	
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Cybersecurity discipline	
Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes	• Problem-based learning • Model-based learning

	of conduct, and represent responsible citizenship and coexistence with others	• Collaborative learning • Self-learning • Peer learning • Generative learning
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to Cybersecurity discipline	
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance Cybersecurity discipline in society.	

5.5 Exit Point 1:

PLOs		Teaching& Learning Strategies
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Class / Group discussion • Problem-based learning • Reciprocal teaching • Self-learning • Collaborative learning • Observation • Storytelling • Peer learning
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to computer science.	
Skills:		
S1	Apply computer science theory to produce computing-based solutions.	• Problem-based learning • Reciprocal teaching • Lab-based learning • Model-based learning • Self-learning • Observation • Peer learning • Collaborative learning • Storytelling • Generative learning
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.	
S3	Design, implement, evaluate, and communicate computing-based solutions.	
Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Problem-based learning • Model-based learning • Collaborative learning • Self-learning • Peer learning • Generative learning
V2	Show professional responsibilities, plan effectively and make informed judgments in	

	computing practice based on legal and ethical principles.	

5.6 Exit Point 2:

PLOs		Teaching& Learning Strategies
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Class / Group discussion • Problem-based learning • Reciprocal teaching • Self-learning • Collaborative learning • Observation • Storytelling • Peer learning
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to relevant discipline.	
Skills:		
S1	Apply computer science theory to produce computing-based solutions.	• Problem-based learning • Reciprocal teaching • Lab-based learning • Model-based learning • Self-learning • Observation • Peer learning • Collaborative learning • Storytelling • Generative learning
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.	
S3	Design, implement, evaluate, and communicate computing-based solutions requirements in the context of specialization.	
Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Problem-based learning • Model-based learning • Collaborative learning • Self-learning • Peer learning • Generative learning
V2	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles.	

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	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Written exams (essay) • Objective exams • Checklist. • Case Study. • self-assessment • Oral exams • Reports • Presentations
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the Computer Science discipline	
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Computer Science discipline	
Skills:		
S1	Apply computer science theory and software development fundamentals to produce computing-based solutions	• Objective Structured Practical Examination (OSPE). • Laboratory Exams. • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects • Oral exams
S2	Solve relatively complex computing problems and apply standard principles of computing and other relevant disciplines to identify creative solutions, and support research and innovation	
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Computer Science discipline.	
Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Objective Structured Practical Examination (OSPE). • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to the Computer Science discipline	
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical	

	principles to advance the Computer Science discipline in society	• Projects

6.2 Software Engineering Track

PLOs		Assessment Methods (Direct and Indirect)
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Written exams (essay) • Objective exams • Checklist. • Case Study. • self-assessment • Oral exams • Reports • Presentations
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the Software Engineering discipline	
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Software Engineering discipline	
Skills:		
S1	Apply computer science theory and software development fundamentals to produce computing-based solutions	• Objective Structured Practical Examination (OSPE). • Laboratory Exams. • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects • Oral exams
S2	Solve relatively complex computing problems and apply standard principles of computing and other relevant disciplines to identify creative solutions, and support research and innovation	
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Software Engineering discipline.	
Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Objective Structured Practical Examination (OSPE). • Checklist. • Case Study. • Discussion • self-assessment • Presentations
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to the Software Engineering discipline	

V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance the Software Engineering discipline in society	• Reports • Problem-based Assessment • Projects

6.3 Artificial Intelligence Track

PLOs		Assessment Methods (Direct and Indirect)
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences.	• Written exams (essay) • Objective exams • Checklist. • Case Study. • self-assessment • Oral exams • Reports • Presentations
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to the artificial intelligent discipline.	
K3	Demonstrate specialized knowledge and understanding informed by current developments in an artificial intelligent discipline	
Skills:		
S1	Apply computer science theory and Artificial Intelligence fundamentals to produce computing-based solutions.	• Objective Structured Practical Examination (OSPE). • Laboratory Exams. • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects • Oral exams
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.	
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Artificial Intelligence discipline.	
Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes	

	of conduct, and represent responsible citizenship and coexistence with others	• Objective Structured Practical Examination (OSPE). • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to artificial intelligent discipline	
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance the artificial intelligent discipline in society.	

6.4 Cyber Security Track

PLOs		Assessment Methods (Direct and Indirect)
Knowledge:		
K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Written exams (essay) • Objective exams • Checklist. • Case Study. • self-assessment • Oral exams • Reports • Presentations
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to Cybersecurity discipline	
K3	Demonstrate specialized knowledge and understanding informed by current developments in a Cybersecurity discipline.	
Skills:		
S1	Apply computer science theory and Cybersecurity fundamentals to produce computing-based solutions.	• Objective Structured Practical Examination (OSPE). • Laboratory Exams. • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects • Oral exams
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.	
S3	Design, implement, evaluate, and communicate computing-based solutions to meet a given set of computing requirements in the context of Cybersecurity discipline	

Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Objective Structured Practical Examination (OSPE). • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects
V2	Work effectively and collaborate responsibly as a member or leader of a team engaged in managing activities related to Cybersecurity discipline	
V3	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles to advance Cybersecurity discipline in society.	

6.5 Exit Point 1:

K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Written exams (essay) • Objective exams • Checklist. • Case Study. • self-assessment • Oral exams • Reports • Presentations
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to computer science.	
Skills:		
S1	Apply computer science theory to produce computing-based solutions.	• Objective Structured Practical Examination (OSPE). • Laboratory Exams. • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects • Oral exams
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.	
S3	Design, implement, evaluate, and communicate computing-based solutions.	
Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Objective Structured Practical Examination (OSPE). • Checklist.

V2	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles.	• Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects

6.6 Exit Point 2:

K1	Broad understanding and comprehension of the principal theories, concepts, and terminology of a discipline of computing and relevant sciences	• Written exams (essay) • Objective exams • Checklist. • Case Study. • self-assessment • Oral exams • Reports • Presentations
K2	In-depth knowledge and comprehension of a variety of tools, techniques, practices, research methods, and terminologies to be applied to relevant discipline.	
Skills:		
S1	Apply computer science theory to produce computing-based solutions.	• Objective Structured Practical Examination (OSPE). • Laboratory Exams. • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects • Oral exams
S2	Solve relatively complex computing problems and apply principles of computing and other relevant disciplines to identify solutions, and support research and innovation.	
S3	Design, implement, evaluate, and communicate computing-based solutions requirements in the context of specialization.	
Values, Autonomy and Responsibility:		
V1	Demonstrate commitment to professional and academic values, standards, and ethical codes of conduct, and represent responsible citizenship and coexistence with others	• Objective Structured Practical Examination (OSPE). • Checklist. • Case Study. • Discussion • self-assessment • Presentations • Reports • Problem-based Assessment • Projects
V2	Show professional responsibilities, plan effectively and make informed judgments in computing practice based on legal and ethical principles.	

D. Student Admission and Support:

1. Student Admission Requirements

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

A) Regular students

1. The student must be a Saudi national, or from a Saudi mother.
2. The student must have a high school diploma (scientific) or equivalent from inside or outside the kingdom.
3. The student must pass the test of abilities and achievement for scientific and literary students issued by the National Center for Measurement.
4. The university does not accept any student who has withdrawn from any other educational body unless the withdrawal has passed three months or more before the start of admission and the university does not accept any student who has withdrawn from the university except after four semesters.
5. The university does not accept any certificate more than five years old.
6. He must be free to study.
7. He must not have been dismissed from the university or any other university for disciplinary dismissal.
8. To be of good confidentiality and behavior.
9. He can complete any test or personal interview that the university can give as.
10. To be medically confident.
11. To obtain approval from a study reviewer if he works in any governmental or private authority.
12. To meet any other requirements, about university students, and to announce the time of application.
13. Bank account preferred.

B) Admission’s conditions for scholarship students

1. Applicants applying for the local scholarship must meet the requirements applicable to Saudis in higher education institutions.
2. The applicant must be a legal resident in the Kingdom of Saudi Arabia before the start of the academic year.
3. The applicant must not be younger than (17) years and not older than (25) years for undergraduate studies. The applicant must not be older than (30) years for the master's program and (35) years for the doctoral program. The University council may grant a waiver of these requirements.
4. The applicant must have a high school certificate (scientific) or equivalent from the Kingdom of Saudi Arabia or from abroad.
5. The applicant’s secondary certificate should be issued by a public school, or an equivalent school recognized by the University.
6. Applicants who graduated from high school over 5 years ago are not eligible to apply.
7. The applicant should have good conduct.
8. The applicant should be medically fit.
9. The applicant should comply with the University regulations.
10. Pass any test or personal interview conducted by the University.

11. Be committed to full-time study and not seek any employment.
12. The applicant must have a certificate of General Attitude Test (GAT) and Scholastic Achievement Admission Test (SAAT) if his/her secondary certificate has been earned from a Saudi school.
13. Female students should be accompanied by a guardian who should have a valid residency card.
14. All certificates and supporting documents issued from outside the Kingdom of Saudi Arabia should be certified by authorized institutions.
15. Students of internal and external scholarships can apply for any program offered by the university except for medical specialties.
16. The applicant should not have received an offer of admission by another educational institution in the Kingdom of Saudi Arabia.
17. The applicant should meet all other requirements set by the University council and announced during the application timeframe.
18. All required documents should be attached to the application.

The condition for the admission of new students to the faculty is as follows:

1. Numbers of seats for admission to the college.
2. To obtain a high score calculated as follows: Score = (0.5 * General Secondary Ratio) + (0.25 * Achievement Test Score) + (0.25 * Capacity Test Result)

The condition for the admission of new students to the computer science department is as follows:

1. Numbers of seats for admission to the department.
2. Completion of at least two semesters of college.
3. Have earned a minimum of 23 credit hours and passed Introduction to Computer science or equivalent course.
4. The grade point average GPA is not less than 2 out of 5.

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 at shedding 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 introduces student's rights and responsibilities. In addition, some information about 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

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

1. The academic services are provided through the academic guidance committee. The student has an academic guide who introduces academic &

career advice, and general counseling. The student meets his academic guide at least three times a semester, one at the beginning of his registration and the other one after the first mid-term and the last one towards the end of the semester. The teaching staff are asked to post their guidance hours. Academic advising files include the following documents:

- Student advising file.
- Academic advisor profile
- Basic data of the student

2. The head of the department council meets the students and listens to their academic problems and concerns.
3. There are some helpful programs in the deanship of community service and continuing education that help the students in choosing and preparing for their future career.
4. For psychological and social counseling, there is a unit of guidance and counseling in the Deanship of Student Affairs to provide preventive and therapeutic counseling services that meet the needs of the student in all aspects of personal, social, educational, and professional aspects.

4. Special Support

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

1. The teaching staff members should consider 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 a short time compared to their peers.
4. The unit of guidance and counseling in the Deanship of Student Affairs helps students to overcome educational obstacles during their academic career, by preparing specialized programs and services for people with special needs through the Center for Special Needs at the Deanship of Student Affairs, which takes care of students with special needs at NBU
5. Honorary list of Dean for outstanding students.

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	-AI		1	2	3
Associate Professor	Computer Science	-Software Engineering -Compiler Theory -Algorithms -Networking -Programming Language		2	4	6
Assistant Professor	Computer Science	-Operating systems, --Computer Architecture, -Computer Graphics, -Networking Security		3	4	7
Lecturer	Computer Science	-Operating systems, -Computer Architecture, -Computer Graphics, -Networking - Computer Security		1	4	5
Teaching Assistant	Computer Science	-Programming Language -Operating systems, -Computer Architecture, -Computer Graphics, -Networking -Computer Security -HCI -Software Engineering		3	3	3
Technicians and Laboratory Assistant	Computer Science	Networking		4	4	8
Administrative and Supportive Staff	Computer Science	Machine learning AI		4	4	8
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

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

1. Learning Resources.

- Different processes are followed by faculty and teaching staff for planning and acquisition of different learning resources such as textbooks, references and any needed resources including electronic and web-based resources. Course instructors specify the needed resource according to the program plan. The specified resources should be approved by the program council. Each semester, the faculty members specify a list of books to be provided by the library as well as the software and tools needed for the department labs. The adequacy of the resources is evaluated by the program council through continuous revision of these resources and by capturing the student feedback on a periodic basis. The following link illustrates the steps of building and developing acquisitions (supplying) the libraries of Northern Border University.
  https://www.nbu.edu.sa/AR/Deanships/Library_Issues/Pages/default.aspx.
- The textbooks and references included in the faculty of science library are updated annually. Finally, the Saudi Digital Library (SDL) contains millions of books and papers and updated continuously. The teaching staff announce and train the students to access the library's website and bring the information they need.

2. Facilities and Equipment

The computer science department is enriched with many facilities such as well-equipped laboratories and classrooms. There are 14 labs in both the boy and girls' sections. These labs are suitable for teaching almost all subjects of computer science program such as:

- Computer Programming
- Computer Networking
- Database Systems
- Digital logic systems

The classrooms are spacious, well-ventilated, Wi-Fi enabled, and provided with smart boards and data shows. A lot of libraries introduce their services such as the faculty of science library, the central library of the university and the Saudi Digital Library (SDL). Finally, the faculty cafeteria is a popular meeting place for students.

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

1. There is “the security and safety division” in both sections which is staffed 24 hours a day all year round, providing a focal point for the reporting of serious incidents and implementation of emergency procedures.
2. There is a “camera surveillance system” that includes monitoring the alarms besides a 24-hour a day uniformed patrol and response service.
3. All buildings are provided with an emergency exit, fire alarms and advanced sensors for volatile gases.
4. All labs are provided with first aid kits, fire extinguishers, suitable glasses made of special materials in some experiments, and water sources.
5. The student is directed, with his first entry into the laboratory, to the following.

a. Don’t take your food or water to the lab.
b. Don’t mess around with the experiment components.
c. Don’t conduct the experiment without the teaching staff member guiding.
d. After carrying out the experiment let the components as they were before.

G. Program Quality Assurance:

1. Program Quality Assurance System

- The program has quality assurance manual, and have procedure to monitor the quality of the program, this procedure will be described in the next section.

Course monitoring is a continuous process by which a program is kept under review, via Course Reports and Field Experience Reports. Combined, the reporting processes make an overall course monitoring reporting process which underpins the effective operation of the program. The Procedure is illustrated as follow:

- At the end of each semester, each course coordinator will prepare a course report in consultation with the course teaching team. The course report should be reflective of the learning and teaching during the semester, and of the assessment, approach taken, recommending any amendments to the course definition that should be considered by the program team.
- A program team through the Quality Committee is constantly seeking to gather evidence and feedback, by evaluating that evidence and by making subsequent changes to enhance outcomes, delivery, and operation. Student feedback is particularly important, and the University uses the NCAAA Course Evaluation Survey and Student Experience Survey to inform the Monitor Quality processes.
- The process is reflective by collecting evidence and looking at course reports, analyzing the issues and evidence and comparing the program performance against the key performance indicators or benchmarks for the subject area. This should lead to program improvements. Hence annual monitoring of programs and courses is the cornerstone of the quality processes, and leads to a review of every program’s currency, ensuring the continuing relevance, appropriateness, and success of the award and student experience.
- **The aims of the Monitor process are:**
    - To evaluate the statistical information on student recruitment, grades, progression, and completion.
    - To reflect on the learning, teaching and assessment strategies deployed and consider any recommendations for change.

- to review the appropriateness and effectiveness of the learning outcomes in securing the program's aims and objectives.
- To recommend changes for improving the student learning experience or curriculum content.
- To complete the annual monitoring forms at both courses and program level, using the NCAAA templates.

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 sciences students.
2. The department is coordinating with all departments concerned, both within the College of Computer Science and with departments outside the College.
3. The quality committee ensures that the course outcomes of other department 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 department courses are collected and verified by the quality committee at the end of the semester, and these are duly considered in preparation of the 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 three-year cycle where each domain is assessed in a year (PLOs Assessment plan attached).

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 is missing in the presented evaluation. It is a 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) has implemented the required forms for direct and indirect assessment with the help of the Assessment and Evaluation Committee.
  - The assessment committee is looking into the CLO based assessment method for the student outcomes and determines the reasons for non-achievements. The trigger is initiated with not achievement of PLO in a particular course.
  - Later, detailed analysis of course files to assess the achievement of CLO is performed. Then, the Assessment and Evaluation Committee requires the instructor to provide a 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.
- Consulting 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 (1) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1.	**KPI-P-01**	Percentage of achieved indicators of the program operational plan objectives	80%	Statistical data	4 years (End of the program)
2.	**KPI-P-02**	Students' Evaluation of quality of learning experience in the program	80%	Surveys	End of the program
3.	**KPI-P-03**	Students' evaluation of the quality of the courses	75%	Surveys	End of each semester
4.	**KPI-P-04**	Completion rate	80%	Statistical data	4 years (End of the program)
5.	**KPI-P-05**	First-year students retention rate	70%	Statistical data	Annually
6.	**KPI-P-06**	Students' performance in the professional and/or national examinations	NA	Statistical data	End of the program
7.	**KPI-P-07**	Graduates' employability and enrolment in postgraduate programs	NA	Statistical data	4 years (End of the program)
8.	**KPI-P-08**	Average number of students in the class	13	Statistical data	Each semester
9.	**KPI-P-09**	Employers' evaluation of the program graduate's proficiency		Surveys	End of the program
10	**KPI-P-10**	Students' satisfaction with the offered services	4.5/5	Surveys	End of each semester
11	**KPI-P-11**	Ratio of students to teaching staff	1:6	Statistical data	Annually
12	**KPI-P-12**	Percentage of teaching staff distribution	Male: 60% Female: 40% --- Professor:20% Associate Professor :20%	Statistical data	Annually

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
			Assistant Professor: 50% Lecturer: 10% Demonstrator:0%		
13	**KPI-P-13**	Proportion of teaching staff leaving the program	0%	Statistical data	Annually
14	**KPI-P-14**	Percentage of publications of faculty members	35%	Statistical data	Annually
15	**KPI-P-15**	Rate of published research per faculty members	1:1	Statistical data	Annually
16	**KPI-P-16**	Citations rate in refereed journals per faculty member	2	Statistical data	Annually
17	**KPI-P-17**	Satisfaction of beneficiaries with the learning resources	75%	Survey	End of each Semester

* Including KPIs required by NCAAA

H. Specification Approval Data:

COUNCIL / COMMITTEE	the Computer Science Council
REFERENCE NO.	First minutes of meeting
DATE	30/08/2023