



Quality Assurance Manual

Computer Science Program

2022

Preface

Quality assurance is a continuous process integrating assessment, systematic data gathering, data analysis and interpretation to improve the quality of academic programs and to improve the performance of different units and operations supporting academic programs To ensure quality, community college (CC) had established a **Quality and Academic Accreditation Unit (QAAU)** in 2009 which later was renamed to **Development and Quality Unit (DQU)**. The DQU has a supervisor who reports to the Vice Dean of Development and Quality. Moreover, the full functionality is operated by two main quality committees which are the **College Supreme Supervisory Committee for Quality (CSSCQ)** and **Program Development and Quality Committee** for each department.

Finally, this manual mainly outlines the policy and process of the Quality Assurance System (QAS) of computer science program. It sets out in details the program quality.

Community College:

CC Vision: Leadership in education and community service.

CC Mission: Provide distinguished educational programs and produce scientific research to meet the labor market needs, and community service.

CC Values:

- Excellence and Creativity

- Commitment to institutional work
- Total Quality
- Continuing Education
- Interaction with the Community
- Transparency

CC Strategic Objectives:

- ❖ Strengthening knowledge, skills and abilities of students and graduates.
- ❖ Continuous development of the abilities and skills of faculty members.
- ❖ Development the internal work environment.
- ❖ Building an effective community partnership
- ❖ Diversifying funding sources.
- ❖ Distinguished scientific research.

Program Quality Objectives:

Quality assurance aims to certify continuous improvement in deference Program process and results, the quality assurance of the program is based on the following set of reviews and audits:

- Ensure high standards, quality of outcomes and continuous improvement of the program.
- Determine strengths and weaknesses.
- Document, Integrate, communicate The different procedures of quality assurance processes.
- Following of achievement of action plans for programs.
- Review of a program is a tool for well change.

Definitions in the Quality

Quality it is meet of requirements for customer as good product or service

Academic quality is meet of stockholders needs from educational process including appropriate and effective teaching, support, assessment and learning opportunities are provided for them.

Quality assurance (QA) process in which determines both strengths and weaknesses points, and corrective and protective plans in academic programs leading to its quality improvement

Quality system also known as a Quality Assurance (QA) system or a Quality Management System (QMS), is a management system that helps to ensure the consistency of quality of educational outcomes

Compliance with Quality System Standards is established by completion of a successful quality internally and externally reviews conducted by an accreditation bodies acceptable to the Saudi Arabia (for examples, The National center for Academic Accreditation & Assessment (NCAAA))

Vision, Mission and Goals of program:

Vision:

To be a leader in qualifying distinctive competences in the digital technology.

Mission:

To provide distinctive education in the field of digital technology to meet the needs of labor market and community development through supportive, educational and research environment.

Department goals:

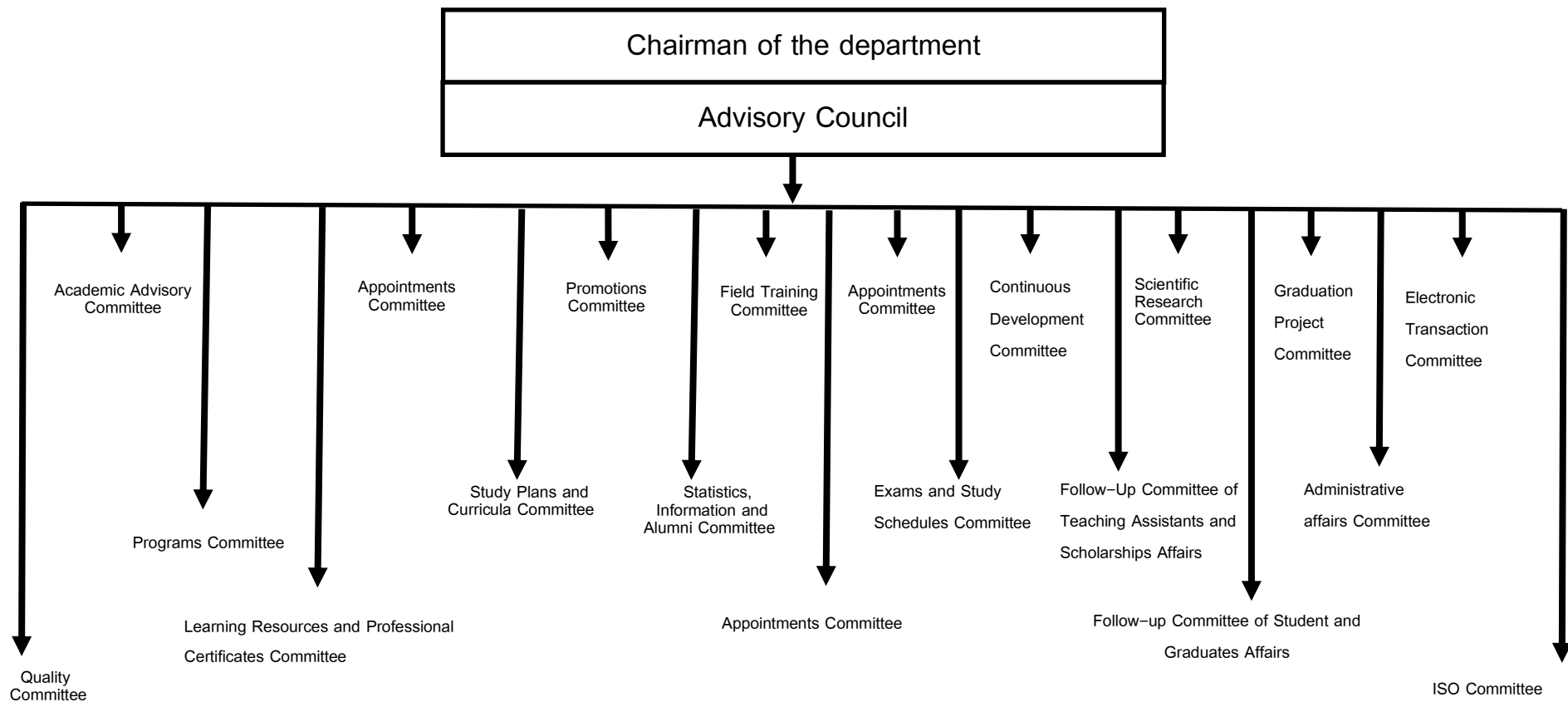
To contribute in achieving the National Vision 2030 through:

- Highly qualified and skilled graduates to meet the needs of labor market,
- Improving the skills of faculty members as a continuous process,
- Creating a supportive educational research environment, and research environment.
- Building up an effective cooperation with the community.

Program Goals:

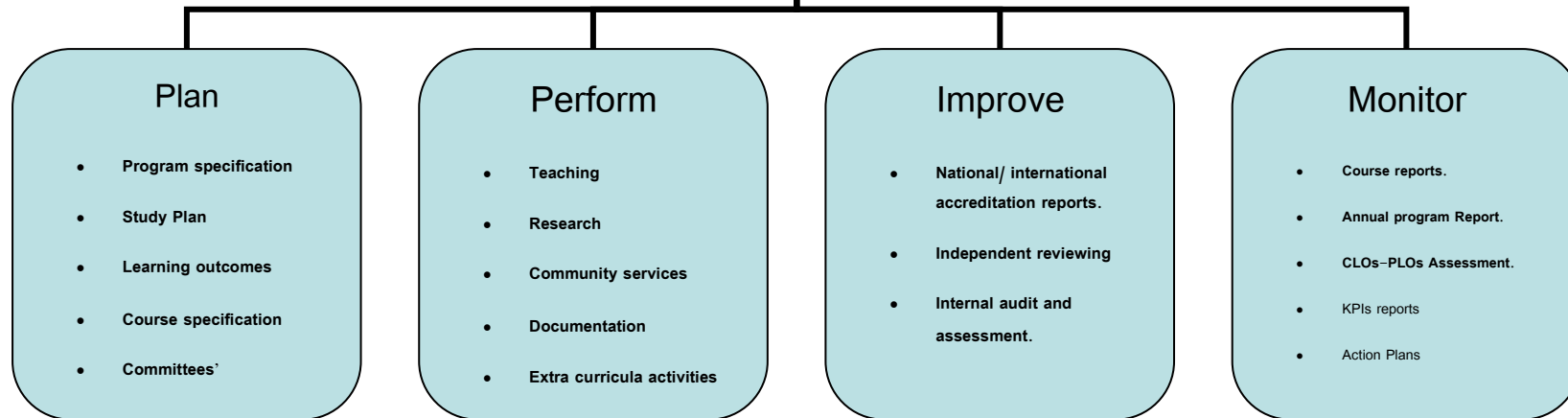
- Enhancing student's up-to-date knowledge and develop the skills needed for a successful start to careers in the computing community.
- Expanding opportunities for training students.
- Training of faculty members.
- Motivate faculty members to produce distinctive research.
- Increase communication with community organizations and provide training.

Organization Structure of the CSP Quality Management System



Program quality policy cycle:

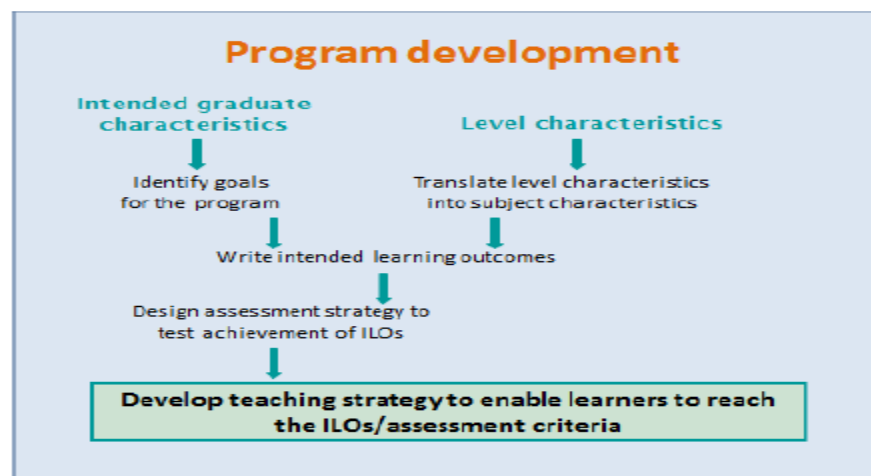
Program quality cycle



Program Quality Assurance Plan and processes:

Programs, Courses & Teaching

Program planning — The program planning aims to review and where necessary improve program planning, strategic objectives and the quality of curriculum development within program proposals. program approved for development are progressed in accordance with the requirements of the Vice Rectorate for Educational and Academic Affairs-KSU (<https://vrea.ksu.edu.sa/en/node/464>), which includes processes for ensuring that distinctive features of CC programs are embedded in program and course curriculum and consistent with NQF.



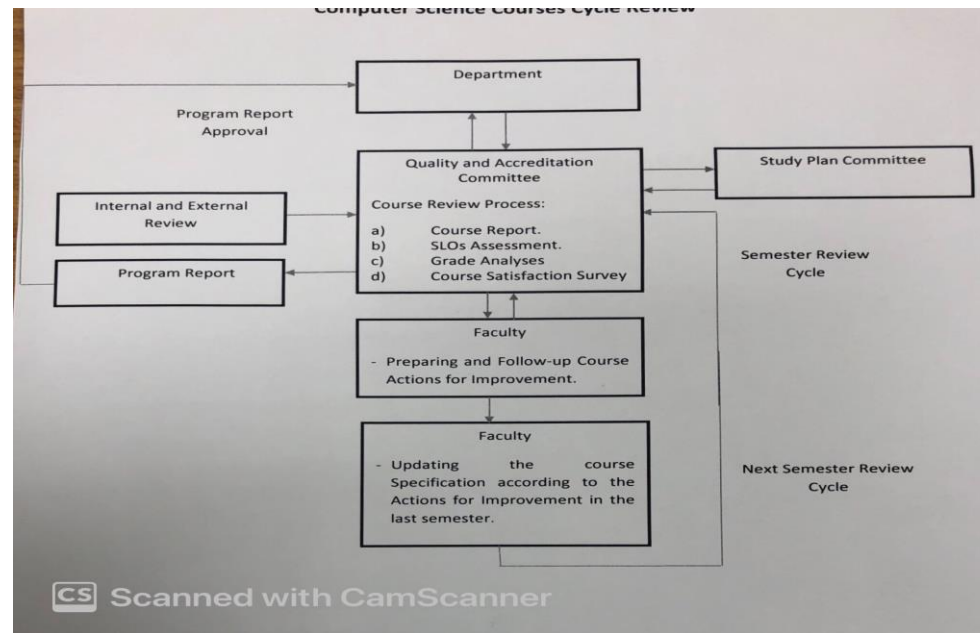
Program evaluation and review — The program is committed to present annual reports (Program Report) and department's performance against a set of key performance indicators, to the Vice Dean of Development and Quality in CC.

Course and teaching evaluation – Department programs has developed a course evaluation survey that requires formal evaluation of courses and teaching by students. In addition, each faculty member has to complete the course report identified by NCAAA. This is conducted for improvement purposes.

All course portfolios are updated and stored on the cloud storage site (One Drive) at the end of each semester, and the teaching portfolios for the achievements of faculty members are updated annually.

Program and Course Annual Monitoring and Reporting

Program and course annual evaluation is an ongoing process through which a program and its constituent courses are evaluated. After each semester, a report will have prepared on every course and field training as well. The Annual Program Report (APR) will also be prepared and submitted to department council for review in November/December of the academic year. Such monitoring processes combine to create an aggregate annual program and course monitoring reporting process which underpins the effective operation of the program. To achieve this, the faculty who teaches the courses, with support from Quality Committee, will be constantly seeking to gather feedback and evidence, will be evaluating that evidence and will be making necessary changes to improve outcomes, delivery and assessment. Student feedback is very important and the CSP uses the NCAAA Course Evaluation Survey and Student Experience Survey to inform the control processes. APR should also be including and presenting good practice and containing and implementing an action plan to achieve planned improvements for the program. It is an inclusive process involving the program leader and all the program administrators, student input and individual feedback (including inputs from the Program or College Advisory Committee).



2-Program Evaluation Areas and Sources:

The program mainly relies on performance indicators and periodic evaluation to ensure the quality of the processes it carries out, depending on the following aspects and KPIs:

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	Collage leaders	KSU Regulations	End of academic year
Teaching & Assessment	Students, Graduates, Alumni	Surveys	End of semester
CLOs	Students, Graduates	Surveys	End of semester
PLOs	Faculty, Employers	Direct assessment and Surveys	End of academic year
Learning Resources	Faculty, Students	Surveys	End of academic year
Curriculum	Students, Graduates, Alumni, Independent reviewers, external and internal examiner.	Surveys, Audit and assessment (Independent reviewers, external and internal examiner.).	End of academic year
Quality Assurance process	Independent reviewer	Audit and assessment	End of academic year
KPIs	Independent reviewer	Audit and assessment	End of academic year

Program KPIs:

Performance indicators are important tools for assessing the quality of CS Program and monitoring its performance.

They contribute to continuous development processes and decision-making support.

It is expected that the CS program measures the key performance indicators with benchmarking using the appropriate tools, such as (Surveys, Statistical data, etc.) according to the nature and objective of each indicator, as well as determining the following levels for each indicator:

- Actual performance
- Targeted performance level
- Internal reference (Internal benchmark)
- External reference (External benchmark)
- New target performance level

A report describing and analyzing the results of each indicator (including: performance changes and comparisons according to sites and gender) is expected with a precise and objective identification of strengths and aspects that need improvement.

Standard	Code	Key Performance Indicators	Description
-1- Mission and Goals	KPI-P-01	Percentage of achieved indicators of the program operational plan objectives	Percentage of performance indicators of the operational plan objectives of the program that achieved the targeted annual level to the total number of indicators targeted for these objectives in the same year
-3- Teaching and	KPI-P-02	Students' Evaluation of quality of learning experience in the program	Average of overall rating of final year students for the quality of learning experience in the program on a five-point scale in an annual survey
	KPI-P-03	Students' evaluation of the quality of the courses	Average students overall rating for the quality of courses on a five-point scale in an annual survey
	KPI-P-04	Completion rate	completed Proportion of undergraduate students who in minimum time program the in each cohort
	KPI-P-05	First-year students retention rate	Percentage of first-year undergraduate students who continue at the program the next year to the total number of first-year students in the same year
	KPI-P-06	Students' performance in the professional and/or national examinations	Percentage of students or graduates who were successful in the professional and / or national examinations, or their score average and median (if any)

Learning	KPI-P-07	Graduates' employability and enrolment in postgraduate programs	Percentage of graduates from the program who within a year of graduation were: a. employed b. enrolled in postgraduate programs during the first year of their graduation to the total number of graduates in the same year
	KPI-P-08	Average number of students in the class	Average number of students per class (in each teaching session/activity: lecture, small group, tutorial, laboratory or clinical session)
	KPI-P-09	Employers' evaluation of the program graduates proficiency	Average of overall rating of employers for the proficiency of the program graduates on a five-point scale in an annual survey
Standard	Code	Key Performance Indicators	Description
-4- Students	KPI-P-10	Students' satisfaction with the offered services	Average of students' satisfaction rate with the various services offered by the program (restaurants, transportation, sports facilities, academic advising, ...) on a five-point scale in an annual survey

-5- Teaching Staff	KPI-P-11	Ratio of students to teaching staff	Ratio of the total number of students to the total number of full-time and full-time equivalent teaching staff in the program
	KPI-P-12	Percentage of teaching staff distribution	Percentage of teaching staff distribution based on: Gender Branches Academic Ranking
	KPI-P-13	Proportion of teaching staff leaving the program	Proportion of teaching staff leaving the program annually for reasons other than age retirement to the total number of teaching staff.
	KPI-P-14	Percentage of publications of faculty members	Percentage of full-time faculty members who published at least one research during the year to total faculty members in the program

	KPI-P-15	Rate of published research per faculty member	The average number of refereed and/or published research per each faculty member during the year (total number of refereed and/or published research to the total number of full-time or equivalent faculty members during the year)
	KPI-P-16	Citations rate in refereed journals per faculty member	The average number of citations in refereed journals from published research per faculty member in the program (total number of citations in refereed journals from published research for full-time or equivalent faculty members to the total research published)
-6- Learning Resources, Facilities, and Equipment	KPI-P-17	Satisfaction of beneficiaries with the learning resources	Average of beneficiaries' satisfaction rate with the adequacy and diversity of learning resources (references, journals, databases... etc.) on a five-point scale in an annual survey.

Program KPIs:

The program uses additional indicators to support the measurement of CLOs and PLOs:

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
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No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1	PLO k.	Program learning outcomes achievement rate (knowledge and understanding).	80%	<ul style="list-style-type: none"> - The CLOs are assessed according to the program measurement mechanism (using Excel). - Each PLO is linked to the CLOs assessment results according to the program PLOs measurement plan. - The result of the arithmetic measurement is linked to the Rubric performance measurement matrix. - Appropriate priorities are set for improvement. 	End of the semester
2	PLO S.	Program learning outcomes achievement rate (Skills)	80%	<ul style="list-style-type: none"> - The CLOs are assessed according to the program measurement mechanism (using Excel). - Each PLO is linked to the CLOs assessment results according to the program PLOs measurement plan. 	End of the semester

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
				<p>The result of the arithmetic measurement is linked to the Rubric performance measurement matrix.</p> <ul style="list-style-type: none"> - Appropriate priorities are set for improvement. 	
3	PLO V.	Program learning outcomes achievement rate (Values)	80%	<p>The CLOs are assessed according to the program measurement mechanism (using Excel).</p> <ul style="list-style-type: none"> - Each PLO is linked to the CLOs assessment results according to the program PLOs measurement plan. <p>The result of the arithmetic measurement is linked to the Rubric performance measurement matrix.</p> <ul style="list-style-type: none"> - Appropriate priorities are set for improvement. 	End of the semester
4	PLO Indirect assess	Students overall rating on the Course Learning Outcomes.	5	Course Evaluation Survey	End of the semester

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
	ment.				

Program learning Outcomes assessment:

Computer Science program attaches great importance to improving learning outcomes for students, as the Department's Quality Committee implements a mechanism for measuring learning outcomes, and has implemented several training workshops in this regard.

Learning outcomes are measured regularly through various evaluation mechanisms including students, graduate student's surveys and employment outcome data. All of these evaluations provide evidence of measuring the learning outcomes of the program and its achievement.

All CLOs are developed and measured to achieve the program outcomes according to the NQF, the scope of this framework: knowledge, cognitive skills, personal skills, responsibility, analytical skills and communication.

The National Qualification Framework expects graduates from higher education institutions in the Kingdom of Saudi Arabia to demonstrate learning and skills attributes in:

- Taking the initiative to identify and solve problems at the individual and collective levels,
- Demonstrate and apply leadership skills to find solutions to problems in the workplace,
- Applying inquiry theories and methods in the field of study to address issues and problems in different contexts,
- The ability to apply knowledge when finding solutions to academic or professional problems.

The program learning outcomes are consistent with the vision and mission of the program, as the program objectives and outcomes have been carefully linked with the program's mission in order to verify their achievement.

PLOs–Objectives Mapping

Objectives PLOS	Highly qualified and skilled graduates to meet the needs of labor market	Improving the skills of faculty members as a continuous process	Creating a supportive educational and research environment	Building up an effective cooperation with the community
Master a wide range of knowledge in the main areas of computer science (Computer networks, data bases, hardware, and programming)	√	√	√	√
Solve problems by identifying their essential parts and formulating strategies for their solutions.	√			
Apply learned analysis and design principles in computation and information systems development.	√	√	√	
Use 21 st century skills, tools, and techniques necessary for IT market.	√	√	√	√

Communicate constructively, in a positive, confident, and respectful manner.	√			√
Demonstrate teamwork skills to get the work done, show commitment and deliver effective performance.	√	√	√	√
Act according to agreed-upon professional, ethical, legal and social responsibilities	√			√

The faculty members were instructed to follow the following steps in implementing the CLOs measurement.

1- All assessment methods are specified for all courses and the appropriate weight for them is placed in the course specifications.

	Q1	Q2	H.W.1	Q3	H.W.2	MT1	Q4	H.W.3	MT2	Q5	H.W.4	H.W.5	Report	Final	Total
	1%	1%	1%	2%	2%	15%	2%	2%	15%	3%	2%	4%	10%	40%	100%
K1	1	1	1			15								4	22
K2				2	2				7					6	17
K3							2	2	8					8	20
S1										3	2			16	21

S2												2	4	6	12
S3													4		4
V1												2	2		4
															100

2- All assessment methods are linked to the CLOs for all courses during assessment processes throughout the semester.

No. -3	Description	Questions						
		Q1	Q2	Q3	Q4	Q5	Q6	Q7
K1		X						
K2			X					
K3				X	X			
S1					X	X		X

S2					X	X		X
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CLOs–PLOs Mapping:

Program learning Outcomes Mapping Matrix

Aligning the program learning outcomes with program courses, according to the following desired levels of performance (**I = Introduced P = Practiced M = Mastered**)

Course code & No.	Program Learning Outcomes							
	Knowledge and understanding	Skills				Values		
	K1	S1	S2	S3	S4	V1	V2	----
ENGL 1001				I				
NHG 1203				I				
STAT 1103				I	I			
CT 1202				I	I	I	I	

Course code & No.	Program Learning Outcomes							
	Knowledge and understanding	Skills				Values		
	K1	S1	S2	S3	S4	V1	V2	----
EPH 1202					I			
SLM 2410				I	I		I	
PHYS 1215				I		I	I	
COMP 1210	I	I		I	I	I	I	
COMP 1211	I	I	I		I	I	I	
COMP 1212	I		I	I		I	I	
CT 1213	I	I	I	I	I	I	I	
SLM 4411 el-v.				I	I	I	I	
ADR 2414 el-v.				I	I	I	I	
COMP 2310	I	P	I	I	P	P	P	
COMP 2311	P	P	P		P	P		
COMP 2312	P	P	P	P	P	P	P	
COMP 4210 el-v.	P	P	P			P	P	

Course code & No.	Program Learning Outcomes							
	Knowledge and understanding	Skills				Values		
	K1	S1	S2	S3	S4	V1	V2	----
COMP 4212 el-v.	P	P	P	P		P	P	
<u>COMP 2412</u>	<u>P</u>	<u>P</u>	<u>P</u>			<u>M</u>	<u>P</u>	
COMP 2413	<u>P</u>	<u>P</u>	<u>P</u>	<u>M</u>	<u>P</u>	<u>M</u>	<u>P</u>	
COMP 2410	<u>M</u>	<u>M</u>	<u>M</u>	<u>M</u>		<u>M</u>	<u>M</u>	
COMP 2411	<u>M</u>	<u>M</u>	<u>M</u>	<u>M</u>		<u>M</u>	<u>P</u>	
COMP 4211 el-v.	M	M	M	M	M	M	M	
COMP 4213 el-v.	M	M	M	M	M	M	M	
COMP 3510	M	M	M	M	M	M	M	
COMP 3511	M	M	M	M	M	M	M	

CLOs/PLOs alignment instructions

***I-P-M, A (Assessment)**

- The CLOs must be consistent with the PLOs in terms of domain (knowledge and understanding, skills and values).

- Teaching strategies must be consisting for both CLOs/PLOs.
- Assessment methods must be consisting for both CLOs/PLOs.
- The course must be consistent with the associated PLOs in terms of whether it is an introduction course, practical or mastered (I = Introduced P = Practiced M = Mastered).
- In the process of adjusting the CLOs/PLOs map, it must be considered that the courses are gradual in terms of providing knowledge, developing and mastering skills (I = Introduced P = Practiced M = Mastered).
- Use appropriate verbs to formulate CLOs/PLOs.
- Considering that the verb forms in the CLOs are fully compatible in terms of meaning with the formulation of the verbs with the PLOs.

Course	Program Learning Outcomes							
	K1	S1	S2	S3	S4	V1	V2	
LOs #								
K1	M							
K2	M							
K3	M							

S1	M							
S2		M	M	M				
S3					M	P		
V1							P	

4- All CLOs are assessed using the followed mechanism (using Excel):

- The mechanism requires that each student's grades be entered for each question and for all assessment methods described in course specification and linked to the CLOs:

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King Saud University

كشوف درجات الإختبار التصفي الأول

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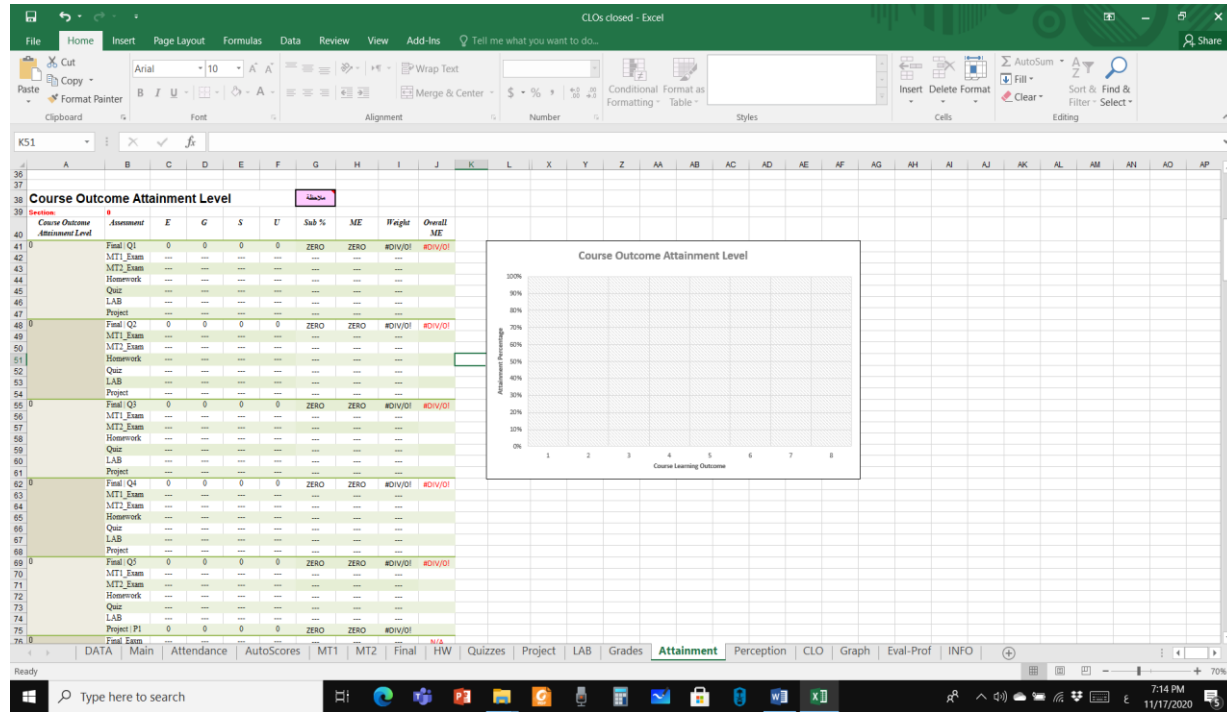
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الدرجة العظمى للامتحان

الدرجة العظمى

المرور	MT1	MT1's Questions								MT1's Questions								الدرجة العظمى	اسم الطالب	
		Q#	Q8	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q8	Q7	Q6	Q5	Q4	Q3	Q2			Q1
	CLO																			
	Sum	%	%	%	%	%	%	%	%										MAX	

- The percentage of achieving each CLO of the course is calculated based on the electronically determined weight.



5- All CLOs achievement results are collected for all courses.

6- The measurement results for all courses are sorted according to the fields of the Saudi Arabia Qualifications Framework domains.

7- The measurement results for all courses by domains are linked to the PLOs according to the measurement plan of the program.

NQF Domain	PLO Symbol	PLOS	Semester 1	Semester 2	Semester 3	Semester 4
Knowledge and Understanding	K1	Master a wide range of knowledge in the main areas of computer science (Computer networks, data bases, hardware, and programming)	1-Data collection, 2-Analysis and evaluation data and suggestion Improvement.	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation.	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation
	S.1	Solve problems by identifying their essential parts and formulating strategies for their solutions.	1-Data collection, 2-Analysis and evaluation data and suggestion	1-Development Process, 2- Analysis and evaluation	1-Development Process, 2- Analysis and evaluation	1-Development Process, 2- Analysis and evaluation

Skills			Improvement.	Data and suggestion Improvement, 3- Improvement implementation.	Data and suggestion Improvement, 3- Improvement implementation	Data and suggestion Improvement, 3- Improvement implementation
	S.2	Apply learned analysis and design principles in computation and information systems development.	1-Data collection, 2-Analysis and evaluation data and suggestion Improvement.	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation.	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation
	S.3	Use 21 st century skills, tools,	1-Data collection,	1-Development	1-Development	1-Development

		and techniques necessary for IT market.	2-Analysis and evaluation data and suggestion Improvement.	Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation.	Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation	Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation
	S.4	Communicate constructively, in a positive, confident, and respectful manner.	1-Data collection, 2-Analysis and evaluation data and suggestion Improvement.	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement

				implementation.	Improvement implementation	Improvement implementation
Values	V.1	Demonstrate teamwork skills to get the work done, show commitment and deliver effective performance.	1-Data collection, 2-Analysis and evaluation data and suggestion Improvement.	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation.	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation	1-Development Process, 2- Analysis and evaluation Data and suggestion Improvement, 3- Improvement implementation
	V.2	Act according to agreed-upon professional, ethical, legal and social responsibilities	1-Data collection, 2-Analysis and evaluation data and suggestion Improvement.	1-Development Process, 2- Analysis and evaluation Data and	1-Development Process, 2- Analysis and evaluation Data and	1-Development Process, 2- Analysis and evaluation Data and

				suggestion Improvement, 3- Improvement implementation.	suggestion Improvement, 3- Improvement implementation	suggestion Improvement, 3- Improvement implementation
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NQF Domain	PLO Symbol	PLOS	Courses by which outcomes are measured
Knowledge and Understanding	K1	Master a wide range of knowledge in the main areas of computer science (Computer networks, data bases, hardware, and programming)	COMP 2310, COMP 2311 , COMP 2312, COMP 2412 , COMP 2413, COMP 2410 , COMP 2411, COMP 3510, COMP 3511.
Skills	S.1	Solve problems by identifying their essential parts and formulating strategies for their solutions.	COMP 2310 , COMP 2311 , COMP 2312, COMP 2412 , COMP 2413, COMP 2411, COMP 3510, COMP 3511.

	S.2	Apply learned analysis and design principles in computation and information systems development.	COMP 2310, COMP 2311 , COMP 2312, COMP 2412 , COMP 2413, COMP 2410, COMP 2411, COMP 3510, COMP 3511.
	S.3	Use 21stcentury skills, tools, and techniques necessary for IT market.	COMP 1210 , COMP 1211 . COMP1212., COMP 2310, COMP 2410.
	S.4	Communicate constructively, in a positive, confident, and respectful manner.	COMP 2311, COMP 2311 , COMP 2312 , COMP 2413, COMP 2411, COMP 3510, COMP 3511.
Values	V.1	Demonstrate teamwork skills to get the work done, show commitment and deliver effective performance.	COMP 2310, COMP 2413, COMP 2410, COMP 2411, COMP 3510, COMP 3511.
	V.2	Act according to agreed-upon professional, ethical, legal and social responsibilities	COMP 2310, COMP 2413, COMP 2411, COMP 3510, COMP 3511.

8- The result of PLOs measuring is evaluated based on the performance evaluation matrix “Rubrics”, on which it follows that priorities for improvement and action plans are set.

The Performance Evaluation						
		Below 60	60-69	70-79	80-89	90-100
Knowledge and Understanding		Little or no knowledge. No adequate knowledge of the program topics.	Good knowledge of the program courses. The CLOs are achieved, with little significant weaknesses.	Very good knowledge of the program courses. The SLOs are well achieved, with some weaknesses,	Very good knowledge of the program courses. The SLOs are well achieved, with no significant weaknesses,	Excellent knowledge of the all courses program. <u>The SLOs is fully achieved without significant weaknesses in any areas of program courses.</u>
Skills		<p>-Inability to apply acquired analysis, solve problems and necessary technologies; reality and ideas cannot be linked.</p> <p>-The skill of communicating with others is not</p>	<p>-There is difficulty in the ability to apply the acquired analysis, solve problems and the necessary techniques; reality and ideas can be linked with some difficulties.</p> <p>-Communicate in an acceptable manner with others in a non-positive,</p>	<p>-The ability to apply acquired analysis, solve problems and necessary techniques in a beginner way; reality and ideas can be linked with some difficulties.</p> <p>-Communicate in an acceptable manner with others in a</p>	<p>-Ability to apply learned analysis, solve problems and techniques necessary in a developed way; it can link reality and ideas correctly.</p> <p>-Communicate well with others, in a positive, confident, and respectful</p>	<p>-Ability to apply learned analysis, solve problems and techniques necessary in an integrated way; it can link reality and ideas correctly.</p> <p>-Professionalism in communicating with others, in a positive,</p>

	acceptable with others .	confident and respectful manner.	positive, confident and respectful manner.	manner.	confident, and respectful manner.
Values	Would not prefer cooperation with others, weakness in personal skill (performed poorly).	Prefer to work individually, although the performance to take responsibility is poor.	Participation in team work, although the performance to take responsibility is poor.	Actively participation in joint work, able to take responsibility	Proficient in effective joint work skills and managing them, able to take responsibility

9- The results of direct and indirect measurement are collected for the courses:

PLOs	Courses that achieved the target or more in the direct assessment	direct assessment result	Courses that achieved the target or more in the indirect assessment	indirect assessment result	Final Result
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	Course 1	Course 2	Course 3	Average	Students Assessment	Graduates Assessment	Employers Assessment	Average	60% direct and 40% indirect
K1	60% in COMP 2410	70% in COMP 1212	80% in COMP 2412	70%	90%	80%	70%	80%	$60 \times 70 / 100 = 42$ $40 \times 80 / 100 = 32$ $42 + 32 = 74\%$
S1									
S2									
S3									

10- By the end of the program assessment cycle all program learning outcomes must be assessed using KPIs with benchmarks and analysis using the KPIs table.

KPI Code # -----	Program KPI:
Assessment Year	
NQF Learning Domain	
KPI Target Benchmark	
KPI Actual Benchmark	
Internal Benchmark	
External Benchmark	
Analysis: (List strengths and recommendations)	
New Target Benchmark	

The faculty members were instructed to follow the following steps in implementing the CLOs measurement.

- 11- All assessment methods are specified for all courses and the appropriate weight for them is placed in the course specifications.
- 12- All assessment methods are linked to the CLOs for all courses during assessment processes throughout the semester.
- 13- All CLOs are assessed using the followed mechanism (using Excel):
 - The mechanism requires that each student's grades be entered for each question and for all assessment methods described in course specification and linked to the CLOs.
 - The percentage of achieving each CLO of the course is calculated based on the electronically determined weight.
- 14- All CLOs achievement results are collected for all courses.
- 15- The measurement results for all courses are sorted according to the fields of the Saudi Arabia Qualifications Framework domains.
- 16- The measurement results for all courses by domains are linked to the PLOs according to the measurement plan of the program.
- 17- The result of PLOs measuring is evaluated based on the performance evaluation matrix “Rubrics”, on which it follows that priorities for improvement and action plans are set.
- 18- The results of direct and indirect measurement are collected for the courses.
- 19- By the end of the program assessment cycle all program learning outcomes must be assessed using KPIs with benchmarks and analysis using the KPIs table.

