



# **Program Specification of Information Systems (IS) Program**

## National Commission for Academic Accreditation & Assessment

### Program Specifications

*For guidance on the completion of this template, please refer to NCAAA guidebooks.*

1. Institution: **Najran University**

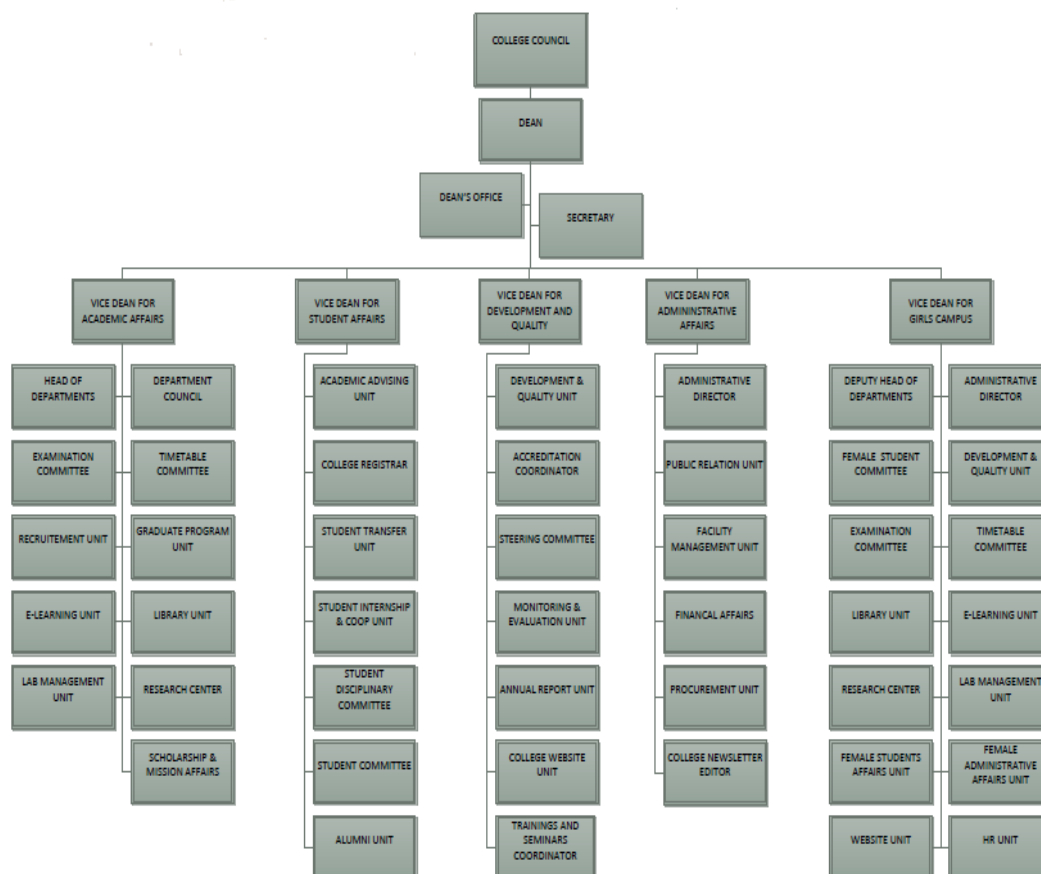
Date of Report: **August 2016**

2. College/Department: **College of Computer Science and Information Systems/  
Department of Information Systems**

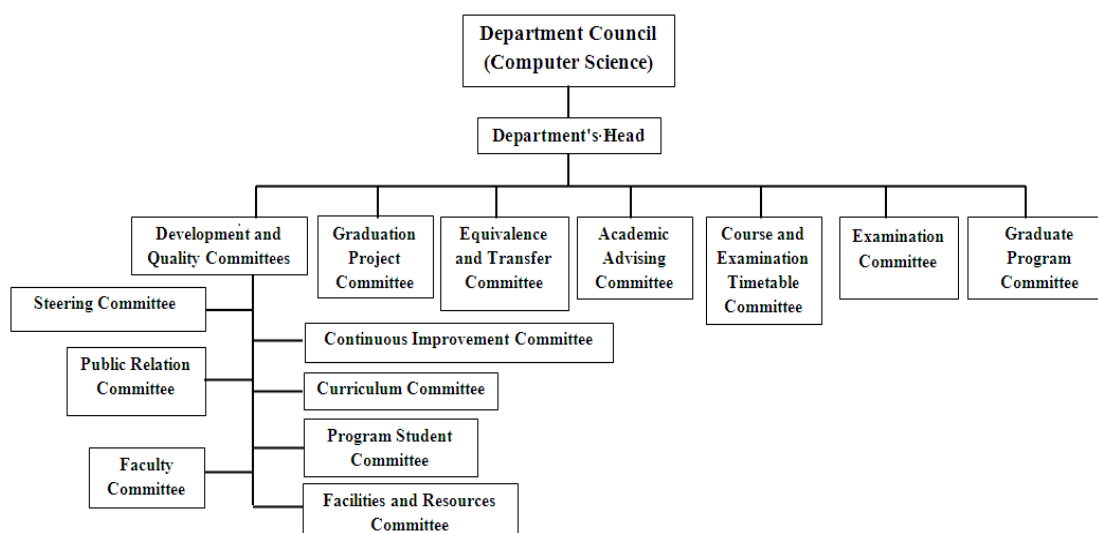
3. Dean: **Dr. Abdullah Ali Alabas**

4. Insert program administrative flowchart:

#### College's Administrative flowchart:



### IS Department (Program Level) Administrative chart:



#### 5. List all branches/locations offering this program

The program is offered only at Najran University (Najran) in male campuses only.

#### **Branch/Location.**

Male Campus, Najran University, Najran, Saudi Arabia, P.O. BOX 1988

### **A. Program Identification and General Information**

1. Program title and code : : <b>Information Systems (IS)</b>
2. Total credit hours needed for completion of the program: <b>27 (Preparatory Year) + 108 (three and half years) = 135 Credit Hours</b>
3. Award granted on completion of the program: <b>The Bachelor of Information Systems</b>
4. Major tracks/pathways or specializations within the program (eg. transportation or structural engineering within a civil engineering program or counselling or school psychology within a psychology program) Not Applicable.
5. Intermediate Exit Points and Awards (if any) (eg. associate degree within a bachelor degree program)

Not Applicable.

6. Professional occupations (licensed occupations, if any) for which graduates are prepared. (If there is an early exit point from the program (eg. diploma or associate degree) include professions or occupations at each exit point)

The students of the program are well prepared for the following list of professions or occupations:

- 1) Computer system analyst for enterprise
- 2) Human resource management
- 3) Computer programmer
- 4) Database designer and administrator
- 5) Network administrator and software developer
- 6) System administrator
- 7) Basic Researcher
- 8) Teaching profession
- 9) Industrial data processing.
- 10) Quality Engineers
- 11) Software Architect

7. (a) New Program	<input type="checkbox"/>	Planned starting date	
(b) Continuing Program	<input checked="" type="checkbox"/>	Year of most recent major program review	2012/2013
Organization involved in recent major review (eg. internal within the institution,			
Accreditation review by <u>Not Applicable</u> ? Other <u>?</u>			
8. Name of program coordinator or chair. If a program coordinator or chair has been appointed for the female section as well as the male section, include names of both.			
Program's Coordinator (Male Campus): Dr. Mohammed Abdulatef Ali Al-Shargabi			
9. Date of approval by the authorized body (MoHE for private institutions and Council of Higher Education for public institutions).			
Campus Branch/Location	Approval By	Date	
Main Campus:			
1:Male	MoHE and Najran University	2007	

## **B. Program Context**

### **1. Explain why the program was established.**

#### **a. Summarize economic reasons, social or cultural reasons, technological developments, national policy developments or other reasons.**

Information Systems program was established on the eve of 2007 to meet the high demand of the market and keep abreast of current technological developments. The major of information systems aims to provide students with the necessary knowledge for a career in the fields of Computer Information Systems (CIS) and programming project management, which involve the development and integration of multi-purpose systems. The importance of this major stem from the fact that development of systems builds on a combination of theory and practice, which have to be founded on sound background and methods in the fields dealing with IT.

#### **b. Explain the relevance of the program to the mission and goals of the institution.**

##### **The mission of Najran University is:**

*"To provide distinctive education that meets the needs of society and the labor market and contribute effectively to the sustainable development through applied research, the optimal use of modern technologies and the active partnership at the local, regional and global levels."*

The vision and mission of NU are posted on its web site at:

<http://portal.nu.edu.sa/web/guest/university-mission;jsessionid=E902D22907AE694DB176460BE4F05506.s2>

The mission of the university (Najran University) focuses mainly on 3 elements as follows:

1. Distinctive education that meets the needs of society and the labor market.
2. Contribute effectively to the sustainable development through applied research, the optimal use of modern technologies.
3. The active partnership at the local, regional and global levels.

The mission of the program of Information Systems is very consistent and supports the mission of the institution. The following matrix shows the alignment between the mission of the program and the mission of the institution:

	Main Elements of the Mission of Najran University		
	Distinctive education that meets the needs of society and the labor market	Contribute effectively to the sustainable development through applied research, the optimal use of modern technologies	The active partnership at the local, regional and global levels
<b>The Mission of the IS Program is to:</b>			
Prepare qualified information systems graduates according to international standards.	X		
Contribute significantly in information systems research.		X	
Offer training, consultancy, and services in the field of information systems to the community.	X		X
Provide supportive environment to foster professional development.		X	X

**2. Relationship (if any) to other programs offered by the institution/college/department.**

**a. Does this program offer courses that students in other programs are required to take?**  
**NO**  
 If yes, what has been done to make sure those courses meet the needs of students in the other programs?

**b. Does the program require students to take courses taught by other departments?**  
**Yes**  
 If yes, what has been done to make sure those courses in other departments meet the needs of students in this program?

Students need a basic understanding of Islamic studies, mathematics, physics, natural sciences, social sciences and humanities to get a well-rounded education. All courses that are taught by other departments contribute to the student outcomes of the program. The course specifications (NCAAA template) including syllabus, descriptions and course learning outcomes of all courses' taught by other departments must be available to the program in order to make sure that they meet the program's needs. In addition, all courses' syllabus and reports along with other necessary documents of courses taught by other departments must be reviewed by the program curriculum committee to ensure that they are all working towards the achievements of student outcomes of the computer science program. Moreover, students can give their opinions about courses taught by other departments through the current student survey and exit survey.

In Table[REF], we will provide how non-IS courses are aligned to the student outcomes of the Information Systems (IS) program.

**3. Do students who are likely to be enrolled in the program have any special needs or characteristics? (eg. Part time evening students, physical and academic disabilities, limited IT or language skills).**

Yes ☐ No ☒

Note that the university Preparatory Year (PY) is considered as part of the program. The students' grades and courses of the preparatory year are counted in their transcripts.

**4. What modifications or services are you providing for special needs applicants?**

N/A

## C. Mission, Goals and Objectives

### 1. Program Mission Statement (insert)

The mission of the Information Systems Program is:

- Prepare qualified information systems graduates according to international standards.
- Contribute significantly in information systems research.
- Offer training, consultancy, and services in the field of information systems to the community.
- Provide supportive environment to foster professional development.

**2. List goals and objectives of the program within to help achieve the mission. For each goal and objective describe the major strategies to be followed and list the indicators that are used to measure achievement.**

The following table illustrates the goals of the program. Each goal is associated with a set of strategic objectives that are in turn related to major strategies and measurable indicators.

Goals	Objectives for each goal	Performance Indicators	Target Benchmark
G-1: Enhance the program's educational recognition at the national level	G-1-Ob-1: Dissemination of quality culture in the program	1. Number of workshops & seminars (related to the program) conducted in an academic year.	30
		2. Percentage of approved mechanisms (related to our program) evaluated in an academic year.	100%
	G-1-Ob-2: Obtaining national academic accreditation for the current programs	1. Percentage of teaching staff received training or attended workshops (internal/external) of NCAAA	100%
		2. Progression percentage of implementing work plan for obtaining NCAAA accreditation	95
	G-1-Ob-3: Obtaining international academic accreditation for the current programs	1. Percentage of teaching staff received training or attended workshops (internal/external) of ABET	100%
		2. Progression percentage of implementing work plan for obtaining ABET accreditation	100%
G-2: Produce competent graduates to meet nation's needs	G-2-Ob-1: Improve the quality of the graduates from the CS program	1. Overall rating about the quality of the alumni from employer survey.	70%
		2. Percentage of teaching staff with verified doctoral qualifications	70%
		3. Levels of attainment for each student's outcomes	65%
	G-2-Ob-2: Develop the CS program to fulfil community needs	1. Progression percentage of implementing approved plan for developing program concerning community needs.	100%
		2. Revision of CS program contents concerning community needs takes place per academic year	1
		3. Assessment of community need conducted per academic year	1
		4. Assessment of local job market need conducted per academic year	1
		5. Number of Conducted outreach	2



		camping on the roles and the function of the program	
G-3 Reach a national prominence in scientific research	G-3-Ob-1: Create scientific research environment	1. Percentage of faculty members participation in research-based activities at the national and international level.	70%
		2. Number of available research unit in our program	5
		3. Percentage of faculty members those received research support	70%
	G-3-Ob-2: Developing program's plan of scientific research	1. Number of survey conducted to spot research priority per academic year	1
	G-3-Ob-3: Establish a cooperative relationship with the national research funding agencies	1. Number of funded research projects from national organizations	4
		2. Number of funded research projects from international organizations	1
	G-3-Ob-4: Establish a mutual relationship with peer national and international research centres	1. Number of shared activities with national and international research centre	2
		2. Number of visiting scholars to exchange experience and conduct mutual research per academic year	2
G-4 Strengthen the partnership with the community	G-4-Ob-1 Increase the community awareness on the roles and functions of the program	1. Percentage of members from Program Advisory Board (PAC) contain representatives from community	50%
		2. Number of Conducted outreach camping per academic year on the roles and the function of the program	2
	G-4-Ob-2 Involve community in the program's activities and plans	1. Percentage of members from Program Advisory Board (PAC) contain representatives from community	50%

	G-4-Ob-3 Provide training and consultation services to the community	1. Assessment of community need conducted per academic year	1
		2. Assessment of local job market need conducted per academic year	1
		3. Number of Conducted outreach camping per academic year on the roles and the function of the program	2

## D. Program Structure and Organization

### 1. Program Description:

List the core and elective program courses offered each semester from Prep Year to graduation using the below Curriculum Study Plan Table (A separate table is required for each branch IF a given branch/location offers a different study plan).

A program or department manual should be available for students or other stakeholders and a copy of the information relating to this program should be attached to the program specification. This information should include required and elective courses, credit hour requirements and department/college and institution requirements, and details of courses to be taken in each year or semester.

The curriculum of the CS program was reviewed and modified in 2012/2013 to meet the national and international standards. The following study plan is required for the batch of students who started in the First Semester 2013/2014. More specifically, we decided to take the following actions:

- Adopt ABET a-k CS Student Outcomes (SOs) in 2011/2012 for the Computer Science program at Najran University (NU).
- Modify the CS curriculum by adding extra courses related to mathematics and sciences to ensure consistency with NCAAA, ABET and NQF in 2012/2013.
- Approve that the university Preparatory Year (PY) is part of the CS program because its student learning outcomes are very consistent with the SOs of the CS program. The total credit hours of the CS program including PY ( $107 + 27 \text{ (PY)} = 134$  credit hours) meets the NQF minimum requirement of 120 credit hours for a bachelor degree.

All above mentioned changes are made; to ensure consistency with the national and international standards (NQF, NCAAA and ABET), to meet the needs of program's stakeholders and to approve that university Preparatory Year (PY) is part of the CS program.

**Table 1: Curriculum Study Plan**

Year	Course Code	Course Title	Required or Elective	Credit Hours	College or Department
<b>Prep Year Semester 1</b>					
	140TEC-3	Computer Skills	Required	3	Preparatory Year
	140MATH-2	Mathematics 1	Required	2	Preparatory Year
	140SKL-2	Learning, Thinking and Research Skills	Required	2	Preparatory Year
	140ENGG-2	Reading Skills	Required	2	Preparatory Year
	141ENGG-2	Writing Skills	Required	2	Preparatory Year
	142ENGG-2	Listening and Speaking Skills	Required	2	Preparatory Year
	143ENGG-2	Grammar	Required	2	Preparatory Year
<b>Prep Year Semester 2</b>					
	150MAN-1	Job Ethics	Required	1	Preparatory Year
	140MATH-4	Mathematics 2	Required	4	Preparatory Year
	150SKL-2	Communication Skills	Required	2	Preparatory Year
	150ENGG-3	General English	Required	3	Preparatory Year
	151ENGG-2	Writing Technical Reports	Required	2	Preparatory Year
<b>1<sup>st</sup> Year Semester 1</b>					
	111ISL-2	Introduction to Islamic Culture	Required	2	College of Sahria'ah
	104PHIS-4	Fundamental of Physics	Required	4	College of Science
	111CSS-4	Programming Language 1	Required	4	College of Computer science and Information Systems
	106MATH-3	Introduction to Integration	Required	3	Department of Math
	152MATH-3	Discrete Mathematics	Required	3	<b>College of Science</b>
<b>1<sup>st</sup> Year Semester 2</b>					
	201ARAB-2	Arabic Skills	Required	2	College of Sahira'ah
	342MATH-3	Linear Algebra	Required	3	Department of Math
	113CSS-4	Object Oriented Programming	Required	4	College of Computer science and Information Systems
	324STAT-3	Probabilities and Engineering	Required	3	Department of Math

		Statistics			
	203MATH-3	Advanced Calculus	Required	3	Department of Math
<b>2<sup>nd</sup> Year Semester 1</b>					
	112ISL-2	Islamic Culture 2	Required	2	College of Sahria'ah
	212CSS-3	Data Structures and Algorithms	Required	3	College of Computer science and Information Systems
	105PHIS-4	Advanced Physics	Required	4	<b>College of Science</b>
	222CSS-4	Computer Organization and Architecture	Required	4	Department of Computer Science
	330CSS-3	Programming Paradigms	Required	3	Department of Computer Science
<b>2<sup>nd</sup> Year Semester 2</b>					
	227CSS-3	Operating Systems	Required	3	Department of Computer Science
	113ISL-2	Islamic Culture 3	Required	2	College of Sahria'ah
	342CSS-3	Software Engineering	Required	3	Department of Computer Science
	101BIOL-4	General Biology	Required	4	College of Medecine
	235CSS-3	Theory of Computation	Required	3	Department of Computer Science
<b>3<sup>rd</sup> Year Semester 1</b>					
	281CSS-3	Computer Graphics	Required	3	Department of Computer Science
	361CSS-3	Artificial Intelligence	Required	3	Department of Computer Science
	457CSS-3	Internet Technologies	Required	3	Department of Computer Science
	380CSS-3	Fundamental of Database Systems	Required	3	Department of Computer Science
	329CSS-3	Data Communication and Computer Networks	Required	3	Department of Computer Science
<b>3<sup>rd</sup> Year Semester 2</b>					
	491CSS-4	Graduation Project 1	Required	4	Department of Computer Science

	456CSS-3	Parallel and Distributed Systems	Required	3	Department of Computer Science
	114ISL-2	Islamic Culture 4	Required	2	College of Sahria'ah
	328CSS-3	Human and Computer Interaction	Required	3	Department of Computer Science
	474CSS-3	Algorithm Design and Analysis	Required	3	Department of Computer Science
<b>4<sup>th</sup> Year Semester 1</b>					
	492CSS-4	Graduation Project 2	Required	4	Department of Computer Science
	341CIS-3	Operational Research	Required	3	Department of Computer Science
	440CSS-3	Social, Ethical, and Professional Issues	Required	2	Department of Computer Science
	429CSS-3	Computer Security	Required	3	Department of Computer Science
	202ARAB-2	Arabic Writing	Required	3	College of Sahria'ah

## 2. Required Field Experience Component (if any, e.g. internship, cooperative program, work experience).

Summary of practical, clinical or internship component required in the program. Note: see Field Experience Specification
<b>a. Brief description of field experience activity</b> Not Applicable
<b>b. At what stage or stages in the program does the field experience occur? (eg. year, semester)</b> Not Applicable
<b>c. Time allocation and scheduling arrangement. (eg. 3 days per week for 4 weeks, full time for one semester)</b> Not Applicable
<b>d. Number of credit hours (if any)</b> Not Applicable

## 3. Project or Research Requirements (if any)

Summary of any project or thesis requirements in the program. (Other than projects or assignments within individual courses) (A copy of the requirements for the project should be attached.)
<b>a. Brief description</b>

In the beginning of the semester, the project's coordinator sends an email "**call for Projects proposal**" to all teachers in the college. Each faculty member is required to submit at least one project proposal in the first week of the semester by using a standard project template "**Project Proposal Template**". This template contains sections about the objectives, background, scope and requirements of the project. Students who are eligible to register for Graduation Project 1 (491CSS-4) form their groups. Each group should select three proposals among the proposed projects and they should rank them in order of preference by filling out an official document called "**Project Selection**". Each group must submit the project selection form to the project's coordinator within three days. Once the deadline has been ended, the Graduation Project Committee (GPC) assigns groups with project's proposals according to their choices. Once projects are assigned to the students' groups, students are immediately notified by an announcement and teachers are also informed by email. The topics that have not been chosen by students will be documented in the graduation project file to be proposed in the upcoming semesters. It is also acceptable that a group of students propose a project that needs to be approved by the GPC. Students are required to meet 4 hours a week with the project's supervisor and co-supervisor to fulfill the requirements of the project.

**b. List the major intended learning outcomes of the project or research task.**

1. Analyse a problem and user requirements.
2. Make effective literature reviews to understand the key elements of the project.
3. Design the appropriate solution to the project's problem.
4. Use the appropriate techniques and tools necessary for designing the project.
5. Solve effectively in teams the project goals within time and resource constraints.
6. Practice communication skills in writing and presenting the project.
7. Demonstrate originality in part of the project work.
8. Demonstrate an understanding of professional, ethical, security, and responsibilities.
9. Use software tools independently.

**c. At what stage or stages in the program is the project or research undertaken? (e.g. year, semester)**

Note that the preparatory year is considered as a part of the program. The program offers a graduation project in two levels as shown in the following table. The intended learning outcomes mentioned above (subsection 3-b) are achieved in Graduation Project 1 and Graduation Project 2.

Year and Semester	Course code	Course Name	Prerequisites
<b>3<sup>rd</sup> Year Semester 2</b>	491CSS-4	Graduation Project 1	342CSS-3
<b>4<sup>th</sup> Year Semester 1</b>	492CSS-4	Graduation Project 2	491CSS-4

**d. Number of credit hours (if any)**

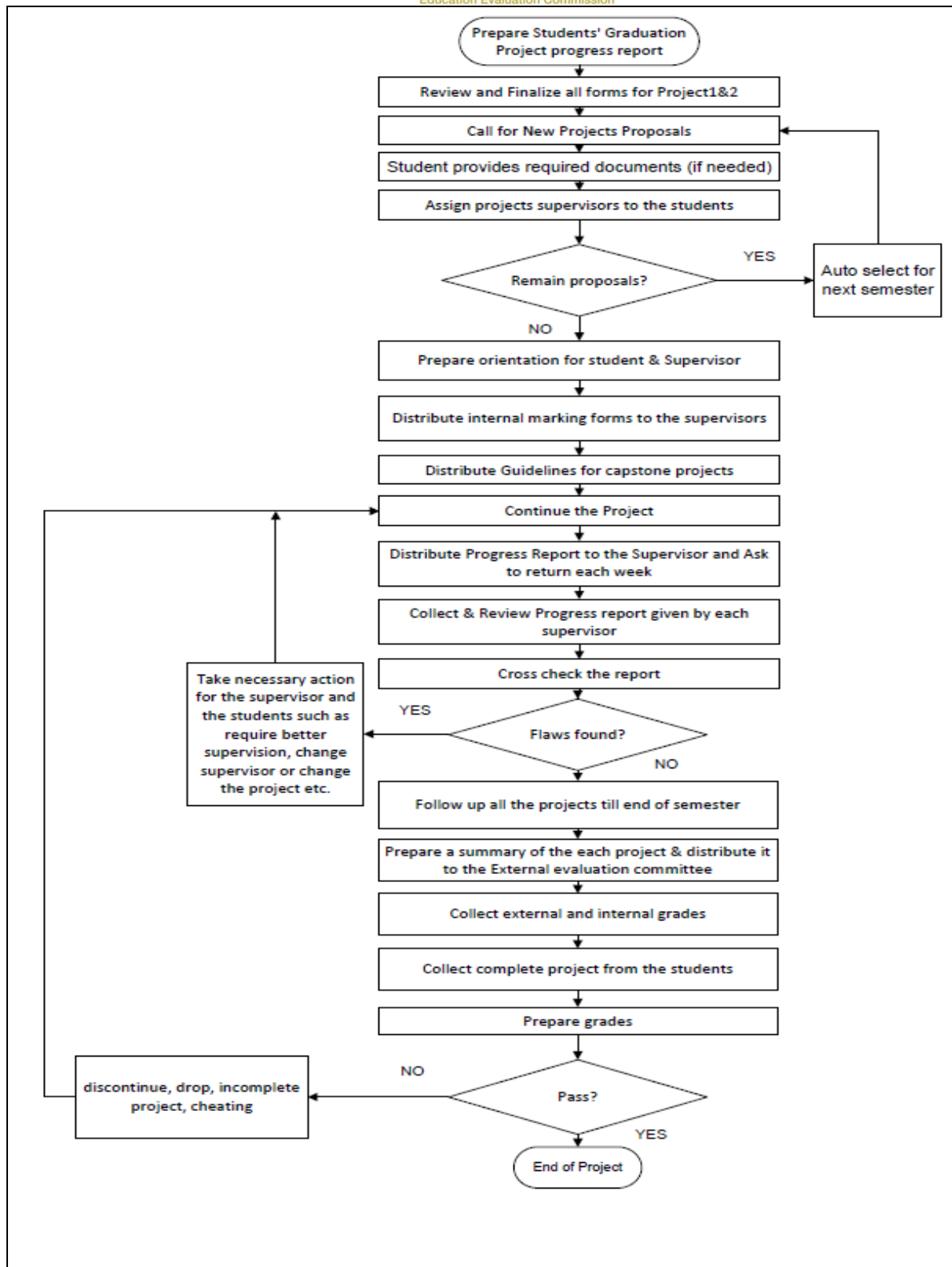
Course code	Course Name	Credit Hours
491CSS-4	Graduation Project 1	4
492CSS-4	Graduation Project 2	4
Total Credit Hours		8

**e. Description of academic advising and support mechanisms for students.**

**The project's supervisor and co-supervisor support students to:**

1. Sign a pledge related to the credibility and ethics in the beginning of the semester.
2. Manage the coordination issues to facilitate the tasks of the project.
3. Develop a work plan for the whole project from the beginning of the semester where the supervisor specifies all steps to complete the graduation project. The department recommends the use of a unified work plan.
4. Perform group tasks and individual tasks with presentations from students.
5. Carry out the project and not depend on others.
6. Follow all guidelines related to the final presentation and to the submission of the final report.
7. Understand all forms (rubrics) of evaluations during their progress in the whole semester and in the final submission.
8. Guide students to fulfill the project's requirements.
9. Attend weekly meeting and discussion. A weekly online progress report should be filled out by the project's supervisor to allow the GPC to take a decision about the progress of the project.

The following figure shows the procedures related to graduation project:





#### **f. Description of assessment procedures (including mechanism for verification of standards)**

Graduation projects (1 & 2) are evaluated by the project's supervisor and co-supervisor (40 out of total grade 100) and four internal examiners (60 out of total grade 100).

The supervisor and co-supervisor use the following assessment methods to evaluate the progress of students during the semester (out of 40)

1. Task assignment evaluation (out of 24) (Three copies , the first copy is related to the requirements, the second copy is related to the analysis and the last copy is related to the design )
2. First Draft Report Evaluation ( out of 8)
1. Partial Presentation Evaluation ( out of 8)

The internal examiners use the following assessment methods to evaluate the final Presentation (out of 60)

1. Evaluation of the Final Report Documentation (out of 25 common grade for all students in the group)
2. Evaluation of the Final Presentation (out of 35 individual grade for each student in the group)

The internal examiners evaluate students' by using rubric that supports reliable grading system.

The main dimensions of the rubrics:

1. Presentation skills
2. Individual Q & A.
3. Project's Documentation.

Rubrics are available upon request.

#### **4. Learning Outcomes in Domains of Learning, Assessment Methods and Teaching Strategy**

Program Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning and teaching.

The *National Qualification Framework* provides five learning domains. Learning outcomes are required in the first four domains and sometimes are also required in the Psychomotor Domain.

On the table below are the five NQF Learning Domains, numbered in the left column. For Program Accreditation there are four learning outcomes required for knowledge and cognitive skills. The other three domains require at least two learning outcomes. Additional learning outcomes are suggested.



**First**, insert the suitable and measurable learning outcomes required in each of the learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes.

**Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each program learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process.

**Answer:** During the establishment of Student learning Outcomes (SOs) for Computer Science program, relevant academic and professional advice was considered. More Specifically, the process started by considering the latest recommendations of world renowned societies such as IEEE/CS, CSAB, ACM in the computer science area. In addition the requirements of national and international accreditation agencies (NCAAA and ABET) as well as the Saudi National Qualification Framework (NQF) were extensively considered in the formulation of the SOs. Note that SOs are broad statements that describe what students will be able to do and know by the end of the program (time of graduation). In the first semester of academic year (1432/1433) 2011/2012, the Development and Quality Unit (DQU) at the college of Computer Science and Information Systems (CSIS) at Najran University met with all faculty members and discussed the formulation of intended student learning outcomes for the Computer Science program (CS). The department faculty members including male and female gave their opinions through several meetings, discussions and surveys about the proposed SOs. Further, DQU met with students' representatives from the male and female campuses (Male and Female Student Committee) and make the proposed SOs available to them but there have been no major comments on the proposed SOs. In the Second Semester (1432/1433) 2011/2012, the Program Advisory Committee (PAC) including representatives from the public and private industries and professors from other universities reviewed the proposed SOs and gave their opinions through a filled survey. Based on the comments received from the program's stakeholders and after careful review of the requirements of accreditation agencies (NCAAA and ABET) and NQF as well as the recommendations of societies (IEEE/CS, CSAB, ACM), the program, in the academic year 1433/1434 (2012/2013), decided to:

- Adopt the ABET a-k CS Student Outcomes (SOs) for the Computer Science program at Najran University (NU).
- Modify the CS curriculum by adding extra courses related to mathematics and sciences to ensure consistency with NCAAA, ABET and NQF.
- Approve that the university Preparatory Year (PY) is part of the CS program because its student learning outcomes are very consistent with the SOs of the CS program. The total credit hours of the CS program including PY ( $107 + 27 \text{ (PY)} = 134$  credit hours) meets the NQF minimum requirement of 120 credit hours for a bachelor degree.

The NCAAA and NQF identify SLOs (Student Learning Outcomes) in five learning domains: Knowledge, Cognitive Skills, Interpersonal Skills and Responsibility, Communication

Information Technology and Numerical, and Psychomotor Skills. It is required that the SOs of a program must be consistent with NQF and covering all of the domains of learning except psychomotor level. However, the ABET a-k CS SOs adopted by our program has no outcomes that belong explicitly to the NCAAA knowledge skills level. Yet, if two learning outcomes have the same contexts with different levels of learning, then we can only consider one learning outcome with the higher level of learning. Assume we have the following outcomes:

- Describe a computer-based system or program to meet desired needs;
- Design a computer-based system or program to meet desired needs;

Using the above outcomes, it is acceptable to consider the second outcome because if students are able to design, it is obvious that they are able to describe. Table 4.1 illustrates the SOs of the CS program written in NCAAA learning domains. Our set of SOs is consistent with the NQF learning domains even though we don't have explicit SOs at the knowledge skills level. The following points justify our choices of having no explicit outcomes at the knowledge level:

- Outcomes at the knowledge level have the same contexts as those at the cognitive level. Therefore, if students achieve SOs at the cognitive level, it is obvious that they achieve it at the knowledge level.
- A set of outcomes at the knowledge level is delivered throughout the program (Courses and other strategies) to support the achievements of outcomes at the cognitive level.

ABET a-k CS outcomes are world-wide and are adopted by the best universities (KFUPM and KSU) in Saudi Arabia. The following table illustrates the outcomes of the CS program and the alignment with assessment methods, and teaching Strategies.

Table 2: Alignment of Student Learning Outcomes with Teaching Strategies and Assessment Methods

	NQF Learning Domains and Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
2.0	Cognitive Skills		
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	<ul style="list-style-type: none"> <li>• Lecture: Teacher gives concepts theoretically and by applying those to a real-world case study to be discussed using different examples on different situations.</li> <li>• Discussions: the teacher gives an idea to students and asks them to give their viewpoints, as well as, their reasoning regarding it.</li> <li>• Cooperative Learning: Teacher divides students into groups who are given</li> </ul>	<b>Direct Methods:</b> <ol style="list-style-type: none"> <li>1. Course Learning Outcomes assessment (Each Semester)</li> <li>2. Performance Indicators with a set of rubrics (once every assessment cycle)</li> </ol>
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its		<b>Indirect Methods:</b> <ol style="list-style-type: none"> <li>1. Exit Survey (Each</li> </ol>

	solution;	problem-based assignments and homework to be submitted on a specified deadline.	Semester)
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;	<ul style="list-style-type: none"> <li>Student-centred learning should be designed to facilitate the learner in doing, thinking, manipulating, constructing, testing, analysing and reflecting.</li> </ul>	2. Current Student Survey (Each Semester)
2.4	An ability to use current techniques, skills, and tools necessary for computing practice;	<ul style="list-style-type: none"> <li>Organizing the flow of thoughts.</li> <li>Increasing teaching efficiency by use of software.</li> <li>Participating in tutorial classes and open lab.</li> <li>Use more real life examples in the lecture relating to the surroundings of the students to draw attention that certainly helps them to concentrate more on the specific topic. (b-i-3)</li> </ul>	3. PAC Meeting and Discussions (Once a Year)
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;	<ul style="list-style-type: none"> <li>During laboratory hours all concepts of theory are discussed through applying them to a case study. During this discussions between the teacher and students regarding open-ended problems are taking place.</li> <li>Website visits.</li> <li>Give an assignment that includes critical problem which can be answered by internet search, reading the provided outcome and to analyse it.</li> <li>Pick one student who fully understood a specific topic and let him describe in front of the class in his own manner.</li> <li>Recall the topics of last lecture and the critical issues based on different topics, which certainly helps students to recall memory frequently and store that topic in their memory for long term.</li> </ul>	4. Alumni Survey
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.	<ul style="list-style-type: none"> <li>Before start a new topic or at the end of each topic, students are given couple of minutes to imagine the real life scenarios relating to that topic including implementation, advantages, deficiencies etc. to improve their logical thinking.</li> </ul>	5. Employer Survey
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
	An ability to function effectively on teams to accomplish a common goal;	<ul style="list-style-type: none"> <li>Lectures in which students are made aware of the significance of time management. c-ii-2. Creation of interactive teaching and learning environment.</li> </ul>	<b>Direct Methods:</b>
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;	<ul style="list-style-type: none"> <li>Discussions with students on ethical behaviour in conducting research.</li> <li>Quiz competition among groups.</li> </ul>	1. Course Learning Outcomes assessment (Each Semester)
			2. Performance Indicators with a set of rubrics (once every assessment cycle)

3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;	<ul style="list-style-type: none"> <li>Individual counselling on assignments, research project and subject matter difficulties.</li> <li>Group assignments and discussions where much of the most effective learning comes from the student explaining, discussing and defending her own ideas with his peers.</li> <li>Developing the awareness and confidence among students about their interpersonal know how.</li> <li>Students' counselling and advising.</li> <li>Making students alert about class attendance, timing, cleanliness and manner inside the class.</li> <li>Encouraging a self-critical evaluation of student existing knowledge and behaviour pattern in solving problems in classroom.</li> <li>During laboratory hours all concepts of theory are discussed through applying them to a case study. During this discussions between the teacher and students regarding open-ended problems are taking place. This strengthens both decisions making skills when choosing among a couple of alternatives and communication skills among them because the teacher is expected <b>that</b> all students participate in such discussions.</li> </ul>	<p><b>Indirect Methods:</b></p> <ol style="list-style-type: none"> <li>Exit Survey (Each Semester)</li> <li>Current Student Survey (Each Semester)</li> <li>PAC Meeting and Discussions (Once a Year)</li> <li>Alumni Survey</li> <li>Employer Survey</li> </ol>
3.4	An ability to recognize the need for and to engage in continuing professional development;		
<b>4.0 Communication, Information Technology, Numerical</b>			
4.1	An ability to communicate effectively with a range of audiences	<ul style="list-style-type: none"> <li>Group assignments and discussions where much of the most effective learning comes from the student explaining, discussing and defending her own ideas with his peers.</li> <li>Developing the awareness and confidence among students about their interpersonal skills.</li> <li>During this discussions between the teacher and students regarding open-ended problems are taking place. This strengthens both decisions making skills when choosing among a couple of alternatives and communication skills among them because the teacher is expected that all students participate in such discussions</li> <li>Deliver lectures in a steady pace with a loud voice and clear-perfect pronunciation.</li> <li>Class participation by oral questioning and answering.</li> <li>Demand the use of power point when</li> </ul>	<p><b>Direct Methods:</b></p> <ol style="list-style-type: none"> <li>Course Learning Outcomes assessment (Each Semester)</li> <li>Performance Indicators with a set of rubrics (once every assessment cycle)</li> </ol> <p><b>Indirect Methods:</b></p> <ol style="list-style-type: none"> <li>Exit Survey (Each Semester)</li> <li>Current Student Survey (Each Semester)</li> <li>PAC Meeting and Discussions (Once a Year)</li> <li>Alumni Survey</li> </ol>

		<p>giving presentations in specific topics of lectures, assignments, and projects .</p> <ul style="list-style-type: none"> <li>• Require that written homework be typed in proper format.</li> <li>• Numerical skills assessed during orientation. Special tutorials provided for those in need.</li> <li>• Assignments include numerical analysis whenever relevant to topic concerned.</li> <li>• Students will be divided into groups and given programming-based assignments which will help them to work collaboratively, decide independently, and learn more skills to communicate with people.</li> <li>• During laboratory hours all theoretical concepts are discussed through applying them to a case study. During this discussions between the teacher and students regarding open-ended problems are taking place. This strengthens both decisions making skills when choosing among a couple of alternatives and communication skills among them because the teacher is expected to all students participate in such discussions</li> <li>• Use of blackboard for course delivery.</li> <li>• Conduct a workshop for students who enrol in the graduation project. This workshop explains to students how to work in a team, how to write a good report, how to conduct an effective presentation, etc.</li> </ul>	5. Employer Survey
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The following table illustrates how the outcomes at the cognitive level of the previous table (Table 2) can be written in two ---knowledge and cognitive--- learning domains. For example, if a student is able to apply (cognitive), then he is able to describe (knowledge). That's why we decided not to mention outcomes at the knowledge learning domains because by the end of the program the student learning outcomes will be at the cognitive level.

	<b>NQF Learning Domains and Learning Outcomes</b>
<b>1.0</b>	<b>Knowledge</b>
1.1	An ability to outline knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;
1.2	An ability to explain the knowledge of analyzing problem, identification and definition of the computing requirements appropriate to its solution
1.3	An ability to describe a computer-based system, process, component, or program to meet desired needs;

1.4	An ability to recognize current techniques, skills, and tools necessary for computing practice;
1.5	An ability to explain mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer-based systems
1.6	An ability to state design and development principles in the construction of software systems of varying complexity.
<b>2.0</b>	<b>Cognitive Skills</b>
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;
2.4	An ability to use current techniques, skills, and tools necessary for computing practice;
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>
3.1	An ability to function effectively on teams to accomplish a common goal;
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;
3.4	An ability to recognize the need for and to engage in continuing professional development;
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>
4.1	Prepare a scientific report
4.2	Present scientific accomplishment verbally
4.3	Utilize presentation skills and technology
<b>5.0</b>	<b>Psychomotor</b>



### Program Learning Outcome Mapping Matrix

Identify on the table below the courses that are required to teach the program learning outcomes. Insert the program learning outcomes, according to the level of instruction, from the above table below and indicate the courses and levels that are required to teach each one; use your program's course numbers across the top and the following level scale. Levels: I = Introduction P = Proficient A = Advanced

We will provide two sets of tables (1) student learning outcomes without any outcomes in the knowledge domain and (2) student learning outcomes with outcomes related to the knowledge learning domains. Note that the outcomes at the knowledge domain have the same context of the outcomes at the cognitive domain.

In the following set of tables (four tables), you will find the mapping of learning outcomes without knowledge level domains to the courses. Mapping of preparatory year courses to the student learning outcomes is attached in a separate file.

Preparatory Year Courses

Course Offerings		140TEC-3	140MATH-2	140SKL-2	140ENGG-2	141ENGG-2	142ENGG-2	143ENGG-2	150MAN-1	150MATH-4	150SKL-2	150ENGG-3	151ENGG-2	
NQF Learning Domains and Learning Outcomes														
<b>1.0 Knowledge</b>														
<b>2.0 Cognitive Skills</b>														
2.1 An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;		I	I							I				
2.2 An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;		I												
2.3 An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;														
2.4 An ability to use current techniques, skills, and tools necessary for computing practice;		I										I	I	
2.5 An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;														
2.6 An ability to apply design and development principles in the construction of software systems of varying complexity.														
<b>3.0 Interpersonal Skills &amp; Responsibility</b>														
3.1 An ability to function effectively on teams to accomplish a common goal;				I	I				I		I	I	I	
3.2 An understanding of professional, ethical, legal,				I	I				I		I	I	I	



	security and social issues and responsibilities;													
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;													
3.4	An ability to recognize the need for and to engage in continuing professional development;													
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>													
4.1	An ability to communicate effectively with a range of audiences	I		I	I	I	I	I			I	I	I	

Course Offerings		111ISL-2	104PHIS-4	111CSS-4	106MATH-3	152MATH-3	201ARAB-2	342MATH-3	113CSS-4	324STAT-3	203MATH-3	112ISL-2	212CSS-3	105PHIS-4
NQF Learning Domains and Learning Outcomes														
<b>1.0</b>	<b>Knowledge</b>													
<b>2.0</b>	<b>Cognitive Skills</b>													
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;		I	I	I	P		P		P	P		A	P
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;		I	I					P		P		A	P
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;			I					P				A	
2.4	An ability to use current techniques, skills, and tools necessary for computing practice;		I	I							P		A	P
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;		I	I	I	P		P	P		P		A	P
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.			I					P				A	
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>													
3.1	An ability to function effectively on teams to accomplish a common goal;	I					I					I		
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;	I					I					I		
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;													
3.4	An ability to recognize the need for and to engage in continuing professional development;													
<b>4.0</b>	<b>Communication, Information</b>													

	<b>Technology, Numerical</b>												
4.1	An ability to communicate effectively with a range of audiences												

	<b>Course Offerings</b>	<b>222CSS-4</b>	<b>330CSS-3</b>	<b>227CSS-3</b>	<b>113ISL-2</b>	<b>342CSS-3</b>	<b>101BIOL-4</b>	<b>235CSS-3</b>	<b>281CSS-3</b>	<b>361CSS-3</b>	<b>457CSS-3</b>	<b>380CSS-3</b>	<b>329CSS-3</b>	<b>491CSS-4</b>
<b>1.0</b>	<b>Knowledge</b>													
<b>2.0</b>	<b>Cognitive Skills</b>													
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	I	P	P		P	I	P	P	P	A	P	A	A
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;		P	P		P	I	P	P	P	A	P	A	A
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;		P			P		P	P	P	A	P	A	A
2.4	An ability to use current techniques, skills, and tools necessary for computing practice;	I	P	P		P	I	P	P	P	A	P	A	A
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;	I		P		P		P	P	P	A	P	A	A
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.	I	P	P		P		P		P	A	P		A
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>													
3.1	An ability to function effectively on teams to accomplish a common goal;										P			P
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;													P
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;													
3.4	An ability to recognize the need for and to engage in continuing professional development;													P
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>													
4.1	An ability to communicate effectively with a range of audiences	I						P						P

Course Offerings		456CSS-3	114ISL-2	328CSS-3	474CSS-3	492CSS-4	341CIS-3	440CSS-3	429CSS-3	202ARAB-2				
NQF Learning Domains and Learning Outcomes														
<b>1.0</b>	<b>Knowledge</b>													
<b>2.0</b>	<b>Cognitive Skills</b>													
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	A		A	A	A	I		A					
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;	A		A	A	A	I	A	A					
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;	A		A	A	A	I		A					
2.4	An ability to use current techniques, skills, and tools necessary for computing practice;	A		A	A	A	I		A					
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;	A		A	A	A	I		A					
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.			A	A	A	I		A					
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>													
3.1	An ability to function effectively on teams to accomplish a common goal;		I			A				I				
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;		I			A		A		I				
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;													
3.4	An ability to recognize the need for and to engage in continuing professional development;					A		A						
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>													
4.1	An ability to communicate effectively with a range of audiences					A								

In the following set of tables (four tables), you will find the mapping of courses to student learning outcomes where the cognitive outcomes are written in two levels (Knowledge and cognitive).

Preparatory Year Courses

Course Offerings		140TEC-3	140MATH-2	140SKL-2	140ENGG-2	141ENGG-2	142ENGG-2	143ENGG-2	150MAN-1	150MATH-4	150SKL-2	150ENGG-3	151ENGG-2	
NQF Learning Domains and Learning Outcomes														
<b>1.0</b>	<b>Knowledge</b>													
1.1	An ability to outline knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	X	X							X				
1.2	An ability to explain the knowledge of analyzing problem, identification and definition of the computing requirements appropriate to its solution													
1.3	An ability to describe a computer-based system, process, component, or program to meet desired needs;													
1.4	An ability to recognize current techniques, skills, and tools necessary for computing practice;	X												
1.5	An ability to explain mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer-based systems													
1.6	An ability to state design and development principles in the construction of software systems of varying complexity.													
<b>2.0</b>	<b>Cognitive Skills</b>													
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	X	X							X				
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;	X												
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;													
2.4	An ability to use current techniques, skills, and tools necessary for computing practice;											X	X	
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;													
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.													
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>													
3.1	An ability to function effectively on teams to			X	X				X		X	X	X	

	accomplish a common goal;												
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;			X	X				X		X	X	X
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;												
3.4	An ability to recognize the need for and to engage in continuing professional development;												
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>												
4.1	Prepare a scientific report	X		X		X	X	X			X	X	X
4.2	Present scientific accomplishment verbally			X	X		X	X			X	X	X
4.3	Utilize presentation skills and technology	X				X	X	X			X	X	X

	Course Offerings	111ISL-2	104PHIS-4	111CSS-4	106MATH-3	152MATH-3	201ARAB-2	342MATH-3	113CSS-4	324STAT-3	203MATH-3	112ISL-2	212CSS-3	105PHIS-4
<b>1.0</b>	<b>Knowledge</b>			√										
1.1	An ability to outline knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;								√				√	
1.2	An ability to explain the knowledge of analyzing problem, identification and definition of the computing requirements appropriate to its solution								√				√	
1.3	An ability to describe a computer-based system, process, component, or program to meet desired needs;												√	
1.4	An ability to recognize current techniques, skills, and tools necessary for computing practice;												√	
1.5	An ability to explain mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer-based systems												√	
1.6	An ability to state design and development principles in the construction of software systems of varying complexity.												√	
<b>2.0</b>	<b>Cognitive Skills</b>													
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;												√	
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;			√					√				√	
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;			√					√				√	

2.4	An ability to use current techniques, skills, and tools necessary for computing practice;			√									√	
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;			√					√				√	
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.			√					√				√	
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>													
3.1	An ability to function effectively on teams to accomplish a common goal;													
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;													
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;													
3.4	An ability to recognize the need for and to engage in continuing professional development;													
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>													
4.1	Prepare a scientific report													
4.2	Present scientific accomplishment verbally													
4.3	Utilize presentation skills and technology													

	Course Offerings	222CSS-4	330CSS-3	227CSS-3	113ISL-2	342CSS-3	101BIOL-4	235CSS-3	281CSS-3	361CSS-3	457CSS-3	380CSS-3	329CSS-3	491CSS-4
<b>1.0</b>	<b>Knowledge</b>													
1.1	An ability to outline knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	√		√		√		√	√	√	√	√	√	√
1.2	An ability to explain the knowledge of analyzing problem, identification and definition of the computing requirements appropriate to its solution		√	√		√		√	√				√	
1.3	An ability to describe a computer-based system, process, component, or program to meet desired needs;		√							√			√	
1.4	An ability to recognize current techniques, skills, and tools necessary for computing practice;	√		√		√				√	√			
1.5	An ability to explain mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer-based systems	√		√					√	√	√		√	

1.6	An ability to state design and development principles in the construction of software systems of varying complexity.	√									√			
<b>2.0</b>	<b>Cognitive Skills</b>													
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	√	√	√				√	√	√	√	√	√	
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;			√		√		√			√	√	√	√
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;					√		√	√	√	√	√	√	√
2.4	An ability to use current techniques, skills, and tools necessary for computing practice;	√	√	√		√		√	√	√	√	√	√	√
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;	√		√		√		√	√	√	√	√	√	√
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.	√	√	√		√		√		√	√	√		√
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>													
3.1	An ability to function effectively on teams to accomplish a common goal;										√			√
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;													√
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;													
3.4	An ability to recognize the need for and to engage in continuing professional development;													√
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>													
4.1	Prepare a scientific report													√
4.2	Present scientific accomplishment verbally													
4.3	Utilize presentation skills and technology													√

Course Offerings		456CSS-3	114ISL-2	328CSS-3	474CSS-3	492CSS-4	341CIS-3	440CSS-3	429CSS-3	202ARAB-2				
<b>1.0</b>	<b>Knowledge</b>													
1.1	An ability to outline knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	√		√		√			√					
1.2	An ability to explain the knowledge of analyzing problem, identification and			√	√			√	√					

	definition of the computing requirements appropriate to its solution													
1.3	An ability to describe a computer-based system, process, component, or program to meet desired needs;													
1.4	An ability to recognize current techniques, skills, and tools necessary for computing practice;			√					√					
1.5	An ability to explain mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer-based systems	√		√					√					
1.6	An ability to state design and development principles in the construction of software systems of varying complexity.			√					√					
<b>2.0</b>	<b>Cognitive Skills</b>													
2.1	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline;	√			√									
2.2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;	√			√	√		√	√					
2.3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;	√		√	√	√			√					
2.4	An ability to use current techniques, skills, and tools necessary for computing practice;	√		√	√	√			√					
2.5	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;	√		√	√	√			√					
2.6	An ability to apply design and development principles in the construction of software systems of varying complexity.			√	√	√			√					
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>													
3.1	An ability to function effectively on teams to accomplish a common goal;					√								
3.2	An understanding of professional, ethical, legal, security and social issues and responsibilities;					√		√						
3.3	An ability to analyse the local and global impact of computing on individuals, organizations, and society;													
3.4	An ability to recognize the need for and to engage in continuing professional development;					√		√						
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>													
4.1	Prepare a scientific report					√								
4.2	Present scientific accomplishment verbally													
4.3	Utilize presentation skills and technology					√								



## 5. Admission Requirements for the program

**Attach handbook or bulletin description of admission requirements including any course or experience prerequisites.**

Students who want to be admitted in The department of Computer Science, Najran University, should satisfy the following requirements:

1. The student shall only be admitted to the University upon the calculation of his/her average as follows: 30% general aptitude, 30% achievement test and 40% general secondary (academic) if the student wishes to enroll in preparatory year. For all the other specializations, the average shall be calculated as follows: 30% aptitude and 70% general secondary.
2. The student should have obtained the general secondary certificate or its equivalent from the Kingdom or abroad.
3. No more than two academic years should have elapsed from the date of his/her obtaining such certificate or its equivalent.
4. The student should have a good conduct and proper behavior.
5. The student should successfully pass any exam or personal interview (if found).
6. The student should be medically fit.
7. The student should obtain approval from his authority to pursue his/her studies, if s/he works for any governmental or private body.
8. The student should not have been expelled from Najran University or any other university for academic or disciplinary reasons.
9. After the student is admitted, if it is turns out that he/she has already been expelled for disciplinary or academic reasons, his/her admission shall be considered as void.
10. The student meeting the requirements should present the documents stipulated by the Deanship of Admission and Registration at the University.
11. The student should not be enrolled for another university degree at the same university or at another university and should not have already obtained such degree.
12. Files of students who are late for admission tests (if found) shall be ruled out.
13. Files of students who are late for personal interviews (if found) and do not present an acceptable excuse shall be ruled out.
14. Students who are late in carrying out the admission procedures within the deadline set by the University, and who do not present an excuse acceptable by the Deanship of Admission and Registration shall have cancelled their admission.

Source: <http://portal.nu.edu.sa/web/guest/admission-requirements>



## **6. Attendance and Completion Requirements**

**Attach handbook or bulletin description of requirements for:**

- a. Attendance.**
- b. Progression from year to year.**
- c. Program completion or graduation requirements.**

For academic accomplishment at the college of computer science and information systems students should attend at least 75% of the lectures, tutorials, and practical and laboratory lessons in regular courses. Students failing to meet this requirement in any of his registered courses will be prohibited from attending the final examination of those courses and will have F grades that are zero grades for those courses.

The Computer Science program in the Department of Computer Science of Najran University is intended to provide broad background knowledge to its students in this area. Along with a strong theoretical component, the Computer Science program places special emphasis on the development of applied skills in design, implementation, and validation of computer systems. All students acquire a common background in the fundamental areas of computer science such as computer systems, organization and architecture, algorithms and data structures, principles of software design, elements of the theory of computation, operating systems and other core courses. In addition, students obtain specialized backgrounds by conducting non departmental courses like Physics and Mathematics. Along with these courses, other additional courses like Arabic, Islamic studies, give students an opportunity to expand their horizons and to prepare for multidisciplinary careers.

The Bachelor of Science in Computer Science Program is designed for students who are interested to broaden their knowledge of computer science in order to further prepare themselves for a professional career in the computing industry. To achieve the Bachelor of Science in Computer Science Degree, student must fulfil both College and Department degree requirements.

## **E. Regulations for Student Assessment and Verification of Standards**

**What processes will be used for verifying standards of achievement (eg check marking of sample of tests or assignments? Independent assessment by faculty from another institution) (Processes may vary for different courses or domains of learning.)**

1. A dedicated faculty member is assigned as a course coordinator.
2. Course is assigned to more than one instructors (Female and Male campuses) allowing them to share their experiences and ensuring equivalent levels of evaluation of students
3. Knowledge groups are responsible to review exams and the grading schemes and levels of complexities in assessment methods.
4. Periodic exchange and remarking of a sample of assignments and exams with faculty members
5. Periodic revision of the course learning outcomes and their alignment with student outcomes.
6. Ensure that the assessment methods are designed to know the achievement of each one of the course learning outcomes.
7. Assessing the course learning outcomes for each course.
8. Using rubrics to ensure unbiased evaluations for complex questions.
9. Course Assessment planning that shows the assessment methods for each one of Course Learning Outcomes (CLOs).
10. Direct and Indirect assessment methods are used to evaluate and improve the levels of student learning outcomes.
11. The program curriculum committee review all course files by the end of each semester.

## **F Student Administration and Support**

### **G. Student Academic Counselling**

**Describe the arrangements for academic counselling and advising for students, including both scheduling of faculty office hours and advising on program planning, subject selection and career planning (which might be available at college level).**

Academic advising unit of our program aimed to provide absolute guidance to our students through efficacious counselling regarding students' academic and personal difficulties. However, this service is currently limited to academic concerns. Students are formed in a group according to their student ID and each group has been assigned to an academic advisor to ensure that all students get academic counselling throughout the program. All most all faculty members of our program are playing a role as an academic advisor as a part of their job responsibilities by following the guidelines (Appendix A: Academic advising mechanisms) set by academic advising unit and being monitored by the coordinator of this unit. At present, separate time for student advising in academic advisors' time table has not been enforced to schedule, however the unit is looking forward to implement this plan for our program in near future. Hence, academic counselling is carried out During weekly office hours (10 hours) of the academic advisors'. Each newly enrolled student is encouraged to meet his/her academic advisor and open a student file (Appendix B: Forms and reports, available at, <http://portal.nu.edu.sa/web/computer-science-college/65>) which should be kept and maintained by academic advisor as that student's record. This file should reflect student progress mainly concerning on student's results. Academic advisors write a summary report (Appendix B) on each student progress and based on this progress report, at the end of each semester, academic advisors produce a subject plan (Appendix B) for the coming semester for each advisee

student. After preparing a subject plan for a student, academic advisors are accountable to forward this plan to the academic advising unit and in parallel consult with the student about the proposed subject plan along with their expected graduation time frame (part of their program plan). Counselling on career planning take place mostly for the graduating/higher level (level 7,8,9) students depending on the students' necessity.

## 2. Student Appeals

**Attach the regulations for student appeals on academic matters, including processes for consideration of those appeals.**

For our program, students' academic appeals are mainly categorized by the form of 'Add/drop courses, Absent excuses, Rechecking of exams and Make up exams'. Apart from these academic appeals, other appeals are also considered by the academic advising units by an adopted mechanism (Appendix C: Student academic advising and appeal procedure-Flowchart). Regulations for handling student appeals are listed below.

Each student is accountable to place an appeal through his/her academic advisor using case specific appeal form. All appeal forms are available on the university's website (<http://portal.nu.edu.sa/web/computer-science-college/65>) from where student can fetch. These forms are also available with academic advisors.

Academic advisors are accountable to consult with the student in detail to spot students' need and provide guidance to fill out the appeal form. During this consultation process, academic advisors are responsible to fetch necessary record from corresponding student file to support his/her opinion.

When an appeal has been finalized and submitted by the student, academic advisors are accountable to attach necessary supporting documents with this appeal and forward this appeal to the academic advising unit through the University's correspondence tracking system (<https://cts.nu.edu.sa/NajranCTS/start>) for further evaluation.

The coordinator of academic advising unit is accountable to check completeness and to verify the ground of each appeal based on university's regulations (Appendix D: available at, <http://edugate.nu.edu.sa/nu/files/admissionpoliciesforunistudy.pdf>), college rules () and program requirements (<http://portal.nu.edu.sa/web/computer-science-college/67>).

If an appeal complies with all requirements, it has been carry forwarded to the decision making authority, else it has been returned to the correspondent academic advisor.

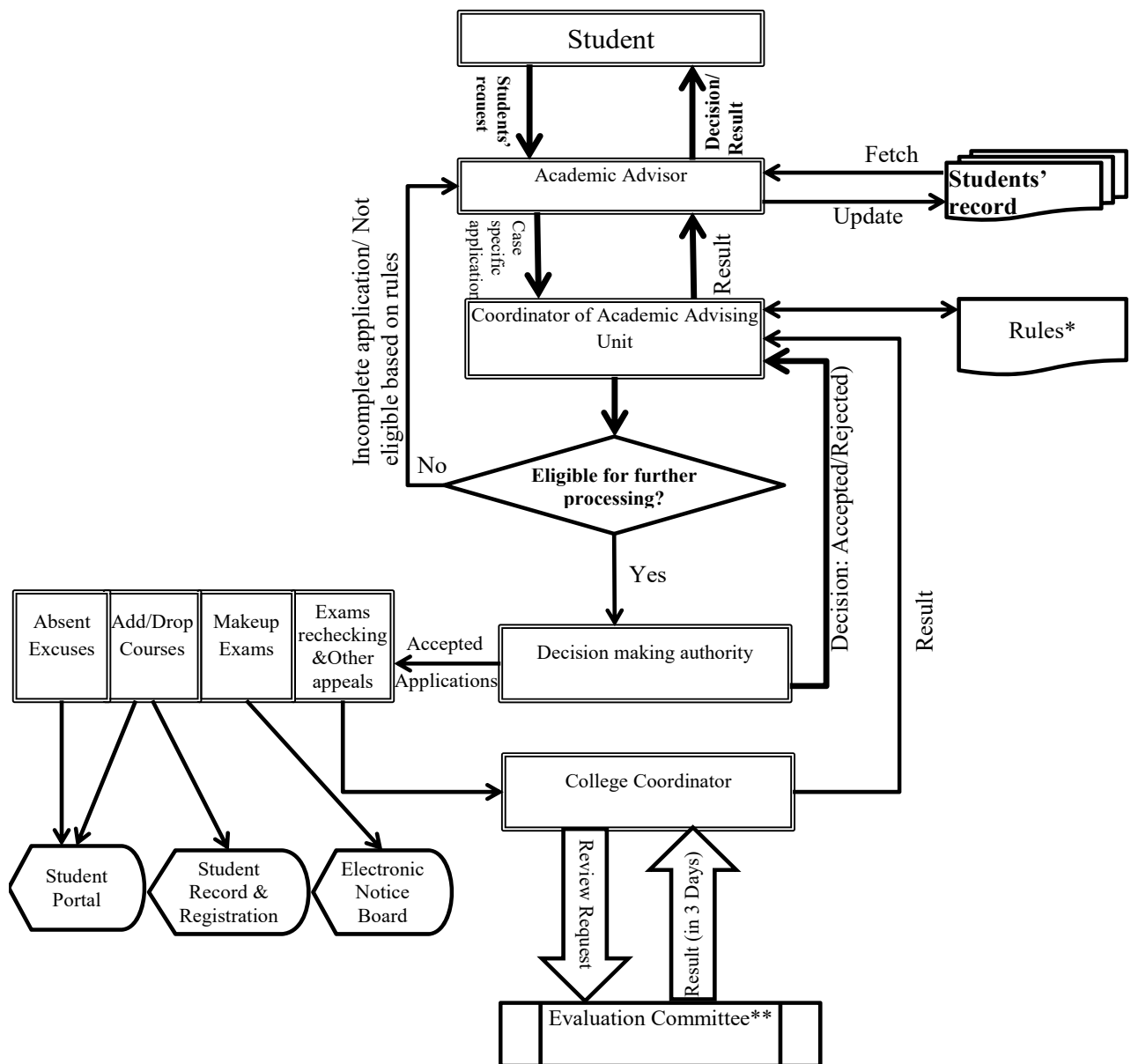
The decision making authority provides decision on the majority appeal cases by 7 days that appear in different places/format depending on the nature of the appeal (refer to the flow chart).

Successful appeal for rechecking of exam is forwarded to the college coordinator. College

coordinator is accountable to form an evaluation committee and send the review request to that committee. The evaluation committee should consist of at least 3 people (i.e. Program coordinator, subject coordinator, member of that subject's knowledge group) and is accountable to provide the outcome within 3 days.

The following figure summarizes the academic advising and appeal procedures:

### Academic Advising System and Student Appeal procedure: (College of CS & IS)



\* **Rules:** Case specific rules are need to be checked to determine the eligibility of that application/appeal (e.g. A student cannot place final exam recheck request for 5 courses in a semester, Or, Only Govt. Hospital's reports will be considered as absent excuse, etc.).

\*\* **Evaluation Committee:** This committee will be formed by the call of the college coordinator and will consist at least 2 or more members. Members of this committee will be selected by the college coordinator (e.g. Subject coordinator, members from that specific knowledge group in which the course belongs).

### **G. Learning Resources, Facilities and Equipment**

1a. What processes are followed by faculty and teaching staff for planning and acquisition of textbooks, reference and other resource material including electronic and web based resources?

- 1) Faculty members search for texts on-line, learn of recommended texts in professional journals and from publishers and colleagues at conferences. Those teaching the same course meet and decide upon recommended texts and materials for the course and then submit their recommendations to the program chair for approval.
- 2) Permission is sought from authors and then granted before photocopying excerpts of their works that will be included in handouts to be purchased by students
- 3) Faculty members ensure that the library subscribes to the necessary data bases that give students access to the journals that they need.
- 4) Requests for purchases of new materials that should be included in the library's holdings are made at least two months before commencement of classes concerned.
- 5) If a new book or reference or other materials are needed, then a request is sent to the program chair for approval.
- 6) There is an open lab in the college with two computers that contain up to 25,000 ebooks (~ 162 GB). All staff members and students are able to access these two machines from anywhere in the campus.

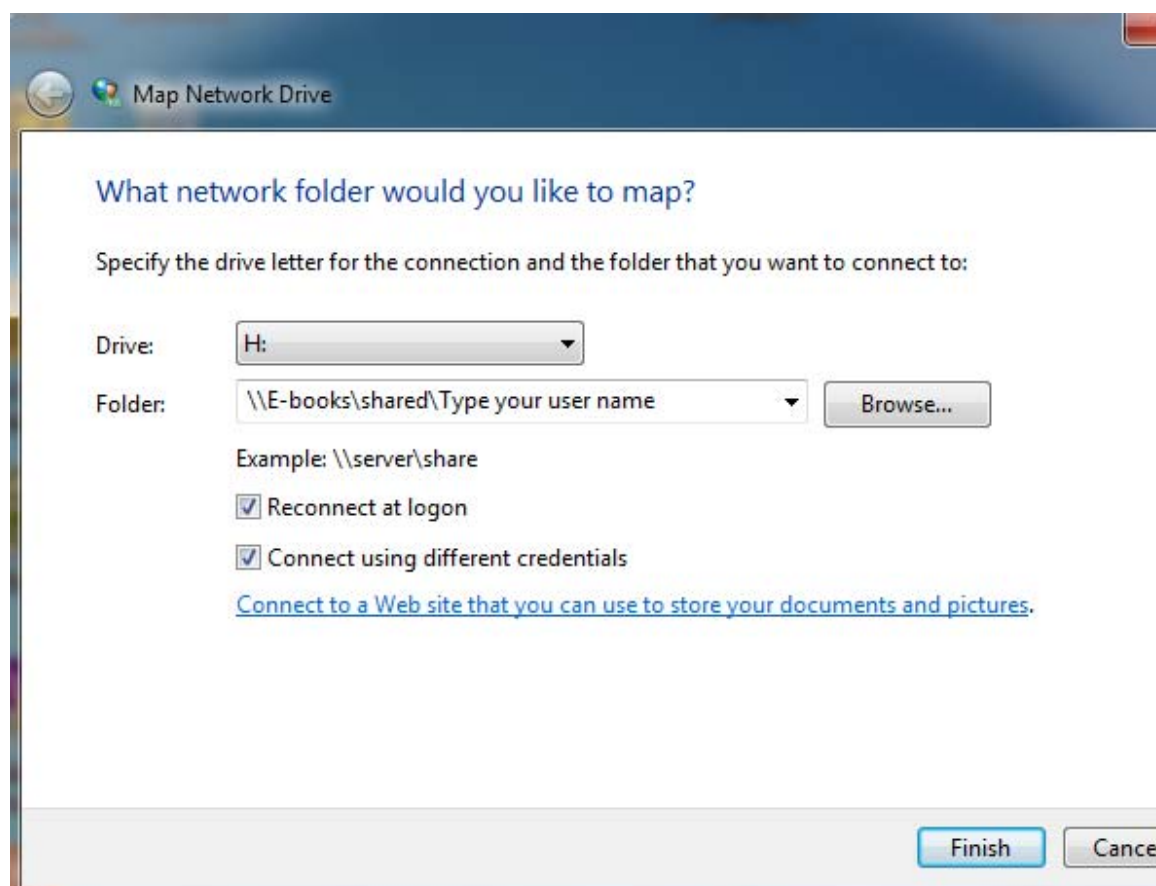
#### **E-books collection:**

At present the college has a collection of 168 GB (Giga Byte) of data which contain which contains 119,779 e-books in the form of PDF of different courses related to the programs offered by the two major departments: Computer Science and Information Systems. All faculty members and students of the college have the right to access e-books and read within the campus through local area networks.

#### **Simple procedure to access the e-books is as follows:**

To map a network drive on your computer, follow the following steps

1. Right click on your network from your desktop
2. Select map Network Drive
3. You will get the following dialog box



4. You can browse or type \\E-Books\\Shared\\Type your user name (user name is same as your E-Mail id in Najran University)
5. Select the check box Reconnect at logon
6. Select check box Connect using different credentials (First time, you must select this check box, if you did not logon on E-Books Server)
7. Click on Finish to connect to this Network drive
8. You will be asked to provide your Credentials
9. User name same as above and password is e-books (Only first time)

Database library:



The college through the university administration has provided the faculty members' access to the international databases of journals, papers, and books for updated information which could be useful to enhance the teaching and research.

#### List of Databases and Journals

Database Name/Publisher	DNS
EBSCO	<a href="http://search.ebscohost.com">search.ebscohost.com</a>
PROQUEST	<a href="http://proquest.umi.com/login">proquest.umi.com/login</a>
WILSON	<a href="http://relayweb.hwwilsonweb.com/hyyyy/login/jhtml">relayweb.hwwilsonweb.com/hyyyy/login/jhtml</a>
Ovid	<a href="http://ovidsp.ovld.com">ovidsp.ovld.com</a>
IEEE	<a href="http://ieexplore.ieee.org/Xplore/login.jsp?url=/Xplore/home.jsp">ieexplore.ieee.org/Xplore/login.jsp?url=/Xplore/home.jsp</a>
	<a href="http://www.engineeringvillage.com">www.engineeringvillage.com</a>
Oxford journals	<a href="http://www.oxfordjournals.org/register">www.oxfordjournals.org/register</a>

#### Electronic Information Resources(Electronic Journals)

Emerald	<a href="http://www.emeraldinsight.com">www.emeraldinsight.com</a>
British Medical Journals	<a href="http://www.bmj.com">www.bmj.com</a>
Cambridge University Press	<a href="http://journals.cambridge.org">http://journals.cambridge.org</a>
Emerald : EMX175	
IOP , Institute of Physics	<a href="http://www.iopscience.com">www.iopscience.com</a>
Oxford University Press	
Springer( including Kluwer)	<a href="http://www.springerlink.com">www.springerlink.com</a>
Royal Society of Chemistry Journals (RSC)	<a href="http://www.rsc.org/publishing/journals">www.rsc.org/publishing/journals</a>
American Institute of Physics Journals(AIP)	<a href="http://www.journals.aip.org/">www.journals.aip.org/</a>
American Physical Society	<a href="http://www.publish.aps.org/">www.publish.aps.org/</a>

#### Electronic Information Resource (Database)

MD Consult from Elsevier	
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Web of Knowledge from Thomson Scientific ( ISI)	<a href="http://www.isiknowledge.com">www.isiknowledge.com</a>
ISI Web of Knowledge	<a href="http://access.isiprducts.com/SaudiTrial">http://access.isiprducts.com/SaudiTrial</a>
Applied Science and Technology Full Text	
Science Direct	You can register for this
Ovid Collection	
Digital Dissertation	By ProQuest
ERIC	By EBSCO
Science Journals	By ProQuest
Biology Journals	By ProQuest
IEEE/ IEE Electronic Librabry	
Acedemic Search Premier	EBSCO
ProQuest Medical Library	ProQuest
ABI INFORM	ProQuest
MathSci	You can register for this
Communication and Mass Media Complete	

**1b. What processes are followed by faculty and teaching staff for planning and acquisition resources for library, laboratories, and classrooms.**

Facilities and Resources Committee (FRC) with other committees in the department evaluate the adequacy of resources and classrooms through surveys and discussions with faculty members and students once a year. According to the evaluation results, a report is then sent to college's administration unit for further action.

**2. What processes are followed by faculty and teaching staff for evaluating the adequacy of textbooks, reference and other resource provisions?**

A Text Book Evaluation Form is used by the end of each year. In this form, the instructor has to give the percentage representing his opinion about the text book(s) he is using in his course according to the following standards:

### Text Book Evaluation and Availability Form

**Your Name:**  
**Semester:** **Year:**  
**Course Code:** **Text Book/Edition/Year (required):**

Please write the percentage representing your opinion about the Text Book you are using in your course according to the following standards:

Standards		Percentage
1	Latest reference with modern information.	
2	Percentage of compatibility between the course plan and the reference.	
3	Enough examples.	
4	Sufficient exercises and applications.	
5	Enough pictorial representations (Graph, figures etc).	
6	Ease of understanding and coherence of sentences.	
7	Clarity in explanations.	
8	The clarity of printed /copied materials.	
Average		

#### Information on Text book availability:

Available in →	University Library	College Library	University e-library	College e-library	Remarks
Number of copies					

❖ Please write any additional remark on this sheet.

❖ Is this book available to the student?

❖ If yes in which form:

❖ Do you suggest a better Text Book and reference for this course?  
If yes: please write in the following table:

Sl. No.	Title	Author	Year of Publication	Publisher	ISBN (if available)	Course Code

#### Remarks:

#### 3. What processes are followed by students for evaluating the adequacy of textbooks, reference and other resource provisions?

The students evaluate the adequacy of textbooks, reference and other learning resources through university course online survey for courses which they enrolled in. More specifically, the students give their opinions if textbooks and references:

1. Are consistent with the objectives and outcomes of the course.
2. Are well organized.
3. Contain the appropriate graphical representation.
4. Are available in the library of university.

#### 4. What processes are followed for textbook acquisition and approval?

The Textbook & Purchase Committee in the College of CSIS plays a pivotal role in acquiring learning resources and provides the mechanism to ensure the regular faculty input regarding the availability of the learning materials such as Textbooks and reference materials for learning and teaching and also to ensure the adequacy of the learning materials for the end users.

### H. Faculty and other Teaching Staff

#### 1. Appointments

**Summarize the process of employment of new faculty and teaching staff to ensure that they are appropriately qualified and experienced for their teaching responsibilities.**

The processes for hiring of new faculty starts by making suggestions by the department Chair to the Dean requesting a number of new Hiring. The college will forward the request to the Vice President of Higher Studies and Research. Once the vacant positions are approved, the college will place an ad in the university website and at the embassies of Saudi Arabia in

various countries inviting applicants in particular areas of expertise. A Committee is then formed to review submitted applications. Each applicant is asked to submit a detailed of his or her academic credentials including teaching experience, list of publications, curriculum vitae and a letter of intention to the Dean. The committee will carefully look into the applicants that qualify to the post. Specifically, they review the academic record, higher education institutions, teaching experience and the area of research. Recommendations are presented to the Dean in rank order following completion of the selection process. After the Dean approval, the Committee will conduct interviews. The applicants who best match the requirements at the time of hiring are chosen. The salary is negotiated by the Dean and a final decision is forwarded to the Vice-Chancellor office to approve the appointment.

**The process is summarized as follows:**

- 1) CVs are reviewed and applicants are screened based on based on qualifications, teaching and research experiences.
- 2) Short listed applicants of interest are then interviewed.
- 3) Referees of applicants under consideration are then contacted.
- 4) Publications of the applicant are examined.
- 5) Credentials are verified.
- 6) Check the compatibility of qualifications presented by the candidate and their current level whether in the areas of specialty or knowledge base.
- 7) After passing the first test, candidates must make a presentation in front of the dean and program's chair and two more faculty members about a specific topic that corresponds to their profile.

## **2. Participation in Program Planning, Monitoring and Review**

### **a. Explain the process for consultation with and involvement of teaching staff in monitoring program quality, annual review and planning for improvement.**

- By the end of each semester, each faculty member has to submit a course file that contains course specification, report, improvement plans, sample of students' works, handouts, exams with sample solutions, etc.
- The program curriculum committee will then review the course files and approve a list of actions to be implemented at various levels in the program.
- The assessment and evaluation of the program (Student outcomes) are performed by collecting data from program's courses. Specifically, a set of questions must be designed by the instructors to evaluate a specific intended learning outcome.
- A weekly meeting to discuss the strengths and weaknesses.
- All staff members (Male and Female) are involved in at least one committee to evaluate and evaluate all aspects of the program. These committees are responsible on all

activities regarding planning, monitoring and reviewing.

- Semester-end faculty meetings are held to assess how the term went.
- Program chair compiles an annual report on the strengths and weaknesses of the program and recommendations for improvement
- The program steering committee monitors and observes the progress of the work.

#### **b. Explain the process of the Advisory Committee (if applicable)**

The CS program established the Program Advisory Committee (PAC). PAC is one of the main stakeholders of the CS program. They provide advice to the program by providing the current industrial trends and feedback about the program's graduates. The members of PAC are selected from the private and public industrial organizations as well as representatives from the academic fields.

The purposes of the PAC are to:

- Encourage the communication between the program and private and public employers in the kingdom.
- Convey current challenges facing the IT industry into the program future plan.
- Help develop and guide the education and curriculum issues in the program.
- Assessment and improvement of the academic programs.
- Recent technologies directions, skills and knowledge provided by the program program's objectives and mission, as well as other pertinent issues.
- To recognize achievements of alumni and other supporters of the program.
- to assist in publicity and public relations concerning the programs of the college

The PAC meets once a year in the second semester of the academic year. The meeting will be 3-4 hours to discuss all issues related to the improvement of the program.

### **3. Professional Development**

**What arrangements are made for professional development of faculty and teaching staff for:**

The departments as well as the college of Computer Science recognize the significance of the faculty's professional development in order to attain the objectives and encourage excellence. So the CS program gives emphasize on faculty members professional development that

directly reflect on their academic qualification. Most of the teaching staffs are involved in scholarly activities like workshops on newest technique of teaching and learning that ensure they remain up to date with latest development in their field. In addition, faculty members are required to conduct research, fulfil administrative duties and perform community service. Faculty evaluation is based on the performance of these duties and responsibilities according to the University evaluation system established for promotion. Most of the members are engaged for scientific researches and attended several workshops and conferences periodically. Survey report on faculty professional development is used to evaluate the involvement of faculty members in professional development activities. In more details, there are different professional development activities such as teaching and quality seminars and workshops implemented either in the college or Deanship of Development and Quality in the university. Faculty members are not only involved with the professional activities of teaching and quality but also have active participation in student advising, supervision and conducting of research and other administrative and miscellaneous activities. They have considerable contribution on publications and research. All faculty members are directly involved in designing syllabus and of course, building their own courses.

With respect to the research development activities, the faculty promotion process has four stages. The first stage is conducted by the Department Council; the second one is performed by conducted by the Department Council; and the last step is made by the University Scientific Council. The Department Chair will forward the request for promotion with all Documents to the Department Promotion Committee. Evaluations and the Recommendations concerning promotions made by the Department Promotion Committee, who presents its reports to the Department Council. The recommendations for promotion of the Department Council are sent to the Dean's Office of via the department chair. The reports should include the foundations and conclusions upon which they are based, as well as the list of recommended referees in order to referee his scientific contribution. The College Council evaluates the candidate and recommends promotions to the Vice Chancellor for Higher Studies and Research. The Vice Chancellor for Higher Studies and Research will presents the proposed promotions the Scientific Council. The Scientific Council evaluates the cases for the potential promotions and either approves or denies the promotion. The concluding recommendations are presented to the Chancellor for final approval. All promotion decision must abide by the Rules and Regulations of the Council of Higher Education and Universities, specifically, Articles from twenty one to thirty seven. Also, Najran University awards grants to faculty of up to \$10,000 to advance new

directions in research, in particular, research that has direct application to exiting problems in the market or the community, or new creative activities or scholarly understandings. Najran University through the Vice-Chancellor Office and the Deanship of Scientific Research and make further recommendation to certain research proposal to be supported by King Abdulaziz City for Science and Technology (KACST) which can awards grants to faculty of up to \$300,000. Moreover, Najran University faculty members are eligible for academic leave (sabbatical) for one full year after working fully for five years. Travel expenses are approved from the college for conferences, workshops, and seminars.

**a. Improvement of skills in teaching and student assessment?**

1. The Development Skills Unit (DSU) at the university level provides training programs related to teaching and student assessment.
2. A professional development survey is used to develop plans for professional development.
3. The program provides several workshops related to course structure and student assessment.
4. Presentations/ workshops are held within the department for the exchange of ideas.

**b. Other professional development including knowledge of research and developments in their field of teaching specialty?**

- 1) Research and publishing of findings in the educator's field of expertise is encouraged.
- 2) Attending internal and external workshops.
- 3) The deanship of research provides several workshops related to research aspects .

**4. Preparation of New Faculty and Teaching Staff**



**Describe the process used for orientation and induction of new, visiting or part time teaching staff to ensure full understanding of the program and the role of the course(s) they teach as components within it.**

The college of Computer Science and Information Systems at Najran University (CSIS-NU) provides orientation program for new teaching staff. The orientation program is designed to help new staff members to become familiar with people, places, programs, policies and procedures related to the university, college and programs. From this orientation program they get very specific information about vision-mission-learning outcomes of the CS program, rules and regulations about teaching, preparing course learning outcomes (CLOs), course and program specifications, course file contents, examination rules and guidelines and policies, grading systems, assessment plan, students graduation projects guidelines, academic advising systems, development and quality unit (DQU) activities at program and college level, research activities in the college, etc.

**The following activities are given to the new teaching staff:**

- Seminar about accreditation.
- Seminar on how to prepare course files.
- Workshop in modern methods of teaching
- Workshop in the examination system
- Workshop to propose competitive research projects

## **5. Part Time and Visiting Faculty and Teaching Staff**

**Provide a summary of Program/Department/College/institution policy on appointment of part time and visiting teaching staff. (ie. Approvals required, selection process, proportion to total teaching staff, etc.)**

N/A

## **I. Program Evaluation and Improvement Processes**

### **1. Effectiveness of Teaching**

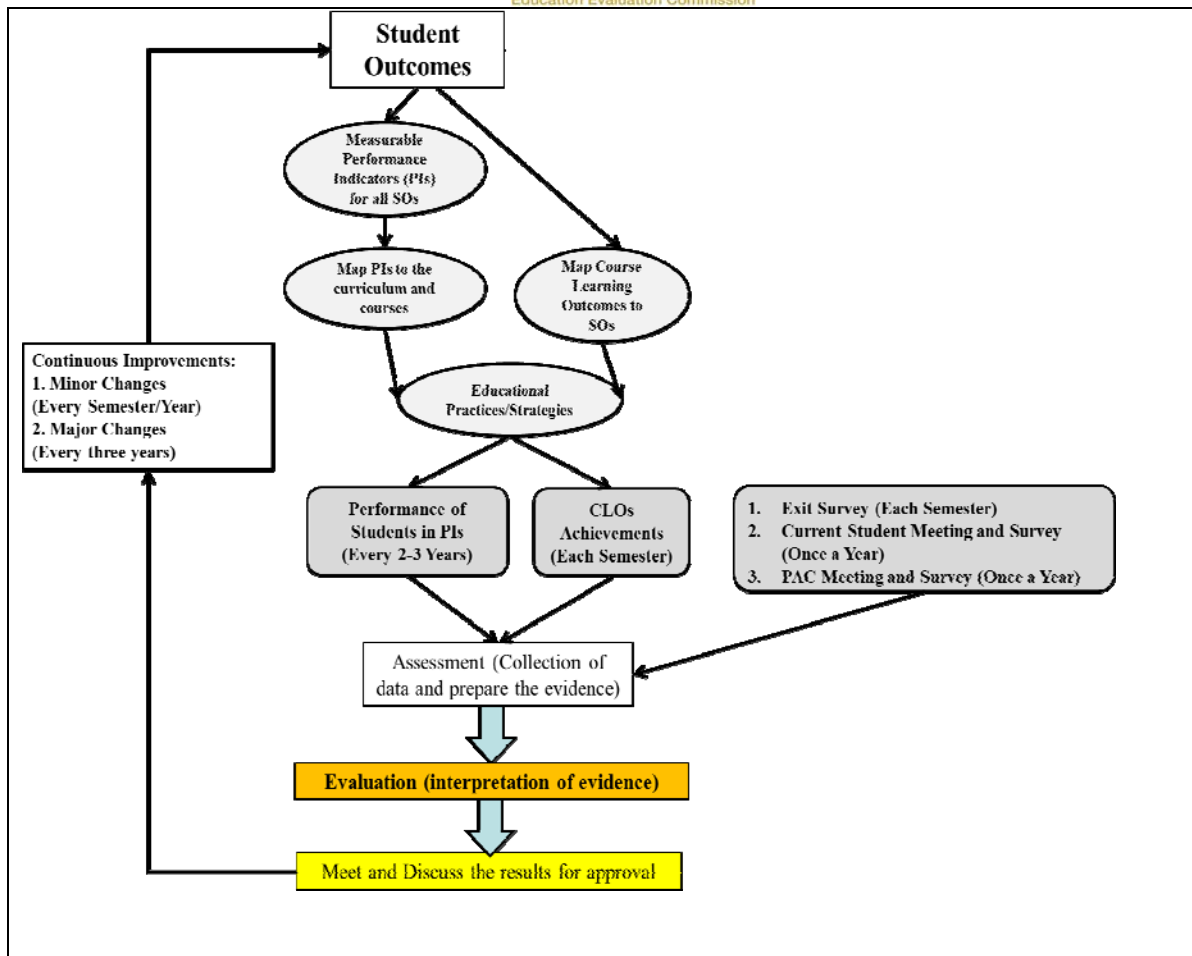
**a. What processes are used to evaluate and improve the strategies for developing learning outcomes in the different domains of learning? (eg. assessment of learning achieved, advice on consistency with learning theory for different types of learning, assessment of understanding and skill of teaching staff in using different strategies)**

The following processes are using to improve the strategies planned for developing the

different domains of learning and related students outcomes adopted for CS program.

1. Online course survey is designed to take the opinion of students about the strategies for developing learning outcomes.
2. The report of the online survey is then reviewed by the program administration and sent to the staff members to adjust their planned strategies, if needed, for delivering and developing learning outcomes.
3. By the end of each semester, the course coordinators review course files and prepare a list of recommendations to be implemented. The recommendations will be prepared according to all activities and learning outcomes developed in the course.
4. The evaluation of each course learning outcomes supports the instructor to improve the planned strategies for the not achieved learning outcomes.
5. Student Course Survey: This is a specific way to take the opinion of students about the course learning outcomes. This can be good indicators for improvements.
6. Current student survey: This is a specific way to take the opinion of students about the course learning outcomes.
7. Exit survey: This survey will be given to students at the time of graduation and it contains questions about the strategies used in the program to develop and deliver the learning outcomes.
8. The dean and the chair of the program meet with students once a year to discuss their opinion about the learning outcomes of the program.
9. Meeting with program student council that represents students from all levels of the program.
10. Breakdown each student learning outcomes into a set of performance indicators along with a set of rubrics to evaluate outcomes using students' performances.

The following figure summarizes the process of assessing and improving student learning outcomes:



**b. What processes are used for evaluating the skills of faculty and teaching staff in using the planned strategies?**

1. Online course survey is designed to take the opinion of students about the effectiveness of teaching.
2. The report of the online survey is then reviewed by the program administration and sent to the staff members to adjust their teaching strategies if needed.
3. By the end of each semester, the course coordinators review course files and prepare a list of recommendations to be implemented. The recommendations will be prepared according to all activities and learning outcomes developed in the course.
4. Student Course Survey : This is a specific a survey to take the opinion of students about the course learning outcomes. This will help the instructor to change his skills in some learning outcomes.
5. Exit survey: This survey will be given to students at the time of graduation and it will contains questions about the teaching strategies in the program.

**2. Overall Program Evaluation**

a. What strategies are used in the program for obtaining assessments of the overall quality of the program and achievement of its intended learning outcomes:

**(i) From current students and graduates of the program?**

The program uses both direct and indirect assessment methods to assess and evaluate the intended learning outcomes.

**Direct assessment methods include:**

1. Assessment of Course Learning Outcomes every semester: The data are collected from the performances of students enrolled in the courses.

2. Performance Indicators, embedded questions and rubrics for each one of the learning outcomes (Once every assessment cycle): A set of performance indicators with a set of rubrics are used to evaluate student learning outcomes. Questions are embedded in exams and other assessment methods to collect students' performances. The data are collected from current students.

**Indirect Assessment Methods**

1. Exit Survey: This survey is used to collect data from students who are about to graduate (By the end of each semester). The survey contains many questions related to the intended learning outcomes of the program. It also contains some questions related to other aspects of the program (Facilities, curriculum, advising system, etc.)

2. Alumni Survey: The graduates of the program give their opinions about the program educational objectives (Statements that describe what students will be able to do after few years of graduation). The data are collected from the alumni once a year.

The Program Curriculum Committee and Steering Committee evaluate the collected data and prepare findings. Actions to be implemented are then approved by the program and college councils.

**(ii) From independent advisors and/or evaluator(s)?**

- 1) External reviewer report: The College already assigned one professor to review the overall program quality by evaluating the program specification and report once a year.
- 2) The overall quality of the program is assessed by the DQU's Consultants of Najran University every three months.

**(iii) From employers and/or other stakeholders.**


1. The department decided to form the Program Advisory Committee (PAC) with the following members:

- Head of the program.
- Faculty members from other universities and one of them are full professor in the area.
- Public and private industrial companies.

The advisory board will meet once a year to discuss the current trend in the computer science program and discuss about the objectives and outcomes of the program as well as the mission.

2. Employer Survey: The employers of our graduates give their opinions about the overall quality of the program through an annual survey called Employer Survey.

#### Authorized Signatures

Dean / Program Chair	Name	Title	Signature	Date
<b>Program Dean or Chair of Board of Trustees Main Campus</b>	Dr. Zakaria Saeed Toukal	Head		September 2016
	Dr. Abdullah Alabas	Dean		September 2016
<b>Vice Rector</b>				