



Higher Technological Institute (HTI)

Department of Computer Sciences
Undergraduate Program Specification

Bachelor of Science in
Computer Sciences
Program Specification

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1. GENERAL

1.1 Basic Information

Award	Program Title	Duration	Mode of study
B.Sc.	Computer Science	4 years	Day Mode

Department	Computer Science
Faculty	Computer Science
Coordinator	Dr\ Rania Ragab Hussein
Assistant Coordinator	Dr\ Dina Awny
External Evaluator(s)	Dr. Mohamed Galal Al Din Aissa
Awarding Institution	Higher Technological Institute
Academic Standards	The program applies National Academic Reference Standards (NARS), October 2010
Program Commencement	October, 2001
Date of Program Specification Approval	2001

1.2 Faculty Members

Professor	1	Appendix (1)
Associate Professor	-	
Teacher	15	
Teacher Assistant	5	
Instructor	14	

1.3 Program External Reviewing

<p>Program reviewing was achieved by:</p> <ol style="list-style-type: none"> 1- Internal reviewing from Institute QAC (appendix 2) 2- External Reviewers CV assigned by Institute QAC(appendix 3) 3- External Reviewer(s) reports (appendix 4) 4- Program response to Internal/External reviewing reports (appendix 5)

2. PROFESSIONAL INFORMATION

2.1 Program Mission

The Computer Science Department at Higher Technological Institute is committed to graduating qualified professionals capable of analysis, creativity, and innovation to keep pace with advancements in the field of computer science. This is achieved in line with local and regional requirements, emphasizing adherence to professional ethics, a focus on scientific research, and active participation in community and environmental development.

2.2 Program Objectives

The Computer Science program is designed to provide the student with the foundations of discipline as well as the opportunity for specialization.

Program aims to:

1. Maintaining excellence in educational experience.
2. Strengthening the competitiveness of graduates.
3. Supporting continuous development through national partnerships.
4. Enhancing the department's role and impact on the local and regional community.
5. Improving the performance of faculty members.
6. Producing innovative scientific research at the local and regional level.

After successfully completing Computer Science program, graduate should be:

Generally, in the computing and Information should be able to:

1. Apply the fundamental theories and principles of computing and information applications.
2. Integrate and evaluate computing tools and facilities.
3. Apply knowledge of mathematics and science.
4. Design a computing system, component, and process to meet the required needs within realistic constraints.
5. Exploit the techniques, skills, and up-to-date computing tools necessary for computing and information practice.
6. Display professional responsibilities and ethical, societal, and cultural concerns.
7. Use, compare and evaluate a range of formal and informal techniques, theories, and methods to develop computing and information applications.
8. Consider and deal with the individual, social, environmental, organizational, and economic implications of the application of computing and information.
9. Carry out a work plan with minimal supervision.
10. Communicate effectively.
11. Hold knowledge and skills required by the computing and information industry.
12. Engage in self and life-long learning and research in computing and information.
13. Fulfill requirements of potential employers.

And specially, in the computer science program should be able to:

1. Demonstrate knowledge and competence in fundamental areas of computer science such as: algorithms, design and analysis, computational theory, computer architecture and software-based systems.
2. Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design, implementation, evaluation, and evolution of computer-based systems.
3. Apply knowledge of mathematics and science to real world problems; as well as to analyze and interpret data.
4. Demonstrate the analytic skills necessary to effectively evaluate the relative merits of software and computer systems, and algorithmic approaches.
5. Understand and apply a wide range of principles and tools of software engineering, such as design methodologies, choice of algorithm, language, software libraries and user interface technique.
6. Understand and apply a wide range of principles and tools of natural language processing and data mining.
7. Have a solid understanding of the used concepts in computer science to be able to pursue further learning, whether as graduate students or on their own.
8. Demonstrate an understanding of algorithms and data structures, computer organization and architecture, programming language concepts, compilers, networks, artificial intelligence, graphics, human computer interfaces, and databases, and identify and define the computing requirements for its solution.
9. Design, implement, and evaluate computer-based systems, process, component or program.
10. Use knowledge and understanding in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoff involved in design choices.

2.3 Intended Learning Outcomes (ILOs) of the Program

2.3.1 Knowledge & understanding:

<u>By the end of the program, students should acquire the knowledge and understand of:</u>	
A1.	Essential facts, concepts, principles, and theories relating to computing and information and computer applications as appropriate to the program of study.
A2.	Modeling and design of computer-based systems bearing in mind the trade-offs.
A3.	Tools, practices, and methodologies used in the specification, design, implementation and evaluation of computer software systems.
A4.	Criteria and specifications appropriate to specific problems, and plan strategies for their solution.
A5.	The extent to which a computer-based system meets the criteria defined for its current use and future development.
A6.	The current and underlying technologies that support computer processing and inter-computer communication.
A7.	Principals of generating tests which investigate the functionality of computer programs and computer systems and evaluating their results.
A8.	Management and economics principles relevant to computing and information disciplines.
A9.	Professional, moral and ethical issues involved in the exploitation of computer technology and be guided by the appropriate professional, ethical and legal practices relevant to the computing and information industry.
A10.	Current developments in computing and information research.
A11.	Requirements, practical constraints, and computer-based systems.
A12.	Essential mathematics relevant to computer science.
A13.	Using of high-level programming languages.
A14.	Demonstrating basic knowledge and understanding of a core of analysis, algebra, applied mathematics and statistics.
A15.	Interpreting and analyzing data qualitatively and/or quantitatively.
A16.	The principles and techniques of several application areas informed by the research directions of the subject, such as artificial intelligence, natural language processing, data mining, databases and computer graphics.
A17.	Showing a critical understanding of the principles of artificial intelligence, image, and pattern recognition.
A18.	The fundamental topics in Computer Science, including hardware and software architectures, software engineering principles and methodologies, operating systems, compilers, parallel and distributed computing, systems, and software tools.

A19.	Selecting advanced topics to provide a deeper understanding of some aspects of the subject, such as hardware systems design, object-oriented analysis and design, and artificial intelligence, and parallel and concurrent computing.
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2.3.2 Intellectual skills:

<u>By the end of the program, students should be able to:</u>	
B1.	Analyze computing problems and provide solutions related to the design and construction of computing systems.
B2.	Realize the concepts, principles, theories and practices behind computing and information as an academic discipline.
B3.	Identify criteria to measure and interpret the appropriateness of a computer system for its current deployment and future evolution.
B4.	Analyze, propose and evaluate alternative computer systems and processes taking into account limitations, and quality constraints.
B5.	Make ideas, proposals and designs using rational and reasoned arguments for presentation of computing systems.
B6.	Evaluate the results of tests to investigate the functionality of computer systems.
B7.	Achieve judgments considering balanced costs, benefits, safety, quality, reliability, and environmental impact
B8.	Familiar with the professional, legal, moral, and ethical issues relevant to the computing industry.
B9.	Evaluate research papers in a range of knowledge areas
B10.	Define traditional and nontraditional problems, set goals towards solving them, and. observes results.
B11.	Perform comparisons between (algorithms, methods, techniques...etc.).
B12.	Perform classifications of (data, results, methods, techniques, algorithms. etc.).
B13.	Identify attributes, components, relationships, patterns, main ideas, and errors.
B14.	Summarize the proposed solutions and their results.
B15.	Restrict solution methodologies upon their results.
B16.	Establish criteria and verify solutions.
B17.	Identify a range of solutions and critically evaluate and justify proposed design solutions.

B18.	Solve computer science problems with pressing commercial or industrial constraints.
B19.	Generate an innovative design to solve a problem containing a range of commercial and industrial constraints.

2.3.3 Professional & practical skills:

<u>By the end of the program, students should be able to:</u>	
C1.	Operate computing equipment, recognizing its logical and physical properties, capabilities and limitations.
C2.	Implement comprehensive computing knowledge and skills in projects and in deployment of computers to solve position practical problems.
C3.	Deploy the equipment and tools used for the construction, maintenance, and documentation of computer applications.
C4.	Apply computing information retrieval skills in computing community environment and industry.
C5.	Develop a range of fundamental research skills, through the use of online resources, technical repositories and library-based material
C6.	Design, implement, maintain, and manage software systems.
C7.	Assess the implications, risks or safety aspects involved in the operation of computing equipment within a specific context.
C8.	Handle a mass of diverse data, assess risk and draw conclusions.
C9.	Use appropriate programming languages, web-based systems and tools, design methodologies, and knowledge and database systems.
C10.	Communicate effectively by oral, written and visual means.
C11.	Perform independent information acquisition and management, using the scientific literature and Web sources.
C12.	Prepare and present seminars to a professional standard.
C13.	Prepare technical reports, and a dissertation, to a professional standard; use IT skills and display mature computer literacy.
C14.	Specify, design, and implement computer-based systems.
C15.	Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem.
C16.	Apply the principles of effective information management, information organization, and information-retrieval skills to information of various kinds, including text, images, sound, and video.
C17.	Apply the principles of human-computer interaction to the evaluation and construction of a wide range of materials including user interfaces, web pages, and multimedia systems.

C18.	Apply and manage the need for continuing professional and practical development in recognition of the need for life long-learning.
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2.3.4 Transferable skills & personal qualities:

<u>By the end of the program, students should be able to:</u>	
D1.	Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.
D2.	Demonstrate skills in group working, team management, time management and organizational skills.
D3.	Show the use of information-retrieval.
D4.	Use an appropriate mix of tools and aids in preparing and presenting reports for a range of audiences, including management, technical, users, industry or the academic community.
D5.	Exhibit appropriate numeracy skills in understanding and presenting cases involving a quantitative dimension.
D6.	Reveal communication skills, public speaking and presentation skills, and delegation, writing skills, oral delivery, and effectively using various media for a variety of audiences.
D7.	Show the use of general computing facilities.
D8.	Demonstrate an appreciation of the need to continue professional development in recognition of the requirement for life-long learning.

2.4 Program’s Academic Reference Standards

The academic standards invoked in this specification are driven based on the National Academic Reference Standards (NARS) for “Computing” approved by the National Authority of Quality Assurance and Accreditation of Education in October 2010.

2.5 Curricula Contents for Computing and Information Disciplines

Time Allowed for the program: minimum of 4 years for normal student to complete the program.

Table 1: Indicative curricula content by subject area

Subject Area		Credits	Program(s) %	NARS Tolerance %
1	Humanities, ethical and Social Science	11	6.8	8-10
2	Mathematics and Basic Science	34	21.3	16-18
3	Basic Computing Science	57	35.6	26-28
4	Applied Computing Science	26	16.3	28-30
5	Training, Graduation Project	26	16.3	10-6
6	Optional (Institution character-identifying subjects)	6	3.7	16-4
Total		160	100%	

2.5.1 Structure of the program

The faculty applies the Credit Course System which is based on the credit units. Students should complete 55 modules, total of 160 credit hours summarized as follows:

- 11 Modules (Institute Requirements) (11 credit hours) (6.8 %)
- 37 Modules (Departmental Compulsory) (117 credit hours) (73.1 %)
- 2 Modules (Departmental Electives) (6 credit hours) (3.8 %)
- 1 Module (Graduation project) (6 credit hours) (3.8 %)
- 4 Modules (Training) (20 credit hours) (12.5 %)

Number of Contact Hours/Credits

Lecture	Exercise	Lab	Total
145	32	90	267

The Department covers the Computer Science program from the areas listed below:

1. Programming Fundamentals
2. Theory / Languages
3. Architecture / Operating Systems
4. Net-Centric Computing
5. Intelligent Systems
6. Information Management
7. Human Computer Interaction / Graphics / Applications
8. Professional Practice
9. Project / Training / Special Topics

Level 1

Compulsory		Requirements	Credits
<u>First Semester</u>			
BSC 110	Mathematics (1)		3
BSC 113	Electronics (1)		4
BSC 114	English (1)		1
BSC 124	Physics		3
CSC 110	Introduction to computers and applications		4
HUM 110	Humanities		1
<u>Second Semester</u>			
BSC 112	Introduction to computer graphics		2
BSC 120	Mathematics (2)	BSC 110	3
BSC 122	Electronics (2)	BSC 113, BSC 124	4
BSC 123	English (2)	BSC 114	1
CSC 121	Structured programming	CSC 110	4
PHE 110	Physical Education (1)		1
<u>Third Semester</u>			
FTR 130	Field Training (1)	N/A	5
<u>Elective courses (optional)</u>			
None			

Level 2

Compulsory		Requirements	Credits
<u>First Semester</u>			
BSC 210	Mathematics (3)	BSC 120	3
BSC 213	Principles of Managements		1
BSC 214	English (3)	BSC 123	1
BSC 215	Logic Design	BSC 122	3
CSC 210	Object Oriented Programming	CSC 121	4
INF 210	Data Structures	CSC 121	3
INF 211	Introduction to information system		3
<u>Second Semester</u>			
BSC 220	Operation Research		3
BSC 222	Statistical Methods		3
BSC 224	Basics of Economics		1
CSC 222	Operating System	CSC 121	3
INF 220	System Analysis	INF 211	3
INF 221	File Organization	INF 210	3
PHE 220	Physical Education (2)		1
<u>Third Semester</u>			
FTR 230	Field Training	FTR 130	5
<u>Elective courses (optional)</u>			
None			

Level 3

Compulsory		Requirements	Credits
First Semester			
BSC 311	Data Communication	BSC 210	3
CSC 310	Computer interface and peripherals	CSC 110	3
CSC 313	Computer Architecture and organization and Assembly language	BSC 215	3
INF 310	Design of information System	INF 220	3
INF 311	Database Management Systems (1)	INF 220	4
Second Semester			
BSC 320	English (4)	BSC 214	1
CSC 320	Software Engineering (1)	INF 220	3
CSC 322	Computer Networks	BSC 311	3
CSC 323	Computer Graphics (1)	CSC 121	3
CSC 324	Logic Programming	BSC 215	4
INF 320	Decision Support System	BSC 220	3
HUM 320	Humanities (2)		1
Third Semester			
FTR 330	Field Training	FTR 230	5
Elective courses (optional)			
None			

Level 4

Compulsory		Requirements	Credits
First Semester			
BSC 410	English (5)	BSC 320	1
CSC 400	Graduation Project		6
CSC 411	Modeling and Simulation	BSC 220	3
CSC 412	Artificial Intelligence	CSC 210	3
CSC 414	Software Engineering (2)	CSC 320	4
CSC 416	Network Programming	CSC 322	4
Second Semester			
CSC 400	Graduation Project		6
CSC 420	Expert System	CSC 412	3
CSC 423	Distributed and parallel computer systems	CSC 313	3
CSC 424	Multimedia	CSC 210	3
CSC 426	Neural Network	CSC 412	3
Third Semester			
FTR 430	Field Training	FTR 330	5
Elective courses (optional)			
CNE 410	Local Area Network		
CNE 411	Network Protocols		

Compulsory		Requirements	Credits
CNE 412	Wireless Wide Area Networks		
CNE 413	Wireless Local Area Networks		
CNE 414	Intelligent Networks		
CNE 420	Network Operating Systems		
CNE 421	Network Management		
CNE 422	Network Security		
CNE 423	Satellites Communication Systems		
CNE 424	Switching and Routing Technology		
CNE 425	Integrated Service of Digital Networks		
CSC 425	Distributed Systems		
CSC 427	Virtual Reality		
INF 410	Database Management Systems (2)		
INF 411	Information Engineering		
INF 420	Information Security		
INF 422	Distributed Information Systems		
INF 425	Geographical Information Systems		
INF 426	Office Automation Systems		
INF 427	Management Information Systems		
INF 428	E-Commerce Systems		
INF 430	Data Warehousing		
INF 431	Data Mining		
INF 432	Project Management		
INF 433	Software Quality Assurance		

2.5.2 Total program courses:

Compulsory	Electives	Total
53 / 154 Cr.	2 / 6 Cr.	55 / 160Cr.

2.6 Curriculum Progression

2.6.1 Intended learning outcomes for each Level:

Level	Educational Objectives based on ILOs for each level
Level 1	The curriculum is designed to have a broad-based structure, which utilizes the knowledge of the new entrants to build a strong foundation through Introductory Level modules. Mathematical and fundamental computer skills are emphasized early to prepare for more rigors later. Mathematical, physics, and computer skills are used to develop knowledge, understanding, and intellectual skills. In addition, other University-based modules help improve students' skills in the English language and social/cultural/ humanities issues.

Level	Educational Objectives based on ILOs for each level
Level 2	<p>The aim of the core modules taught at this level is to prepare students for more complex and specialist work which could be studied at a later stage. Nevertheless, wide coverage of the topics is necessary to enable choice and coherence of the curriculum. The core modules that could form the Intermediate Level modules are designed for this purpose. Intellectual skills may be developed through these modules by solving problems, writing programs, developing small software systems, etc. The faculty requirements that include essential transferable skills, creative thinking, and ethical issues contribute to relevance and breadth.</p>
Level 3	<p>As the students' progress to the third and final levels, they should be well-informed about the overall subject area and mature enough to make informed choices. The curriculum structure has clearly defined prerequisites and displays pathways providing some specializations, e.g., Artificial Intelligence, Software Engineering, etc. Third-year modules help develop students' cognitive abilities and skills for programming in different platforms, theoretical aspects, modeling, building computer-based systems, problem-solving by analyzing criteria and specifications appropriate to certain problems and report writing. It is, however, important to realize that theoretical studies must be supported with practical and real-life professional experience. Other generic skills must also be developed. This is achieved by organizing suitable work experience in the industry for the students in the practical training module. The elective modules in the 3rd and 4th years allow some flexibility for the student</p>
Level 4	<p>The final level allows more flexibility for the student by providing the graduation project and other Advanced Level modules. The graduate project is of cardinal importance as it represents an amalgam of various skills and key components of the program learned so far by the student. It encourages the student to exercise flair and originality and demands strong commitment from him/her. Suitable project supervision ensures that the student is given guidance and support when required. However, the ethos of self-reliance and research has to be paramount. Regular maintenance of documentation and communication develops written and oral skills.</p> <p>With advanced modules, an appropriate depth of knowledge reflects the staff's research interest and stimulates students to take the opportunity to develop their intellectual abilities.</p>

2.6.2 Detailed curricula content by subject credit/contact hours:

Table (1) Detailed curricula content by subject vs Subject Area according to NARS

Course code	Course name	Number of Hours		Pre-requisite	Subject Area according to NARS					
		Lectures	Exercise/Practical		Hum. & Soc. Sc.	Basic Sciences	Basic Comp. Sciences	Applied Comp. Sciences	Project, Training, Practice	Optional (ICS)
BSC 110	Mathematics (1)	3	2/0	N/A	0	3	0	0	0	0
BSC 112	Introduction To Computer Graphics	2	0/2	N/A	0	1	1	0	0	0
BSC 113	Electronics (1)	3	3/0	N/A	0	3	1	0	0	0
BSC 114	English (1)	3	0	N/A	1	0	0	0	0	0
BSC 120	Mathematics (2)	3	2/0	BSC 110	0	3	0	0	0	0
BSC 122	Electronics (2)	3	3/0	BSC 113, BSC 124	0	3	1	0	0	0
BSC 123	English (2)	3	0	BSC 114	1	0	0	0	0	0
BSC 124	Physics	3	2/0	N/A	0	3	0	0	0	0
BSC 210	Mathematics (3)	3	2/0	BSC 120	0	3	0	0	0	0
BSC 213	Principles of Administration	2	0	N/A	1	0	0	0	0	0
BSC 214	English (3)	2	0	BSC 123	1	0	0	0	0	0
BSC 215	Logic Design	3	2/0	BSC 122	0	3	0	0	0	0
BSC 220	Operation Research	3	2/0	N/A	0	2	1	0	0	0
BSC 222	Statistical Methods	3	2/0	N/A	0	3	0	0	0	0
BSC 224	Principles Of Economics	3	0	N/A	1	0	0	0	0	0
BSC 311	Data Communication	3	2/0	BSC 210	0	1	1	1	0	0
BSC 320	English (4)	2	0	BSC 214	1	0	0	0	0	0
BSC 410	English (5)	1	0/3	BSC 320	1	0	0	0	0	0
CNE 410	Local Area Network	3	0/1	CSC 322	0	0	1	2	0	0
CNE 411	Network Protocols	3	0/2	CSC 322	0	0	0	0	0	3
CNE 412	Wireless Wide Area Networks	3	0/2	CSC 322	0	0	0	0	0	4
CNE 413	Wireless Local Area Networks	3	0/2	N/A	0	0	0	0	0	3
CNE 414	Intelligent Networks	3	0/2	N/A	0	0	0	0	0	3
CNE 420	Network Operating Systems	3	0/2	CNE 411	0	0	0	0	0	3

Course code	Course name	Number of Hours		Pre-requisite	Subject Area according to NARS					
		Lectures	Exercise/Practical		Hum. & Soc. Sc.	Basic Sciences	Basic Comp. Sciences	Applied Comp. Sciences	Project, Training, Practice	Optional (ICS)
CNE 421	Network Management	3	0/2	CNE 411	0	0	0	0	0	3
CNE 422	Network Security	3	0/2	CSC 322	0	0	0	0	0	3
CNE 423	Satellites Communication Systems	3	0/2	N/A	0	0	0	0	0	3
CNE 424	Switching and Routing Technology	3	0/2	N/A	0	0	0	0	0	3
CNE 425	Integrated Service of Digital Networks	3	0/2	N/A	0	0	0	0	0	3
CSC 110	Introduction To Computers and Application	3	0/3	N/A	0	1	3	0	0	0
CSC 121	Structural Programming	3	0/3	CSC 110	0	1	3	0	0	0
CSC 210	Object Oriented Programming	3	0/3	CSC 121	0	0	3	1	0	0
CSC 222	Operating Systems	3	0/2	CSC 121	0	1	2	0	0	0
CSC 310	Peripherals And Interfaces	3	0/2	CSC 110	0	1	2	0	0	0
CSC 313	Computer Architecture and Assembly Language	3	1/2	BSC 215	0	0	3	1	0	0
CSC 320	Software Engineering (1)	3	0/2	INF 220	0	0	3	0	0	0
CSC 322	Computer Networks	3	0/2	BSC 311	0	0	3	0	0	0
CSC 323	Computer Graphics	3	0/2	CSC 121	0	0	2	1	0	0
CSC 324	Logic Programming	3	0/2	BSC 215	0	0	3	1	0	0
CSC 400	Graduation Project	1	0/5	N/A	0	0	0	0	6	0
CSC 411	Modelling And Simulation	3	0/2	BSC220	0	1	1	1	0	0
CSC 412	Artificial Intelligence	3	0/2	CSC 210	0	0	2	1	0	0
CSC 414	Software Engineering (2)	3	0/2	CSC 320	0	0	2	2	0	0
CSC 415	Compilers Theories	3	0/2	CSC 210	0	0	0	0	0	3
CSC 416	Network Programming	3	0/2	CSC 322	0	0	1	3	0	0
CSC 417	Image Processing	3	0/2	CSC 412	0	0	0	0	0	3

Course code	Course name	Number of Hours		Pre-requisite	Subject Area according to NARS					
		Lectures	Exercise/Practical		Hum. & Soc. Sc.	Basic Sciences	Basic Comp. Sciences	Applied Comp. Sciences	Project, Training, Practice	Optional (ICS)
CSC 420	Expert Systems	3	0/2	CSC 412	0	0	0	3	0	0
CSC 421	Computational Theory	3	0/2	N/A	0	0	0	0	0	3
CSC 423	Parallel And Distributed Systems	2	2/0	CSC 313	0	0	0	3	0	0
CSC 424	Multimedia	3	0/2	CSC 210	0	0	0	3	0	0
CSC 425	Distributed Systems	3	2/0	CSC 313	0	0	0	0	0	3
CSC 426	Neural Networks	2	0/2	CSC 412	0	0	0	3	0	0
CSC 428	Internet And Intranet Programming	3	0/2	INF 310	0	0	0	0	0	3
CSC 429	Computer Graphics (2)	3	0/2	CSC 323	0	0	0	0	0	3
CSC 430	Pattern Recognition	3	0/2	CSC 412	0	0	0	0	0	3
CSC 434	Microprocessor-Based Systems	3	0/2	BSC 215	0	0	0	0	0	3
FTR 130	Field Training (1)	3	0/6	N/A	0	0	0	0	5	0
FTR 230	Field Training (2)	3	0/6	FTR 130	0	0	0	0	5	0
FTR 330	Field Training (3)	3	0/6	FTR 230	0	0	0	0	5	0
FTR 430	Field Training (4)	3	0/6	FTR 330	0	0	0	0	5	0
HUM 110	Humanities (1)	2	0	N/A	1	0	0	0	0	0
HUM 320	Humanities (2)	2	0	N/A	1	0	0	0	0	0
INF 210	Data Structures	3	0/2	CSC 121	0	0	3	0	0	0
INF 211	Introduction To Information Systems	3	0/2	N/A	0	0	3	0	0	0
INF 220	System Analysis	3	0/2	INF 211	0	0	3	0	0	0
INF 221	File Organization	3	2/0	INF 210	0	1	2	0	0	0
INF 310	Design Of Information Systems	3	0/2	INF 220	0	0	2	1	0	0
INF 311	Database Management Systems	3	1/2	INF220	0	0	3	1	0	0

Course code	Course name	Number of Hours		Pre-requisite	Subject Area according to NARS					
		Lectures	Exercise/Practical		Hum. & Soc. Sc.	Basic Sciences	Basic Comp. Sciences	Applied Comp. Sciences	Project, Training, Practice	Optional (ICS)
	(1)									
INF 320	Decision Support Systems	2	2/0	BSC220	0	0	2	0	0	0
INF 410	Database Management Systems (2)	3	0/2	N/A	0	0	0	0	0	3
INF 411	Information Engineering	3	0/2	N/A	0	0	0	0	0	3
INF 420	Information Security	3	0/2	BSC311	0	0	0	0	0	3
INF 422	Distributed Information Systems	3	0/2	N/A	0	0	0	0	0	3
INF 425	Geographical Information Systems	3	0/2	N/A	0	0	0	0	0	3
INF 426	Office Automation Systems	3	0/2	N/A	0	0	0	0	0	3
INF 427	Management Information Systems	3	0/2	N/A	0	0	0	0	0	3
INF 428	E-Commerce Systems	3	0/2	N/A	0	0	0	0	0	3
INF 430	Data Warehousing	3	0/2	N/A	0	0	0	0	0	3
INF 431	Data Mining	3	0/2	N/A	0	0	0	0	0	3
INF 432	Project Management	3	0/2	N/A	0	0	0	0	0	3
INF 433	Software Quality Assurance	3	0/2	INF 211	0	0	0	0	0	3
PHE 110	Physical Education (1)	1	0/1	N/A	1	0	0	0	0	0
PHE 220	Physical Education (2)	1	0/1	N/A	1	0	0	0	0	0
Total		187	32/142		11	34	57	26	26	6
					6.8%	21.3%	35.6%	16.3%	16.3%	3.7%
Percentage according to NARS requirements					8-10%	16-18%	26-28%	28-30%	6-10%	16-4%

**2.7 CURRICULUM MAP OF COURSE UNITS AGAINST INTENDED LEARNING
OUTCOMES OF THE CS-PROGRAM**

(Attached, A3 matrix for CS program ILOs)

Table 2: CS Program's courses and ILOs Matrix

Code	Course	Knowledge (A)	Intellectual (B)	Prof&Practical (C)	Transfer (D)
BSC 110	Mathematics (1)	1,3,4,5,6	1,4,7	2	1,2,5
BSC 112	Introduction To Computer Graphics	1,7	1,8,9	1, 2,7	1,7, 4
BSC 113	Electronics (1)	12, 14,15,18,19	11,12,14,15, 16	11,14	1,2,3,4
BSC 114	English (1)	1,3,4	1,25	10,11,12	1,2,6,7
BSC 120	Mathematics (2)	1,3,11,17,19	10,11,12,14, 17	9,14	1,2,3
BSC 122	Electronics (2)	12,14	11	6	1,2
BSC 123	English (2)	1,3,9,10	2,4	10,15	1,2,6,7
BSC 124	Physics	5,9,11,13,16,17,19	10,11,17	9,14	1,2,3
BSC 210	Mathematics (3)	1,3,12,14	1,2,10	2,18	5,8
BSC 213	Principles of Administration	1,3,9	1,3,6,8	1,2,4,6	1,2,4
BSC 214	English (3)	1,3,9,10	2,4	10,15	1,27
BSC 215	Logic Design	12,14	11	6	1,2
BSC 220	Operations Research	1, 2, 3, 4, 6, 11	5, 7, 10	2, 4, 9	3, 5, 7
BSC 222	Statistical Methods	12,14,15,16,19	10,11,12,14,17	9,11,14	1,2,3
BSC 224	Principles Of Economics	1,2,3	1,2,3,4	1,2,3	1,2,3
BSC 311	Data Communication	5,6,7,11,16,19	6,11,12,17	1,5,7,8,16	2,3,7
BSC 320	English (4)	1,3,9,10	1,2,4	10,11,15	1,2,6,7
BSC 410	English (5)	1,3,9,10	2,4	10,15	1,2,6,7
CNE 410	Local Area Network	2,3,6,13,16,18	2,13,15	5,8,9,13,14,16	3,4
CNE 411	Network Protocols	1,3,5,6,7,11	1,5,6,11,12	1,2,5,7,8,14	1,2,3,7
CNE 412	Wireless Wide Area Networks	1,6,11,14,19	2,11,17,19	1,13,15,18	2,7
CNE 413	Wireless Local Area Networks	1,6,10,11,14,19	2,11,15,17,18,19	1,13,15,17,18	2,7
CNE 414	Intelligent Networks	1,2,3,5,6,7,11,15,18	1,5,12	1,2,14	1,2
CNE 420	Network Operating Systems	1,6,11,13,14,19	2,11,15,17	1,13,15,17,18	2,7
CNE 421	Network Management	1,3,6,11	6,11,12,19	1,11,14	1,2,3
CNE 422	Network Security	1,3,6,11	6,11,19	1,11,12,14	1,2,3
CNE 423	Satellites Communication Systems	1,3,11	6,11,19	1,14	1,3
CNE 424	Switching and Routing Technology	1,11,16,19,20	2,11,13,16,17,19	6,9,13,14,18	4,7
CNE 425	Integrated Service of Digital Networks	1,3,6,11	6,11,19	1,6,14	1,3
CSC 110	Introduction To Computers and Applications	1,2,5,6,9,10	2,3,8,9	1,3,5	3,7
CSC 121	Structural Programming	2,7,13,15	1,5,6,12	4,6,9	3,7

Code	Course	Knowledge (A)	Intellectual (B)	Prof&Practical (C)	Transfer (D)
CSC 210	Object Oriented Programming	1,2,7	1,5	6,8,9	3,7
CSC 222	Operating Systems	3,5,10,11	3,4,6,8,9	1,3,5,7	1,8
CSC 310	Peripherals And Interfaces	3,6	2,7	6,9	1,4
CSC 313	Computer Architecture and Assembly Language	1,3,4,7,11	2,4,6	3,7,14,17	1,4
CSC 320	Software Engineering (1)	4,5,7,10,11	8,10,11,13	3,6,7	2,7,8
CSC 322	Computer Networks	1,3,6,11	6,11,12,19	1,11,14	1,2,3
CSC 323	Computer Graphics	3,6,11	2,7,9	6,9,12	1,4
CSC 324	Logic Programming	2,7,13,15	1,5,6,12	4,6,9	3,7
CSC 400	Graduation Project	8,9,10,15,11,19	3,4,6-9,12,18,19	1,2,4,5,6,7,9,10,12-18	1,2,3,4,6,8
CSC 411	Modelling And Simulation	2,7,19	5,6,11,15,18	2,3,9,10,17	2,5,7
CSC 412	Artificial Intelligence	13,16,17,18,19	10,11,12,14,17	9,11,14	1,2,3
CSC 414	Software Engineering (2)	4,5,14,18,19	11,12,13,16,19	6,7,9,11,12,15	2,4
CSC 415	Compilers Theories	1,3,5,7,19	1,6,11,12,14	1,2,6,9	2,7
CSC 416	Network Programming	1,6,7,12,15,18	2,5,11,15	6, 18	2,7
CSC 417	Image Processing	2,4,8,13,17	8,10,13,16,19	1,3,7,9,11,14,16	1,4,7
CSC 420	Expert Systems	3,13,14,15	14,15,17	11,13,15,16,18	3,4,5
CSC 421	Computational Theory	1,5,7,19	1,6,11,12,14	6,9	1,2,3,7
CSC 423	Parallel And Distributed Systems	2,6,7,16,18,19	7,9,15	1,3,6,9,15,18	2,4
CSC 424	Multimedia	11,13,16,17	7,12,16,18,19	1,3,9,12,16,17	1,2
CSC 425	Distributed Systems	4,5,6,19	3,5,15	7,11,14	4,7
CSC 426	Neural Networks	1,16,17,19	10,14,17	9,11,14	2,3,8
CSC 427	Virtual Reality	1,3,7	2,11,12	8,14	1,2
CSC 428	Internet And Intranet Programming	3,4,7,9	1,2,11	2,6,9,11	2,4
CSC 429	Computer Graphics (2)	1,11	6,19	1,12,14	1,3
CSC 430	Pattern Recognition	2,4,8,13,17	8,10,13,16	1,3,7,9,12,16	1,4,7
CSC 434	Microprocessor-Based Systems	2,7,10,19	5,6,18	2,3,10,17	2,7
FTR 130	Field Training (1)	6,9,11	1,3,13,15	2,4,9,13-18	4,6,8
FTR 230	Field Training (2)	6,9,11	1,3,13,15	2,4,9,13-18	4,6,8
FTR 330	Field Training (3)	6,9,11	1,3,13,15	2,4,9,13-18	4,6,8
FTR 430	Field Training (4)	6,9,11	1,3,13,15	2,4,9,13-18	4,6,8
HUM 110	Humanities (1)	1,3,9	1,3,8	1,2,6	1,2,6
HUM 320	Humanities (2)	1,3,9	1,3,6,8	1,2,6	1,2,6
INF 210	Data Structures	1,3,10,11	4,11,12	3,8,9	3,5,7
INF 211	Introduction To Information Systems	1,4,11,14	1, 2, 12, 13	4, 16	1, 2
INF 220	System Analysis	1,3,10,13,18	1,5,10,14,15,17	3,6,9,13,14	2,3,7
INF 221	File Organization	1,5,11,19	8,10,11,17	3,6,7,12,18	3,7
INF 310	Design Of Information Systems	1,2,12	1,2,3	1,2,3	1,2

Code	Course	Knowledge (A)	Intellectual (B)	Prof&Practical (C)	Transfer (D)
INF 311	Database Management Systems (1)	1,2,3,7	3,4,10	2,4,6,8,9	3,5
INF 320	Decision Support Systems	16,17,19	10,11,12,14,17	9,11,14	1,2,3
INF 410	Database Management Systems (2)	1,2,3,7	13-15	2,4,6,8,9	3,5
INF 411	Information Engineering	1,3,12,13	2,4,10,15,17	4,5,8,11,13,15	1,3,4,7
INF 420	Information Security	1,2,6,9,10,17	2,4,6,7,8,16,18	2,6,7,11	7,8
INF 422	Distributed Information Systems	2,4,8,19	1,2,15	4,8,14	3,6,8
INF 425	Geographical Information Systems	1,4,12,13,17,20	2,5,11	4,8,11,18	3,7
INF 426	Office Automation Systems	2,6,3,13,16,18	2,13-15	5,8,9,13,14,16	3,4
INF 427	Management Information Systems	2,16,18	7,8,9	3,9,18	3,5,8
INF 428	E-Commerce Systems	2,4,5,6,7,8,17,19	1,2,3,5,10,11,13,15	4,6,8,11,12,13,14	3,5,8
INF 430	Data Warehousing	1,2,3,7	3,4,10	2,4,6,8,9	3,5
INF 431	Data Mining	3,13,14	11,14,15,17	11,15,18,19	3,5
INF 432	Project Management	4,5,7,11	8,10,11,14	3,6,7	3,7
INF 433	Software Quality Assurance	4,5,7,10,11	8,10,11,13	3,6,7	2,7,8
PHE 110	Physical Education (1)				
PHE 220	Physical Education (2)				

3. CRITERIA FOR ADMISSION

- The department of (Computer Science, Higher Technological Institute (HTI)) offers higher education in specialized programs for defined tuition fees decided by the Faculty Council every year. The students who benefit from this education are those who have completed the Egyptian High School Certificate (Thanaweya Amma certificate- Mathematics or Science Streams) or equivalent (e.g., IGCSE, American Diploma, certificates from other countries approved by the Supreme Council of Universities of Egypt (SCU)) and enrolled to the Computer Science Department through the National Admission Office in the same year of achieving this Certificate or equivalent. The student keeps his/her education as long as he/she fulfills the conditions mandated by the Egyptian Laws for Universities and this Bylaw.
- **Science stream students** must pass the course **Math0** for high school mathematics students, and the time specified for holding the exam is set by the Supreme Council of Universities.
- All programs in this Bylaw are offered with the Credit-Hour System.
- The department of (Computer Science, Higher Technological Institute (HTI)), can award extra scholarships for students who have achieved a high GPA, or students with limited financial abilities, according to the rules announced by the Institute every year.
- Students are allowed to register in the required courses to achieve the degree awarding requirements for the program.
- Students are allowed to register in the required courses to achieve the degree awarding requirements for the program. Any registered credit hours beyond the program required credit

hours for any reason is charged the separate tuition fees decided by the department council every year at the year of registering the course.

- Students must register a minimum of 9 credit hours every main semester

4. PROGRESSION AND ASSESSMENT REGULATIONS

- The minimum number of credit hours required for obtaining the Bachelor of Science Degree (B.Sc.) is **160 credit hours** in no less than **seven semesters**.
- The marks of each course are distributed as percentages of the total score, divided into the semester class work (activities) of the course (30% by 15% for the lecture, 15% for the lab and/or exercises), the mid-term exam (30%), the final practical exam (10% If any), and the final written exam (30% for courses that have a final practical exam, and 40% for courses that do not have a final practical exam).
- The student's entry to the final exam requires achieving an attendance rate of no less than "75%" of the lectures and exercises in each course. If the student's absence - without an acceptable excuse - in one of the courses exceeds "25%", the Institute Council may deprive him of entering the final exam, and he is given a score of "zero" in the final exam score for the course.
- For the student to pass a course, **the minimum mark that must be earned in the final exam is 30% of the total exam marks**, otherwise the student will fail the course irrespective of the total marks he/she earned in the course, and he/she will get an (F) grade in this course.
- The student fails the course if he/she obtains an (F) grade (less than 50% of the course marks) or did not attend the final examination without submitting a prior excuse that is accepted by the Education and Student Affairs Committee and approved by the Council of the Department or was not allowed to attend the final examination because of exceeding the absence percentage or cheating ... etc.
- The minimum number of students required to open a course is **15 students**. Course opening is subject to the availability of teaching staff and the proper allocation of facilities. The Programs Administration Board may provide exceptions to these limits if there is a necessity.
- The department regulations governing the Work and Attendance of students are given in the Student Guide 2022/2023. Full attendance is required at all lectures, laboratories, and any tutorials which may be scheduled. Completed laboratory work should be handed in on time. Attendance at laboratories and at many lectures is monitored and attendance registers kept.
- **Absence for holidays is not permitted in term-time. The duty of the lecturer is to keep continuous review of the work and attendance of the students with whom he is concerned.**
- If the rate of student absences, in a module, is greater than 25% (or 30% for student representing the department in sportive or cultural activities) of the completely accredited hours and the student has no acceptable justification, then this student is excluded from that module. If The Council of the higher technological institute 10th of Ramadan accepts the justifications of absence, then this student is mentioned as withdrawn without refunding the registration fees.

5. Teaching & Learning Methods Assessment

Method (tool)	Intended leaning outcomes assessed
Lectures, e-Learning , Brain storming, Discussions, Problem solving , Presentations, Tutorials.	Knowledge and Understanding - Intellectual Skills - Professional Skills - General Skills.
Research and Reports, Site visit &.Self-learning	Professional Skills - General Skills.
Laboratories, Experiments & Projects.	Professional Skills - General Skills.

6.Student Assessment

Method (tool)	Intended leaning outcomes assessed
Written examinations, In-class questions	Knowledge and Understanding - Intellectual Skills - Professional Skills - General Skills.
Reports, assignments, quizzes, and Online Quiz.	Knowledge and understanding
Graduation project	Professional Skills - General Skills.
Practical / Exercise Exam	Professional Skills - General Skills.

Table (3) shows the Teaching and Assessment Matrix that lists the modules' numbers and titles, their teaching and assessment strategies, and the assessment weights. Note modules are of 1/2/3/4 credit hours which are equivalent to 3 or more class contact lectures, lab, tutorials, and so on. This information is available in the Modules Handbook.

Table 3: Teaching and Assessment Matrix

Module Code and Name	Lecture		Laboratory		Tutorial		Assignments/ Projects, Quizzes, or other Marks %		Total	
	Hour / week	Exam Mark %	Hour/ week	Lab. Mark %	Hour/ week	Tutorial Mark %	MT Exam	Lecture Work	Hour/ week	Assess. Mark %
BSC 110 Mathematics (1)	3	40	-	-	2	10	30	20	5	100%
BSC 112 Introduction to Compute Graphics	2	30	2	10	-	10	30	20	4	100%
BSC 113 Electronics (1)	3	40	-	-	3	10	30	20	6	100%
BSC 114 English (1)	3	40	-	-	-	10	30	20	3	100%
BSC 120 Mathematics (2)	3	40	-	-	2	10	30	20	5	100%
BSC 122 Electronics (2)	3	40	-	-	3	10	30	20	6	100%
BSC 123 English (2)	3	40	-	-	-	10	30	20	3	100%
BSC 124 Physics	3	40	-	-	2	10	30	20	5	100%
BSC 210 Mathematics (3)	3	40	-	-	2	10	30	20	5	100%
BSC 213 Principles of Administration	2	40	-	-	-	10	30	20	2	100%
BSC 214 English (3)	2	40	-	-	-	10	30	20	2	100%
BSC 215 Logic Design	3	40	-	-	2	10	30	20	5	100%

Module Code and Name	Lecture		Laboratory		Tutorial		Assignments/ Projects, Quizzes, or other Marks %		Total	
	Hour / week	Exam Mark %	Hour/ week	Lab. Mark %	Hour/ week	Tutorial Mark %	MT Exam	Lecture Work	Hour/ week	Assess. Mark %
BSC 220 Operation Research	3	40	-	-	2	10	30	20	5	100%
BSC 222 Statistical Methods	3	40	-	-	2	10	30	20	5	100%
BSC 224 Principles of Economics	3	40	-	-	-	10	30	20	3	100%
BSC 311 Data Communication	3	40	-	-	2	10	30	20	5	100%
BSC 320 English (4)	2	40	-	-	-	10	30	20	2	
BSC 410 English (5)	-	30	3	10	-	10	30	20	3	
CNE 410 Local Area Network	3	30	1	10	-	10	30	20	4	100%
CNE 411 Network Protocols	3	30	2	10	-	10	30	20	5	100%
CNE 412 Wireless Wide Area Networks	3	30	2	10	-	10	30	20	5	100%
CNE 413 Wireless Local Area Networks	3	30	2	10	-	10	30	20	5	100%
CNE 414 Intelligent Networks	3	30	2	10	-	10	30	20	5	100%
CNE 420 Network Operating Systems	3	30	2	10	-	10	30	20	5	100%
CNE 421 Network Management	3	30	2	10	-	10	30	20	5	100%
CNE 422 Network Security	3	30	2	10	-	10	30	20	5	100%
CNE 423 Satellites Communication Systems	3	30	2	10	-	10	30	20	5	100%
CNE 424 Switching and Routing Technology	3	30	2	10	-	10	30	20	5	100%
CNE 425 Integrated Service of Digital Networks	3	30	2	10	-	10	30	20	5	100%
CSC 110 Introduction to Computers and Application	3	30	3	10	-	10	30	20	6	100%
CSC 121 Structural Programming	3	30	3	10	-	10	30	20	6	100%
CSC 210 Object Oriented Programming	3	30	3	10	-	10	30	20	6	100%
CSC 222 Operating Systems	3	30	2	10	-	10	30	20	5	100%
CSC 310 Peripherals and Interfaces	3	30	2	10	-	10	30	20	5	100%
CSC 313 Computer Architecture and Assembly Language	3	30	2	10	1	10	30	20	6	100%
CSC 320 Software Engineering (1)	3	30	2	10	-	10	30	20	5	100%
CSC 322 Computer Networks	3	30	2	10	-	10	30	20	5	100%
CSC 323 Computer	3	30	2	10	-	10	30	20	5	100%

Module Code and Name	Lecture		Laboratory		Tutorial		Assignments/ Projects, Quizzes, or other Marks %		Total	
	Hour / week	Exam Mark %	Hour/ week	Lab. Mark %	Hour/ week	Tutorial Mark %	MT Exam	Lecture Work	Hour/ week	Assess. Mark %
Graphics										
CSC 324 Logic Programming	3	30	2	10	-	10	30	20	5	100%
CSC 400 Graduation Project	1	30	5	10	-	10	30	20	6	100%
CSC 411 Modelling and Simulation	3	30	2	10	-	10	30	20	5	100%
CSC 412 Artificial Intelligence	3	30	2	10	-	10	30	20	5	100%
CSC 414 Software Engineering (2)	3	30	2	10	-	10	30	20	5	100%
CSC 415 Compilers Theories	3	30	2	10	-	10	30	20	5	100%
CSC 416 Network Programming	3	30	2	10	-	10	30	20	5	100%
CSC 417 Image Processing	3	30	2	10	-	10	30	20	5	100%
CSC 420 Expert Systems	3	30	2	10	-	10	30	20	5	100%
CSC 421 Computational Theory	3	40	-		2	10	30	20	5	100%
CSC 423 Parallel and Distributed Systems	2	30	-	10	2	10	30	20	4	100%
CSC 424 Multimedia	3	30	2	10	-	10	30	20	5	100%
CSC 425 Distributed Systems	3	40	-	-	2	10	30	20	5	100%
CSC 426 Neural Networks	2	30	2	10	-	10	30	20	4	100%
CSC 428 Internet and Intranet Programming	3	30	2	10	-	10	30	20	5	100%
CSC 429 Computer Graphics (2)	3	30	2	10	-	10	30	20	5	100%
CSC 430 Pattern Recognition	3	30	2	10	-	10	30	20	5	100%
CSC 434 Microprocessor-Based Systems	3	30	2	10	-	10	30	20	5	100%
FTR 130 Field Training (1)	3	30	6	10	-	10	30	20	9	100%
FTR 230 Field Training (2)	3	30	6	10	-	10	30	20	9	100%
FTR 330 Field Training (3)	3	30	6	10	-	10	30	20	9	100%
FTR 430 Field Training (4)	3	30	6	10	-	10	30	20	9	100%
HUM 110 Humanities (1)	2	40	-	-	-	10	30	20	2	100%
HUM 320 Humanities (2)	2	40	-	-	-	10	30	20	2	100%
INF 210 Data Structures	3	30	2	10	-	10	30	20	5	100%
INF Introduction to Information Systems 211	3	30	2	10	-	10	30	20	5	100%
INF 220 System Analysis	3	30	2	10	-	10	30	20	5	100%
INF 221 File Organization	3	40	-	-	2	10	30	20	5	100%
INF 310 Design of Information Systems	3	30	2	10	-	10	30	20	5	100%
INF 311 Database Management Systems (1)	3	30	2	10	1	10	30	20	6	100%
INF 320 Decision Support Systems	2	40	-	-	2	10	30	20	4	100%

Module Code and Name	Lecture		Laboratory		Tutorial		Assignments/ Projects, Quizzes, or other Marks %		Total	
	Hour / week	Exam Mark %	Hour/ week	Lab. Mark %	Hour/ week	Tutorial Mark %	MT Exam	Lecture Work	Hour/ week	Assess. Mark %
INF 410 Database Management Systems (2)	3	30	2	10	-	10	30	20	5	100%
INF 411 Information Engineering	3	30	2	10	-	10	30	20	5	100%
INF 420 Information Security	3	30	2	10	-	10	30	20	5	100%
INF 422 Distributed Information Systems	3	30	2	10	-	10	30	20	5	100%
INF 425 Geographical Information Systems	3	30	2	10	-	10	30	20	5	100%
INF 426 Office Automation Systems	3	30	2	10	-	10	30	20	5	100%
INF 427 Management Information Systems	3	30	2	10	-	10	30	20	5	100%
INF 428 E-Commerce Systems	3	30	2	10	-	10	30	20	5	100%
INF 430 Data Warehousing	3	30	2	10	-	10	30	20	5	100%
INF 431 Data Mining	3	30	2	10	-	10	30	20	5	100%
INF 432 Project Management	3	30	2	10	-	10	30	20	5	100%
INF 433 Software Quality Assurance	3	30	2	10	-	10	30	20	5	100%
PHE 110 Physical Education (1)	1	30	1	10	-	10	30	20	2	100%
PHE 220 Physical Education (2)	1	30	1	10	-	10	30	20	2	100%

7. Evaluation of Program Intended Learning Outcomes

Evaluator	Tool	Sample
1- Senior students	Questionnaires	Min. 60%
2- Faculty Staff	Questionnaires at the end of the Year	Min. 60%
3- Related Civil society	Questionnaires	Min. 30%
4- Internal Evaluator (QAC)	Visits/Meetings/Works hops	Report
5- External Evaluator (Examiner)	Reviewing Program & Courses	Report

