Tanta University

Faculty of computers and informatics

Information Technology Department

Bachelor Program - Credit Hours System

Program Title **Information Technology**

Program Type **Single**

Department(s) **Information Technology**

2023

Program Specification

A. Basic Information	
Program Title	Information Technology (B. Sc.)
Award	B. Sc. Information Technology
Parent Department	Information Technology Department
Teaching Institution	Faculty of Computers and Informatics
Awarding Institution	Tanta University
Coordinator	Dr. Aida Nasr
External Evaluator(s)	
QAA Benchmarking Standards	National Academic Reference Standards (NARS)2010
Date of Approval	

B. Professional Information

1. Aims and Objectives

	1.	Enable students to acquire and develop knowledge and competence in fundamental areas of computer science such as algorithms, design and analysis, computational theory, networks, computer architecture and software-based systems.
	2.	Equip students to address the computer technology requirements of various organizations such as business, government, healthcare, and educational institutions. Different countries may use alternative names for these degree programs.
	3.	Equip students with the necessary knowledge and practical skills to manage an organization's IT infrastructure and its users, as well as to plan and oversee the technology lifecycle that involves maintaining, upgrading, and replacing the organization's technology. Graduates of information technology programs are prepared to meet these requirements. IT, in its broadest definition, encompasses all facets of computing technology.

	4.	Equip students concentrate on addressing the requirements of users in organizational and societal settings by choosing, developing, using, combining, and managing computing technologies.
	5.	equip IT graduates with the necessary skills and knowledge to enter suitable professional roles in Information Technology after graduation and progress into leadership positions or pursue further research or graduate studies in the field.
	6.	Develop the students' ability to apply mathematical foundations, algorithmic principles, and computer science theory in modelling, design, implementation, and evaluation of computer-based systems.
	7.	Provide students with a sound understanding and how to apply a wide range of principles and tools of software engineering, such as design methodologies, choice of algorithm, programming language, software libraries and user interface technique.
2. Intended Learning outcomes (ILOs)		
This program provides opportunities for graduates to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas.		
a. Knowledge and Understanding:		
Upon successful completion of an undergraduate computer science program, the graduates will be able to:		
	a1.	Understand programming concepts for various branches of computer sciences
	a2.	Know the basics of Calculus, Economic and Management relevant to computer science.
	a3.	Identify and consider the basics of Electronics for Digital Design.
	a4.	Describe and model Mathematical problems, and Statistical methods.
	a5.	Understand basic knowledge and demonstrate of fundamental principles of computer architectures and operating systems and how these support IT-based applications.
	a6.	Provide a solid understanding of the basics of programming and the creation of data structures and algorithms
	a7.	Show a critical understanding of the theory and methods of systems analysis and design.
	a8.	Know methods for the construction of web-based systems, design of internet-based systems.

	a9.	Understand the certain topics by going over things like image processing, computer and communication networks, data mining, information retrieval systems, pattern recognition, digital signal processing, speech recognition, artificial intelligence, network security and cryptography, network programming, and web services.
	a10.	Demonstrate a critical grasp of the technologies used in the planning, creation, and administration of multi-user database systems as well as in the deployment of information retrieval and database systems.
	a11.	Have a comprehensive knowledge and critical awareness of the role of human factors in the design of Information Technology systems, issues of human computer interaction, graphics and sound and multi-media theory and applications, interfacing and cognition.
	a12.	Demonstrate basic knowledge and understanding of a core of analysis, algebra, applied mathematics and statistics.
	a13.	Describe the tools, practices and methodologies used in the specification, design, implementation and critical evaluation of computer software systems.
	a14.	Describe the methods used in defining and assessing criteria for measuring the extent to which a computer system is appropriate for its current deployment and future evolution.
	a15.	Know the principles of generating tests which investigate the functionality of computer programs and computer systems and evaluating their results.
	a16.	Give a more thorough awareness of the ethical, professional, and legal ramifications of IT exploitation.
	a17.	Demonstrate a critical awareness of the difficulties that come with maintaining and evolving IT-based systems, as well as the methods and best practices that are currently in use to address those difficulties.
	a18.	Know the principles and techniques of a number of application areas informed by the research directions of IT areas.
	a19.	Show a critical understanding of the broad context within computer information technology such as quality, reliability, enterprise, employment law, accounting, business and management and health.
b. intellectual skills:		
Upon successful completion of an undergraduate computer science program, the graduates will be able to:		
	b1.	Identify issues with traditional and nontraditional information systems, make plans to address them, and track your progress.

	b2.	Apply the concepts, principles, theories and practices underpinning computing as an academic discipline.
	b3.	Make contrasts between (approaches, strategies, etc.)
	b4.	Determine characteristics, elements, connections, trends, primary concepts, and mistakes.
	b5.	Determine a variety of options, then assess, analyze, and provide evidence for suggested design solutions.
	b6.	Provide an overview of the suggested fixes and their outcomes. .
	b7.	Limit solution approaches based on their outcomes.
	b8.	Address issues with information systems that have urgent business or industrial restrictions.
	b9.	Create a novel design to address a problem with a variety of industrial and commercial restrictions.
	b10.	Solve a decision model with appropriate techniques.
	b11.	Perform improvement of a system that benefits stakeholders.
***c.* Professional and Practical Skills:**		
Upon successful completion of an undergraduate computer science program, the graduates will be able to:		
	c1.	Determine, look into, evaluate, design, and create computer-based systems with the right instruments and methods.
	c2.	Assess systems for quality and potential trade-offs; determine what hardware and software are suitable for the situations at hand.
	c3.	understand the dangers or security features associated with using computer-based technologies.
	c4.	Effectively deploy tools for the implementation and documentation of computer-based systems.
	c5.	Make effective use of computing equipment by considering both its logical and physical characteristics.
	c6.	Identify and resolve moral, ethical, and professional problems within the field.
	c7.	Show an in-depth knowledge of appropriate aspects of Information Technology.
	c8.	Use investigative skills to research new and novel aspects of their work.
	c9.	Utilize basic IT resources efficiently, and organize and oversee a project to finish it on time and under budget.
	c10.	Recognize the need for continuing professional development in recognition of the need for lifelong learning.
	c11.	Apply tools and techniques for the design and development of applications and projects.

	c12	show Reports, speeches, or online websites to showcase their efforts.
***d.* General and Transferable Skills**		
Upon successful completion of an undergraduate computer science program, the graduates will be able to:		
	d1.	Communicate effectively.
	d2.	Work in stressful environment and within constraints.
	d3.	Understanding the Importance of Multidisciplinary Teams
	d4.	Demonstrate efficient IT capabilities
	d5.	Lead and motivate individuals.
	d6.	Search for information and adopt life-long self-learning.
	d7.	Employ information-retrieval skills, (including the use of browsers, search engines, and on-line library catalogues), communicate effectively using a variety of communication methods, and communicate effectively with team members, managers and customers.
	d8.	Prepare their work in the form of reports, oral presentations or an internet web site.
	d9.	Demonstrate suitable numeracy abilities while comprehending and articulating situations with a quantitative component.
4. Academic standards		
The academic standards invoked in this specification are driven based on the National Academic Reference Standards (NARS) for "Computing and Information" approved by the National Authority of Quality Assurance and Accreditation of Education in October 2010.		
5. Curriculum Structure and contents:		
5.A	Program duration:138 credit hours.	Four Years

5.B	studying 138 credit hours distributed as follows: A- General requirements (12) credit hours: • (6) compulsory hours • (6) hours chosen by the student from among the elective general courses. • Passing the community issues course. B- College requirements (60) hours: It is divided into two parts: • Mathematics and basic sciences (21) compulsory credit hours. • Basic computer science (38) compulsory credit hours. C- Specialization requirements (60) hours: It is divided into: • Applied sciences (48) are compulsory accredited according to specialization. • Applied sciences (12) optional accreditations within the specialization. D- Project (6) compulsory credit hours. E - Training (3) compulsory, non-accredited hours.	
5.C	The following table summarizes the program structure:	
	Subject Area	Tolerance%
A	Humanities, ethical and Social Sciences (Univ. Req)	8-10
B	Mathematics and Basic Sciences	16-18
C	Basic Computing Sciences (institution req.)	26-28
D	Applied Computing sciences (Specialisation)	28-30
E	Training	3-5
F	Projects	3-5
	Subtotal	84-96
G	Optional (institution character-identifying Subjects)	16-4
	Total	100
6. Program Courses		
The summary of the courses of the 4-year full-time computer science program is presented in the following tables:		

Level 1 semester 1

Level 1 Semester 1		Course Title	Credits	No. of hours /week	
Code No	Prerequisites			Lec.	Prac.
UNV112	-	Societal issues	0	2	-
UNV113	-	English Language (1)	2	2	-
BS111	-	Math (1)	3	2	2
BS112	-	Discrete Mathematics	3	2	2
BS116	-	Probability and Statistics (1)	3	2	2
CS111	-	Fundamentals of Computer Science	3	2	2
IS111	-	Introduction to information systems	3	2	2
Total			17		

Level 1 Semester 2

Level 1 Semester 2		Course Title	Credits	No. of hours /week	
Code No	Prerequisites			Lec.	Prac.
UNV114	-	Communication Skills	2	2	-
UNV111		Technical Report Writing	2	2	-
	-	General Elective course (1)	2	2	-
BS113	BS111	Math (2)	3	2	2
BS115	-	Electronics	3	2	2
CS112	CS111	Structured Programming	3	2	2
IT113	-	Fundamentals of Information Technology	3	2	2
Total			18		

Level 2 Semester 1

Level 2 Semester 1		Course Title	Credits	No. of hours /week	
Code No	Prerequisites			Lec.	Prac.
BS117	BS116	Operations Research	3	2	2
BS114	BS113	Math (3)	3	2	2
CS211	CS112	Object Oriented Programming	3	2	2
CS212	CS112	Data Structures	3	2	2
CS214	CS212	Operating Systems	3	2	2
IT211	BS115	Digital Logic Design	3	2	2
Total			18		

Level 2 Semester 2

Level 2 Semester 2		Course Title	Credits	No. of hours /week	
Code No	Prerequisites			Lec.	Prac.
SE211	-	Introduction to Software Engineering	3	2	2
IS211	IS111	Introduction to Database Systems	3	2	2
IS212	BS112	Optimization methods	3	2	2
IT212	CS111	Computer network Technology	3	2	2
CS213	CS212	Algorithm Analysis and Design	3	2	2
		General Elective course (2)	2	2	-
Total			17		

Level 3 Semester 1

Level 3 Semester 1		Course Title	Credits	No. of hours /week	
Code No	Prerequisites			Lec.	Prac.
IT311	CS112	Computer graphic	3	2	2
IT312	BS117	Pattern Recognition	3	2	2
IT313	IT111	Information and Computer Networks Security	3	2	2
IT314	BS114	Signal and Systems	3	2	2
IT315	IT211	Microprocessors	3	2	2
		Major Elective course (1)	3	2	2
Total			18		

Level 3 Semester 2

Level 3 Semester 2		Course Title	Credits	No. of hours /week	
Code No	Prerequisites			Lec.	Prac.
IT316	IT314	Image Processing	3	2	2
IT317	IT212	Advanced Computer Networks	3	2	2
SE315	SE315	Advanced Software Engineering	3	2	2
IT318	BS115	Computer Architecture	3	2	2
IT319	IT311	Digital Multimedia	3	2	2
		Major Elective course (2)	3	2	2
TR301		Summer training	3	2	2
Total			18		

Level 4 Semester 1

Level 4 Semester 1		Course Title	Credits	No. of hours /week	
Code No	Prerequisites			Lec.	Prac.
IT411	IT315	Robot Systems	3	2	2
CS313	CS212	Artificial Intelligence	3	2	2
CS412	CS212	Internet of Thimgs	3	2	2
		Major Elective course(3)	3	2	2
PR341		Graduation project (1)	3	-	3
Total			15		

Level 4 Semester 2

Level 4 Semester 2		Course Title	Credits	No. of hours /week	
Code No	Prerequisites			Lec.	Prac.
IT413	IT317	Communication Technology	3	2	2
IT414	IT313	Cyber Security	3	2	2
IT415	IT111	Cloud Computing Networks	3	2	2
PR341	PR342	Graduation project (2)	3	-	3
		General Elective course (3)	2	2	-
		Major Elective course (4)	3	2	2
Total			17		

المتطلب السابق		عدد الساعات الفعليه		عدد الساعات المعتمدة	إسم المقرر	كود المقرر
إسم المقرر	كود المقرر	تمارين / معامل	محاضرة			
Operating system	CS214	٢	٢	٣	نظم تشغيل الشبكات Network Operating System	IT321
Fundamentals of Information Technology	IT111	٢	٢	٣	تكنولوجيا سلسة الكتل Blockchain Technology	IT322
Network Operating Systems	IT321	٢	٢	٣	شبكات المحمول Mobile Networks	IT423
Advanced Computer Networks	IT317	٢	٢	٣	موضوعات مختارة فى شبكات الحاسب Selected Topics in Computer Networks	IT424
Electronics	BS	٢	٢	٣	الأنظمة المدمجة Embedded Systems	IT331
Microprocessors	IT315	٢	٢	٣	تصور الآلة Machine Vision	IT332
Pattern Recognition	IT312	٢	٢	٣	التعرف على الأنماط المتقدمة Advanced Pattern Recognition	IT433
Embedded Systems	IT331	٢	٢	٣	موضوعات مختارة فى النظم المدمجة والإنسان الآلى Selected Topics in Embedded Systems and Robotic	IT434
Fundamental of computer science	CS111	٢	٢	٣	Computer Animation الرسوم الحاسوبية المتحركة	IT341
Computer Animation	IT341	٢	٢	٣	الرسم بالحاسب المتقدم Advanced Computer Graphics	IT342
Image Processing	IT316	٢	٢	٣	معالجة الصور المتقدمة Advanced Image Processing	IT443
Digital Multimedia	IT319	٢	٢	٣	موضوعات مختارة فى الوسائط المتعددة Selected Topics in Multimedia	IT444

IT Program Matrices

The main description of Information Technology Program can be summarized in different types of matrices. These matrices are:

1- Academic Standards Matrix

This matrix shows the ILOs invoked in IT Program Specifications and those existing in NARS and the corresponding between them.

2- Program Matrix I (Courses – NARS General)

This matrix shows how IT Program Courses can cover the NARS general ILOs.

3- Program Matrix II (Courses – NARS Special)

This matrix shows how IT Program Courses can cover the NARS special ILOs.

4- Program Matrix I (Courses – Knowledge and Understanding Skills)

This matrix shows how IT Program Courses can cover Knowledge and Understanding Skills in IT Program Specifications.

5- Program Matrix II (Courses – Intellectual Skills)

This matrix shows how IT Program Courses can cover Intellectual Skills invoked in IT Program Specifications.

6- Program Matrix III (Courses – Professional and Practical Skills)

This matrix shows how IT Program Courses can cover Professional and Practical Skills invoked in IT Program Specifications.

7- Program Matrix IV (Courses – Transferable Skills)

This matrix shows how IT Program Courses can cover Transferable Skills invoked in IT Program Specifications.

8- Program Matrix V (Courses –IS Program)

This matrix shows how IT Program Courses can cover IS Program ILOs

Academic Standards (Knowledge and Understanding Skills) (March 2010)

IT Program ILOs	Corresponding in NARS		NARS ILOs - General	NARS ILOs - Special
a1. Understand programming concepts for various branches of computer sciences	K1	A2	K1. Essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study. K2. Modeling and design of computer based systems bearing in mind the tradeoffs. K3. Tools, practices and methodologies used in the specification, design, implementation and evaluation of computer software systems. K4. Criteria and specifications appropriate to specific problems, and plan strategies for their solution. K5. The extent to which a computer based system meets the criteria defined for its current use and future development.	A1. Demonstrate basic knowledge and understanding of fundamental principles of core computing. A2. Demonstrate strong knowledge of fundamentals of programming and the construction of computer-based systems, data structures and algorithms, software engineering techniques and information retrieval. A3. Provide a deeper understanding of some aspects of the subject, such as multimedia, computer and communication network, data mining and knowledge discovery, information storage and retrieval systems, mobile Communication Systems, pattern recognition, artificial Intelligence, cryptography and network security. A4. Show the understanding of technologies for the design, development and management of database systems, systems analysis and design and of information retrieval systems.
a2. Know the basics of Calculus, Economic and Management relevant to computer science.	K1, K8	A1		
a3. Identify and consider the basics of Electronics for Digital Design.	K1	A1,A2		
a4. Describe and model Mathematical problems, and Statistical methods.	K1	A1		
a5. Understand basic knowledge and demonstrate of fundamental principles of computer architectures and operating systems and how these support IT-based applications.	K1	A1		
a6. Provide a solid understanding of the basics of programming and the creation of data structures and algorithms	K3	A2		
a7. Show a critical understanding of the theory and methods of systems analysis and design.	K3	A4		
a8. Know methods for the construction of web-based systems, design of internet-based systems.	K3	A7		

a9. Understand the certain topics by going over things like image processing, computer and communication networks, data mining, information retrieval systems, pattern recognition, digital signal processing, speech recognition, artificial intelligence, network security and cryptography, network programming, and web services.	K6	A3	K6. The current and underlying technologies that support computer Processing and inter-computer communication. K7. Principals of generating tests which investigate the functionality of computer programs and computer systems and evaluating their results. K8. Management and economics principles relevant to computing and information disciplines. K9. 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. K10. Current developments in computing and information research. K11. Requirements, practical constraints and computer-based systems	A5. Know the role of human factors in the design of Information Technology systems. A6. Apply tools and techniques for the design and development of applications. A7. Know methods for the construction of web-based materials and systems, design of internet-based systems. A8. Provide an understanding of legal, professional and moral aspects of the exploitation of IT. A9. Understand the broad context within computer information technology such as quality, reliability, enterprise, employment law, accounting and health. A10. Understand the challenges inherent in the maintenance and evolution of IT-based systems, and the techniques and best practices currently available for dealing with them.
a10. Demonstrate a critical grasp of the technologies used in the planning, creation, and administration of multi-user database systems as well as in the deployment of information retrieval and database systems.	K4	A4		
a11. Have a comprehensive knowledge and critical awareness of the role of human factors in the design of Information Technology systems, issues of human computer interaction, graphics and sound and multi-media theory and applications, interfacing and cognition.	K2	A8		
a12. Demonstrate basic knowledge and understanding of a core of analysis, algebra, applied mathematics and statistics.	K1, K3	A1		
a13. Describe the tools, practices and methodologies used in the specification, design, implementation and critical evaluation of computer software systems.	K3, K4	A6		
a14.Describe the methods used in defining and assessing criteria for measuring the	K5	A10		

extent to which a computer system is appropriate for its current deployment and future evolution.				
a15.Know the principles of generating tests which investigate the functionality of computer programs and computer systems and evaluating their results.	K7	A10		
a16. Give a more thorough awareness of the ethical, professional, and legal ramifications of IT exploitation.	K9	A8		
a17. Demonstrate a critical awareness of the difficulties that come with maintaining and evolving IT-based systems, as well as the methods and best practices that are currently in use to address those difficulties.	K10	A10		
a18. Know the principles and techniques of a number of application areas informed by the research directions of IT areas.	K11	A9		
a19. Show a critical understanding of the broad context within computer information technology such as quality, reliability, enterprise, employment law, accounting, business and management and health.	K10	A9		

Academic Standards (Intellectual Skills)

IT Program ILOs	Corresponding in NARS		NARS ILOs - General	NARS ILOs - Special
b1. Identify issues with traditional and nontraditional information systems, make plans to address them, and track your progress.	I1	B1	I1. Analyze computing problems and provide solutions related to the design and construction of computing systems. I2. Realize the concepts, principles, theories and practices behind computing and information as an academic discipline. I3. Identify criteria to measure and interpret the appropriateness of a computer system for its current deployment and future evolution. I4. Analyze, propose and evaluate alternative computer systems and processes taking into account limitations, and quality constraints. I5. Make ideas, proposals and designs using rational and reasoned arguments for presentation of computing systems.	B1. Information technology systems problems, set goals towards solving them, observe results, reason and apply judgment. B2. Identify attributes, components, relationships, patterns, main ideas, and errors. B3. Summarize the proposed solutions ad their results. B4. Restrict solution methodologies upon their results. B5. Establish criteria, and verify solutions. B6. Identify a range of solutions and critically evaluate and justify proposed design solutions. B7. Solve information technology problems with pressing commercial or industrial constraints. B8. Generate an innovative design to solve a problem containing a range of commercial and industrial constraints.
b2. Apply the concepts, principles, theories and practices underpinning computing as an academic discipline.	I2	B2		
b3. Make contrasts between (approaches, strategies, etc.)	I2	B2		
b4. Determine characteristics, elements, connections, trends, primary concepts, and mistakes.	I2	B2		
b5. Determine a variety of options, then assess, analyze, and provide evidence for suggested design solutions.	I3,I4	B6		
b6. Provide an overview of the suggested fixes and their outcomes. .	I6	B3		
b7. Limit solution approaches based on their outcomes.	I6	B4		

b8. Address issues with information systems that have urgent business or industrial restrictions.	I5,I3	B7	I6. Evaluate the results of tests to investigate the functionality of computer systems. I7. Achieve judgments considering balanced costs, benefits, safety, quality, reliability, and environmental impact. I8. Familiar with the professional, legal, moral and ethical issues relevant to the computing industry. I9. Evaluate research papers in a range of knowledge areas	B9. Perform problem analysis from written descriptions; derive requirements specifications from an understanding of problems (analysis, synthesis). B10. Create and/or justify designs to satisfy given requirements (synthesis, evaluation, application). B11. Recognize the professional, moral and ethical issues of involved in the exploitation of Information Technology and be guided by their adoption, reflect on issues of professional practice within the discipline.
b9. Create a novel design to address a problem with a variety of industrial and commercial restrictions.	I5	B8		
b10. Solve a decision model with appropriate techniques.	I5	B9		
b11. Perform improvement of a system that benefits stakeholders.	I7	B10		
b12. Consider questions of professional practice within the field and acknowledge the moral, ethical, and professional concerns associated with the exploitation of information technology. Let these considerations influence your acceptance of the technology.	I8	B11		

Academic Standards (Professional and Practical Skills)

IT Program ILOs	Corresponding in NARS		NARS ILOs - General	NARS ILOs - Special
c1. Determine, look into, evaluate, design, and create computer-based systems with the right instruments and methods.	P3, P6	C1	P1. Operate computing equipment, recognizing its logical and physical properties, capabilities and limitations. P2. Implement comprehensive computing knowledge and skills in projects and in deployment of computers to solve position practical problems. P3. Deploy the equipment and tools used for the construction, maintenance and documentation of computer applications. P4. Apply computing information retrieval skills in computing community environment and industry. P5. Develop a range of fundamental research skills, through the use of online resources, technical repositories and library-based material	C1. Specify, investigate, analyze, design and develop computer-based systems using appropriate tools and techniques. C2. Evaluate systems in terms of their quality and possible trade-offs , evaluate appropriate hardware and software solutions for given scenarios. C3. Recognize risks or safety aspects involved in the operation of computer-based systems. C4. Deploy tools for the implementation and documentation of computer-based systems. C5. Work as part of a development team and to recognize the different roles of its members. C6. Operate computing equipment efficiently, taking into account its logical and physical properties.
c2. Assess systems for quality and potential trade-offs; determine what hardware and software are suitable for the situations at hand.	P7	C2		
c3. understand the dangers or security features associated with using computer-based technologies.	P7	C3		
c4. Effectively deploy tools for the implementation and documentation of computer-based systems.	P3	C4		
c5. Make effective use of computing equipment by considering both its logical and physical characteristics.	P1	C6		
c6. Identify and resolve moral, ethical, and professional problems within the field.	P7	C7		
c7. Show an in-depth knowledge of appropriate aspects of Information Technology.	P2	C9		
c8. Use investigative skills to research new and novel aspects of their work.	P2	C10		

c9. Utilize basic IT resources efficiently, and organize and oversee a project to finish it on time and under budget.	P6,P7	C9	P6. Design, implement, maintain, and manage software systems. P7. Assess the implications, risks or safety aspects involved in the operation of computing equipment within a specific context. P8. Handle a mass of diverse data, assess risk and draw conclusions.	C7. Recognize and address professional, moral and ethical issues within the discipline. C8. Effectively employ information-retrieval skills, (including the use of browsers, search engines, and on-line library catalogues), communicate effectively using a variety of communication methods, communicate effectively with team members, managers and customers. C9. Make effective use of general IT facilities, plan and manage a project to complete within budget and schedule. C10. Manage one's own learning and development, including time management and organizational skills. C11. Present their work in the form of reports, oral presentations or an internet web site.
c10. Recognize the need for continuing professional development in recognition of the need for lifelong learning.	P8	C10		
c11. Apply tools and techniques for the design and development of applications and projects.	P6	C1		
c12. show Reports, speeches, or online websites to showcase their efforts.	P8	C11		

Academic Standards (Transferable Skills)

IT Program ILOs	Corresponding in NARS	NARS ILOs - General
d1. Communicate effectively.	T6	T1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. T2. Demonstrate skills in group working, team management, time management and organizational skills. T3. Show the use of information-retrieval. T4. 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. T5. Exhibit appropriate numeracy skills in understanding and presenting cases involving a quantitative dimension. T6. Reveal communication skills, public speaking and presentation skills, and delegation, writing skills, oral delivery, and effectively using various media for a variety of audiences. T7. Show the use of general computing facilities. T8. Demonstrate an appreciation of the need to continue professional development in recognition of the requirement for life-long learning.
d2. Work in stressful environment and within constraints.	T2	
d3.Understanding the Importance of Multidisciplinary Teams	T2	
d4. Demonstrate efficient IT capabilities	T4	
d5. Lead and motivate individuals	T2	
d6. Search for information and adopt life-long self-learning.	T1,T8	
d7. Employ information-retrieval skills, (including the use of browsers, search engines, and on-line library catalogues), communicate effectively using a variety of communication methods, and communicate effectively with team members, managers and customers.	T3	
d8. Prepare their work in the form of reports, oral presentations or an internet web site.	T6	
d9. Demonstrate suitable numeracy abilities while comprehending and articulating situations with a quantitative component.	T5	

1- Academic Standards Matrix

- Academic Standards Matrix (General)

	Knowledge and Understanding											Intellectual									Professional and Practical								Transferable							
	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	I1	I2	I3	I4	I5	I6	I7	I8	I9	P1	P2	P3	P4	P5	P6	P7	P8	T1	T2	T3	T4	T5	T6	T7	T8
a1	√																																			
a2	√							√																												
a3	√																																			
a4	√																																			
a5	√																																			
a6			√																																	
a7			√																																	
a8			√																																	

a9						√																														
a10				√																																
a11		√																																	
a12	√		√																																
a13			√	√																															
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Academic Standards Matrix (Specific)

	Knowledge and Understanding										Intellectual											Professional and Practical								
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	C1	C2	C3	C4	C5	C6	C7	C8	C9
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We certify that all of the information required to deliver this Program is contained in the above specification and will be implemented. All course specifications for this Program are in place.		
Name	**Signature**	**Date**
Program Coordinator: Dr. Aida Nasr **د / عايدة نصر**		
Head of Quality Assurance Unit: Dr. Omnia El Barbary **د / أمنية البربري**		
Dean of the Faculty: Prof. Nancy Abbas El Hefnawy **أ. د. نانسي الحفناوي**		