Information Systems
Program Specification
(2025)

1. Basic Information

ProgramTitle (according to what is stated in the bylaw):	Information Systems
Total number of credit hours/points of the program:	138 Hours
Number of academic years/levels (expected program duration):	4 Academic Years (8 Semesters)
Department (s) Participating (if any) in teaching the program:	Information Systems Department
Faculty/Institute:	Faculty of Computers and information technology
University/Academy:	Tanta University
Program majors/divisions/tracks/specialties in the final year (if any):	
Partnerships with other parties and the nature of each (if any):	
Name of the program coordinator (attach the assignment decision):	Dr. Shaimaa Hagras
Program Specification Approval Date:	Click or tap to enter a date.
Council responsible for Program Specification Approval (Attach the Decision / Minutes):	

2. Program Aims (Brief description of the overall purpose the program)

The program aims to:

- Provide students with solid theoretical and practical foundations in information Systems.
- Develop students' abilities to analyze complex problems and design efficient and innovative solutions.
- Prepare graduates for professional careers in Systems analysis and design, data bases, systems guarantee assurance, e-business, e-commerce.
- Enhance communication, teamwork, leadership, and project management skills.
- Promote ethical behavior, social responsibility, and awareness of legal and professional issues.

3. Program Structure (Curriculum)

Program structure:

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 (39) 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

- **Program Components**

Requirement Category/Type	**Percentage from the total number of hours/points%**
Humanities, ethical and Social Sciences (Univ. Req)	8-10 %
Mathematics and Basic Sciences	16-18 %
Basic Computing Sciences (institution req.)	26-28 %
Applied Computing sciences (Specialisation)	28-30 %
Training	3-5 %
Projects	3-5 %
Subtotal	84-96 %
Optional (institution character-identifying Subjects)	16-4 %
Total	100

- **Program courses according to the expected study plan**

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
IT111	-	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 SoftwareEngineering	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.**
IS311	**IS211**	**Systems analysis and design**	**3**	**2**	**2**
IS312	**IS211**	**Database management systems**	**3**	**2**	**2**
IS313	**IS311**	**File management and processing**	**3**	**2**	**2**
IS314	**BS116**	**Information retrieval**	**3**	**2**	**2**
CS313	**CS212**	**Artificial intelligence**	**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.**
IS315	**IS211**	**Data warehousing**	**3**	**2**	**2**
IS316	**IS315**	**Data analytics and management**	**3**	**2**	**2**
IS317	**CS211**	**Web based information systems development**	**3**	**2**	**2**
IS318	**BS116**	**Information theory and data compression**	**3**	**2**	**2**
CS315	**CS112**	**Machine learning**	**3**	**2**	**2**
		Major Elective course(2)	**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.
IS411	BS116	Data mining	3	2	2
CS413	CS212	Problem solving and decision making	3	2	2
CS414	CS314	Data science	3	2	2
		Major Elective course(3)	3	2	2
PR421		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.
IS413	IS317	Selected topics in information systems(1)	3	2	2
IS414	IS312	Selected topics in data bases	3	2	2
IS415	IS317	Information systems development Methodologies	3	2	2
		Major Elective course(4)	3	-	3
		General Elective course(3)	2	2	-
PR422		Graduation project(2)	3	2	2
Total			17		

Elective course

المتطلب السابق		عدد الساعات الفعليه		عدد الساعات المعتمدة	إسم المقرر	كود المقرر
إسم المقرر	كود المقرر	تمارين / معامل	محاضرة			
Analysis and Design of Information Systems	IS311	2	2	3	هندسة في مختارة موضوعات البيانات Selected Topics in Data Engineering	IS321
Database Management Systems	IS312	2	2	3	السحابية البيانات قواعد Cloud Databases	IS322
Introduction to Database System	IS 211	2	2	3	الموزعة البيانات قواعد Distributed Databases	IS423
Analysis and Design of Information Systems	IS311	2	2	3	نظم في مختارة موضوعات المتقدمة المعلومات Selected Topics in advanced Information Systems	IS424
Web-based Information Systems Development	IS317	2	2	3	المؤسسية معلومات نظم Enterprise Information Systems	IS331
Information Systems of Project management	IS412	2	2	3	الإدارية المعلومات نظم Management Information Systems	IS332

ManagementInformation Systems	IS332	2	2	3	الأعمال الإلكترونية E-Business	IS433
Information Systems of Project management	IS 412	2	2	3	الأعمال إجراءات إدارة Business Process Management	IS434
Introduction to information systems	IS111	2	2	3	المعلومات نظم جودة ضمان Information Systems Quality Assurance	IS341
File management and processing	IS313	2	2	3	المعلومات نظم مخاطر وإدارة أمن Information Systems Security and Risk Management	IS342
Analysis and Design of Information Systems	IS311	2	2	3	المعلومات نظم ورقابة مراجعة Information Systems Audit and Control	IS443
		2	2	3	موضوعات مختارة في نظم المعلومات المتقدمة 1 Advanced Selected Topics in Information Systems 1	IS444
		2	2	3	معالجة البيانات والتحليل Data processing and analysis	IS351
Data	IS351	2	2	3	نماذج البيانات والتصور	CS342

processing and analysis					Data Models and Visualization	
Machine learmning	CS314	2	2	3	معالجة اللغات الطبيعية Natural Language Processing	CS443
		2	2	3	موضوعات مختارة في نظم المعلومات 2المتقدمة Advanced Selected Topics in Information Systems 2	IS452

4. Academic Standards

- **Adopted Academic Standards NARS**

A. Knowledge and Understanding (A)

In addition to knowledge and understanding of computing and information graduate, the information system graduate should acquire the knowledge and understanding of:

A1. A core of analysis, algebra, applied mathematics and statistics.

A2. Information systems, data and Information Management, enterprise architecture, IS project management, IT infrastructure, systems analysis and design, and IS strategies.

A3. Principles and techniques of database management systems, management, data mining, geographical information systems, multimedia, application development, business process management, enterprise systems, human computer interaction, object-oriented analysis and design, e-technologies, multimedia, image processing, information and infrastructures security and computer graphics techniques.

A4. Issues such as quality, reliability, enterprise, employment law, accounting and health.

A5. Awareness of organizational, human and economic sides of modern organizations.

A6. Principles of Information communication and information security.

A7. Specification, analysis, design, implementation and operation and maintenance of IS solutions.

A8. Modeling organizational processes and data, defining and implementing technical and process solutions, managing projects, and integrating systems

A9. Types and alternatives of global information systems architectures, and their differences in terms of service and cost consequences, and their implications for the organizational support needed.

B. Intellectual Skills (B)

In addition to intellectual of computing and information graduate, the information system graduate should be able to:

B1. Define traditional and nontraditional information systems problems, set goals towards solving them, and observe results.

B2. Perform comparisons between (methods, techniques...etc).

B3. Identify attributes, components, relationships, patterns, main ideas, and errors.

B4. Restrict solution methodologies upon their results.

B5. Select the suitable tools, methods and techniques for modeling, analyzing IS, establishing criteria, and verify solutions.

B6. Identify a range of solutions and critically evaluate and justify proposed design solutions.

B7. Solve IS problems with pressing commercial, time, and industrial constraints.

B8. Suggest an innovative design to solve a problem containing a range of commercial and industrial constraints.

B9. Perform problem analysis from written descriptions; derive requirements specifications from an understanding of problems (analysis, synthesis).

C. Professional and Practical Skills (C)

In addition to Professional and Practical Skills of computing and information graduates, the information system graduate should be able to:

C1. Use appropriate programming languages, web-based systems and tools, design methodologies, and database systems.

C2. Use quantitative analysis techniques appropriately.

C3. Justify technological, methodological and management choices for an information system project for a given organization.

C4. Plan and manage an information systems project from inception to final implementation and cut-over.

C5. Produce acceptable reports and technical and user system documentation.

C6. Perform information acquisition and management, using the scientific literature and Web sources.

C7. Apply the principles of effective information acquisition, information management, organization, and information-retrieval to text, images, sound, and video.

C8. 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.

C9. Using tools to automate IS development phases.

C10. Analyze and documenting the feasibility of various options and comparing solution options.

C11. Maintaining existing information systems.

D. General and Transferable Skills (D)

In addition to General and transferable of computing and information graduate, the information system graduate should be able to:

D1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. Work in stressful environment and within constraints.

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.

5. Matrix of Academic Standards (Program Outcomes POs) with Courses

Compulsory Courses (Name and code)	Academic Standards (Mention code only)																												
	A1	A2	A3	A4	A5	A6	A7	A8	A9	B1	B2	B3	B4	B5	B6	B7	B8	B9	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
UNV112: Societal issues																													
UNV113: English Language (1)																													
BS111: Math (1)																													
BS112: Discrete Mathematics																													
BS116: Probability and Statistics (1)																													
CS111: Fundamentals of Computer Science																													
IS111: Introduction to information systems																													
UNV114: Communication Skills																													
UNV111: Technical Report Writing																													
BS113: Math (2)																													
BS115: Electronics																													
CS112: Structured Programming																													
IT111: Fundamentals of Information Technology																													
BS117: Operations Research																													
BS11: Math (3)																													
CS211: Object Oriented Programming																													
CS212: Data Structures																													
CS214: Operating Systems																													

IT211: Digital Logic Design																													
SE211: Introduction to Software Engineering																													
IS211: Introduction to Database Systems																													
IS212: Optimization methods																													
IT212: Computer network Technology																													
CS213: Algorithm Analysis and Design																													
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IS318: Information theory and data compression																													
CS315: Machine learning																													
IS411: Data mining																													
CS413: Problem solving and decision making																													
CS414: Data science																													
IS413: Selected topics in information systems(1)																													
IS414: Selected topics in data bases																													
IS415: Information systems development																													

Methodologies																												

- **Identification is done for each major/division/track/specialty in the final year (if any)**
- **Attach a separate matrix of elective courses (if any)**

6. Teaching and Learning strategies/methods to achieve Program Outcomes:

- Lectures
- Practical laboratories
- Case studies
- Project-based learning
- Interactive discussions
- E-learning activities

7. Student Assessment strategies/methods to verify and ensure students' acquisition of Program Outcomes:

- Midterm exams
- Final exams
- Oral examinations
- Practical exams
- Assignments and quizzes
- Course projects
- Presentations
- Graduation project evaluation

8. Program Key Performance Indicators (if any)

No.	Performance Indicator	Target Level	Method	Measurement
1.	Students' Success Rate	≥85%	Statistical analysis of students' results	Semester results reports from academic affairs
2.	Graduate Employment Rate within one year	≥70%	Alumni survey	Graduate follow-up survey reports
3.	Students' Satisfaction with the Program	≥80%	Student evaluation questionnaire	End-of-semester survey analysis

Name & Signature Program Coordinator	Name & Signature Vice Dean for Education and Student Affairs