



Zagazig University

Faculty of Computers and Informatics

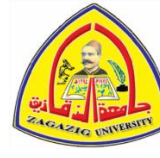
Information System

Undergraduate Program

2024 - 2027

Program Specification

رسالة الكلية: تسعى كلية الحاسبات والمعلومات جامعة الزقازيق بتقديم خدمات تعليمية وبحثية ومجتمعية متميزة لتخريج كوادر ذات قدرات تنافسية عالية في مجالات الحوسبة والمعلوماتية والذكاء الاصطناعي ودعم القرار والقدرة على مواجهة متطلبات العصر وفق إحتياجات سوق العمل الحالية والمستقبلية في إطار من القيم الأخلاقية وكذلك تقديم بحوث علمية تساهم في خدمة المجتمع.



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Zagazig University Faculty of Computers & Information Department of Information Systems

Information Systems Undergraduate Program

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Information Systems Undergraduate Program

Teaching Institution: Faculty of Computers and Informatics, Zagazig University, Zagazig, Egypt

Awarding Institution: Faculty of Computers and Informatics

Degree Award: Bachelor of Computers and Informatics

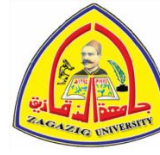
(Information Systems)

Length and Mode: 4 Levels/ Full Semester Time

1. Basic Information

- 1. Program Title:** B. Sc. in Information Systems
- 2. Program Type:** Single
- 3. Faculty:** Faculty of Computers and Informatics
- 4. Department:** Information Systems
- 5. Coordinator:** Asso. Prof. Nabil Mostafa Abdelaziz
- 6. Last date of program specifications approval (2024-2027):** 13 / 10 / 2024

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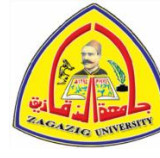
2. Professional Information

1. Program Aims and Objectives

The program aims to provide the student with both breadth and depth of knowledge in the concepts and techniques related to the design, analysis, programming, and application of computing and information systems. ***IS program aims to provide the student with the ability to:***

- 1- Preparing specialists in the field of information systems with theoretical foundations and application methodologies to enable them to compete globally in the development of computer and information technologies.
- 2- build, organize and apply knowledge of all kinds between human systems and modern technological systems. The department teaches, educates and introduces students to the path of professionalism and work in the field of specialization after graduation.
- 3- applying a set of concepts and teaching methods related to discovering creativity, teamwork, and leadership skills and preparing them to learn and acquire new skills throughout their academic lives to contribute to increasing their experience in dealing with various systems, software, databases, data analysis and mining, and smart information systems. The department focuses on the system life cycle as planning, design, construction, evaluation and analysis of many alternative software solutions that are used directly by individuals, groups and bodies in support of their works and its success.
- 4- Providing high-quality education by providing graduate and specialized programs in the field of information systems based on the latest concepts and technologies.
- 5- Research and development by encouraging faculty members and researchers to conduct research in the field of information systems and contribute to the development of technologies and practices.
- 6- Promoting academic excellence by working to achieve leadership in the field of information systems through advanced studies programs and distinguished research.
- 7- Develop analysis and design skills by providing students with the necessary skills to analyze systems needs and design and develop technical solutions to support business activities.
- 8- Enhancing interaction with industry through cooperation with companies and institutions to ensure that curricula are compatible with the needs of the labor market and provide training and employment opportunities for students.
- 9- Participate in community service by contributing to providing services and consultations in the field of information systems to the local and national community.
- 10- Providing scientific and technical consultations and assistance to bodies and entities in need of information systems.

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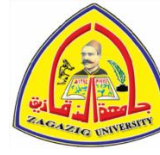
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2. The Attributes of Information Systems Graduate

The Information Systems program aims to provide the student with the foundations of the discipline as well as the opportunity for specialization. After successfully completing the Information systems program, the graduate should be able to:

1. Apply the fundamental theories and principles of computing and information applications.
2. Integrate and evaluate the 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.
14. Recognize problems that are amenable to computer information systems, and knowledge of the tools necessary for solving such problems.
15. Understand fundamentals of systems development life cycle (SDLC), information networks, information security, data mining, e-commerce, geographical information systems, and crisis management.
16. Managing and exploiting organizational data and information; designing data and information models, Managing information systems development resources and projects.
17. Implement solutions, including use of appropriate programming languages, web-based systems and tools, design methodologies, and database systems.
18. Apply the principles of effective information management, information organization, information mining, and information-retrieval skills to information of various kinds, including text, images, sound, and video.

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19. Know the fundamentals of intelligent information systems technologies.
20. Specify, design, and implement computer-based information systems, and evaluate them in terms of general quality attributes and possible tradeoffs presented within the given problem.
21. Apply IS solutions to functional, inter-organizational, operational, managerial, and executive problems and opportunities.
22. Describe characteristics of various components of information systems, use the appropriate tools and techniques to analyze, design, and construct information systems.
23. Communicate effectively by oral, written and visual means.
24. Work effectively as an individual and as a member of a team.
25. Perform independent and efficient time management.
26. Aware of key ethical issues affecting information systems and their responsibilities as information science professionals.

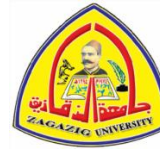
3. Intended Learning Outcomes (ILOs)

A. Knowledge and Understanding

On successful completion of the program, graduates should be able to:

- A1. Recognize the essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study.
- A2. Discuss the modeling and design of computer-based systems bearing in mind the trade-offs.
- A3. Define tools, practices and methodologies used in the specification, design, implementation and evaluation of computer software systems.
- A4. Explain criteria and specifications appropriate to specific problems, and plan strategies for their solution.
- A5. Discuss the extent to which a computer-based system meets the criteria defined for its current use and future development.
- A6. Explain the current and underlying technologies that support computer processing and inter-computer communication.
- A7. Define principals of generating tests which investigate the functionality of computer programs and computer systems and evaluating their results.
- A8. Define management and economics principles relevant to computing and information disciplines.
- A9. Identify 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. Classify the current developments in computing and information research.
- A11. Define requirements, practical constraints and computer-based systems

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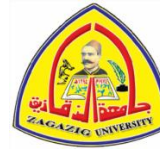
- A12. Explain a core of analysis, algebra, applied mathematics and statistics.
- A13. Explain information systems, data and Information Management, enterprise architecture, IS project management, IT infrastructure, systems analysis and design, and IS strategies.
- A14. Recognize the principles and techniques 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.
- A15. Describe the issues such as quality, reliability, enterprise, employment law, accounting and health.
- A16. Recognize the awareness of organizational, human and economic sides of modern organizations.
- A17. Identify the principles of Information communication and information security.
- A18. Explain the specification, analysis, design, implementation and operation and maintenance of IS solutions.
- A19. Define the modeling organizational processes and data, defining and implementing technical and process solutions, managing projects, and integrating systems.
- A20. Recognize the 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

On successful completion of this program, graduates should be able to:

- 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 information systems problems, set goals towards solving them, and observe results.

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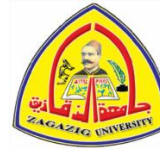
- B11. Perform comparisons between (methods, techniques...etc).
- B12. Identify attributes, components, relationships, patterns, main ideas, and errors.
- B13. Restrict solution methodologies upon their results.
- B14. Select the suitable tools, methods and techniques for modeling, analyzing IS, establishing criteria, and verify solutions.
- B15. Identify a range of solutions and critically evaluate and justify proposed design solutions.
- B16. Solve IS problems with pressing commercial, time, and industrial constraints.
- B17. Suggest an innovative design to solve a problem containing a range of commercial and industrial constraints.
- B18. Perform problem analysis from written descriptions; derive requirements specifications from an understanding of problems (analysis, synthesis).

C. Professional and Practical Skills

On successful completion of this program, graduates should be able to:

- 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 database systems.
- C10. Use quantitative analysis techniques appropriately.
- C11. Justify technological, methodological and management choices for an information system project for a given organization.
- C12. Plan and manage an information systems project from inception to final implementation and cut-over.
- C13. Produce acceptable reports and technical and user system documentation.
- C14. Perform information acquisition and management, using the scientific literature and Web sources.

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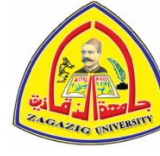
- C15. Apply the principles of effective information acquisition, information management, organization, and information-retrieval to text, images, sound, and video.
- C16. Apply the principles of human-computer interaction to the evaluation and construction of a wide range of materials including user interfaces, web pages, and multimedia systems.
- C17. Using tools to automate IS development phases.
- C18. Analyze and documenting the feasibility of various options and comparing solution options.
- C19. Maintaining existing information systems.

D. General and Transferable Skills

On successful completion of this program, graduates should be able to:

- 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.
- D9. Lead individuals effectively and motivate through the management of tasks, responsibilities and resources.
- D10. Develop a range of fundamental research skills, through the use of online resources, technical repositories and library-based material.
- D11. Demonstrate efficient information technology capabilities.
- D12. Acquire analytical thinking, entrepreneurial skills and problem solving skills.

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3. Academic Standards

3a. External References for Standards (Benchmarking)

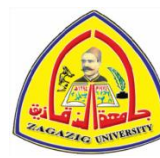
The academic standards invoked in this specification are driven based on the National Academic Reference Standards (NARS) for “Computing and Information Disciplines” approved by the National Authority of Quality Assurance and Accreditation of Education on October 2010.

3b. Comparison of provision to external references

The Information Systems program 100% matches NARS reference:

Attributes of program graduates as per NARS Requirements for Information Systems program	Corresponding ILO's in Current program
1. Apply the fundamental theories and principles of computing and information applications.	A1, A10, A11, A12, B1, B2, B6, C3, D1, D7, D12
2. Integrate and evaluate the computing tools and facilities.	A3, B1, B3, B4, B5, B11, B13, B14, C1, C11, D7, D11, D12
3. Apply knowledge of mathematics and science.	A1, A12, C4, D1, D5, D12
4. Design a computing system, component and process to meet the required needs within realistic constraints.	A2, A10, A13, A19, B1, B15, B17, C6, C9
5. Exploit the techniques, skills and up-to-date computing tools, necessary for computing and information practice.	A3, A10, A20, B1, B2, B3, B4, C9, C11, C19, D7, D11
6. Display professional responsibilities and ethical, societal and cultural concerns	A9, A17, A18, B7, B8, B16
7. Use, compare and evaluate a range of formal and informal techniques, theories and methods to develop computing and information applications.	A1, A2, A7, A10, A12, A15, B1, B2, B3, B4, B6, B11, B13, B14, B15, C9, C11, C17, D7, D11
8. Consider and deal with the individual, social, environmental, organizational and economic implications of the application of computing and information.	A1, A16, A18, B7, B16, C4, C7, C18
9. Carry out a work plan with minimal supervision.	B16, C12, D2, D9
10. Communicate effectively.	A6, A17, A20, B5, D2, D4, D6, D9
11. Hold knowledge and skills required by the computing and information industry.	A5, A8, A9, A10, B2, B11, B14, B16, B17, C2, C4, C5, C14, C15, D8, D11
12. Engage in self and life-long learning and research in computing and information.	A1, A5, A10, A20, B1, B2, B3, B4, B9, B14, B17, C4, C5, C14, C15, D8, D10
13. Fulfill requirements of potential employers.	B3, B4, B5, B7, B16, C1, C3, C4, C5, C16, C18, D8
14. Recognize problems that are amenable to computer information systems, and knowledge of the tools necessary for solving such problems.	A3, A4, A6, A10, A13, A15, A18, B1, B10, C15, D11, D12

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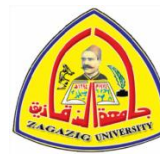
15. Understand fundamentals of systems development life cycle (SDLC), information networks, information security, data mining, e-commerce, geographical information systems, and crisis management.	A1, A9, A10, A14, A15, A18, A19, A20, B12, B18, C7, C10, C12
16. Managing and exploiting organizational data and information; designing data and information models, Managing information systems development resources and projects.	A1, A8, A10, A14, B1, B2, B12, B17, C1, C3, C6, C10, C12, C15
17. Implement solutions, including use of appropriate programming languages, web-based systems and tools, design methodologies, and database systems.	A1, A3, A10, A15, B6, C2, C6, C9, C10, C16, C17
18. Apply the principles of effective information management, information organization, information mining, and information-retrieval skills to information of various kinds, including text, images, sound, and video.	A4, A6, A9, A10, A13, B1, C4, C8, C15, C16, D1, D3
19. Know the fundamentals of intelligent information systems technologies.	A1, A10, A12, A15, C10, C14, D5, D8
20. Specify, design, and implement CBISs, and evaluate them in terms of general quality attributes and possible tradeoffs presented within the given problem.	A1, A5, A11, A13, A16, A20, B1, B3, B4, B6, B7, B10, B11, B13, B14, B15, B16, B17, C2, C3, C6, C9, C7, C10, C18, C19, D11, D12
21. Apply IS solutions to functional, inter-organizational, operational, managerial, and executive problems and opportunities.	B1, B10, C4, C12, D1, D12
22. Describe characteristics of components of information systems, use the appropriate tools and techniques to analyze, design, and construct information systems.	A3, A7, A13, A15, B2, B4, B12, B15, B17, B18, C3, C9, C17, D11
23. Communicate effectively by oral, written and visual means.	B5, C8, C13, D2, D4, D6, D9
24. Work effectively as an individual and as a member of a team.	C12, C13, D2, D4, D6, D9
25. Perform independent and efficient time management.	A5, A6, A8, A13, B5, D2, D4, D6, D9
26. Aware of key ethical issues affecting information systems and their responsibilities as information science professionals.	A6, A9, A14, A15, A20, B5, B8, D1, D2, D9

4. Curriculum Structure and Contents

4a. Program duration: 4 Levels

	Compulsory	Elective	Total
Hours / Program	126 Hr.	12 Hr.	138 Hr.

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4b. Program Structure:

Indicative curricula content by subject area

	Subject Area	Total Credit hours	Credit hours percentage	NARS (2010)
1	Humanities, ethical and Social Sciences (Univ. Req.)	12	8.70%	8-10%
2	Mathematics and Basic Sciences	24	17.39%	16-18%
3	Basic Computing Sciences (institution req.)	42	30.43%	26-28%
4	Applied Computing Science (Specialization)	42	30.43%	28-30%
5	Training	Equals 6 (in summer semesters)	4.35%	3-5%
6	Projects	6	4.35%	3-5%
	Subtotal	126	91.30%	84-96%
7	Optional (Institution character-identifying subjects)	12	8.70%	4-16%
	Total	138	100%	100%

5. Information Systems Program Courses

Course Code	Course Title	Credit Hours	No. of hours /week		Pre requisites	Program ILOS			
			Lect.	Lab.		A	B	C	D
University Requirements (12 Cr)									
HU100	English	2	2	-	---	1	2	1	1,6
HU101	Report Writing and Presentation Skills	2	2	-	HU100	1	5, 9	5	1,4,6,8
HU102	Social, Ethical, and Professional Issues in Computing	2	2	-	---	9	8	7	2,6

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Course Code	Course Title	Credit Hours	No. of hours /week		Pre requisites	Program ILOS			
			Lect.	Lab.		A	B	C	D
HU103	Human Rights and Anticorruption	0	2	-	---	1	2, 7,8	1, 2, 8	6, 8
HU104	Organizational Behavior	2	2	-	---	9	2,7,8	1,2,8	2,4,6
HU106	Strategic Planning	2	2	-	---	4,9	2,3,7	1,2	1,2,8
HU108	Fundamentals of Economics and Feasibility Study	2	2	-	---	8	7	7	1, 2
Faculty Requirements (66 Cr)									
BS100	Mathematics I	3	2	2	---	1,11	2,5,6,9	1,2	5
BS101	Mathematics II	3	2	2	BS100	4,7, 11	2,3,6	1,2	1,5,7
BS102	Physics for Computing	3	2	2	---	1,2,4	1	3,6,7	2,5
BS103	Probability and Statistics	3	2	2	BS100	1,10	2,5,9	2	1,3
BS201	Mathematics III	3	2	2	BS101	1,11	4,5	2,3	1,2
IT100	Digital Logic Design	3	2	2	---	1,2,3,4	1,2,3,5	1,3,6	1,2,6
DS100	Operations Research	3	2	2	---	1,4	1,2,3,4,5	2,3,5	1,2
CS100	Introduction to Computational Thinking	3	2	2	---	1,4	1,2	2	2
CS101	Computer Programming I	3	2	2	---	1,6	3,5,7,8	2,3,4	1,4,7
CS102	Computer Programming II	3	2	2	CS101	1,6	2,5	4	7
CS103	Discrete Structures	3	2	2	BS100	4,8	6,7	8	2
CS200	Data Structures	3	2	2	CS102	11	2	1	1
IT200	Computer Organization and Architecture	3	2	2	IT100	6,7,8,9,10	3,4,5,6	5,6,7	1,2,3,4
IS200	Database Systems	3	2	2	CS102	1,7,8,11	2,4,5,6,12	2,3,6	1,4,6
IT201	Computer Graphics	3	2	2	BS101	6,7,8	3,4,5,6,7,8	5,6,7,8	1,2,3,4,5,6
CS201	Operating Systems	3	2	2	CS100	1,7,9	2,3	3,7	8
IS201	Systems Analysis and Design	3	2	2	IS200	1,2,4,6,8,9	1,2,3,4,5,6	1,2,5,6,7	1,2,4,6,7
CS202	Analysis and Design of Algorithms	3	2	2	CS200	1,3	4,5	1,6	5
IT203	Multimedia	3	2	2	IT201	1,3,6	3,5,6,7,8	1,2,3,5	2,3,4,6
CS203	Artificial Intelligence	3	2	2	CS200	1,3	4,5	1,6	5
IT202	Computer Networks	3	2	2	CS201	1,3,6	1,4,5,6,7	2,3,4,5,6,7	1,2,3
IT301	Web and Network Programming	3	2	2	CS200	1,2,3	1,3,5,6,7	2,3,5,6	1,2,3,4,5,6
Department Requirements (60 Cr)									
IS303	Introduction to Big Data	3	2	2	IS200	3,6,7,11	2,6	1,2,5,8	1,2,4,6,7
IT303	Introduction to Cloud Computing	3	2	2	CS200	1,3,6	2,4,5,6,7,8	1,2,3,4,5,6	1,2,3

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Course Code	Course Title	Credit Hours	No. of hours /week		Pre requisites	Program ILOS			
			Lect.	Lab.		A	B	C	D
IT304	Introduction to Cybersecurity	3	2	2	CS200	6,7,8	3,4,5,6,7,8	4,5,6,7,8	1,2,4
IT302	Introduction to Internet of Things	3	2	2	CS200	1,6,11	2,3,4,5,6	3,4,5,6,8	1,2,3,4
DS300	Software Project Management	3	2	2	DS100	1,5,6,8,9,10	2,4,6,7	2,3,6,7,8	2,3,4,5,6
IS300	Database Management System	3	2	2	IS200	2,6,13,14,19	10,11,12,14,15	6,9,11,12,17	1,2,4,7,8
GI300	Geographical Information Systems	3	2	2	IS200, IS201	1,3,13,14,19	1,3, 14	2,9, 16	2,4
IS301	Intelligent Systems and Business Intelligence	3	2	2	IS201	18,19,20	11,17,18	9, 10,14,18	1,5, 12
IS304	E-Business	3	2	2	IS201	2,20	7	2,5,9	1,2,4
IS400	Big Data Analytics	3	2	2	IS303	1,6,12	4,11,13,17,18	9,10,13,18	2,4,6,9
IS401	Information Security	3	2	2	IT304	13,14,17	10,11,14	9,11,12	1,2, 11
IS402	Distributed and Mobile Databases	3	2	2	IS200	3,6,13,14,19	10,11,12,14	6,9,11	1,2,4
IS404	Web and Social Media Analytics	3	2	2	IS400	1,4,12,14,16	6,12,14,18	8,9,14	1,2,5,8, 12
IS405	Data Mining and Machine Learning	3	2	2	IS201	14,19	11,12	2,5,9	1,2,4
IS406	Information Retrieval	3	2	2	IS201	1,3,6,14	2,11,13,14	4,6,9,15	2,3,4,6,9
IS407	Data Visualization	3	2	2	IS303	1,2,3,14,18	1,2,11,14	2,9,10	2,4,5,6,10
IS408	Software Engineering	3	2	2	IS201	1,3,7,13	1,4, 14	2,3,6,16,17,19	1,8, 11
IS412	Business Process Management	3	2	2	IS201	1,2,3,4,6,8,13,15,18,19,20	1,2,3,5,7,10,12,14,17,18	1, 2, 6,8,11,12,13,17, 19	1,2,4,6,10
IS430	Project I	3	1	4	---	3,5,7,12,13	3,4,13,16	2,3,5,14	1,3,5,6,10,11,12
IS431	Project II	3	1	4	IS430	3,5,7,12,13	3,4,13,16	2,3,5,14	1,3,5,6,10,11,12

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5.1- Level of Program (1) - Semester 1

Course Code	Course Title	Credit hours	No. of hours /week		Prerequisites	Program ILOs Covered (By No.)
			Lect.	Lab.		
HU100	English	2	2	0	-	A1, B2, C1, D1, D6
CS100	Introduction to Computational Thinking	3	2	2	-	A1, A4, B1, B2, C2, D2
BS100	Mathematics I	3	2	2	-	A1, A11 B2, B5, B6, B9 C1, C2, D5
BS102	Physics for computing	3	2	2	-	A1, A2, A4, B1, C3, C6, C7, D2, D5
CS101	Computer Programming I	3	2	2	-	A1, A6, B3, B5, B7, B8, C2, C3, C4, D1, D4, D7
BS103	Probability and Statistics	3	2	2	BS100	A1, A10, B2, B5, B9, C2, D1, D3

5.2- Level of Program (1) - Semester 2

Course Code	Course Title	Credit hours	No. of hours /week		Prerequisites	Program ILOs Covered (By No.)
			Lect.	Lab.		
CS102	Computer Programming II	3	2	2	CS101	A1, A6, B2, B5, C4, D7
HU102	Social, Ethical, and Professional Issues in Computing	2	2	-	-	A9, B8, C7, D2, D6
IT100	Digital Logic Design	3	2	2	-	A1, A2, A3, A4, B1, B2, B3, B5, C1, C3, C6, D1, D2, D6
BS101	Mathematics II	3	2	2	BS100	A4, A7, A11, B2, B3, B6, C1, C2, D1, D5, D7
HU103	Human Rights and Anticorruption	0	2	-	-	A1, B2, B7, B8, C1, C2, C8, D6, D8
CS103	Discrete Structures	3	2	2	BS100	A4, A8, B6, B7, C8, D2
DS100	Operations Research	3	2	2	-	A1, A4, B1, B2, B3, B4, B5, C2, C3, C5, D1, D2

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5.3- Level Program (2) - Semester 1

Course Code	Course Title	Credit hours	No. of hours /week		Prerequisites	Program ILOs Covered (By No.)
			Lect.	Lab.		
BS201	Mathematics III	3	2	2	BS101	A1, A11, B4, B5, C2, C3, D1, D2
CS201	Operating Systems	3	2	2	CS100	A1, A7, A9, B2, B3, C3, C7, D8
CS200	Data Structures	3	2	2	CS102	A11, B2, C1, D1
IS200	Database Systems	3	2	2	CS102	A1, A7, A8, A11, B2, B4, B5, B6, B12, C2, C3, C6, D1, D4, D6
HU101	Report Writing and Presentation Skills	2	2	-	HU100	A1, B5, B9, C5, D1, D4, D6, D8
IT200	Computer Organization and Architecture	3	2	2	IT100	A6, A7, A8, A9, A10, B3, B4, B5, B6, C5, C6, C7, D1, D2, D3, D4

5.4- Level of Program (2)-Semester 2

Course Code	Course Title	Credit hours	No. of hours /week		Prerequisites	Program ILOs Covered (By No.)
			Lect.	Lab.		
IS201	Systems Analysis and Design	3	2	2	IS200	A1, A2, A4, A6, A8, A9, B1, B2, B3, B4, B5, B6, C1, C2, C5, C6, C7, D1, D2, D4, D6, D7
CS203	Artificial Intelligence	3	2	2	CS200	A1, A3, B4, B5, C1, C6, D5
IT202	Computer Networks	3	2	2	CS201	A1, A3, A6, B1, B4, B5, B6, B7, C2, C3, C4, C5, C6, C7, D1, D2, D3
HU104	Organizational Behavior	2	2	-	-	A9, B2, B7, B8, C1, C2, C8, D2, D4, D6
CS202	Analysis and Design of Algorithms	3	2	2	CS200	A1, A3, B4, B5, C1, C6, D5
IT201	Computer Graphics	3	2	2	BS101	A6, A7, A8, B3, B4, B5, B6, B7, B8, C5, C6, C7, C8, D1, D2, D3, D4, D5, D6
	Training	6	3	3	60 Credit Hours	A1, A2, A3, A20, B1, B2, B5, B12, B15, B18, C1, C2, C5, C6, C9, C13, C19, D1, D2, D4, D6, D9, D11, D12

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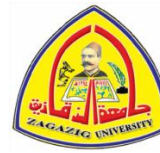
5.5- Level of Program (3) - Semester1

Course Code	Course Title	Credit hours	No. of hours /week		Prerequisites	Program ILOs Covered (By No.)
			ect.	Lab.		
HU106	Strategic Planning	2	2	-	-	A4, A9, B2, B3, B7, C1, C2, D1, D2, D8
IT203	Multimedia	3	2	2	IT201	A1, A3, A6, B3, B5, B6, B7, B8, C1, C2, C3, C5, D2, D3, D4, D6
IS303	Introduction to Big Data	3	2	2	IS200	A3, A6, A7, A11, B2, B6, C1, C2, C5, C8, D1, D2, D4, D6, D7
IT303	Introduction to Cloud Computing	3	2	2	CS200	A1, A3, A6, B2, B4, B5, B6, B7, B8, C1, C2, C3, C4, C5, C6, D1, D2, D3
IT304	Introduction to Cyber Security	3	2	2	CS200	A6, A7, A8, B3, B4, B5, B6, B7, B8, C4, C5, C6, C7, C8, D1, D2, D4
IT301	Web and Network Programming	3	2	2	CS200	A1, A2, A3, B1, B3, B5, B6, B7, C2, C3, C5, C6, D1, D2, D3, D4, D5, D6

5.6- Level of Program (3) - Semester 2

Course Code	Course Title	Credit hours	No. of hours /week		Prerequisites	Program ILOs Covered (By No.)
			Lect.	Lab.		
IS300	Database Management Systems	3	2	2	IS200	A2, A6, A13, A14, A19, B10, B11, B12, B14, B15, C6, C9, C11, C12, C17, D1, D2, D4, D7, D8
GI300	Geographical Information Systems	3	2	2	IS200, IS201	A1, A3, A13, A14, A19, B1, B3, B14, C2, C9, C16, D2, D4
IT302	Introduction to Internet of Things	3	2	2	CS200	A1, A6, A11, B2, B3, B4, B5, B6, C3, C4, C5, C6, C8, D1, D2, D3, D4
DS300	Software Project Management	3	2	2	DS100	A1, A5, A6, A8, A9, A10, B2, B4, B6, B7, C2, C3, C6, C7, C8, D2, D3, D4, D5, D6
IS301	Intelligent Systems and Business Intelligence	3	2	2	IS201	A18, A19, A20, B11, B17, B18, C9, C10, C14, C18, D1, D5, D12
HU108	Fundamentals of Economics and Feasibility Study	2	2	-	---	A8, B7, C7, D1, D2

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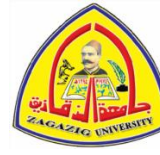
5.7- Level of Program (4) - Semester 1

Course Code	Course Title	Credit hours	No. of hours /week		Prerequisites	Program ILOs Covered (By No.)
			Lect.	Lab.		
IS304	E-Business	3	2	2	IS201	A2, A20, B7, C2, C5, C9, D1, D2, D4
IS400	Big Data Analytics	3	2	2	IS303	A1, A6, A12, B4, B11, B13, B17, B18, C9, C10, C13, C18, D2, D4, D6, D9
IS401	Information Security	3	2	2	IT304	A13, A14, A17, B10, B11, B14, C9, C11, C12, D1, D2, D11
IS407	Data Visualization	3	2	2	IS303	A1, A2, A3, A14, A18, B1, B2, B11, B14, C2, C9, C10, D2, D4, D5, D6, D10
IS412	Business Process Management	3	2	2	IS201	A1, A2, A3, A4, A6, A8, A13, A15, A18, A19, A20, B1, B2, B3, B5, B7, B10, B12, B14, B17, B18, C1, C2, C6, C8, C11, C12, C13, C17, C19, D1, D2, D4, D6, D10
IS430	Project I	3	1	4	---	A3, A5, A7, A12, A13, B3, B4, B13, B16, C2, C3, C5, C14, D1, D3, D5, D6, D10, D11, D12

5.8- Level of Program (4) - Semester 2

Course Code	Course Title	Credit hours	No. of hours /week		Prerequisites	Program ILOs Covered (By No.)
			Lect.	Lab.		
IS402	Distributed and Mobile Databases	3	2	2	IS200	A3, A6, A13, A14, A19, B10, B11, B12, B14, C6, C9, C11, D1, D2, D4
IS406	Information Retrieval	3	2	2	IS201	A1, A3, A6, A14, B2, B11, B13, B14, C4, C6, C9, C15, D2, D3, D4, D6, D9
IS404	Web and Social Media Analytics	3	2	2	IS400	A1, A4, A12, A14, A16, B6, B12, B14, B18, C8, C9, C14, D1, D2, D5, D8, D12
IS405	Data Mining and Machine Learning	3	2	2	IS201	A14, A19, B11, B12, C2, C5, C9, D1, D2, D4

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IS408	Software Engineering	3	2	2	IS201	A1, A3, A7, A13, B1, B4, B14, C2, C3, C6, C16, C17, C19, D1, D8, D11
S431	Project II	3	1	4	IS430	A3, A5, A7, A12, A13, B3, B4, B13, B16, C2, C3, C5, C14, D1, D3, D5, D6, D10, D11, D12

6. Program Admission Requirements

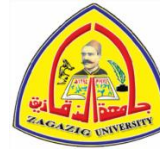
(As given in the by-law) Requirements:

- Students are accepted to study at the college based on the rules determined by the Universities Admission Coordination Office every year from among students who have obtained a high school diploma or its equivalent, provided that they have studied a physics course and a math-2 course.
- Students of equivalent certificates and expatriates are accepted according to the rules regulating this and set by the competent authorities.
- A student who transferred to a college from a university college or a corresponding recognized scientific institute might be exempted from performing Examinations in some academic courses after a clearing is conducted by the competent departments and approved by the College Council if it is proven that he has successfully passed equivalent exams in the college or institute he transferred from.

7. Regulations for progression and program completion

- The study in the program depends on the credit hour system, and the academic year is divided into two regular semesters, and the credit hour is a unit of study to determine the weight of the course.
- The Program Board and the faculty Board may agree to hold intensive summer classes in some courses upon the proposal of the program board and in accordance with the capabilities and circumstances of the faculty.
- To obtain a bachelor's degree, a student must successfully pass 138 credit hours for the "Medical Informatics" program for at least eight semesters, divided into four academic levels.
- At the beginning of each semester, the student registers the courses, at the times determined by the Faculty Administration before the start of the regularity of the study.
- The Program Board and the Faculty Board specify the minimum number of students to register in each course.
- A number of registration hours:

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➤ For Regular Classes:

- The minimum number of credit hours for registration is 9 hours, and the minimum limit may be exceeded if the number of hours remaining for the student to graduate is less than 9.
- The maximum number of hours registered for students with a GPA average at the start of the semester greater than or equal to 2 is 18 credit hours, as well as for new students enrolled in the program.
- The maximum number of credit hours for students with a GPA average at the beginning of the semester greater than 1 and less than 2 is 15 credit hours.
- The maximum number of hours registered for students with a GPA average at the start of the semester less than or equal to 1 is 12 credit hours.
- The maximum number of hours registered for students with a GPA average at the start of the semester greater than or equal to 2 may be increased to 21 credit hours due to the student's graduation reasons.

➤ For The Summer Semester:

- The maximum number of credit hours registered for students is 6 credit hours.
- The maximum number of hours registered for students can be increased to 9 credit hours due to the student's graduation reasons.
- After completing the registration procedures, the student may drop or add one or more courses during a period specified by the faculty for dropping and addition and this is done in coordination with the student's academic advisor.
- The student is allowed to study various courses and register in higher-level courses based on his choosing the requirements of the required course for higher courses, and the student is not registered in a higher course unless he succeeds in its requirements.
- The program follows the credit hours system, which depends on the basic unit being the course, not the academic year, and the evaluation system is based on the grade in each course with a point system, which is determined according to the following table:

Percentage included	Grade	Points	Descriptive
90% to less than 100%	A ⁺	4	Excellent
85% to less than 90%	A	3.7	
80% to less than 85%	B ⁺	3.3	Very Good
75% to less than 80%	B	3	
70% to less than 75%	C ⁺	2.7	Good
65% to less than 70%	C	2.4	

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60% to less than 65%	D ⁺	2.2	Pass
50% to less than 60%	D	2	
Less than 50%	F	0	Fail

- The student's overall grade is calculated based on the total score the student has earned according to the following table:

Points	Percentage included	Descriptive	Letter
More than 3.7	More than 85 %	Excellent	A
3 to less than 3.7	75% to less than 85%	Very Good	B
2.3 to less than 3	65% to less than 75%	Good	C
2 to less than 2.3	50% to less than 65%	Pass	D
Less than 2	Less than 50 %	Fail	F

8. Student Assessment (Methods and Rules for Student Assessment)

Method	Target ILO's Evaluated			
	Knowledge and Understanding Skills	Intellectual Skills	Professional & Practical Skills	General & Transferable Skills
Final exam (written)	✓	✓		
Oral exam	✓	✓		✓
Practical exam		✓	✓	
Midterm Exam	✓	✓		
Assignments	✓	✓		
quiz	✓	✓		
project			✓	✓

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9. Teaching and Learning Methods (Methods and Rules for Teaching and Learning Methods)

Method	Target ILO's Evaluated			
	Knowledge and Understanding Skills	Intellectual Skills	Professional & Practical Skills	General & Transferable Skills
Active Lecture	✓	✓		✓
Presentation	✓	✓		✓
Discussion	✓	✓		✓
Group Working			✓	✓
Brainstorming		✓	✓	✓
Self-Learning	✓	✓		✓
Practical Session		✓	✓	
Project			✓	✓
Trial and Error			✓	
Problem Solving		✓	✓	
Case-Study		✓	✓	
E-learning	✓	✓	✓	✓

10. Program Evaluation

Evaluator	Tool
1. Graduates	Questionnaire
2. Stakeholders (employers)	Questionnaire
3. Academic Staff	Questionnaire
4. Internal evaluator	Report

Coordinator of Information Systems Program:

Name:

Signature:

Department Head:

Signature:

Date: