

## ILO'S for **Information System** with National Stander Academy:

Faculty of computers and information	NARS
FCI Knowledge and understanding	K&U
A1. Identify quality criteria that enable future development of computer-based systems.	1. a core of analysis, algebra, applied mathematics and statistics.( A3,A7,A8)
A2. List the Fundamental topics in Computer Science and Information systems related to software engineering principles, computer organization and architecture.	2. Information systems, data and Information Management, enterprise architecture, IS project management, IT infrastructure, systems analysis and design, and IS strategies.(A5, A6, A7,A10,A11,A16 )
A3. Demonstrate the essential mathematics and physics relevant to computer science	3. 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,A5,A6,A7,A12)
A4. Explain essential concepts, principles, and theories related to computer science such as operating system.	4. Issues such as quality, reliability, enterprise, employment law, accounting and health. (A1,A4,A5,A6,A10,A16)
A5. Explain essential concepts, principles, and theories related to computer science such as computer graphics and GIS.	5. Awareness of organizational, human and economic sides of modern organizations. (A1 A12, A13).
A6. Explain essential concepts, principles, and theories related to computer-application development such as: databases, information systems development.	6. Principles of Information communication and information security. (A6. A11, A14, A15)

<p>A7. Demonstrate essential facts, concepts, principles and theories relating to computing <b>and information</b> and computer applications as appropriate to the program of study</p>	<p>7. Specification, analysis, design, implementation and operation and maintenance of IS solutions. (A6,7,9,10,11,17)</p>
<p>A8. Express the main concepts of statistics, probability theory, algebra and numerical analysis and their role in the computing and information discipline.</p>	<p>8. Modeling organizational processes and data, defining and implementing technical and process solutions, managing projects, and integrating systems (A2,6,7,12,17)</p>
<p>A9. Identify programming fundamentals and languages, algorithms analysis, and data structures.</p>	<p>9. 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.(A2,A6,A7,A10,A17)</p>
<p>A10. Identify and explain the fundamental concepts, principles, and techniques needed for the analysis, development, validation, verification, deployment, and operations of computer-based and information systems.</p>	
<p>A11. Describe main concept of operating systems, information system and databases.</p>	
<p>A12. Selects advanced topics to provide a deeper understanding of some aspects of the subject such as Unified Process, object-oriented analysis and design, e-commerce technologies, and Decision support systems</p>	
<p>A13. Define the mapping of real-world problems to algorithmic solutions</p>	
<p>A14. List the 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.</p>	

A15. Demonstrate the extent to which a computer-based system meets the criteria defined for its current use and future development.	
A16. Demonstrate the life cycle principles of the information systems applications	
A17. Demonstrate the new concepts and techniques that represent the future of information systems such as semantic web and Linked Open Data (LOD)	

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FCI: Intellectual Skills	Intellectual Skills
B1. Analyze real problems, and appropriate problem solving methods that satisfy commercial or industrial constraints and analyze results	1. Define traditional and nontraditional information systems problems, set goals towards solving them, and. Observe results. (B1,B4, B7)
B2, Determine different computer- system application attributes, components, relationships, patterns, architecture, and source of errors.	2. Perform comparisons between (methods, techniques...etc). (B2, B9, B13)
B3. Generate a range of innovative design patterns and solutions to solve a computer science problem containing a range of commercial and industrial constraints.	3. Identify attributes, components, relationships, patterns, main ideas, and errors. (B2, B9, B12, B13)
B4. Apply solutions to a computer science problem, follow-up on solution to verify it, and if necessary restrict the solution methodologies upon the results.	4. Restrict solution methodologies upon their results.(B4, B8, B11, B12, B14)
B5.Discuss factors other than computational efficiency that influence the choice of algorithms, such as programming time, maintainability, and the use of application-specific patterns in the input data.	5. Select the suitable tools, methods and techniques for modeling, analyzing IS, establishing criteria, and verify solutions. (B8, B12, B14, B15)
B6. Analyze the extent to which a computer-based system meets the criteria defined for its current use and future development.	6. Identify a range of solutions and critically evaluate and justify proposed design solutions. (B3, B4,B10,B11)
B7. Determine goals for problem solving and test the result of the solution of the problems	7. Solve IS problems with pressing commercial, time, and industrial constraints. (B3, B11)
B8. Identify criteria to measure and interpret the appropriateness of a computer system for its current deployment and future evolution.	8. Suggest an innovative design to solve a problem containing a range of commercial and industrial constraints.(B3, B5, B8, B10,B11)

<p>B9. Compare between the classifications of (data, results, methods, techniques, algorithms... etc.).</p>	<p>9. Perform problem analysis from written descriptions; derive requirements specifications from an understanding of problems (analysis, synthesis). (B1, B5, B6, B15)</p>
<p>B10. Generate innovative designs to solve a problem containing a range of commercial and industrial constraints.</p>	
<p>B11. Evaluate a range of innovative design patterns and solutions to solve a computer science problem containing a range of commercial and industrial constraints.</p>	
<p>B12. Define the standard methodologies for solving information systems problems</p>	
<p>B13. Define the main differences between computer-based and information systems concepts such as : mechanisms, methods and technologies</p>	
<p>B.14 Identify the substituted solutions for the commercial, time, and industrial problems that faces information systems applications</p>	
<p>B.15 Define the required tools and techniques to deliver the intended solutions for information systems problems</p>	

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<b>FCI: Professional and Practical Skills</b>	<b>Professional and Practical Skills</b>
C1. Analyze and improve organizational processes from an ICT perspective.	1. Use appropriate programming languages, web-based systems and tools, design methodologies, and database systems. (C1, C4, C8)
C2. Negotiate effectively with clients, other stakeholders and peers.	2. Use quantitative analysis techniques appropriately. (C6)
C3. Investigate the professional, economic, social, environmental, moral and ethical issues involved in the sustainable exploitation of computer technology and be guided by the adoption of appropriate professional, ethical and legal practices.	3. Justify technological, methodological and management choices for an information system project for a given organization.(C1,C2)
C4.Outline basic designs for data storage conceptual schemes.	4. Plan and manage an information systems project from inception to final implementation and cut-over.(C7,C12)
C5.Analyze simple and complicated electrical circuits and using electrical laws in solving problems and/or formal electrical analysis methods	5. Produce acceptable reports and technical and user system documentation. (C2,C11,C14)
C6.Employ the statistical, probabilistic and mathematical techniques in analyzing data and interpreting experimental results.	6. Perform information acquisition and management, using the scientific literature and Web sources. (C3)
C7.Plan, schedule, control, and lead ICT projects.	7. Apply the principles of effective information acquisition, information management, organization, and information-retrieval to text, images, sound, and video. (C3,C6,C14)
C8.Deploy appropriate tools for the construction and documentation of computer-based systems that are used to solve practical problems	8. 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. (C5,C8,C14)

C9. Deploy different modeling techniques to model and analyze real life computing problems.	9. Using tools to automate IS development phases. (C8,C9)
C10. Evaluate computer-based systems from various perspectives.	10. Analyze and documenting the feasibility of various options and comparing solution options. (C5,C10,C11)
C11. Develop a range of fundamental research skills that enable the graduate to continuously increase his knowledge, advance his career and pursue graduate studies.	11. Maintaining existing information systems (C12,C13)
C12. Design, implement, maintain, and manage software systems. Assess the implications, risks or safety aspects involved in the operation of computing equipment within a specific context.	
C13. Handle a mass of diverse data, assess risk and draw conclusions.	
C14. Write concise, comprehensible and cognitively efficient business communications' media.	

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FCI: Transferable skills	Transferable skills
D1. Edit and review a professional report or document and design its storage, distribution and retention standards.	1.Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.( D4,D5)
D2. Use effective information-retrieval skills (including the use of browsers, search engines and catalogues) and general IT facilities.	2.Demonstrate skills in group working, team management, time management and organizational skills.(D6, D7)
D3. Work as a member of a development team, recognizing the different roles within a team and different ways of organizing teams.	3. Show the use of information-retrieval. (D2, D4,D7)
D4. Demonstrate independent critical thinking and problem solving skills.	4.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. (D1,D3)
D5. Communicate effectively through oral, written, and visual means.	5.Exhibit appropriate numeracy skills in understanding and presenting cases involving a quantitative dimension.( D2,D4)
D6. Demonstrate skills in team work, team management, time management and organizational skills.	
D7. Prepare technical reports to a professional standard	