



Arab Academy for Science and Technology & Maritime Transport
 College of Computing and Information Technology
 Department of Computer science, Cairo

University/Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty/Institute: College of Computing and Information Technology
Program: Computer Science

Course title	Advanced Artificial Intelligence
Course code	CS 467

Form no. (11A) Knowledge and skills matrix for a course

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
Course Introduction	1	Be familiar with the rules of AI and semantic nets	I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results.	P14. Specify, design, and implement computer-based systems. P15. Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem.	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7. Show the use of general computing facilities.
Rules and Semantic Nets & Frames	2	Be familiar with the rules of AI and semantic nets	I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results.	P19. Deploy effectively the tools used for the construction and documentation of software,	G8. Demonstrate an appreciation of the need to continue professional development in recognition of the

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Solving Problems by Searching	3	Learn advanced searching techniques	<p>I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results.</p> <p>I11. Perform comparisons between (algorithms, methods, techniques...etc).</p> <p>I17. Identify a range of solutions and critically evaluate and justify proposed design solutions.</p>	with particular emphasis on understanding the whole process involved in using computers to solve practical problems.	requirement for life-long learning.
Informed Search-Intelligent Agents	4	Comprehend the concepts of Intelligent agents and their application in searching	<p>I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results.</p> <p>I11. Perform comparisons between (algorithms, methods, techniques...etc).</p> <p>I17. Identify a range of solutions and critically evaluate and justify proposed design solutions.</p>	<p>P14. Specify, design, and implement computer-based systems.</p> <p>P15. Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem.</p> <p>P19. Deploy effectively the tools used for the construction and documentation of software,</p>	<p>G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.</p> <p>G7. Show the use of general computing facilities.</p> <p>G8. Demonstrate an appreciation of the need to continue professional development in recognition of the</p>

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Constraint Satisfaction Problems	5	Understand Constraint-satisfaction problems and be able to solve them	<p>I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results.</p> <p>I11. Perform comparisons between (algorithms, methods, techniques...etc).</p> <p>I17. Identify a range of solutions and critically evaluate and justify proposed design solutions.</p>	with particular emphasis on understanding the whole process involved in using computers to solve practical problems.	requirement for life-long learning.
Knowledge Representation and Reasoning	6	<p>Understand the different Knowledge representations.</p> <p>Be familiar with the different reasoning techniques</p>	<p>I9. Evaluate research papers in a range of knowledge areas</p> <p>I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results.</p>		
Exam	7			<p>P14. Specify, design, and implement computer-based systems.</p> <p>P15. Evaluate systems in</p>	<p>G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.</p> <p>G7. Show the use of</p>
Logic Programming and Resolution	8	Learn logic programming and resolution of problems,			

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Reasoning Under Uncertainty	9	Comprehend reasoning with uncertainty vs traditional reasoning	I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results.	terms of general quality attributes and possible tradeoffs presented within the given problem. P19. Deploy effectively the tools used for the construction and documentation of software, with particular emphasis on understanding the whole process involved in using computers to solve practical problems.	general computing facilities. G8. Demonstrate an appreciation of the need to continue professional development in recognition of the requirement for life-long learning.
Intro to Natural Language Processing	10	Understand Syntax and grammar parsing in Natural language processing	I11. Perform comparisons between (algorithms, methods, techniques...etc). I17. Identify a range of solutions and critically evaluate and justify proposed design solutions.	P14. Specify, design, and implement computer-based systems. P15. Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem.	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7. Show the use of general computing facilities. G8. Demonstrate an appreciation of the need to continue professional development in
Features and Augmented Grammars-Logical Form-Extension: Ambiguity	11	Understand ambiguity and its effect on grammar	I10. Define traditional and nontraditional problems, set goals towards solving them,	P19. Deploy effectively the tools used for the construction and	

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			and. observe results. I11. Perform comparisons between (algorithms, methods, techniques...etc). I17. Identify a range of solutions and critically evaluate and justify proposed design solutions.	documentation of software, with particular emphasis on understanding the whole process involved in using computers to solve practical problems.	recognition of the requirement for life-long learning.
Semantic Interpretation - Ambiguity Resolution	12		I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results.		
Machine Learning - Decision Tree Induction - Interactive Activation and	13	Learn about machine learning	I9. Evaluate research papers in a range of knowledge areas	P14. Specify, design, and implement computer-based systems.	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.
Knowledge Representation- Neural Networks	14	Introduction to neural networks	I9. Evaluate research papers in a range of knowledge areas	P15. Evaluate systems in terms of general quality attributes and possible tradeoffs presented within	G7. Show the use of general computing facilities. G8. Demonstrate an

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Project submissions	15			<p>the given problem.</p> <p>P19. Deploy effectively the tools used for the construction and documentation of software, with particular emphasis on understanding the whole process involved in using computers to solve practical problems.</p>	<p>appreciation of the need to continue professional development in recognition of the requirement for life-long learning.</p>

Course Instructor:

Head of Department:

Program Manager: