Mansoura University

Faculty of Computers and Information Sciences

Course Specifications of

Computer language Design – CS326P

University: Mansoura University **Faculty**: Computer and Information Sciences

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Program on which the course is given: General **Department offering the course:** Department of computer science

Academic year/ Level: Third Year

Date of specification approval:

A- Basic Information

Title : Computer language Design **Code :** CS326P

Credit Hours : 3 **Lecture :** 2 **Tutorial :** --- **Practical :** 2

B- Professional Information

1- Overall Aims of the Course

- Understand the main conceptual features of modern programming languages
- Understand common features of type systems and type discipline in various programming languages
- Distinguish between families of languages (imperative, OO, functional, declarative) and within families (dynamically typed vs statically typed, call by name vs call by value, etc.)
- Use diverse programming language primitives for concurrency

- Understand diverse approaches to formal semantics of programming languages

2- Intended Learning Outcomes of the course (ILOs)

By completing this course successfully, the student will be able to:

a- Knowledge and Understanding

The student should acquire the knowledge and understanding of:

A1.Essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study.

A2.Modeling and design of computer-based systems bearing in mind the trade-offs.

A3.Tools, practices and methodologies used in the specification, design, implementation and evaluation of computer software systems.

A7.Principals of generating tests which investigate the functionality of computer programs and computer systems and evaluating their results.

A13.Use high-level programming languages.

A14.Demonstrate basic knowledge and understanding of a core of analysis, algebra, applied mathematics and statistics.

A18.Understand the fundamental topics in Computer Science, including hardware and software architectures, software engineering principles and methodologies, operating systems, compilers, parallel and distributed computing, systems and software tools.

A19.Select advanced topics to provide a deeper understanding of some aspects of the subject, such as hardware systems design, object-oriented analysis and design, and artificial intelligence, and parallel and concurrent computing

b- Intellectual Skills

The student 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.

B4. Analyze, propose and evaluate alternative computer systems and processes taking into account limitations, and quality constraints.

B11. Perform comparisons between (algorithms, methods, techniques...etc).

B13. Identify attributes, components, relationships, patterns, main ideas, and errors.

B16. Establish criteria, and verify solutions.

B17. Identify a range of solutions and critically evaluate and justify proposed design solutions.

c- Professional and Practical Skills

The student 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.
C9. Use appropriate programming languages, web-based systems and tools, design methodologies, and knowledge and database systems.

d- General and Transferable Skills

The student should be able to:
D2. Demonstrate skills in group working, team management, time management and organizational skills.
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.
D8. Demonstrate an appreciation of the need to continue professional development in recognition of the requirement for life-long learning.

3- Contents

No	Course Content	Lecture	Practical	Total
1	Introduction, Types, Implementation types	**2**	**---**	**2**
2	Syntax	**6**	**---**	**6**
3	Static semantics	**2**	**---**	**2**
4	Semantics	**2**	**---**	**2**
5	Parsing	**2**	**---**	**2**
6	Variables	**4**	**---**	**4**
7	Scopes Types	**2**	**---**	**2**
8	assignment Conditional expression	**2**	**---**	**2**
9	Gold Parser – lexical, syntax, semantic	**---**	**20**	**20**
	Total Hours	**22**	**20**	**42**

4- Assessment Schedule

Assessment Method	No.	Description	Week No.	Weight (%)
Assignment	1	Report	4	5
Written Exams	2	Midterm Exam	7	5
Lab exam	3	mobile app evaluation	11	20
Oral Exam	4	Oral questions	11	10
Written Exams	5	Final Exam	14	60
Total				100

5- List of references

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5.1 Course Notes

- Lecture handouts delivered to students at the end of each lecture.

5.2 Essential Books (Text Books)

- Robert W. *Sebesta, programming language concepts, 10th edition*

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6- Facilities Required for Teaching and Learning - Data show.

Course Content/ILO Matrix

Course Content	a1	A2	A3	A7	a13	a14	a18	a19	b1	b2	B4	B11	B13	B16	b17	c1	C2	C9	D2	D6	D8
Introduction, Types, Implementation types	•			•		•		•		•		•	•								
Syntax	•	•	•	•	•	•	•	•	•		•	•	•	•							
Static semantics	•		•	•								•	•								•
Semantics	•	•	•	•		•		•	•	•		•	•		•		•	•	•	•	
Parsing	•	•	•	•		•		•	•	•		•	•		•		•	•			
Variables	•	•	•		•					•	•	•		•		•					

Scopes Types	•	•		•	•				•	•	•	•	•	•	•	•	•	•			
assignment Conditional expression				•			•			•	•	•	•	•			•		•	•	•
Student Activity		•		•	•	•		•	•		•		•	•	•			•	•	•	•

Learning Method/ILO Matrix

Course Content	a1	A2	A3	A7	a13	a14	a18	a19	b1	b2	B4	B11	B13	B16	b17	c1	C2	C9	D2	D6	D8
Lectures	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Practical			•	•				•	•					•	•	•	•	•			•

Assessment Methods/ILO Matrix

Course Content	a1	A2	A3	A7	a13	a14	a18	a19	b1	b2	B4	B11	B13	B16	b17	c1	C2	C9	D2	D6	D8
Assignment			•	•				•	•					•	•	•	•	•			•
Midterm		•		•			•		•	•			•								
Oral Exam		•		•		•	•	•	•					•	•	•	•	•			
Lab Exam				•			•				•					•				•	
Final Exam	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Course Coordinator: Sherihan Mohamed
Head of Department: Prof. Samir Elmougy
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