



Faculty of Computers and Information
Department of Computer Science

Computer Science Master Program





Assiut University

Faculty of Computers
& Information



Assiut University
Faculty of Computers & Information
Quality Assurance Unit



CS Master Program

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*Program
Specifications*



CS Master Program Specifications 2010-2011

A. Basic Information

1. **Program Title:** Master in Computers and Information (Computer Science)
2. **Program Type:** Single
3. **Faculty (Faculties):** Faculty of Computers and Information
4. **Department:** Computer Science
5. **Assistant Coordinator:** Prof. Adel A. Sewisy
6. **Coordinator:** Dr. Abdel-Rahman Hedar
7. **Last date of program specifications approval:**–

B. Professional Information

1. Program Aims and Objectives

Successfully completing this program will contribute to some certain graduate attributes. Specifically, a graduate of Computers and Information (Computer Science) Master Program should be able to:

- I. Be proficient in applying scientific research basics and methodologies and using its various tools in computer science.
- II. Apply analytical methodologies and use it in computer science domains.
- III. Apply specialized knowledge in computer science and merge it with other related knowledge of his/her professional practice.
- IV. Be aware of current problems and vision of computer science.
- V. Determine professional problems and find solutions for them.
- VI. Master a suitable level of professional skills in computer science and use appropriate technology in his/her professional practices.
- VII. Communicate effectively at work.
- VIII. Lead team work and take decisions at different professional scenarios.
- IX. Employ available resources efficiently to preserve them and maximize their utilization.
- X. Show his/her awareness in community developing and preserving the environment according to the local and global changes.
- XI. Act with integrity, credibility and applying the rules of the profession.
- XII. Develop his/her professional and academic skills, and adopt life-long self-learning.

2. Intended Learning Outcomes (ILOs)

a. Knowledge and Understanding

After completing the Master program in Computers and Information (Computer Science), the graduate should be able to know and understand the following:

- a1. Theories and fundamentals in computer science and related domains.
- a2. The ability to integrate knowledge of mathematics, science, information technology, design, business context and computing practice to solve a substantial range of oriented specific computing discipline problems.
- a3. Scientific development in computer science.
- a4. Professional and ethical responsibilities including codes of practice and the regulatory framework and the global and social context of specific computing discipline.
- a5. Quality principles of professional practice in computer science.
- a6. The fundamentals of scientific research and its ethics.
- a7. A deep and systematic understanding of the academic discipline of Computer Science.
- a8. A critical awareness of current problems and research issues in selected areas of Computer Science.
- a9. A comprehensive understanding of current advanced scholarship and research in selected areas of computer science and how this may contribute to the effective design and implementation of relevant computer based systems.

b. Intellectual Skills

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

- b1. Analyze and evaluate the information in the domain of computer science and take references from them for problem solving.
- b2. Solve specialized problems without enough inputs.
- b3. Link different knowledge to solve professional problems.
- b4. Carry out a research study and write a thesis around a research problem in computer science.
- b5. Assess risks in professional practice of computer science.
- b6. Plan to develop the performance in computer science.
- b7. Take professional decisions in different scenarios.
- b8. Establish techniques of research and enquiry are used to extend, create and interpret knowledge in Computer Science.
- b9. Evaluate critically current research and advanced scholarship in Computer Science.
- b10. Evaluate the relative merits of software and computer systems, and algorithmic approaches.
- b11. Recognize the need for, and show ability for, dealing with constantly changing technology and continuing professional development.

c. Professional and Practical Skills

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

- c1. Master basic and modern professional skills in computer science.
- c2. Write and evaluate professional reports related to computer science.
- c3. Evaluate current methods and tools in computer science.
- c4. Deal with complex issues at the forefront of the academic discipline of Computer Science in a manner, based on sound judgments, that is both systematic and

- creative; and be able to communicate conclusions clearly to both specialists and non-specialists.
- c5. Demonstrate self-direction and originality in tackling and solving problems within the domain of Computer Science, and be able to act autonomously in planning and implementing solutions in a professional manner.
 - c6. Continue to advance their knowledge and understanding, and to develop new skills to a high level, with respect to continuing professional development as “a self-directed life-long learner” across the discipline of Computer Science.
 - c7. An ability to consistently apply knowledge concerning current research issues in computer science in an original manner and produce work that is at the forefront of the developments in the domain of the program of study.
 - c8. Generate and apply appropriate solutions to solve problems based on reasoned rationale.

d. General and Transferable Skills

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

- d1. Communicate efficiently by different means.
- d2. Use the information technology to serve the professional practice.
- d3. Have self-assessment and identification of personal learning needs.
- d4. Use different recourses to obtain information and knowledge.
- d5. Propose roles and indicators to evaluate the performance of the others.
- d6. Work in a team and lead teams in different professional tracks.
- d7. Manage time efficiently.
- d8. Long-life self-learning.
- d9. Make use of the qualities and transferable skills necessary for employment requiring concerning the exercise of initiative and personal responsibility.
- d10. Participate within the professional, legal and ethical framework within which they would be expected to operate as professionals within the IT industry.
- d11. Effectively present ideas, designs and solutions in a logical framework in a variety of forms with proper language structure and mechanics, and to produce appropriate written documentation.

3. Academic Standards

The academic standards invoked in this specification are driven from the generic standards in the “Guide of Academic Standards for Graduate Programs” published by the National Authority for Quality Assurance & Accreditation (NAQAAE) on March 2009.

4. Curriculum Structure and Contents

4a. Program duration: at least 2 years.

4b. Program structure

- No. of hours per week: Lectures (10), Lab./Tut. (0), Total (10)
- No. of credit hours: Compulsory (40), Elective (6)
- No. of hours of basic computing: 8 credits, 40%
- No. of hours of specialized computer science courses: 12 credits, 60%
- Field Training: Not compulsory
- Program Levels (in credit-hours system): Not applicable.

5. Program Courses

5a. Compulsory Courses

Course Code / No.	Course Title	Units No	No. of hours /week			Year	Semester	Achieved ILOs
			Lect	Lab	Exer			
CS611	Data Compression	4	2	-	-	1 st	1 st + 2 nd	a1, a3, a6, a7, a8,b2, b3, b4, b6, b8, b11, c1, c3, c4, c7, c8,d1, d2, d4, d8, d11
CS612	Object-Oriented Software Engineering	4	2	-	-	1 st	1 st + 2 nd	a1, a3, a6, a7, a8, b1, b2, b3,b4, b6,b8, b11,c1, c3, c4, c7, c8, d1, d2, d4, d8, d11
CE611	Modern Computer Architecture	4	2	-	-	1 st	1 st + 2 nd	a1, a3, a6, a7, a8, b2, b3, b4, b6, b8, b11, c1, c3, c4, c7, c8, d1, d2, d4, d8, d11
TOTAL		12	6	-	-			

5b. Elective Courses

Course Code / No.	Course Title	Units No	No. of hours /week			Year	Semester	Achieved ILOs
			Lect.	Lab	Exer.			
1	Elective Course I	4	2	-	-	1 st	1 st + 2 nd	a1, a2, a3, a5, a6, a7, a8, b1, b2, b3, b5, b6, b8, b11, c1, c3, c4, c7, c8, d1, d2, d4, d8, d11
2	Elective Course II	4	2	-	-	1 st	1 st + 2 nd	a1, a2, a3, a5, a6, a7, a8, b1, b2, b3, b5, b6, b8, b11, c1, c3, c4, c7, c8, d1, d2, d4, d8, d11
TOTAL		12	4	-	-			

Elective Course I		Elective Course II	
Course Code	Course Title	Course Code	Course Title
CS613	User Interface Design	CS616	Programming Language Design
CS614	Software Reliability and Reusability	CS617	Compiling Techniques for Parallel Systems
CS615	Software Maintenance	CS618	Advanced Topics In Computer Science
		CS619	Fault-Tolerant Computers

5c. Master Thesis

No.	Title	Units No	Year	Semester	Achieved ILOs
1	Master Thesis	20	2 nd	1 st + 2 nd	a2, a3, a4, a5, a6, a7, a8, a9, b1-b11, c1-c8, d2,d3,d4,d9-d11

6. Contents of Courses

Syllabus: See below

7. Program Admission Requirements

High score in secondary school education certificate in (mathematic section).

8. Regulations for progression and program completion

Please, refer to faculty bylaw (curriculum of undergraduate programs), 2004, pages 4-5.

9. Student Assessment (Methods and rules for student assessment)

Method (tool)	Intended leaning outcomes assessed
1- Written examinations	Knowledge and Understanding - Intellectual Skills - Professional Skills - General Skills
2- Oral examination	Knowledge and Understanding - Intellectual Skills - General Skills
3- Thesis	Knowledge and Understanding - Intellectual Skills - Professional Skills - General Skills

10. Program Evaluation

Evaluator	Tool	Sample
1- Senior students		
2- Alumni		
3- Stakeholders		
4-External Evaluator(s) (External Examiner(s))		
5- Other		

Program Coordinator: Prof. Adel A.Sewisy

Signature:

Date: 22/9/2010

Department Head: Prof.Yousef B.Mahdy

Signature:

Date: 22/9/2010

Approved by the Dean: Prof.Hosny M. Ibrahim

Signature:

Date: 22/9/2010

*Program
Matrix*



Assiut University
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CS Master Program Matrices

Program ILOs	a1	a2	a3	a4	a5	a6	a7	a8	a9	b1	b2	b3	b4	b5	b6	b7	b8	b9	b10	b11	c1	c2	c3	c4	c5	c6	c7	c8	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	
CS611	✓		✓			✓	✓	✓			✓	✓	✓		✓		✓			✓	✓		✓	✓			✓	✓	✓	✓		✓				✓			✓	
CS612	✓		✓			✓	✓	✓		✓	✓	✓	✓		✓		✓			✓	✓		✓	✓			✓	✓	✓	✓		✓				✓			✓	
CE611	✓		✓			✓	✓	✓			✓	✓	✓		✓		✓			✓	✓		✓	✓			✓	✓	✓	✓		✓				✓			✓	
EL1	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓	✓		✓			✓	✓		✓	✓			✓	✓	✓	✓		✓				✓			✓	
EL2	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓	✓		✓			✓	✓		✓	✓			✓	✓	✓	✓		✓				✓			✓	
Master Thesis		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓							✓	✓

*Program
Report*



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Program Report

This program has no graduate during the academic year 2010-2011.