COMSATS Institute of Information Technology
Registrar Office, Principal Seat, Islamabad
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No: CIIT-Reg/Notif-*651* /12/975   July 3, 2012

NOTIFICATION

Scheme of Studies of Bachelor of Science (BS) in Software Engineering

It is hereby notified that the Academic Council in its 13th Meeting held on June 04, 2012 approved the following scheme of studies of Bachelor of Science (BS) in Software Engineering with effect from Fall 2012 for CIIT system:

i.	Minimum Duration:	04 Years
ii	Minimum No. of Semesters:	08

iii. Course Work   **No. of Courses**

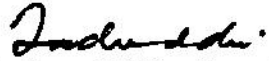|		
i. Core Courses (List attached)		
a.	Computer Science	10
b.	Software Engineering	08
c.	Allied	05
d.	Institutional	07
	Total Core Courses	**30**
ii. Elective Courses (List attached)		
a.	Computer Science & Software Engineering	05
b.	Supporting Science	03
c.	Institutional Elective	03
d.	Domain Specific	02
	Total Elective Courses	**13**

Total No. of Courses:	43
Total No. of Minimum Credit Hours:	139

Note:

The Regulations relating to Undergraduate Degree Programs approved by the Competent Authority and amended from time to time shall also be applicable to this program.

This issues with the approval of the Competent Authority.

Nadeem Uddin Qureshi
Additional Registrar

Encl: (pages 06 in total including this page)

Distribution:
1. Dean, Faculty of Information Sciences and Technology, CIIT.
2. All Directors CIIT System.
3. Chairman, Department of Computer Science, CIIT.
4. Incharge, CIIT Islamabad Campus.
5. All Incharges, Academic Sections, CIIT Campuses.
6. All HoD's/Incharges, Department of Computer Science, CIIT Campuses.
7. Controller of Examinations, CIIT.
8. All Incharges, Examination Departments, CIIT Campuses.

CC:
1. PS to Rector.
2. PA to Registrar.

List of Core Courses

Sr. No.	Course Code	Course Title	Credit Hours	Co-requisite	Pre requisite
Computer Science Core					
1.	CSC102	Discrete Structures	3(3, 0)		
2.	CSC103	Introduction to Computers and Programming	4(3, 1)		
3.	CSC110	Professional Practices IT	3(3, 0)		
4.	CSC112	Algorithms and Data Structures	4(3, 1)		CSC103
5.	CSC221	Computer Organization and Assembly Language	4(3, 1)		CSC103
6.	CSC241	Object Oriented Programming	4(3, 1)		CSC103
7.	CSC271	Database Systems	4(3, 1)		CSC103
8.	CSC322	Operating Systems Concepts	3(3, 0)		CSC112
9.	CSC339	Computer Communication and Networks	4(3, 1)		
10.	CSC456	Human Computer Interaction	3(3, 0)		
Software Engineering Core					
11.	CSC291	Software Engineering I	3(3, 0)		
12.	CSC494	Software Project Management	3(3, 0)		
13.	CSE305	Software Requirement Engineering	3(3, 0)		
14.	CSE299	Software Construction	3(2, 1)		CSC112
15.	CSE302	Software Quality Engineering	3(3, 0)		CSC596
16.	CSE303	Software Design and Architecture	3(3, 0)		CSC596
17.	CSE304	Formal Methods in Software Engineering	3(3, 0)		CSC291
18.	CSE499	Project	6(0, 6)		
Allied Core					
19.	EEE121	Electric Circuits Analysis I	4(3, 1)		
20.	EEE440	Computer Architecture	3(3, 0)		CSC221
21.	MTH104	Calculus and Analytical Geometry	3(3, 0)		
22.	MTH231	Linear Algebra	3(3, 0)		
23.	MTH262	Statistics and Probability Theory	3(3, 0)		

Institutional Core					
24.	MGT101	Introduction to Management	3(3, 0)		
25.	HUM100	English Comprehension and Composition	3(3, 0)		
26.	HUM102	Report Writing Skills	3(3, 0)		HUM100
27.	HUM103	Communication skills	3(3, 0)		
28.	HUM110	Islamic Studies	3(3, 0)		
29.	HUM111	Pakistan Studies	3(3, 0)		
30.	HUM320	Introduction to Sociology	3(3, 0)		

List of Elective Courses

Sr.#	Code	Course Title	Credit Hours	Prerequisite
Computer Science Electives				
1.	CSC444	Visual Programming	3(3, 0)	CSC103
2.	CSC445	Modern Programming Languages	3(3, 0)	CSC241
3.	CSC446	Advanced Object Oriented Programming	3(3, 0)	CSC241
4.	CSC447	Enterprise Systems Development	3(3, 0)	CSC241
5.	CSC328	Distributed Computing	3(3, 0)	
6.	CSC434	Information Theory and Coding	3(3, 0)	
7.	CSC253	Computer Graphics	4(3, 1)	CSC103
8.	CSC454	Computer Animation	3(3, 0)	CSC253
9.	CSC455	Computer Vision	3(3, 0)	
10.	CSC472	Geographical Information Systems	3(3, 0)	
11.	CSC304	Multimedia Entertainment and Gaming	3(3, 0)	
12.	CSC461	Neural Networks	3(3, 0)	CSC462
13.	CSC462	Artificial Intelligence	3(2, 1)	
14.	CSC463	Knowledge Based Systems	4(3, 1)	
15.	CSC465	Decision Support Systems	3(3, 0)	
16.	CSC478	Data Warehousing	3(3, 0)	
17.	CSC479	Data Mining	3(3, 0)	
18.	CSC302	Multimedia Authoring	3(3, 0)	
19.	CSC308	Advanced Website Authoring	3(3, 0)	
20.	CSC330	E-Commerce	4(3, 1)	

21.	CSC336	Web Engineering	4(3, 1)	CSC103
22.	CSC402	E-Commerce Policy and Practices	3(3, 0)	
23.	CSC348	Information Systems Modeling and Design	3(3, 0)	
24.	CSC447	Enterprise Systems Development	3(3, 0)	CSC241
25.	CSC495	Enterprise Resource Planning	3(3, 0)	
26.	CSC201	Design and Analysis of Algorithm	3(3, 0)	CSC103
Software Engineering Electives				
27.	CSC392	Software Engineering II	3(3, 0)	CSC291
28.	CSC312	Automata Theory	3(3, 0)	CSC102
29.	CSC421	Systems Programming	3(3, 0)	CSC103
30.	CSC443	Scripting Languages	3(3, 0)	CSC336
31.	CSC496	Business Process Reengineering	3(3, 0)	CSC291
32.	CSE348	Data Security and Encryption	3(3, 0)	
33.	CSE349	Introduction to Soft Computing	3(3, 0)	
34.	CSE350	Software Metrics	3(3, 0)	
35.	CSE351	Software Engineering Economics	3(3, 0)	
36.	CSE352	Information System Audit	3(3, 0)	
37.	CSE353	Business Process Automation	3(3, 0)	
38.	CSE354	Design Patterns	3(3, 0)	
39.	CSE355	Software Testing	3(2, 1)	
40.	CSE356	Formal Methods	3(3, 0)	
41.	CSE357	Software Process and Process Improvement	3(3, 0)	
42.	CSE358	Reverse Engineering of Source Code	4(3, 1)	

Supporting Science Elective

Sr. #	Code	Course Title	Credit Hours	Prerequisite
1.	MTH101	Calculus I	3(3, 0)	
2.	MTH102	Calculus II	3(3, 0)	MTH101
3.	MTH462	Advanced Numerical Analysis	3(3, 0)	
4.	MTH211	Discrete Mathematics	3(3, 0)	
5.	PHY100	Physics I (Mechanics and Thermodynamics)	4(3, 1)	

6.	BIO424	Bioinformatics Software Development	3(2, 1)	-
7.	BIO130	Cell Biology	4(3, 1)	-
8.	BSC208	Essentials of Genetics	3(3, 0)	-
9.	BIO132	Principles of Biochemistry I	4(3, 1)	-
10.	BIO135	General Chemistry	4(3, 1)	-
11.	EEE241	Digital Logic Design	4(3, 1)	-
12.	EEE231	Electronics I	4 (3,1)	EEE121
13.	ECO300	Engineering Economics	3(3, 0)	MGT131
14.	MTH465	Topics in Scientific Computing	3(3, 0)	--
15.	MTH467	Operation Research	3(3, 0)	--
16.	MTH105	Multivariate Calculus	3(3, 0)	MTH104
17.	MTH242	Differential Equations	3(3, 0)	MTH105
18.	MTH375	Numerical Computing	3(3, 0)	MTH231

Institutional Elective

Sr. #	Code	Course Title	Credit hours	Pre-Reqs
1.	MGT350	Human Resource Management	3(3, 0)	MGT101
2.	MGT403	Entrepreneurship	3(3, 0)	MGT101
3.	MGT463	Productivity and Quality Management	3(3, 0)	MGT101
4.	MGT300	Organizational Behavior	3(3, 0)	MGT101
5.	MGT362	Production and Operation Management	3(3, 0)	
6.	MGT522	Marketing of IT and Telecom Products	3(3, 0)	
7.	MGT513	New Product Development	3(3, 0)	
8.	MGT131	Financial Accounting	3(3, 0)	
9.	HUM220	Introduction to Psychology	3(3, 0)	
10.	HUM430	French	3(3, 0)	
11.	HUM431	German	3(3, 0)	
12.	HUM432	Arabic	3(3, 0)	
13.	HUM433	Persian	3(3, 0)	

Domain Specific Elective

In-depth treatment of one of the following SE Application Domains should be offered in the form of set of two to three courses of 3 credits each in the selected domain.					
#	Code	Domain	Course Title	Credit Hours	Semester
1.	CSE360	Safety Critical Systems	Software Safety Critical Systems	3(3, 0)	6,7
2.	CSE361		Software Fault Tolerance	3(3, 0)	6,7
3.	CSC448	Scientific Systems	Data Visualization	3(3, 0)	6,7
4.	CSC253		Computer Graphics	3(3, 0)	6,7
5.	CSC478	Information Systems and Data Processing	Data Warehousing	3(3, 0)	6,7
6.	CSC479		Data Mining	3(3, 0)	6,7