

Ph. (Off.) : 0480 2701159
 Principal (Per.) : 0480 2708877
 (Res) : 0480 2701876
 (Fax) : 0480 2708877



SACRED HEART COLLEGE, CHALAKUDY

Railway Station Road, Thrissur Dt., Kerala - 680 307, India

(Affiliated to University of Calicut & Re-accredited with A+ Grade by NAAC, CGPA 3.55)

E-mail : shcollegeky@gmail.com

Website : www.sacredheartcollege.ac.in

Date :

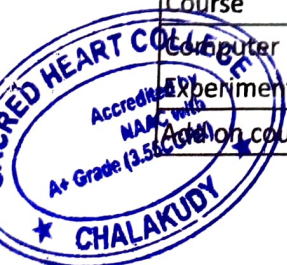
29/09/2022

Sub- Clarification regarding the Add-on/Certificate courses of the year 2019-20 Metric - (1.2.2)

I certify that the eight Add-on/Certificate courses offered during the academic year 2019-20 listed below are not part of the curricula offered by the University. The Course Codes and syllabi of these Add-on/Certificate courses are also not the same with the Course codes, titles and syllabi of Courses as part of the curriculum. We have attached the list of the Course Codes and syllabi of the normal curricula for clarification. The syllabi, attendance, certificates of the Add-on/Certificate courses are also provided in the other link so that NAAC can verify that the courses are not part of the normal curricula.

In the DVV, you have accepted only five Add-on/Certificate courses indicating whether others are part of normal curricula. Thank you for giving us an opportunity to clarify this. I hope you will accept all the eight Add-on/Certificate courses offered during the year 2019-20 and the corresponding number of students who pursued this course into consideration.

Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
Technical Writing certificate course	SHCCCOM 02	2019-20	1	30 hrs	19	19
Certificate Course on Human Rights and Duties Education		2019-20	1	30 hours	50	50
Quail Farming - Add On Course		2019-20	1	100 hrs	35	35
Computer Interfaced Physics Experiments add on		2019-20	1	30Hrs	24	24
_____ add on course on	ADENG01	2019-20	1	140hrs	43	20



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Communication Skills						
Water analysis certificate course	SHCHADD 3	2019-20	1	4 Months	21	21
Quantitative Aptitude and Analytical Skills certificate course		2019-20	1	30 hours	15	15
An Introduction to Latex Certificated course		2019-20	1	30 hours	15	15



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UNIVERSITY OF CALICUT

Abstract

Scheme and Syllabus of M.Sc Computer Science for the affiliated colleges under CUCSS-PG-2010 - corrections incorporated in the syllabus- implemented with effect from 2014 admissions -orders issued.

G & A - IV - J

U.O.No. 5502/2016/Admn

Dated, Calicut University.P.O, 28.04.2016

*Read:-*1)U.O.No.GAIV/J1/1373/08 dated 23.07.2010.

2)GA IV/J1/4639/10 Dt 14.09.2010

3) Item No: 2 of the Minutes of the meeting of BOS in Computer Science on 6.8.14

4) UO No: U.O.No. 9880/2014 Admn 25.10.2014

5) Item No:1 of the minutes of the meeting of BOS in Computer Science on 02.12.15

6) Item 5 in the minutes of the Faculty of Science 15.01.16

7) Item No: II -F of Minutes o the Academic Council 20.02.16

8) Order of the Vice Chancellor in the file of even number on 16.03.16

ORDER

As per paper read as (1) above, Credit Semester System at Post Graduate level in affiliated colleges (CUCSS-PG-2010) was implemented from the academic year 2010 onwards. As per paper read as (2) above, the syllabus of MSc Computer Science for affiliated colleges under CUCSS -PG 2010 has been approved and implemented. The Board of Studies at its meeting, vide paper read as (3) above, revised the syllabus of M.Sc.Computer Science of affiliated colleges. As per paper read as (4) above, orders have been issued, implementing the revised syllabus.

As per paper read as (5) the board of studies has incorporated some correction in the syllabus as follows.

1. Specified that evaluation for CSS4E01 is fully internal.
2. Made minor corrections in the syllabus content for few papers.
3. Evaluation scheme for CSS4C02 is made clear; a sample evaluation is also provided.
4. Added model question papers.

As per paper read as (6) & (7) the Faculty of Science and Academic Council has approved the corrected syllabus of MSc Computer Science. As per paper read as (8) the Vice Chacelleor has approved to implement the items in the minutes of Academic Council.

of M.Sc.Computer Science programme of affiliated colleges under CUCSS PG 2010 w.e.f 2014 admission onwards. Hence the Scheme and Syllabus implemented vide paper read as (5) stands corrected to this effect. Corrigendum is issued accordingly.

(The corrected syllabus is attached herewith and is available in the website: universityofcalicut.info)

Anuja Balakrishnan
Deputy Registrar

To

Controller of Examinations
Exam Wing, Pareekshabhavan
Digital Wing, Calicut University
Principals of Affiliated Colleges

Forwarded / By Order

Section Officer

UNIVERSITY OF CALICUT
THENHIPALAM, CALICUT UNIVERSITY P.O



DEGREE OF
MASTER OF SCIENCE (MSc)
IN
COMPUTER SCIENCE
(CHOICE BASED CREDIT AND SEMESTER SYSTEM)

UNDER THE
FACULTY OF SCIENCE

SYLLABUS
(FOR THE STUDENTS ADMITTED FROM THE ACADEMIC YEAR 2014 – 15 ONWARDS)

BOARD OF STUDIES IN COMPUTER SCIENCE &
APPLICATIONS (PG)

THENHIPALAM, CALICUT UNIVERSITY P.O
KERALA, 673 635, INDIA
DECEMBER, 2015

CONTENTS

- 1 REGULATIONS FOR THE DEGREE OF MASTER OF SCIENCE (COMPUTER SCIENCE)
- 2 PROGRAM STRUCTURE
- 3 FORMAT FOR THE PROJECT REPORT (APPENDIX A)
- 4 A SAMPLE EVALUATION FOR PROJECT WORK (APPENDIX B)
- 5 MODEL QUESTION PAPERS (APPENDIX C)



MASTER OF SCIENCE COMPUTER SCIENCE PROGRAMME STRUCTURE

LEGEND	
Item	Description
C	Credits
E	External Component (%)
I	Internal Component (%)
L	Lecture Hours
P	Practical Hours
T	Total

Semester I

No	Course Code	Course Name	C	Weightage			Hrs/wk		
				I	E	T	L	P	T
1.1	CSS1C01	Discrete Mathematical Structures	4	25	75	100	4		4
1.2	CSS1C02	Advanced Data Structures	4	25	75	100	3	2	5
1.3	CSS1C03	Theory of Computation	4	25	75	100	4		4
1.4	CSS1C04	The Art of Programming Methodology	4	25	75	100	2	2	4
1.5	CSS1C05	Computer Organization and Architecture	4	25	75	100	4		4
1.6	CSS1P06	Practical I	4	25	75	100		4	4
Total			24				17	8	25

Semester II

No	Course Code	Course Name	C	Weightage			Hrs/wk		
				I	E	T	L	P	T
2.1	CSS2C01	Design and Analysis of Algorithms	4	25	75	100	3	1	4
2.2	CSS2C02	Operating System Concepts	4	25	75	100	3	1	4
2.3	CSS2C03	Computer Networks	4	25	75	100	4		4
2.4	CSS2C04	Computational Intelligence	4	25	75	100	4		4
2.5	CSS2E05	Elective I	4	25	75	100	4		4
2.6	CSS2P06	Practical II	4	25	75	100		4	4
2.7	CSS2P07*	Term Paper	1	100		100		1	1
Total			25				18	7	25

* Evaluation is to be done fully internally for this paper

List of Elective Courses (Semester II)

No	Course Code	Course Name
2.5a	CSS2E05a	Computer Graphics
2.5b	CSS2E05b	Introduction to Soft Computing
2.5c	CSS2E05c	Web Technology
2.5d	CSS2E05d	Bioinformatics
2.5e	CSS2E05e	Computer Optimization Techniques
2.5f	CSS2E05f	Numerical and Statistical Methods

Semester III

No	Course Code	Course Name	C	Weightage			Hrs/wk		
				I	E	T	L	P	T
3.1	CSS3C01	Advanced Database Management System	4	25	75	100	4	1	5
3.2	CSS3C02	Principles of Compilers	4	25	75	100	4		4
3.3	CSS3C03	Object Oriented Programming Concepts	4	25	75	100	4		4
3.4	CSS3E04	Elective II	4	25	75	100	4		4
3.5	CSS3E05	Elective III	4	25	75	100	4		4
3.6	CSS3P06	Practical III	4	25	75	100		4	4
Total			24				20	5	25

List of Electives for CSS3E04

No	Course Code	Course Name
3.4a	CSS3E04a	Pattern Recognition
3.4b	CSS3E04b	Wireless and Mobile Networks
3.4c	CSS3E04c	Cryptography and Network Security
3.4d	CSS3E04d	Advanced Web Technology
3.4e	CSS3E04e	Virtualisation and Cloud Computing
3.4f	CSS3E04f	Data Warehousing and Data Mining

List of Electives for CSS3E05

No	Course Code	Course Name
3.5a	CSS3E05a	Data Compression
3.5b	CSS3E05b	Pervasive Computing
3.5c	CSS3E05c	System Security
3.5d	CSS3E05d	Molecular Simulation and Modeling
3.5e	CSS3E05e	Fundamentals of Big Data
3.5f	CSS3E05f	Web Engineering

Semester IV

No	Course Code	Course Name	Credit	Weightage			Hrs/wk		
				I	E	T	L	P	T
4.1	CSS4E01*	Elective IV	4	100	100	4	1	5	
4.2	CSS4C01*	Principles of Software Engineering	2	100	100	2		2	
4.2	CSS4C02	Project Work (Duration of the Project = 16 Weeks)	8	25	75	100			
Total			14						
Total Credits (Sem I – IV)							87 Credits		

*Evaluation is to be done Internally for these papers (by providing 25% weightage for continues assessment and 75% weightage for the internal examination)

Note:-

- Evaluation for CSS4C01 and CSS4E01 is to be carried out as follows:
 - 25% weightage for the following components:

Components for Continuous Evaluation	Weightage
Test papers with at least 25% questions based on problems or programs (minimum two)	2
Assignments (minimum two) such as homework, problem solving, group discussions, quiz, literature survey term-project, software exercises etc.	1
Regularity in the class	1
Seminar	1
Total	5

- 75% weightage for the End Semester Examination which is to be conducted by the concerned department. Question papers for the examinations are to be prepared in the format specified for university examinations with 36 weightage.
- Suppose that a student got 3.5 points for the components of continuous evaluation and 3.0 points for the End Semester Examination. The total grade point is to be calculated as follows:

$$(1 \times 3.5 + 3 \times 3.0) / 4 = 3.13.$$

List of Electives for CSS4E01

No	Course Code	Course Name
4.1a	CSS4E01a	Digital Image Processing
4.1b	CSS4E01b	Advanced Topics in Database Design
4.1c	CSS4E01c	Software Development for Portable Devices
4.1d	CSS4E01d	Storage Area Networks
4.1e	CSS4E01e	Semantic Web
4.1f	CSS4E01f	Advanced Java Programming

Semester I

CSS1C01 | Discrete Mathematical Structures

Course Number: 1.1

L P C

Contact Hours/Week: 4

4 0 4

Number of Credits: 4

Number of Contact Hours: 60 Hrs

Prerequisite/Exposure: None

Course Evaluation: 25% (Internal) + 75% (External)

Objectives

- To introduce discrete mathematics concepts necessary to understand basic foundation of Computer Science.

Course Outline

Unit I

Sets and Mathematical Logic: Set Theory - Types of sets, Set operations, Principles of Inclusion and Exclusion. Mathematical Logic - Propositional Calculus - Statement, Connectives, Conditional and Biconditional, Equivalence of Formula, Well Formed Formula, Tautologies, Duality Law, Functionally Complete Sets of Connectives, Normal Forms, Theory of Inference for the Statement Calculus, Predicate Calculus - Statement Functions, Variables and Quantifiers, Free and Bound Variables, Theory of Inference for the Predicate Calculus.

Unit II

Functions and Relations: Functions – Types of Functions, Composition of Functions and Inverse Functions. Relations - Relations and Their Properties, Functions as relations, Closure of Relations, Composition of relations, Equivalence Relations and Partitions. Partial Ordering, Hasse Diagram. The Pigeon Hole Principle.



UNIVERSITY OF CALICUT

Abstract

General and Academic– M.Sc Computer Science - Correction in the existing workload distribution in the approved Syllabus - Implemented subject to the ratification of Academic Council - Orders issued.

G & A - IV - J

U.O.No. 5644/2019/Admn

Dated, Calicut University.P.O, 30.04.2019

*Read:-*1. U.O.No. 5502/2016/Admn U.O.No. 5502/2016/Admn dated 28.04.2016

2. Item No.3 in the Minutes of the meeting of the Board of Studies in Computer Science P.G held on 08.02.2019

3. Remarks from the Dean Faculty of Science dated 09.04.2019.

ORDER

Vide paper read first above, the syllabus of M.Sc Computer Science w.e.f 2014 admission onwards was implemented in this University. The Board of Studies in Computer Science PG at its meeting held on 08.02.2019, vide paper read second above, resolved to approve correction in the workload of the existing syllabus of M.Sc Computer Science with Theory workload of 17 and Practical workload of 8 per week, uniformly in all the 4 semesters.

The Dean, Faculty of Science, vide paper read third above has approved the recommendation in the Minutes of the Board of Studies in Computer Science P.G held on 02.04.2019.

The Vice Cahcellor, after having considered the exigency, accorded sanction to implement the resolution vide Item No.3 minutes of the meeting of the Board of Studies in Computer Science P.G held on 02.04.2019 to approve the correction in the workload of the existing syllabus of M.Sc Computer Science with Theory workload of 17 and Practical workload of 8 per week, uniformly in all the 4 semesters, subject to the ratification of the Academic Council.

Sanction has therefore been accorded to implement the correction in the workload of the existing syllabus of M.Sc Computer Science as detailed above, subject to the ratification of the Academic Council.

Orders are issued accordingly.

(Syllabus appended)

Biju George K

Assistant Registrar

To

All Affiliated Colleges offering M.Sc Computer Science

Copy to : PS TO VC,PA TO PVC,PA TO REGISTRAR,GA-II,SF/DF/FC

Forwarded / By Order

Section Officer

UNIVERSITY OF CALICUT
THENHIPALAM, CALICUT UNIVERSITY P.O



DEGREE OF
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IN
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(CHOICE BASED CREDIT AND SEMESTER SYSTEM)

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MASTER OF SCIENCE COMPUTER SCIENCE

PROGRAMME STRUCTURE

LEGEND	
Item	Description
C	Credits
E	External Component (%)
I	Internal Component (%)
L	Lecture Hours
P	Practical Hours
T	Total

Semester I

No	Course Code	Course Name	C	Weightage			Hrs/wk		
				I	E	T	L	P	T
1.1	CSS1C01	Discrete Mathematical Structures	4	25	75	100	4		4
1.2	CSS1C02	Advanced Data Structures	4	25	75	100	3	2	5
1.3	CSS1C03	Theory of Computation	4	25	75	100	4		4
1.4	CSS1C04	The Art of Programming Methodology	4	25	75	100	2	2	4
1.5	CSS1C05	Computer Organization and Architecture	4	25	75	100	4		4
1.6	CSS1P06	Practical I	4	25	75	100		4	4
Total			24				17	8	25

Semester II

No	Course Code	Course Name	C	Weightage			Hrs/wk		
				I	E	T	L	P	T
2.1	CSS2C01	Design and Analysis of Algorithms	4	25	75	100	3	1	4
2.2	CSS2C02	Operating System Concepts	4	25	75	100	3	1	4
2.3	CSS2C03	Computer Networks	4	25	75	100	3	1	4
2.4	CSS2C04	Computational Intelligence	4	25	75	100	4		4
2.5	CSS2E05	Elective I	4	25	75	100	4		4
2.6	CSS2P06	Practical II	4	25	75	100		4	4
2.7	CSS2P07*	Term Paper	1	100		100		1	1
Total			25				17	8	25

* Evaluation is to be done fully internally for this paper

List of Elective Courses (Semester II)

No	Course Code	Course Name
2.5a	CSS2E05a	Computer Graphics
2.5b	CSS2E05b	Introduction to Soft Computing
2.5c	CSS2E05c	Web Technology
2.5d	CSS2E05d	Bioinformatics
2.5e	CSS2E05e	Computer Optimization Techniques
2.5f	CSS2E05f	Numerical and Statistical Methods

Semester III

No	Course Code	Course Name	C	Weightage			Hrs/wk		
				I	E	T	L	P	T
3.1	CSS3C01	Advanced Database Management System	4	25	75	100	3	1	4
3.2	CSS3C02	Principles of Compilers	4	25	75	100	3	1	4
3.3	CSS3C03	Object Oriented Programming Concepts	4	25	75	100	3	1	4
3.4	CSS3E04	Elective II	4	25	75	100	4		4
3.5	CSS3E05	Elective III	4	25	75	100	4		4
3.6	CSS3P06	Practical III	4	25	75	100		5	4
Total			24				17	8	25

List of Electives for CSS3E04

No	Course Code	Course Name
3.4a	CSS3E04a	Pattern Recognition
3.4b	CSS3E04b	Wireless and Mobile Networks
3.4c	CSS3E04c	Cryptography and Network Security
3.4d	CSS3E04d	Advanced Web Technology
3.4e	CSS3E04e	Virtualisation and Cloud Computing
3.4f	CSS3E04f	Data Warehousing and Data Mining

List of Electives for CSS3E05

No	Course Code	Course Name
3.5a	CSS3E05a	Data Compression
3.5b	CSS3E05b	Pervasive Computing
3.5c	CSS3E05c	System Security
3.5d	CSS3E05d	Molecular Simulation and Modeling
3.5e	CSS3E05e	Fundamentals of Big Data
3.5f	CSS3E05f	Web Engineering

Semester IV

No	Course Code	Course Name	Credit	Weightage			Hrs/wk		
				I	E	T	L	P	T
4.1	CSS4E01*	Elective IV	4	100		100	4	1	5
4.2	CSS4C01*	Principles of Software Engineering	2	100		100	2	1	3
4.3	CSS4C02	Project Requirements Analysis & Design Related Discussion	8	100	0	100	5	0	5
		Project Coding, Testing & Implementation Related Discussion		100	0	100	5	0	5
		Project Lab Work		100	0	100	0	6	6
		Project Evaluation & Assessment		25	75	100	1	0	1
Total			14				17	8	25
Total Credits (Sem I – IV)						87 Credits			

*Evaluation is to be done Internally for these papers (by providing 25% weightage for continues assessment and 75% weightage for the internal examination)

Note:-

- Evaluation for CSS4C01 and CSS4E01 is to be carried out as follows:
 - 25% weightage for the following components:

Components for Continuous Evaluation	Weightage
Test papers with at least 25% questions based on problems or programs (minimum two)	2
Assignments (minimum two) such as homework, problem solving, group discussions, quiz, literature survey, term project, software exercises etc.	1
Regularity in the class	1
Seminar	1
Total	5

- 75% weightage for the End Semester Examination which is to be conducted by the concerned department. Question papers for the examinations are to be prepared in the format specified for university examinations with 36 weightage.
- Suppose that a student got 3.5 points for the components of continuous evaluation and 3.0 points for the End Semester Examination. The total grade point is to be calculated as follows:
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List of Electives for CSS4E01

No	Course Code	Course Name
4.1a	CSS4E01a	Digital Image Processing
4.1b	CSS4E01b	Advanced Topics in Database Design
4.1c	CSS4E01c	Software Development for Portable Devices
4.1d	CSS4E01d	Storage Area Networks
4.1e	CSS4E01e	Semantic Web
4.1f	CSS4E01f	Advanced Java Programming

Semester I

CSS1C01 | Discrete Mathematical Structures

Course Number: 1.1

L P C

Contact Hours/Week: 4

4 0 4

Number of Credits: 4

Number of Contact Hours: 60 Hrs

Prerequisite/Exposure: None

Course Evaluation: 25% (Internal) + 75% (External)

Objectives

- To introduce discrete mathematics concepts necessary to understand basic foundation of Computer Science.

Course Outline

Unit I

Sets and Mathematical Logic: Set Theory - Types of sets, Set operations, Principles of Inclusion and Exclusion. Mathematical Logic - Propositional Calculus - Statement, Connectives, Conditional and Biconditional, Equivalence of Formula, Well Formed Formula, Tautologies, Duality Law, Functionally Complete Sets of Connectives, Normal Forms, Theory of Inference for the Statement Calculus, Predicate Calculus - Statement Functions, Variables and Quantifiers, Free and Bound Variables, Theory of Inference for the Predicate Calculus.

Unit II

Functions and Relations: Functions – Types of Functions, Composition of Functions and Inverse Functions. Relations - Relations and Their Properties, Functions as relations, Closure of Relations, Composition of relations, Equivalence Relations and Partitions. Partial Ordering, Hasse Diagram. The Pigeon Hole Principle.