UNIVERSITY OF CALICUT
(摘要)

Scheme and Syllabus of M.Sc Computer Science (1st semester) of affiliated colleges under Credit Semester System (CUCSS-PG-2010) implemented with effect from 2010 admission-orders issued.

GENERAL & ACADEMIC BRANCH-IV ‘J’ SECTION

No. GA IV/J1/4639/10                              Dated, Calicut University PO, 14.09.2010

       2. Minutes of the meeting of the Board of Studies in Computer Science and Applications of
          17.06.2010, Item No.I c & d
       3. Orders of the Vice-Chancellor in the file of even No. dated 27.07.2010.

ORDER

As per paper read as (1) above, Credit Semester System at post graduate level in affiliated colleges (CUCSS-PG-2010) has been implemented from the academic year 2010 onwards.

The Board of Studies at its meeting, vide paper read as (2) above, discussed the syllabus of M.Sc. Computer Science of affiliated colleges and has forwarded the Scheme and Syllabus for 1st semester to the University.

The Vice-Chancellor, in view of exigency, has approved the minutes of the meeting of the Board, subject to ratification by the Academic Council.

Sanction has therefore been accorded to implement the scheme and syllabus of M.Sc. Computer Science programme of affiliated colleges under Credit Semester System with effect from 2010 admission.

Orders are issued accordingly. Scheme and Syllabus appended.

Sd/-
DEPUTY REGISTRAR(G&A IV)
For REGISTRAR

To
2. Self financing centres of the University of Calicut offering M.Sc. Computer Science.

Forwarded/By Order

Copy to:
PS to VC/PA to Registrar/CE/Digital wing (with a request to upload in the University website)/Enquiry/Information Centres/
DR III(Exams)/EG-I/DR PG/Tabulation Section/
GA I ‘F’ ‘A’ sections/GAII/GAIII/DDLFA/SF/FC

Sd/-
SECTION OFFICER
Evaluation and Grading (as done in B.Sc CCSS):

All gradings starting from the evaluation of papers is done on 5 point scale (A, B, C, D, E) and SGPA and CGPA – between 0 to 4 and in two decimal points.

CGPA in 7 point scale:
3.8 to 4.0 –> A+, 3.5 to 3.79 –> A, 3.0 to 3.49 –> B+, 2.5 to 2.99 –> B, 2.2 to 2.49 –> C+, 1.5 to 2.19 –> C, below 1.5 –> D

Internal – weightage (wt) =1 (25%) and External – wt=3 (75%)

1. Internal evaluation (must be transparent and fair):

**Theory:**
(a) Tests – wt=2 (at least 2 tests with 50% Problems)
(b) Tutorial on assignments and Exercises – wt=1
(c) Seminars and Viva Voce – wt=1
1. Attendance – wt=1

**Practicals:**
(a) Tests – wt=2
(b) Lab. skill/quality of their results – wt=1
(c) Viva Voce – wt=1
Project: 
(a) Monthly progress – wt=2
(b) Regularity and attendance – wt=1
(c) Seminar and Viva Voce – wt=1

2. External evaluation:

Theory: Every semester

Pattern of question Papers:
Part A: Short answer type - 12 questions (No choice) – wt=1 (12x1=12)
Part B: Short Essay type -Answer any 6 out of 9 -wt =2 (6 x2=12)
Part C Essay type /Programs/psuecode/problems type – 3 out of 6 – wt=4 (3x4=12)

Answer to each question may be evaluated based on
(a) Idea/knowledge – wt=1
(b) Logic/steps – wt=1
(c) Analytic skill – wt=1
(d) Correctness – wt=1

1. Directions for question paper setters:

Part A: Set each questions to be answered in 7 minutes duration and should extract the critical knowledge acquired by the candidate in the subject.
Part B: 30 minutes answerable questions each. May be asked as a single question or parts. Derivation type questions can be also asked.

CSC1C01 Discrete Mathematics

Unit I
Sets & Preposition - Introduction, Combinations Of Sets, Finite And Infinite Sets, Unacceptable Indefinite Sets, Principles Of Inclusion And Exclusion, Propositions.
Relations And Functions- Introduction, A Relation Model For Database . Properties Of Binary Relations. Equivalence Relations And Lattices, Partial Ordering Relations And Lattices . Chain And Antichains, A Job Scheduling Problems And The Pigeonhole Principles.

UNIT II
Recurrence relations and recursive algorithm-Introduction, Recurrence, Relations, Linear Recurrence With Coefficient Solutions, particular solutions, Total Solutions

UNIT III
Groups and ring-Groups and Subgroups, Generators and Evaluations of Powers, Cosets and Lagrange Theorem, Permutation, Groups and Codes, Isomorphism and Automorphisms, Homomorphism and Normal Groups, Rings, Integral Domains and Fields, Polynomial Ring and Cyclic Codes.
UNIT IV

UNIT V
Finite state machines-Introduction, Finite State Machines, Finite State Machine as Model of Physical System, Equivalent Machines, Finite State Machine as Language Recognizers.

REFERENCES:

2. Elements Of Discrete Mathematics By C.L.Liu-Mcgraw-Hills P
3. Applied Discrete Structure For Computer Science By Alan Doerr And Kenneth Levassur-Galgotia Publication

3. Discrete Mathematics by J.K. Sharma ,Macmillan India Ltd

CSC1C02 Advanced Data Structures

Unit I

Unit II

Unit III
Hashing : Separate Chaining; Open Addressing - Linear Probing - Quadratic Probing; Double Hashing - Rehashing - Extendible Hashing.

Unit IV

Unit V

References:

**CSC1C03 Theoretical Computer Science**

**Unit I**

**Unit II**
Context free Languages: Equivalence of CFG and PDA – Normal forms(CNF and GNF) – Closure properties of CFL’s – DCFL’s and their properties – Decision procedures - CYK algorithm – Pumping lemma and proof for existence of non context-free languages – Context sensitive languages: Equivalence of LBA and CSG.

**Unit III**
Turing machines: TM computations – Equivalence of standard TM with multitape and non deterministic TM’s – Turing acceptable, Turing decidable and Turing enumerable language classes - Equivalence of type 0 grammars with TM’s – Church’ thesis – Chomsky hierarchy.

**Unit IV**

Unit V

References:

3. Linz P An Introduction to formal Languages and Automata, Narosa 1998.

CSC1C04  Object Oriented Concepts and C++

UNIT I
Concepts :Objects , Attributes and Methods, Encapsulation and Information Hiding, State Retention, Object Identity, Messages, Class Hierarchy, Inheritance, Polymorphism, Genericity. Object Oriented System Development, Methodology, Modeling.

Unit II
Introduction to programming: Concept of programming, concept of an algorithm, Introduction to object oriented concepts, Features of OOPS, C++ programming basics,
Data types, precedence of operators, loops and decisions, functions, objects and classes, constructors, destructors, objects as function arguments, inline functions, friend functions. Arrays, arrays as class member data, arrays of objects, strings, string as class members, operator overloading, overloading unary operators, overloading binary operators, function overloading, data conversion. Inheritance: Derived class and base class, derived class constructors, class hierarchies, private and public hierarchies, levels of inheritance, multiple inheritance, classes within classes, friend functions, inline functions. Pointers: Memory management, new and delete, pointers to objects, pointers to pointers, Polymorphism, virtual functions, Late Binding, Early Binding, static functions, the this pointer.

Unit III
Files and streams: Streams, string I/O, character I/O, object I/O, I/O with multiple objects, file pointers, Disk I/O with member functions, redirection, command line arguments. Templates: Introduction, class templates, Function templates, member function templates, Non-Type template argument. Introduction to standard template library, Components of STL, Containers, Iterators, Application of container classes, function objects. Exception Handling: Introduction, Exception Handling mechanism, Throwing mechanism, Catching mechanism.

UNIT IV

UNIT V
References
5. E. Balaguruswamy, Object Oriented Programming with C++. 2nd Ed.
6. Tony Gaddis, Starting Out with C++, dreamtech press
7. Stroustrup, The C++ programming Language 3rd Ed.

CSC 1C05 Advanced Microprocessor

Unit I

Unit II

Unit III
Video and Keyboard Operations :INT 21H operations for screen display and keyboard input. Video modes and attributes. INT 10H operations, Direct video display, BIOS
keyboard areas, INT 21H & 16H operations, extended function keys and scan codes, INT 09H and the keyboard buffer.

**Unit IV**


**UNIT V**


**References**: