Programme Project Report (PPR) for
Master of Science in Computer Applications (M.Sc-CA)

Programme's Mission & Objectives :

1. To provide educational opportunities for higher education through distance mode for a large segment of the population, including those in employment, women (including housewives) and adults who wish to upgrade their education or acquire knowledge in various fields of study.

2. To spread the light of education till the smallest & darkest corner.

3. To provide access to higher education to all segments of the society;

4. To offer high-quality, innovative and need-based programmes at different levels, to all those who require them;

5. To reach out to the disadvantaged by offering programmes in all parts of the country at affordable costs with our motto "देश हित में शिक्षा का प्रसार, देश के कौने कौने में"

6. To promote, coordinate and regulate the standards of education offered through open and distance learning in the country.

7. To spread more literacy in the society.

Relevance of the program with HEI's Mission and Goals :

The University understands the need of literacy in India & firmly believes that education has to be spread to the general masses. The University has acquired a commendable record of service in the field of education, health care, and social welfare. To reach with the above motive of service to the remotest corner of India, the Distance Education Programme of Swami Vivekanand Subharti University was conceived in 2009.

Nature of prospective target group of learners :

A large segment of the population living in villages, weaker sections of the society including those who are already in employment, girls belonging to the remote areas, women with social commitments (including home-makers) and anyone who wishes to upgrade their education or acquire knowledge in various fields of study.

Appropriateness of programme to be conducted in Open and Distance Learning mode to acquire specific skills and competence :

Through various programmes, distance education can be able to spread more literacy in the society and encourage the large segment of population to upgrade their education skill/s.

Course Structure :

1. **Instructional Design** :

The Instructional System of the University comprises six components, viz, Self Learning Material, Continuous Internal Assessment (IA) & Assignment work (AW), Theory Training Classes, Practical Exposure Classes, Professional Project Work, Internship & Industry Integrated Learning.

1. **Self Learning Material (SLM) –**
The success and effectiveness of distance education systems largely depends on the study materials. Self-learning materials depend on exploiting the various means and ways of communication to suit it to the needs of learners. These have been so designed as to substitute effectively the absence of interaction with teachers in class room teaching mode. Their style is ideal for easy and better understanding in self-study mode.

2. **Continuous Internal Assessment (CIA)**
The progress of a learner is continuously monitored through Personal Contact Programmes, Viva & Group Discussions, Personality Development Programmes and Assignment Work. All these are compulsory and marks shall be awarded for attendance and performance of a learner in all these activities, as may be prescribed in the syllabus.
   a. **Personality Contact Programme (PCP) –** PCP sessions guide the learners as the programme proceeds. The date and venue for the PCP will be communicated to the learners through our website. During PCP, the learner gets guidance for better understanding of the subject. The learners can get their doubts cleared with the help of subject experts so as to improve their self-learning capability. The total duration of PCP seesions for a subject of four credits shall be 12-16 hours. Learners are required to attend PCP sessions for all their respective subjects.
   b. **Viva & Group Discussion (VGD) –** VGDs are designed to help the learners improve their professional communication and presentation abilities. Special emphasis is laid on learners speaking extempore, an ability necessary for building leadership skill as well as for enhancing the capability of understanding and exchanging views. The total duration of VGD sessions for a subject of four credits shall be 3-4 hrs.
   c. **Personal Development Programme (PDP) –** The PDPs are designed to improve the overall personality of the learner, and aim, especially, at the improvement of body language and strengthening of the power of expression. The purpose is to inculcate leadership, communication and presentation skills and brush up the knowledge of the learner by organizing a mix of management games, debates, quizzes and role play. The duration of PDP sessions for a subject of four credits shall be 3-4 hrs.
   d. **Assignment Work (AW) –** Distance Education learners have to depend much on self study. In order to ascertain the writing skill and level of comprehension of the learner, assignment work is compulsory for all learners. Each assignment shall consist of a number of questions, case studies and practical related tasks. The Assignment Question Papers will be uploaded to the website within a scheduled time and the learners shall be required to respond them within a specified period of time. The response of the learner is examined by a faculty member.

3. **Practical Exposure Class (PEC)** – Practical Exposure Classes are compulsory, wherever prescribed in the syllabus. A learner will not be eligible to appear for the practical examination unless he/she obtains an attendance and performance certificate in respect to PECs, held as per the schedule drawn by the Directorate of Distance Education. These classes shall generally be held on Saturdays and Sundays at a venue decided by DDE in consultation with the institution where the PECs are to be held. The total duration of PEC sessions for a subject of one credit shall be 30 hrs.

4. **Professional Project Work (PPW)** – The PPW enables a learner to experience the regours of an environment with the real life situations. The learners shall also be required to prepare a project report, which shall be evaluated by the University. Learners shall be subjected to a comprehensive viva for proper evaluation of the Project Report. For project work, wherever mentioned in the syllabus, DDE shall provide complete guidance to the learners. Normally, one credit of PPW shall require 30 hrs or input by the learner.

5. **Internship & Industry Integrated Learning (IIIL) –** Not Applicable

6. **Examinations –**

   (a) The examination shall be held semester wise in June & December for the Calendar Batch and in December & June for Academic batch respectively.

   (b) Admit Cards/Roll No. Slips and date sheet for appearing in the examination shall be provisional subject to fulfilling the eligibility, etc. Admit Cards/Roll Nos. and date-sheet will be issued to the candidates concerned, by e-mail or by hand, 10-12 days before the commencement of examination concerned, if the students have fulfilled all the requirements and paid their all kinds of fees/dues and submitted the requisite documents. If any candidate does not receive his/her Admit Card/Roll No. slip in time, he/she should contact the Directorate of Distance Education.

   (c) An Examination Centre for theory & practical will be decided by the DDE and will be located in a government college or a school, where all the requisite facilities can be made available.

2. Curriculum design

YEAR: 1st (I Sem)

S. No.	COURSE CODE	SUBJECT	PERIOD			EVALUATION SCHEME				SUBJECT TOTAL	CREDIT
						SESSIONAL EVALUATION			EXAM ESE		
			L	T	P	CT	TA	TOTAL			
1.	M.Sc(CA)-101	Computer Fundamentals & Programming in C	3	1	0	20	10	30	70	100	4
2.	M.Sc(CA)-102	Data Structure Through C	3	1	0	20	10	30	70	100	4
3.	M.Sc(CA)-103	Database management system	3	1	0	20	10	30	70	100	4
4.	M.Sc(CA)-104	Operating System	3	1	0	20	10	30	70	100	4
5.	M.Sc(CA)-105	Practical Lab 1 based on 101 & 102	0	0	1	20	10	30	70	100	1
6.	M.Sc(CA)-106	Practical Lab 2 based on 103 & 104	0	0	1	20	10	30	70	100	1
		Total	12	4	2	120	60	180	420	600	18

L - Lecture   T   - Tutorial   P- Practical   CT - Cumulative Test   TA - Teacher's Assessment   ESE   - End Semester Exam.

YEAR: 1st (II Sem)

S. No.	COURSE CODE	SUBJECT	PERIOD			EVALUATION SCHEME				SUBJECT TOTAL	CREDIT
						SESSIONAL EVALUATION			EXAM ESE		
			L	T	P	CT	TA	TOTAL			
1.	M.Sc(CA)-201	Internet & E-commerce	3	1	0	20	10	30	70	100	4
2.	M.Sc(CA)-202	Computer Graphics & Multimedia Applications	3	1	0	20	10	30	70	100	4
3.	M.Sc(CA)-203	Mathematics & Graph theory	3	1	0	20	10	30	70	100	4
4.	M.Sc(CA)-204	Software Engineering	3	1	0	20	10	30	70	100	4
5.	M.Sc(CA)-205	Practical Lab 1 based on 201 & 202	0	0	1	20	10	30	70	100	1
6.	M.Sc(CA)-206	Practical Lab 2 based on 103 & 104	0	0	1	20	10	30	70	100	1
		Total	12	4	2	120	60	180	420	600	18

L - Lecture   T   - Tutorial   P- Practical   CT - Cumulative Test   TA - Teacher's Assessment   ESE   - End Semester Exam.

YEAR: 2nd (III Sem)

| S. No. | COURSE CODE | SUBJECT | PERIOD | | | EVALUATION SCHEME | | | EXAM ESE | SUBJECT TOTAL | CREDIT |
| | | | | | | SESSIONAL EVALUATION | | | | | |
			L	T	P	CT	TA	TOTAL			
1.	M.Sc(CA)-301	Computer Networks	4	1	0	20	10	30	70	100	4
2.	M.Sc(CA)-302	Design & Analysis of Algorithms	4	1	0	20	10	30	70	100	4
3.	M.Sc(CA)-303	Object Oriented Programming & C + +	4	1	0	20	10	30	70	100	4
4.	M.Sc(CA)-304	Internet & Java Programming	4	1	0	20	10	30	70	100	4
5.	M.Sc(CA)-305	Practical Lab based on 303 & 304	0	0	1	20	10	30	70	100	1
6.	M.Sc(CA)-306	Mini Project	0	0	1	40	10	50	100	150	1
		Total	**12**	**4**	**2**	**140**	**60**	**200**	**450**	**650**	**18**

L - Lecture   T   - Tutorial   P- Practical   CT - Cumulative Test   TA - Teacher's Assessment   ESE   - End Semester Exam.

YEAR: 2nd (IV Sem)

S. No.	COURSE CODE	SUBJECT	PERIOD			EVALUATION SCHEME			SUBJECT TOTAL	CREDIT
						SESSIONAL EVALUATION		EXAM ESE		
			L	T	P	CT	TA	TOTAL		
1.	M.Sc(CA) -401	Modeling & Simulation	3	1	0	20	10	30	70	100	4
2.	M.Sc(CA) -402	.Net Framework with C#	3	1	0	20	10	30	70	100	4
3.	M.Sc(CA) -403	Web Technology & Cyber Security	3	1	0	20	10	30	70	100	4
4.	M.Sc(CA) -405	Practical Lab 1 based on 402 & 403	0	0	1	20	10	30	70	100	1
5.	M.Sc(CA) -406	Project VIVA-VOCE	0	0	5	40	10	50	250	300	5
		Total	**9**	**3**	**6**	**120**	**50**	**170**	**530**	**700**	**18**

L - Lecture   T   - Tutorial   P- Practical   CT - Cumulative Test   TA - Teacher's Assessment   ESE   - End Semester Exam.

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3. Detailed Syllabus

COMPUTER FUNDAMENTAL AND PROGRAMMING IN C

M.Sc(CA)-101

UNIT-1

Number System: Decimal, Octal, Binary & Hexadecimal, Representation of Integer, fixed and floating points, character representation : ASCII, EBCDIC.

UNIT-2

Functional Units of Computer : I/O devices, primary and secondary memories.

UNIT-3

Programming Fundamental : Algorithm development, techniques of problem solving, flowcharting, stepwise refinement, algorithm for searching sorting exchange and insertion merging of order lists.

UNIT-4

Representation of integers, character, reals, data types, constants and variables, arithmetic expression, assignment statement logical expression, sequencing, alteration and iteration, arrays, string processing, sub program, recursion, files and pointers testing and debugging of program.

DATA STRUCTURE THROUGH 'C'

M.Sc(CA)-102

UNIT-1

Problem solving concepts, top down and bottom up design structured programming. 2. Concept of data type and data structure, differences between data type and data structures, view of data structures at logical level, implementation level and application level, built-in-data structures and user defined data structures.

UNIT-2

Concepts of dynamic variables, difference between static and dynamic variables, concepts of pointer variables. 4. Study of the following user define data structures using static and variables.   Built-in data structures like arrays, records.   User defends data structures like stacks, queues, linked. User   defend data structures like stacks, queues, linked lists, circular linked lists, doubly linked list.

UNIT-3

 Non-linear data structures: trees, terminology of trees, concepts and applications of binary trees, tree traversal techniques and algorithms.

UNIT-4

 Sorting and searching algorithms and their efficiency considerations. 7. Considerations for choice of proper data structure.

DATA BASE MANAGEMENT SYSTEM

(M.Sc.(CA)-103

Unit - I

Overview of Database Management System

Elements of Database System, DBMS and its architecture, Advantage of DBMS (including Data independence), Types of database users, Role of Database administrator.

Unit - II

Data Models

Brief overview of Hierarchical and Network Model, Detailed study of Relational Model (Relations, Properties, Key & Integrity rules), Comparison of Hierarchical, Network and Relational Model ,CODD's rules for Relational Model,E-R diagram.

Unit - III

Normalization

Normalization concepts and update anomalies ,Functional dependencies,Multivalued and join dependencies.

Normal Forms: (1 NF, 2 NF, 3NF, BCNF, 4NF, and 5NF)

Unit - IV

SQL

SQL Constructs, SQL Join: Multiple Table Queries, Build-in functions, Views and their use, Overviews of ORACLE: (Data definition and manipulation)

Unit - V

Database Security, Integrity and Control

Security and Integrity threats, Defense mechanism, Integrity, Auditing and Control, Recent trends in DBMS- Distributed and Deductive Database.

OPERATING SYSTEM

(M.Sc.(CA)-104

Unit - I

Operating Systems and Resource Manager, Operating system classifications, simple monitor, multiprogramming, timesharing, real time systems, multiprocessor systems, operating systems services.

Unit - II

File System : File supports, access methods, allocation methods-contiguous linked and index allocation; directory systems single level, tree-structure, a cyclic graph and general graph directory, file protection.

Unit - III

CPU Scheduling: Basic scheduling concepts, Process overviews, process states, multiprogramming, Schedulers, and Scheduling algorithms, multiple- processor scheduling.

Unit - IV

Memory Management: Bare machine approach, resident monitor, Partition, Paging and segmentation, virtual memory, demand paging.,Deadlocks: Deadlock Characterizations, deadlock prevention, avoidance detection and recovery.

Unit - V

Resource Protections : Mechanisms, Policies & domain of protection, Access matrix and its implementation, dynamic protection structures.Case Study of Windows-NT: Design Principle; System components, Environment subsystem; File System, Programmer Interface.

M.Sc(CA)-105

Practical Lab 1 based on 101 & 102

Note: In this section, students have to be prepare a practical file based on 101 & 102

M.Sc(CA)-106

Practical Lab 2 based on   103 & 104

Note: In this section, students have to be prepare a practical file based on 101 & 102

DETAILED SYLLABUS

M.SC.(CA)

FIRST YEAR- SECOND SEMESTER

INTERNET AND E-COMMERCE

M.Sc(CA)-201

UNIT-1

Architectural framework of E-commerce Web architecture, web browser, HTTP, TCP/IP, Webserver, HTML, Scripts standards:EDIFACT, edi.

UNIT-2

Security Issue Introduction to viruse , worms, bombs and protective measure and security issue, firewalls, and proxy application gateways, secure, electronic transaction, public and private key encryption, digital signature, and digital certificate.

UNIT-3

Electronic Payments Systems Digital cash, electronic signature, debit cards at point of scale, smart cards, online credit cards based system, electronic fund EFT, payment gateways.

UNIT-4

Electronic Commerce Application E-commerce banking, online shopping, business, models, and revenue models, online publishing, e- commerce in retail industry, CBS, digital copyrights, electronic data interchanges, electronic fund transfer, electronic display board, electronic catalogue.

COMPUTER GRAPHICS & MULTIMEDIA APPLICATIONS
M.Sc(CA)-202

UNIT-I

Introduction: The Advantages of Interactive Graphics, Representative Uses of Computer Graphics, Classification of Application Development of Hardware and software for computer Graphics, Conceptual Framework for Interactive Graphics, Overview, Scan: Converting Lines, Scan Converting Circles, Scan Converting Ellipses.

UNIT-II

Hardcopy Technologies, Display Technologies, Raster-Scan Display System, Video Controller, Random-Scan Display processor, Input Devices for Operator Interaction, Image Scanners, Working exposure on graphics tools like Dream Weaver, 3D Effects etc.
Clipping
Southland- Cohen Algorithm, Cyrus-Beck Algorithm, Midpoint Subdivision Algorithm

UNIT-III

Geometrical Transformation
2D Transformation, Homogeneous Coordinates and Matrix Representation of 2D Transformations, composition of 2D Transformations, the Window-to-Viewport Transformations, Introduction to 3D Transformations Matrix.

UNIT-IV

Representing Curves & Surfaces
Polygon meshes parametric, Cubic Curves, Quadric Surface;
Solid Modeling
Representing Solids, Regularized Boolean Set Operation primitive Instancing Sweep Representations, Boundary Representations, Spatial Partitioning Representations, Constructive Solid Geometry Comparison of Representations.

UNIT-V

Introductory Concepts: Multimedia Definition, CD-ROM and the multimedia highway, Computer Animation (Design, types of animation, using different functions) Uses of Multimedia, Introduction to making multimedia – The stage of Project, hardware & software requirements to make good multimedia skills and Training opportunities in Multimedia Motivation for Multimedia usage

MATHEMATICS AND GRAPH THEORY

M.Sc(CA)-203

UNIT-1

Sets and elements, universal set and empty set, subsets, Venn diagrams, set operations, Algebra of sets, Cartesian product, Relations, mappings, Countable and uncountable sets, Domain and range, prepositional logic, FOPL ,Logical equivalences, quantifiers.

UNIT-2

Partially ordered sets, External elements of partial ordered sets, Least upper bound and greatest lower bound, Finite Boolean algebra, Lattices, Bounded lattices, Distributive lattices.

UNIT-3

Matrices, matrix addition and scalar multiplication, Transpose, Inverse, Determinants, Eigen values and Eigen vectors. Permutations, Combinations, Pigeon hole principle, Elements of Probability, Conditional Probability, Baye's Theorem.

UNIT-4

Tree, Binary tree, Traversals, Huffman's algorithm, Minimum spanning trees, Euler graph , Hamiltonian cycle, Cutsets, Matching, Coloring.

SOFTWARE ENGINEERING

M.Sc(CA)-204

Unit - I

Software Engineering : Definition and paradigms, A generic view of software engineering.

Unit - II

Requirements Analysis : Statement of system scope, isolation of top level processes and entitles and their allocation to physical elements, refinement and review. Analyzing a problem, creating a software specification document, review for correctness, consistency, and completeness.

Unit - III

Designing Software Solutions : Refining the software Specification; Application of fundamental design concept for data, architectural and procedural designs using software blue print   methodology and object oriented design paradigm; creating design document : Review of   conformance to software requirements and quality.

Unit - IV

Software Implementation: Relationship between design and implementation: Implementation issues and programming support environment; Coding the procedural design, Good coding style & review of correctness and readability.

Unit - V

Software Maintenance: Maintenance as part of software evaluation, reasons for maintenance, types of maintenance (Perceptive, adoptive, corrective), designing for maintainability, techniques for maintenance. Comprehensive examples using available software platforms/case tools, Configuration Management.

M.Sc(CA)-205

Practical Lab 1 based on 201 & 202

Note: In this section, students have to be prepare a practical file based on 201 & 202

M.Sc(CA)-206

Practical Lab 2 based on 204

Note: In this section, students have to be prepare a practical file based on 204

DETAILED SYLLABUS

M.SC.(CA)

SECOND YEAR- THIRD SEM

COMPUTER NETWORKS

M.Sc(CA)-301

Unit 1:

Introduction : Overview of computer network, seven-layer architecture, TCP/IP suite of protocol, etc. Mac protocols for high-speed LANs, Mans & WIRELESS LANs. (For example, FDDI, DQDB, HIPPI, Gigabit Ethernet, Wireless Ethernet etc.) Fast access technologies. (For example, ADSL, Cable Modem, etc.)

Unit 2:

IPv6 : why IPv6, basic protocol, extension & option, support for QoS, Security, etc, neighbor discovery, auto configuration, routing. Change to other protocols. Application programming interface for Ipv6. 6bone.

Unit 3:

Mobility in network. Mobile. Security related issues. IP Multicasting. Multicasting routing protocols, address assignments, session discovery, etc.

Unit 4:

 TCP extensions for high-speed networks, transaction-oriented application, other new option in TCP.

Unit 5:

Network security at various layers. Secure-HTTP, SSL, ESP, Authentication header, Key distribution protocols. Digital signatures, digital certificates.

DESIGN & ANALYSIS OF ALGORITHM

M.Sc(CA)-302

UNIT I

Introduction : Algorithms, Analysis of Algorithms, Design of Algorithms, and Complexity of Algorithms, Asymptotic Notations, Growth of function, Recurrences Sorting in polynomial Time: Insertion sort, Merge sort, Heap sort, and Quick sort sorting in Linear Time: Counting sort, Radix Sort, Bucket Sort medians and order statistics.

UNIT II

Elementary Data Structure : Stacks, Queues, Linked list, Binary Search Tree, Hash Table. Advanced Data Structure : Red Black Trees, Splay Tress, Augmenting Data Structure Binomial Heap, BTree, Fibonacci Heap, and Data Structure for Disjoint Sets Union-find Algorithm, Dictionaries and priority Queues, mergeable heaps, concatenable queues.

UNIT III

Advanced Design and Analysis Techniques : Dynamic programming, Greedy Algorithm, Backtracking, Branch-and-Bound, Amortized Analysis.

UNIT IV

Graph Algorithms : Elementary Graph Algorithms, Breadth First Search, Depth First Search, Minimum Spanning Tree, Kruskal's Algorithms, Prim's Algorithms, Single Source Shortest Path, All pair Shortest Path, Maximum flow and Travelling Salesman Problem.

UNIT V

Randomized Algorithms, String Matching, NP-Hard and NP-Completeness Approximation Algorithms, Sorting Network, Matrix Operations, Polynomials and the FFT, Number Theoretic Algorithms, Computational GeometrOR.

OBJECT ORIENTED PROGRAMMING AND C++

M.Sc(CA)-303

UNIT-1

OOP paradigm, Advantages of OOP, Comparison between functional programming and OOP approach, characteristics of object oriented Language objects, class, Inheritance, Polymorphism, and abstraction, encapsulation, Dynamic Binding, Message passing. Introduction to C++, Identifier and Keywords, constants, C++ Operators, Type conversion, Variable declaration, Statement, expression, User defined data types, conditional expression (For, While, Do-While, Do-While) loop statement, breaking control statements (Break, continue).

UNIT-2

Defining a function, types of functions, Inline functions, Call by value and Call by reference, Preprocessor, Header files and standard functions, Structures, Pointers and structures, Unions, Enumeration.

UNIT-3

Classes, Member function, Objects, Array of objects, Nested classes, Constructors, Copy constructors, Destructors, Inline member functions, static class member, friend functions, Dynamic memory allocation. Inheritance: Single inheritance, Multi – level inheritance, Hierarchical, Virtual base class, Abstract classes, Constructors in Derived classes, Nesting of classes.

UNIT-4

Function overloading, Operator overloading, Polymorphism, Early binding, Polymorphism with pointers, Virtual functions, Late binding, Pure virtual functions, Opening and closing of files, Stream member functions, Binary file operations, classes and file operations, Random access file processing

INTERNET & JAVA PROGRAMMING

M.Sc(CA)-304

Unit- I

Internet : Internet, Connecting to Internet: Telephone, Cable, Satellite connection, Choosing and ISP, Introduction to Internet services, E-Mail concepts, Sending and Receiving secure E-Mail, Voice and Video Conferencing.

Unit- II

Core Java : Introduction, Operator, Data type, Variable, Arrays, Control Statements, Methods & Classes, Inheritance, Package and Interface, Exception Handling, Multithread programming, I/O, Java Applet, String handling, Networking, Event handling, Introduction to AWT, AWT controls, Layout managers, Menus, Images, Graphics.

Unit- III

Java Swing : Creating a Swing Applet and Application, Programming using Panes, Pluggable Look and feel, Labels, Text fields, Buttons, Toggle buttons, Checkboxes, Radio Buttons, View ports, Scroll Panes, Scroll Bars, Lists, Combo box, Progress, Menu and Toolbars, layered Panes, Tabbed, Tabbed Panes, Split Panes, Layouts, Window, Dialog Boxes, Inner frame.

JDBC : The connectivity Model, JDBC/ODBC Bridge, java.sql package, connectivity to remote database, navigating through multiple rows retrieved form a database.

Unit- IV

Java Beans : Application Builder tools, the bean developer kit(BDK), JAR files, Introduction, Developing a simple bean, using Bound properties, The Java Beans API, Session Beans, Entity Beans, Introduction to Enterprise Java beans (EJB).

Unit- V

Java Servlets : Servlet basics, Servlet API basic, Life cycle of a Servlet, Running Servlet, Debugging servlets, Thread-safe Servlets, HTTP Redirects, Cookies, Introduction to Java Server Pages (JSP).

M.Sc(CA)-305

Practical Lab based on 303 & 304

Note: In this section, students have to be prepare a practical file based on 303 & 304

M.Sc(CA)-306

MINI PROJECT

NOTE: IN THIS SECTION, STUDENTS HAVE TO BE PREPARE A MINOR PROJECT ON ANY PROGRAMMING LANGUAGE AND SUBMIT A PROJECT FAILE (HARD COPY AND SOFT COPY)

DETAILED SYLLABUS

M.SC.(CA)

SECOND YEAR- THIRD SEM

MODELING & SIMULATION

M.Sc(CA)-401

Unit-I

System definition and components, stochastic activities, continuous and discrete Systems, System modeling, types of models, static and dynamic physical models, statics and dynamic mathematical models, Full corporate model, types of system study.

Unit-II

System simulation, Why to simulate and when to simulate, Basic nature of simulation, technique of simulation, comparison of simulation and analytical methods, types of system simulation, real time simulation, hybrid simulation, simulation of pure-pursuit problem single-server queuing system and an inventory problem, Monte Carlo simulation, Distributed Lag models, Cobweb model.

Unit-III

Simulation of continuous systems, analog vs. digital simulation, of water reservoir system, simulation of a servo system, simulation of an autopilot, Discrete system Simulation, Fixed time-step vs. event-to-event model, generation of random numbers, Test for randomness, Generalization of non-uniformly distributed random numbers, Monte-Carlo computation vs. stochastic simulation.

Unit-IV

System dynamics, exponential growth models, exponential decay models, modified exponential growth models, logistic curves, generalization of growth models, System dynamics diagrams, Feedback in Socio-Economic systems, world model.

Unit-V

Simulation of PERT networks, Critical path computation, uncertainties in Activity duration, Resource allocation and consideration. Simulation software, Simulation languages, continuous and discrete simulation languages, Expression based languages, object-oriented simulation, general-purpose vs. application-oriented simulation packages, CSMP-III, MODSIM-III.

.NET FRAMEWORK AND C#

(M.Sc(CA)-402)

Unit-I

The .NET framework: Introduction, Common Language Runtime, Common Type System, Common Language Specification, The Base Class Library, The .NET class library Intermediate language, Just-in-Time compilation, garbage collection, Application installation & Assemblies, Web Services, Unified classes.

Unit-II

C# Basics: Introduction, Data Types, Identifiers, variables & constants, C# statements, Object Oriented Concept, Object and Classes, Arrays and Strings, System Collections, Delegates and Events, Indexes Attributes, versioning.

Unit-III

C# Using Libraries: Namespace-System, Input Output, Multi-Threading, Networking and Sockets, Data Handling, Windows Forms, C# in Web application, Error Handling.

Unit-IV

Advanced Features Using C#: Web Services, Windows services, messaging, Reflection, COM and C#, Localization.

Unit-V

Advanced Features Using C#: Distributed Application in C#, XML and C#, Unsafe Mode, Graphical Device Interface with C#, Case Study (Messenger Application)

WEB TECHNOLOGY AND CYBER SECURITY

(M.Sc(CA)-403)

Unit-I

History of the web, Growth of the Web, Protocols governing the web, , Web project, Web Team, Team dynamics.

Unit-II

Communication Issues, the Client, Multi-departmental & Large scale Websites, Quality Assurance and testing, Technological advances and Impact on Web Teams.

Unit-III

HTML: Formatting Tags, Links, List, Tables, Frames, forms, Comments in HTML, DHTML. JavaScript: Introduction, Documents, Documents, forms, Statements, functions, objects in JavaScript, Events and Event Handling, Arrays, FORMS, Buttons, Checkboxes, Text fields and Text areas.

Unit IV

Cyber Laws: Introduction to Cyber Laws in India, Introduction to International Cyber laws, Cyber Crimes, Types of Cyber Crimes, Hacking, Criminal behaviors, Networks Security

Unit V

Cyber Crime Investigation: Indian IT ACT 2000, Firewalls, Packet Filters, Password, Virus and Warms, Cyber world with computer crimes, Protection mechanism of computer and web with firewalls , Security Concepts.

M.Sc(CA)-404

Practical Lab based on 402 & 403

Note: In this section, students have to be prepare a practical file based on 402 & 403

M.Sc(CA)-405

PROJECT VIVA-VOCE

NOTE: IN THIS SECTION, STUDENTS HAVE TO BE PREPARE A MAJOR PROJECT ON ANY PROGRAMMING LANGUAGE AND SUBMIT A PROJECT FAILE (HARD COPY AND SOFT COPY)

4. Course Duration :

Minimum Duration: 2 Years   **Maximum Duration: 5 Years**

5. Faculty and support staff requirement : 02 full time Faculty of Professor/Assoc./Asst. **Professor level**

Procedure for admission, curriculum transaction and evaluation :

A. Admission Procedure:

1. **Procedure for Obtaining Admission Form and Prospectus**
    a. The prospectus containing Admission Form can be obtained in person from :
        The Directorate of Distance education, Swami Vivekanand Subharti University, Subhartipuram, NH-58, Delhi-Haridwar Bypass Road, Meerut or its city office located at Lokpriya Hospital Complex, Samrat Palace, Garh Road, Meerut on payment of Rs. 125/- in cash or by demand draft.

    b. The Prospectus can also be obtained by post by sending a demand draft of Rs. 175/- drawn in favour of "SVSU, Distance Education", payable at Meerut along with a filled requisite proforma (available at DDE website i.e. www.subhartidde.com) for "Obtaining the Prospectus and Admission Form" to the Directorate of Distance Education.

2. **Submission of Admission Form:**
    a. An applicant should submit the admission form duly filled with all enclosures completed, personally or by post, to the Directorate of Distance education, Swami Vivekanand Subharti University, Subhartipuram, NH-58, Delhi-Haridwar Bypass Road, Meerut-250005.
    b. The application for admission should be submitted along with the following :
        i. A demand draft for the course fee (as per fee structure table) drawn in favour of "SVSU, Distance Education" payable at Meerut.
        ii. Duly attested photocopy of Aadhar Card, statement of marks and other relevant documents/certificated pertaining to the qualifying examination, by a gazetted officer or Principal of the college from where these were obtained, should be submitted at the time of admission.
        iii. Self attestation of document/s is permissible, if the originals are produced before the Registrar of Swami Vivekanand Subharti University or Asst. Director/Deputy Director/Director of Directorate of Distance Education.
        iv. 4 recent passport size color photographs should be provided in which 2 photographs should be pasted on the admission form & Enrollment form accordingly and another two photographs should be attached/stapled with the form.
    c. The learners are advised to check up the eligibility criteria of a course they wish to apply for, from our website www.subhartidde.com or DDE Prospectus.

3. **Admission Procedure -**
    a. Applications can be sent to the Directorate of Distance Education directly or through its city office. The applicant's eligibility will be checked and accordingly he/she shall be granted admission and an acknowledgement of the receipt of the fee and the application form shall be issued.
    b. An Identity Card, mentioning the enrollment number of the learner, shall be issued by University as soon as the admission is confirmed. Learners are advised to keep their Identity Card safely, as it will be required for attending counseling sessions/PCPs and also for the receipt of study material, mark sheets, Degree etc in person. In case of loss of

Identity Card, a duplicate can be issued on receiving a written request along with a fee of Rs. 100/-. The Identity Card shall be valid for the entire duration of the Programme.

c. The University conduct entrance examination twice in a year for admission in MBA and MCA or any other programme, as may be decided by the University. Learners can obtain information relating to the entrance examination from the Directorate of Distance Education or its website www.subhartidde.com. The University may, as an alternative, consider granting admission on the basis of the score obtained by an applicant in any central or state level entrance examination for a similar course.

4.

1 . Minimum Eligibility and Fee Structure for ODL –

Sr. No.	Title of Programme		Course Duration		Annual Fees Per
		Eligibility	Minimum	Maximum *	Year (In Rs.)
1	Master of Science in Computer Application (M.Sc.-CA)	Graduation or eq.	2 Years	5 Years	13500-/-

2 . Minimum Minimum Eligibility and Fee Structure for OL –

Sr. No.	Title of Programme		Course Duration		Annual Fees Per
		Eligibility	Minimum	Maximum *	Year (In Rs.)
1	Master of Science in Computer Application (M.Sc.-CA)	Graduation or eq.	2 Years	5 Years	23500-/-

B. Curriculum transaction and evaluation :

The University follows the following evaluation system:

a. Continuous evaluation through personal contact programmes, assignment work, viva, group discussion and personality development programmes. b. Semester wise Examination

c. Evaluation of practicals, wherever prescribed

d. Evaluation of professional project report, wherever prescribed

e. A learner shall be declared 'pass' at the end of the academic/calendar year, if he/she secures minimum 40% marks in each subject (including project report, internship, industry integrated learning and practicals, wherever prescribed) separately in the Semester wise Examination and the internal assessment. If a learner fails to secure 40% marks in any subject or in internal assessment, he/she will still be promoted to the next academic/calendar year, but he/she will have to appear in back paper for the subject in which he/she has not been able to obtain the requisite passing marks. The examination for learners giving back paper in any subject shall be held along with the subsequent examination for the relevant subject. In case, the learner fails to secure minimum 40% marks in internal assessment, he/she will have to resubmit the assignments for evaluation.

Requirement of the laboratory support and Library Resources :

Resources are available of Library for the learners during PCPs. The University has a rich Central Library with more than 3.80 lac books, 181 journals (Foreign & Indian), Internet Section of 200 nodes, Computer Centres, Museum, Instrumentation (USIC) workshop, Student's Guest House, etc.

The resources for laboratory also available as per the need of the programme.

Cost estimate of the programme and the provisions :

a. Cost estimate: Approx. Rs. 13,85,772.20/-

(The cost estimate may vary depending upon the no. of students enrolled)

b. Provisions: Swami Vivekanand Subharti University

<u>Quality assurance mechanism and expected programme outcomes :</u>In accordance to the UGC Guidelines, the University has established an Internal Quality Assurance Cell, as per ordinance no. VI (1), dated 11.02.2009, to instill a momentum of quality consciousness amongst its all Institutions including Directorate of Distance Education, aiming for continuous improvement.

1. The cell holds various events regularly and maintain the documentation of the various programmes/activities leading to quality improvement.
2. The cell is responsible for incorporating various new changes/developments regarding up-gradation of learning material and spreading awareness of Quality Culture in the various institutions of the University.
3. The cell also prepares 'Annual Quality Assurance Report (AQAR)' as per the laid guidelines and parameters.