



PGP COLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637 207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



DEPARTMENT OF HOTEL MANAGEMENT & CATERING SCIENCE PROGRAMME OUTCOMES OF UG COURSES (2021 ONWARDS)

Name of the Programme: B.Sc HMCS	
PO1	An ability to apply knowledge of Hotel Management appropriate to the discipline.
PO2	To provide basic and essential knowledge regarding various activities undertaken and necessary.
PO3	To impart certain basic skills and aptitude which will be useful in taking up any particular useful in taking up any particular activity in hospitality industry?
PO4	To develop the personality so as to become responsible citizen with greater awareness about the Indian society and its culture,
PO5	To provide a global view of several multinational hotel and their functions which support hotel systems?
PO6	The program me of study shall consist of foundation courses; skill based elective course (SBEC) and non- major elective course.
PO7	The non major elective courses (NMEC) offered by a department is mean for students studying other programme (i.e.) HMCS students have to study a NMEC offered by
PO8	As a part of the curriculum, a minimum of two hotel visit per year. A young trainee's first industry exposure is likely to be the most influential that person's career.
PO9	Maintain a high standard of quality of work.



PROGRAMME SPECIFIC OUTCOMES OF UG COURSES (2021 ONWARDS)

Name of the Programme: B.Sc HMCS	
PSO1	Should brief the students about appraisal , attendance, maks, logbook, and training report.
PSO2	Should maintain proper feedback from the training.
PSO3	Should ensure that change of IT hotel is not permitted once the student has been interviewed, selected and has accepted the offer.
PSO4	Self planning, writing resume, knowledge of company profiles academics and professional knowledge through communication
PSO5	Water system management- source of water quality
PSO6	Human resource management – meaning, nature, scope and objectives
PSO7	The objective of industrial exposure is to facilitate learner with skills & practices of trade so as to supplement their theory and practical inputs of semester and enable them to industry ready.



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COURSE OUTCOMES OF UG COURSES (2019 ONWARDS)

Name of the Programme: B.Sc HMCS	
Course Code & Course Title	Course Outcome
SEMESTER - I	
21UHM01 FOOD PRODUCTION AND PATISSERIE	CO1 Aims and objectives of cooking Importance of personal hygiene
	CO2 Safety procedure in handling kitchen equipments Types of fuels used in Food production Kitchen equipment and classification Kitchen Organization chart for a five star Hotel Duties and responsibilities of chef de cuisine, sous-chef, Chef-de-partie and commis
	CO3 Characteristics of raw materials-salt liquid, Sweetening agents, Raising agents, fats and oils, Thickening agent, Flavouring and seasoning Various Techniques used in the preparation of Ingredients. Methods of cooking – Boiling, Steaming, Stewing, Roasting, Grilling, Frying, baking Principles of each methods of cooking Care and precaution to be taken in each methods
	CO4 Methods of cooking – Boiling, Steaming, Stewing, Roasting, Grilling, Frying, baking Principles of each methods of cooking Care and precaution to be taken in each methods
	CO5 Definition of stock – Types of Stocks and Uses. Characteristics of Good Stock. Recipes for One Liter of each type of Stock



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	CO6	Classification of fish with examples Selection of Fish and Storage Fish cuts and brief explanation of each
21UHM02 ACCOMMODATION OPERATION-1	CO1	Introduction: -Meaning and definition Importance of Housekeeping, -Responsibility of the Housekeeping department, a career in the Housekeeping department.
	CO2	Housekeeping Department: Organizational framework of the Department (Large/Medium/Small Hotel), Staff Hierarchy, and duties responsibility. Coordination within
	CO3	Cleaning Equipment: Types of Equipment, Operating Principles of Equipment, Characteristics of Good equipment (Mechanical/Manual), Storage, Upkeep, and Maintenance of equipment, Cleaning agents: types of cleaning agents, selection storage
	CO4	The Hotel Guest Room: Layout of guest room (Type), Layout of corridor and floor pantry, Types of guest rooms, Guest Room Furniture, guest room supplies Items classified as Bed, Bath Linen and their sizes - Selection criteria for Linen items (Bed sheet, pillow slip, towels, bathmats, table cloth, and serviette)
	CO5	Cleaning guest rooms: - Type of soil - Standard of cleaning - Cleaning procedure – Manual and Mechanized - Frequency of cleaning - The cleaning,
	CO6	process - Bed making - Daily cleaning of guest room – occupied room – VIP room – Check out room blocked for arrival – Checkout room – occupied room with “Please make up my room” sign hang-up - Turn down service
	CO7	Linen/ Uniform: Layout, Types of Linen, sizes and Linen exchange procedure, Selection of linen, Storage Facilities and conditions
	CO8	Maids Service Room: - Layout & Essential Features - Floor pantry – Uses - Organizing maids’ trolley - Keys – types – key Control
	CO9	Cleaning of Public Areas: Cleaning Process, Cleaning and upkeep of Public areas, (Lobby, Cloak rooms/ Restaurant/ bar/ banquet Halls/ Administration offices/ Lifts and Elevators/



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		Staircase/ back areas/ Front areas/ Corridor), House Keeping Control Desk - Role of control desk - Forms Records and register used in Control Desk - Co- ordinations with other department
SEMESTER - II		
21UHM03 FOOD & BEVERAGE SERVICE -I	CO1	Introduction and Evolution of Hotel Industry - Different Types of Catering Establishments A) Commercial B) Non-commercial - Different Outlets of F&B Service Coffee shop, restaurant, bar, room service, discotheque, barbeque, night clubs, banquets, outdoor catering. - Staff Hierarchy of F&B Outlets
	CO2	Different Outlets of F&B Service Coffee shop, restaurant, bar, room service, discotheque, barbeque, night clubs, banquets, outdoor catering. - Staff Hierarchy of F&B Outlets
	CO3	- Duties and responsibilities of each level of staff - Attributes of service personnel
	CO4	- Safety, hygiene, and attitudes (positive & negative) - Inter Departmental Relation Ship - Co-operation and co-ordination
	CO5	Introduction - Furniture: Tables, chairs, booster chairs, sideboards, reception desk.
21UHM04 BAKERY & CONFECTIONARY	CO1	Layout of Bakery - Bakery equipment and Tools - Identification and handling of Raw Materials
	CO2	- Flour – Type of flour – uses - Shortenings – types, meaning and characteristics of good shortenings
	CO3	- Sugar – Types of sugar – their cooking of sugar at different temperatures - Raising agent – types of Raising agent – role of raising agents



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		Types of Bread making - Preparation of bread	
	CO4	Role of Ingredients in Bread making - Faults and reason in making bread - Characteristics of good bread	
	CO5	Soft and hard rolls - Breakfast rolls - Croissants – Brioche – Vienna – Danish pastry	
	CO6	Types of Cake Making - Preparation of different types of Cakes - Role of Ingredients in Cake making	
	CO7	- Faults and reason in making Cakes - Genoese sponge - Fatless Sponge Recipes - Characteristic as good sponge	
	21UHMA02 FOOD SCIENCE &NUTRITION	CO1	Concepts of Food and Nutrition Definition of Food, Nutrition and Nutrients, Food groups, Functions of food to man. Balanced diet: Definition, meaning and importance
		CO2	Meal planning: Factors affecting, Meal planning Personal Hygiene, Kitchen hygiene and Food Hygiene
CO3		Water: Importance, Water balance, deficiency of oral dehydrations Carbohydrates, Proteins and fat composition,	
CO4		Classification, sources, functions and requirements, digestion and absorption, excess and deficiency.	



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	CO5	Minerals: Calcium, Iron, sodium, Iodine- Functions, sources, daily requirements, excess and deficiency, digestion and absorption.
	CO6	Vitamins: Classifications, function, sources, daily requirements, excess and deficiency of vitamins A, D, E, K, C & B vitamins. Nutritional losses during cooking.
	CO7	Food Quality: Definition, quality attributes and its measurements. Colors: Natural and Synthetic colors used in foods
	CO8	Flavor: Types of flavor and synthetic flavor intensifier Food adulteration and common food adulterants.
SEMESTER - III		
21UHM06 ACCOMMODATION OPERATION –II	CO1	TEXTILES - Classification and characteristics of Textile fibers
	CO2	LAUNDRY OPERATION –Types of Laundry - Laundry equipment's - Laundry agent -
	CO3	Laundering process STAINS - Types of stains – removal of stains - Dry cleaning - Handling of Guest Laundry -
	CO4	Preparation of Hot and Cold Towels
	CO5	PEST CONTROL - Common pest found in hotels - Area of infestation - Prevention and Control - Responsibility of housekeeping in pest control
21UHMA03 HOTEL ACCOUNTING	CO1	Accounting - Definition of Accounting and Book keeping - Concept and conventions -
	CO2	Preparation of trading, profit and loss account and balance sheet (simple problems only).
	CO3	Financial Statement: Basic Financial Statements, Trial Balance, Preparation of Final Accounts, Basic Adjustments to final Accounts, Methods of Presenting Final Accounts Practical Problem.



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	CO4	Costing – Definition and Preparation, Advantages and Limitations of Cost Accounting. Preparation of Stores
	CO5	Ledgers – FIFO, LIFO , Weighted and Simple Average
	CO6	Budget and Budgetary control principles - methods types of budget (problems).
	CO7	Food and Beverage Accounts cost concept - Nature of food and beverage business Recipe costing - Menu costing and cost sheet. Classification of department based on revenue sales, Records and control of revenue producing department. Uniform system of accounting operation ratios.
21UHME02 HOTEL FRENCH	CO1	The letter of alphabet and their pronunciation Different accents used in written French Self-introduction Name, Age, Nationality, Profession, etc –
	CO2	Presenting and introducing another person, Greeting - How to reply to greetings
	CO3	Fruits, Vegetables, Meat, Egg, Fish, Etc. Utensils used in Kitchen and Restaurant .
	CO4	Name of the Personnel's in Hotel, Restaurant and Kitchen (Specialization from English to French term)
	CO5	Conversation related to Restaurant –Simple conversation asking for menu card, placing Order for food, asking for wine, Beer, Coffee, Tea,
	CO6	Conversation related to Front Office – Asking for room –enquiring for facilities, asking for rates of room –checkout time –No of Days.
	CO7	Menu items in French term for Breakfast, Lunch and Dinner
	CO8	Compilation of French menu for Breakfast, Lunch and Dinner Culinary terms in French - French to English - English to French.



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SEMESTER - IV

19UHME07 FOOD & BEVERAGE SERVICE	CO1	-Definition -Classification of beverage -Significance
	CO2	-Definition of wine -Classification of wine -Grape varieties -Production of table wine -Service and storage
	CO3	WINES OF FRANCE - Classification of French wines - Wine producing regions of France Bordeaux, Burgundy, Alsace, Champagne, Rhone valley, Loire Valley
	CO4	-WINES OF GERMANY - Classification of German wines - Wine regions of Germany -WINES OF ITALY - Italian wine classification - Wine producing regions of Italy -Other wine producing countries - Table wine service procedure
	CO5	SPARKLING WINES -Methods of making sparkling wines -Service and storage
	CO6	FORTIFIED WINES -Production, Types, and brand names of Sherry, Port, Madeira, Marsala, and Malaga
19UHM08 TOURISM MARKETING	CO1	Concept of Travel and Tour Operations, Types of Travel Agencies and Tour Operators; History; Present status and future prospects of Travel Agency System.
	CO2	The Indian Travel Agents and Tour Operators - an overview.
	CO3	Travel Agency and Tour Operators: Linkages and arrangements with hotels, Airlines and Transport Agencies and other segments of Tourism Plants.
	CO4	Need for marketing in Tourism - Defining Tourism marketing - The tourism Product.
	CO5	Special features of Tourism Marketing - Marketing process - Marketing research –
	CO6	Market segmentation. Market targeting - Tourism promotion -Advertising. Public relation technique.



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	CO7	Market research and tour package formulation: Assembling, processing and disseminating information on destinations, preparation of itineraries. Handling of tour file, sources of income for tour operation.
19UHMA04 FRONT OFFICE OPERATIONS	CO1	- Functions of the Lobby Manager, -Forms and registers required,
	CO2	- handling of any unusual event like theft, fire, accident, death, skippers, scanty luggage guests, etc. - Handling of master keys, duplicate and original keys Handling guest complaints and problems
	CO3	Job description of a front office cashier - Guest Accounts-Folios-Vouchers-Ledgers - Creation & Maintenance of Accounts
	CO4	- Record keeping system: Manual, Semi - Automated, dully automated - Credit monitoring - Floor limit, House limit, part settlement of in house guests
	CO5	ACCOUNT MAINTENANCE:-Charge purchase,- Account Correction,- Accounts allowance
	CO6	NIGHT AUDITING - Functions of the night auditor - The role of the night auditor - Cross - referencing - Guest credit monitoring - Daily & supplementary transcripts
SEMESTER - V		
19UHM09 FOODPRODUCTION & PATISSERIE-III	CO1	Introduction of Larder work - Layout - Functions - Organization chart of Larder department - Duties and Responsibilities of Larder Chef - Equipment and tools used in Larder



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	CO2	Meaning - Types of Force meat - Styles of Force meat - Preparation of each types and uses
	CO3	Types and Varieties - Preparation method - Brine ,Cures & Marinades - Types and preparation of Brine - Methods of Curving - Types and uses of Marinades
	CO4	GALANTINES - Preparation of Galantine - Types of Galantine - Receptions for Chicken or Duck Galantine
	CO5	- Types of Pate - Preparation of Pate and Terrine PATES AND TERRINE
	CO6	Sandwiches – parts of sandwich - Types of breads used for sandwich - Types of spread and garnishes - Types of fillings - Types of sandwich
19UHM10 FOOD & BEVERAGE SERVICE -III	CO1	Brunch and Afternoon Tea -Introduction -Brunch: Meaning, Menu, service -Afternoon Tea - Full afternoon tea: Menu, cover, service sequence for full afternoon tea - High Tea: Menu, cover, service sequence for high tea, India High Tea menu - Buffet Tea: Buffet set-up, food and beverage arrangement, Staffing



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	CO2	-Location and equipment required for room service -Room service procedure -Mise-en-place for room service -Order taking methods for room service -
	CO3	Gueridon Service -Introduction -Mise en place for gueridon. -Special equipments used
	CO4	-care & maintenance of equipment -taking the order -method of serving the dish at the table, -carving and jointing at the table, -dishes prepared on the gueridon, flambeing
	CO5	Door knob card, Telephone, in person -
	CO6	Execution of Room service order: decentralized and centralized system -In-room facilities -Guest satisfaction
	19UHM11 HOTEL ENGINEERING	CO1
CO2		Duties and responsibilities of maintenance department. Maintenance - Preventive and break-down maintenance.
CO3		Fuels used in catering industry: Types of fuel used in catering industry; calorific value; comparative study of different fuels, calculation of amount of fuel required and cost.



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	CO4	Gas: Heat terms and units method of transfer, LPG and its properties; precaution to be taken while handling gas; low and high pressure burners, corresponding heat output, care and service of gas equipment, gas meter reading.
	CO5	Electricity: Importance and its uses. Meaning of ampere, volt, ohms and their relations, ohms law, AC & DC their difference. Importance of NEC (National Electric Code), Under writers laboratory, layout of circuits, calculation of power requirements, meter reading and bill calculations. Electric power rate schedules.
	CO6	Earthing: Meaning and its importance and method of earthing.
19UHM12 EVENT MANAGEMENT	CO1	Introduction to Event Management - Categories & Definitions – functions of Event Management -Objectives of Event Management –role of the event manager- Creativity implications of Events
	CO2	Designing (a) Backdrop b) Invitation Card c) Publicity Material d) Mementos- Event
	CO3	Decoration - Guest and Celebrities Management - Making Press Release – Marketing communication - Media Research & Management - Participation according to the theme of the Event - Photography/ Video
	CO4	Program Scripting - Public Relation - electing a Location -Social and Business Etiquette - Speaking Skills -Stage decoration - Team Spirit - Time management
	CO5	Concept of Exhibition - Space Planning - ITPO - Sporting Events - Tourism Events- Leisure Events.
	CO6	Training in hospitality Management- psychological approach- body languages- physical aspects- Manners and behavior - aptitude & ethics



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SEMESTER - VI

19UHM13

FOOD & BEVERAGE MANAGEMENT

CO1	Introduction to Cost Control Define Cost Control The Objectives and Advantages of Cost Control Definition of Food costing Food Cost Cycle
CO2	Purchasing Control Types of Food Purchase Job Description of Purchase Manager/Personnel Definition of Yield
CO3	Definition of Standard Purchase Specification Periodical Purchasing Open Market Purchasing Standing Order Purchasing
CO4	Centralized Purchasing Purchase Order Forms Ordering Cost Carrying Cost Economic Order Quantity
CO5	Sales control Sales Promotion Personal selling Advertising Calculation of selling price Billing procedure Cash and credit sales Cashier's Sales summary sheet



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	CO6	Definition of budget Importance and uses budget Objectives of budget Types of budget Define budgetary control Budgetary control
19UHM14 TRAVEL & TOURISM MANAGEMENT	CO1	-Definitions: Tourism, Tourist, Foreign Tourist, Domestic Tourist -Components of Tourism: Attractions - Accessibility and Amenities -Motivations for Tourism -Types of Tourism
	CO2	-Elements of tourism -Positive and Negative impacts of tourism -Activities of Department of tourism -Economic impact of tourism -Geographical Components of Tourism
	CO3	-Indian cultural Heritage - Religions, Belief and their Practices. -Music's in India -Dances in India - Classical and Folk Dances. -Fairs and Festivals in India -Population status and Regional Languages in India
	CO4	-International civil aviation organization (ICAO) -Future of airline industry -Airport authority of India (AAI) -Computerized reservation system (CRS) - SABRE-GALILEO WORLDSP AN AMADEUS
	CO5	-Government Organizations India Tourism Development Corporation (ITDC). Tamilnadu Tourism Development Corporation (TTDC) -Private Organizations. -International Air Transport Association (IATA)
	CO6	-Travel Agents Associations of India (TAAI) -Role of United Nations Organization in Tourism
19UHM15	CO1	Introduction to Computers: Introduction to Computer: Classification, Generations, Organization, Capabilities Characteristics & Limitations,
	CO2	Application of Computer in Hotels, Familiarisation with Components of Computers – Hardware: Hardware elements – input, storage, processing & output devices. Block diagram of computer,



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APPLICATION OF COMPUTER SCIENCE IN HOSPITALITY AND TOURISM INDUSTRY	CO3	Introduction to Computers Software: Types of Software, System Software, Application Software, Utility Software's, Use of MS-Office
	CO4	MS Word: Introduction to word-Formatting text and documents-Working with header and footers, foot notes-Tabs-Tables and Sorting-Menus-Mail Merge
	CO5	MS Excel: Introduction to Excel-Rearranging worksheets-Formatting work sheets-Functions-Excel chart Features-Working with Functions-Statistical-Math-Financial functions.
	CO6	Power Point basics -editing text-Deleting slides-Working in outlines view-Using Design
19UHME03 HOTEL BUSINESS LAW	CO1	Introduction - Salient features of catering establishment Act, 1958 - Interval for rest payment of wages act applicable to catering establishment - Notice of discharge or dismissal - penalties
	CO2	- Grant of registration certificates - procedures of death of a holder of the registration certificate changes of the festival specified display of statement by the catering establishment Maintenance of registers and records
	CO3	- Medical examination of persons prior to employment - Medical examination of employees
	CO4	- Scale of dress to be supplied to the employees, servers, cleaners, kitchen staff. Fire extinguishers and first aid boxes - Lien of Inn keeper - Features of Tamilnadu Tax on Luxury Act, 1981
	CO5	Contract of Insurance Nature of Contract of Insurance - Principles of contract of insurance - Reinsurance. Double insurance subrogation and contribution General insurance practices.



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19UHMSO4 PRINCIPLES OF MANAGEMENT	CO1	Evolution-Development-School of Management, Management defined Role of manager- Managerial skill- Roles-Levels Management process.
	CO2	Planning and management process Mission-Objectives-goals Plans Fail Problem solving and decision making
	CO3	Organizing and organization structure Organization chart Principles of Organization Scalar Principles Departmentation Unity and Command Span of control
	CO4	Centralization and Decentralization Authority and Responsibility Delegation
	CO5	Creating a committed Work force Basic Concept and definition Theories of motivation Hierarchy of needs
	CO6	CONTROLLING Basic Concept Definition Process and Techniques Communications Importance-Message components Communication process Verbal and non verbal communication
19UHMP12 PRACTICAL XIII FOOD PRODUCTION & PATISSERIE -III	CO1	Ice carving Vegetable carving Butter carving Aspic Jelly preparation and presentation Forcemeat Panades Galantine Ballotine Pate terrine
	CO2	To formulate 20 sets of menu consisting of 6 dishes from the following courses mentioned below: Hors-doeuvre - Simple or Compound Soup Egg Pasta/rice Fish
	CO3	Mutton/Veal/Beef/Pork Poultry/Furred game/Feathered game Potatoes Vegetables/Salads Sweet Savory
	CO4	International cuisine Menu Sri Lankan - 2 set Malaysian - 1 set
	CO5	Japanese - 1 set Italian - 2 set
	CO6	Spanish - Mexican - 1 set Mediterranean -1 set American - 1



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19UHMP14 APPLICATION OF COMPUTER IN HOSPITALITY AND TOURISM INDUSTRY

CO1	Creating Table in MSWORD 2. Formatting Documents Mail-Merge
CO2	4. Enter data, Changing row heights column width, Formatting the data, sorting the data.
CO3	5. Function in Excel (ABS, SQRT, LEN, SUM, ROUND, AVG, COUNT)
CO4	6. Inserting Charts, Inserting Pictures
CO5	7. Creating Simple presentations-Saving, Opening an existing presentation-creating a presentation using auto Content Wizard and Template. 8. Using Various Auto Layouts, Charts, Table, Bullets and Clip Art
CO6	9. Slide View-Outline View, Slide View, Slide show View and Slide sorter view 10. Creating Organization Chart for a Hotel Industry.



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Name of the Programme: M.Sc COMPUTER SCIENCE	
PO1	Students are able to develop creative solutions. Better understand the effects of future development of computer systems and technology on people and society.
PO2	Get prepare for placement by developing Personality & Soft skills.
PO3	Students are able to understand the role of computer science insolving real time problem in society
PO4	To develop the programme of human resources for IT industries as well as equipped students to start their own business as a software developer, database administrator, programmer, system analyst.
PO5	Understand the impact of the professional software engineering solutions in social and environmental contexts and demonstrate the knowledge of and need for sustainable development.



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PROGRAMME SPECIFIC OUTCOMES OF PG COURSES (2021 ONWARDS)

Name of the Programme: M.Sc COMPUTER SCIENCE	
PSO1	Communicative computer science concepts and designs and solutions effectively and professionally
PSO2	Apply the knowledge of computing to produce effective design and solution for specific problem.
PSO3	Use software development tool, software system and modern computing problems.
PSO4	Students are able to demonstrate and apply their knowledge of C++, VB.Net, Database programming to develop effective software solutions need for the government organization, industrial development.
PSO5	Students are able to analyze the system by sampling investigating hard data and able to identify benefits for the system under study.



COURSE OUTCOMES OF PG COURSES (2021 ONWARDS)

Name of the Programme: M.Sc COMPUTER SCIENCE	
Course Code & Course Title	Course Outcome
SEMESTER - I	
21PCS01 DESIGN AND ANALYSIS OF ALGORITHMS	CO1 Apply design principles and concept of algorithm design.
	CO2 Have the mathematical foundation in analysis of algorithm
	CO3 Understand the different algorithm Strategies.
	CO4 Analyse the efficiency of algorithm using time and space complicity.
	CO5 To get the good understanding of applications and Data Structure.
	CO6 Describe the Dynamic programming and explain when an algorithm situations call for it.
21PCSO2 ADVANCED COMPUTER ARCHITECTURE	CO1 Describe the principles of computer design and classify instruction set architectures.
	CO2 Describe the operation of performance enhancements such as pipelines, dynamic scheduling, branch prediction, caches, and vector processors.
	CO3 Describe the operation of virtual memory.
	CO4 Describe modern architectures such as RISC, CISC, Super Scalar, VLIW (very large instruction word), and multi-core and multi-processor systems.
	CO5 Compare the performance of different architectures.



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	CO6	Students able to learn the fundamental aspects of computer architecture design and analysis.
	CO7	To Describe on processor design, pipelining, superscalar, out-of-order execution, caches (memory hierarchies), virtual memory, storage systems, and simulation technique
21PCS03 ADVANCED JAVAPROGRAMMING	CO1	Students should be able to learn the Interneing, using Java Applets.
	CO2	Students should be able to create a full set of UI widgets and other components, including windows.
	CO3	Menu buttins checkbox text field using Abstract Window Toolkit(AWT) & Swings.
	CO4	Using the java bean invoke the Remote Method Invocation(RMI) understanding the multi-tier architechure of web based using EJB.
	CO5	Students should able to develop Stateful and Steteless and Entity beans use Struts framework.
	CO6	Students able to develop using Java Data base Connectivity(JDBC) create dynamic web pages using servlet JSP.
21PCS04 PRINCIPLES OF PROGRAMMING LANGUAGES	CO1	To understand syntax related concepts including ,context - free grammars, parse trees, recursive descent parsing, printing, and interpretation.
	CO2	To understand analyzing semantic issues associated with function implementations including variable binding, scoping rules, parameter passing, and exception handling
	CO3	To familiar with design issues of object - oriented and functional language.
	CO4	To familiar with language abstraction constructs of classes, interfaces, packages, and procedures.



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	CO5	To expose to logic languages.
21PCSO5 ADVANCED OPERATING SYSTEM	CO1	Students able to proficient in details of operating systems and be sensitive to implementation and permanence turning of operating system.
	CO2	Demonstrate suitable technique for resource management.
	CO3	Evaluate file system allocation and memory management techniques.
	CO4	Review the protection mechanisms in processive environment.
	CO5	Explore the case studies of Operating System.
21PCSP01 LAB-1 ADVANCED JAVA PROGRAMMING LANGUAGE	CO1	Learn to access database through Java programs, using Java Data Base Connectivity (JDBC)
	CO2	Create dynamic web pages, using Servlets and JSP
	CO3	Invoke the remote methods in an application using Remote Method Invocation (RMI).
	CO4	Understand the multi-tier architecture of web-based enterprise applications using Enterprise Java Beans (EJB).
	CO5	Map Java classes and object associations to relational database tables with Hibernate mapping files.
21PCSP02 LAB-2 ALGORITHMS USING C++ LAB	CO1	Design and implement algorithms to solve problems on Graphs.
	CO2	Design and develop algorithms to solve combinatorial problems.
	CO3	Choose appropriate algorithmic techniques to solve computational problems.
	CO4	Analyze algorithms to reduce their time complexities.
	CO5	Implement the algorithm for various computational problems



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	CO6	Compare deifferent classes of problems such as P,NP,NP Complete,NP HARD
SEMESTER - II		
21PCS06 .NET PROGRAMMING	CO1	.NET Framework and describe some of the major describe some of the major enhancement in new version of VB.
	CO2	Student will describe the basic structure of VB.NET and main feature in IDE.
	CO3	Students will create applications using Microsoft Windows form.
	CO4	Students will create applications using ADO Form
	CO5	Develop programs using primitives and constructs in VB .NET.
	CO6	Understand various controls in VB.NET and able to develop programs using conhols.
21PCS07 DISCRETE STRUCTURES	CO1	Write an argument using logical notation and determine if the argument is or is not valid 9.
	CO2	Demonstrate the ability to write and evaluate a poor.
	CO3	Understand the basic principles of sets and operations in sets.
	CO4	Demonstrate an understanding of relations and functions
	CO5	Determine when a function is l-l and "onto".
21PCS08 DATA MIININGTECHNIQUES	CO1	Demonstrate different traversal methods for trees and graphs.
	CO2	Design a data mart or data warehouse for any organization.
	CO3	Develop skills to write queries using DMQL
	CO4	Extract knowledge using data minig techniques.
	CO5	Adapt the new data mining tool.



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21PCSE02 COMPILER DESIGN	CO1	To explore the principles, algorithms, and data structures involved in the design and construction of compilers
	CO2	Topics include context-free grammars, lexical analysis, parsing techniques, symbol tables, error recovery, code generation, and code optimization.
	CO3	To understand some specific components of compiler technology, such as lexical analysis, grammars and parsing, type-checking.
	CO4	To understand the structure of a compiler, and how the source and target languages influence various choices in its design.
	CO5	To understand relations between computer architecture and how its useful in design of a compile.
21PHR01 HUMAN RIGIITS	CO1	Understand the historical growth of the idea of human rights.
	CO2	Demonstrate an awareness of the intemational context of human rights.
	CO3	Position of human rights in the UK prior to 1798
	CO4	Demonstrate an awareness of the understand the importance of the Human Rights Act 1798.
	CO5	Students will able to analyze and evaluate concepts and ideas.
21PCSP03 LAB.III. .NET PROGRAMMINGLAB	CO1	Creatices user intractive web pages using ASP.Net.
	CO2	Creative simple data binging application using ADO.Net connectivity.
	CO3	Performance Database operation for Windows form and Web applications.
	CO4	understand the VB.Net environment.



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	CO5	Developed menu based program for text manipulation.
	CO6	Developing application for data grid for displaying record.
21PPHED1 EDC	CO1	The basic principles of electronics.
	CO2	Fundamental components of electronics.
	CO3	Electronics devices and application.
	CO4	Analog electronics system and applications.
	CO5	Digital electronics system and application.
21PCSP04 LAB.IV DATA MINING LAB	CO1	Able to understand data cleaning, pre-processing And integration.
	CO2	The principle algorithms and techniques used in data mining, such as clustering, association mining, classification and prediction.
	CO3	Students can able to evaluate the different models of OLAP and data preprocessing.
	CO4	Students can able to enlist various algorithms used in information analysis of Data Mining Techniques.
	CO5	Students can able to demonstrate the knowledge retrieved through solving problems.
SEMESTER - III		
21PCS09 OPEN SOURCE COMPUTING	CO1	Ability to install and run open-source operating system.
	CO2	Ability to gather information about Free and Open Source Software projects from software releases and from sites on the internet.
	CO3	Ability to build and modify one or more Free and Open Source Software Package.



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	CO4	understand the Source code is the part of software that most computer users.
	CO5	To includes a license that allows programmers to modify the software.
21PCS10 NETWORK SECURITY AND CRYPTOGRAPHY	CO1	Understand the most common type of cryptographic algorithm.
	CO2	Understand the Public-Key Infrastructure.
	CO3	Understand security protocols for protecting data on networks.
	CO4	Be able to configure simple firewall architectures.
	CO5	Understand Virtual Private Networks.
	CO6	Be able to perform simple vulnerability assessments and password audits.
21PCS11 MOBILE COMPUTING	CO1	Explain the basics of wireless communication systems.
	CO2	Demonstrate the concepts of Telecommunication networks.
	CO3	Design wireless LAN.
	CO4	Develop and demonstrate various routing protocols.
	CO5	Demonstrate basic skills for cellular networks design and apply knowledge of TCP/IP extensions for mobile and wireless networking.
21PCS12 DIGITAL IMAGE PROCESSING	CO1	To improve the visual effect of people.
	CO2	To understand the image processing, the input is a low-quality image, and the output is an image with improved quality.
	CO3	understand the need for image transforms different types of image transforms and their properties.



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	CO4	Develop any image processing application.
	CO5	Understand the rapid advances in Machine vision.
21PCSE07 INTERNET OF THINGS	CO1	Able to understand the application areas of IOT.
	CO2	Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Network.
	CO3	Able to understand building blocks of Internet of Things and characteristics.
	CO4	Able to design & develop IOT Devices. Networks.
	CO5	Explored to the interconnection and integration of the physical world and the cyber space.
21PCSP05 LAB V PHYTHONPROGRAMMING LAB	CO1	Read, write, and execute simple python programs.
	CO2	Write simple Python programs for solving problems.
	CO3	Decompose a Python program into functions, lists etc.
	CO4	Read and write data from/to files in python programes.
	CO5	Underline the use of package.
	CO6	Ability to write database application in Python.
21PCSPO6 LAB .VI - MOBILE APPLICATION DEVELOPMENT LAB	CO1	Install and configure Android application development tools.
	CO2	Design and develop user Interfaces for the Android platform.
	CO3	Save state information across important operating system events.
	CO4	Apply Java programming concepts to Android application development.



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	CO5	Designing and develop mobile applications using a chosen application development framework.
SEMESTER - IV		
21PSCE10 ELECTIVE - III CLOUD COMPUTING	CO1	Understand the concepts, characteristics, delivery models and benefits of cloud computing.
	CO2	Understand the key security and compliance challenges of cloud computing.
	CO3	Understand the key technical and organisational challenges.
	CO4	Understand the importance of virtualization in distributed computing and how this has enabled the development of Cloud Computing.
	CO5	Understand the concept of Cloud Security.
	CO6	Analyze the performance of Cloud Computing.
21PSE16 ELECTIVE - IV WIRELESS APPLICATION PROTOCOLS	CO1	Demonstrate their understanding of the fundamentals of Android operating systems.
	CO2	Demonstrate their skills of using Android software development tools.
	CO3	Demonstrate their ability to develop software with reasonable complexity on mobile platform.
	CO4	Demonstrate their ability to deploy software to mobile devices.
	CO5	Demonstrate their ability to debug programs running on mobile device.
21PCSPR1 PROJECT WORK AND VIVA-VOCE	CO1	Assess them regarding knowledge gained during programme.
	CO2	Able to gather and document requirement.
	CO3	Able to store the data store layout.
	CO4	Able to implement the solution using programming language.
	CO5	Face to prospective technical interview.



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