AQAR 2023 - 2024

SANTHIGIRI COLLEGE
OF COMPUTER SCIENCES
Affiliated to M.G. University, Approved by AICTE and Accredited by NAAC

CRITERION 1

Students Manual

SANTHIGIRI
COLLEGE OF COMPUTER SCIENCES
Affiliated to M.G. University, Approved by AICTE and NAAC Accredited

DEPARTMENT OF COMPUTER SCIENCE
STUDENTS MANUAL-MCA
SECOND SEMESTER 2023 -2025

OUR VISION

Awakening to the Future. Awaken this generation to the gauntlet of tomorrow.

OUR MISSION

Holistic and Integral development of the individual rooted in faith in God, justice, knowledge and human values.

OUR MOTO

Quality and Excellence

CORE VALUES OF SANTHIGIRI COLLEGE

As individuals we have our fundamental beliefs and ideals. So too every organization or institution should have certain guiding principles that paves the way for greater success. They are the Core values. Holistic and integral development of the students of Santhigiri College is actualized through the core values of our institution. By internalizing and living the core values our students are enabled to attain the mission of our college. Their personal values will be made consistent with the core values of the college.

1. Faith in God

Faith is the conscious knowledge and ultimate acceptance of the divine authority of God. Faith is based on a deep personal understanding of religious teachings. Santhigiri College exhorts the students to practice the religion to which they belong ardently. Faith in God and practice of one's religion will emulate deep spirituality that is inherent in Indian culture, which will make them more humane.

2. Commitment

Commitment is the willingness to give your time and energy to a job, activity, or something that you believe in: something that you must do. The commitment of the teachers and students of Santhigiri College in their own fields of activity is promoted and ensured.

3. Integrity

Adhering to ethical principles in life is integral to the personality of an individual and this is integrity. We do what we say. Our students are trained to behave ethically and practice honesty and justice in all their inter-personal interactions and maintain integrity in their lives.

4. Excellence

'Be the best among the best' is an ambitious goal. Santhigiri College strives assiduously for excellence. Excellence with tangible results that trespasses the mediocrity at all levels of education is our goal. It can be attained by providing an experience of high quality through the promotion of excellence in teaching and learning

5. Social Responsibility

Santhigiri College with its unique background of evolution in alignment with rehabilitation of persons with disabilities proves the unparalleled social responsibility it has inherited from its inception. Serving the community, especially the marginalized sections of the society by responding to social issues is a critical component of a socially responsible institution. We imbue our students to involve in charitable interventions to acquire social awareness and social responsibility

MANAGER

Fr. Paul Parakattel CMI

PRINCIPAL

Rev. Fr. Prof. Dr. Baby Joseph CMI
(Fr. Peter Kuzhikandathil CMI)

BURSAR

Fr. Shinto Kannukettiyil CMI

PROGRAM OUTCOME (PO'S)
At the end of the programme, the graduates will be able to:

PO1 Communicate Effectively: Inculcate effective communication skills combined with professional & ethical attitude with the computing community and also the society by comprehending and writing effective reports and documentation, making effective presentations and providing and receiving clear instructions.

PO2 Individual & Team Work: Function effectively in diverse teams as team leader and team member on multidisciplinary projects to demonstrate computing and management skills.

PO3 Problem Analysis: Identify, critically analyse and formulate complex problems in multidisciplinary domains reaching substantiated conclusions using first principles of Mathematics, Sciences and Engineering.

PO4 Computational Knowledge: Relate & apply fundamental knowledge of computing technology and relevant domains for the conceptualization of models from defined problems appropriate to the discipline.

PO5 Design and Development of Solutions: Design, implement and evaluate complex business scenarios and contemporary issues into desired needs based solutions with a passion for quality, competency and holistic approach.
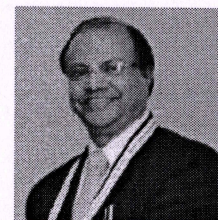
PO6 Solving Complex Computing Problems: Use problem solving skills including design of experiments, analysis and interpretation of information and synthesis of the knowledge to unravel multifaceted industrial problems.

PO7 Modern Tool Usage: Create, select and apply appropriate skills, techniques, resources and modern engineering tools to solve social, cultural and industrial issues with global standards.

PO8 Research and Lifelong Learning: Engage in continuous learning as an expert by applying research based knowledge and methodologies to design, analyse and interpret data for finding the Solutions for complex problems by applying modem technological tools.
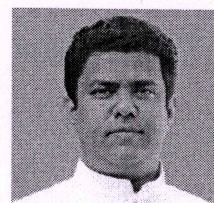
PO9 Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles with

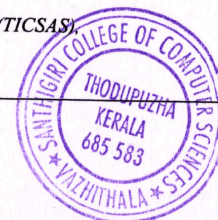computing skills to manage and estimate projects in multidisciplinary environments.

Head of Department

Mr. Gibin George

Programme Coordinator

Dr.Neetha Thomas

Class Tutor

Ms.Leema George

PO10 Entrepreneurship: Find out the right opportunity for the utilization of innovative ideas and entrepreneurship to make value and wealth for the betterment of the individual and the society at large.

PO11 Social, Cultural, Environmental, Legal and Ethical Concern(s): Recognize environmental, social, cultural, legal, ethical and cyber issues involved in the use of technology and other consequential responsibilities relevant to professional practice with an understanding of green environment initiative.

Program Specific Outcome (PSOs)

The student will be able to:-

PSO1 Solidify foundation of mathematics, computer science and problem solving methodologies for effective implementation in real life applications.

PSO2 Familiarize students about principles of Software Engineering and Project Management with appropriate data modeling concepts and latest technologies.

PSO3 Use of recent technologies, skills and knowledge for the design and development of applications in the computing discipline.

PSO4 Inculcate employability and entrepreneurship skills among students who can contribute innovative and advanced solutions for the important life problems.

PSO5 Understand the concepts of Network and communication technologies, social network and other related aspects.

Welcome to the first semester of MCA degree course at Santhigiri College of Computer Sciences. It is only about three decades since man started taking a serious note of the potentials offered by computers. Within a short span of time, computers have carved out an alcove in the history of mankind and changed the entire gamut of human life at a devastating pace. The changes in the field of information technology have been so rapid and widespread that there are hardly any areas of human activity that can be exempted from its influence. Our course is intended to train students keeping in mind the new IT revolution. Being expertise in technical aspects alone may not possibly facilitate us a lot, so we are augmenting IT seminars, Professional talks, Industry visits etc. together with our official curriculum. Management may introduce new programmes that can help in developing various aspects of student's soft skills and their personality.

Our Best Practices in Teaching-Learning Process

- *Regular Seminars and presentations*
- *Remedial Teaching*
- *Frequent Alumni interaction programs*
- *Placement Training programs as part of Time Table.*
- *Mock interviews*
- *Experts Talks*
- *Mentoring*
- *Awards to meritorious students, Branch Toppers & Best Outgoing students*
- *National and International Conferences*
- *Idea competitions*
- *Technovation-State level project competition*
- *Coding competitions*
- *Centre for research and Learning(CRL)*
- *Technically Innovative Computer Science Association of Santhigiri(TICSAS)*
- *NPTEL: Large MOOC supported by IIT Chennai*

- *Holistic education classes*

- *Training on Soft skills and Professional Skills*

- *Guest Lectures by Industry Experts*

Organization of classes

The regular sessions are scheduled between 9.30 AM and 4.30 PM, Monday through Friday. Saturday and Sunday will be a holiday. The college authorities may introduce special sessions as and when required, which will be notified on time to time.

Assignments

At least one assignment must submit for each subject. The Assignment must be handwritten. The marks are awarded on the basis of timely submission, neatness, content etc.

Seminars

A student shall present at least one seminar in this semester. The students are divided into groups for the seminar presentation. A subject is allotted to each group, and the student must collect the seminar topic from the corresponding subject teachers. The marks will be awarded for the students based on the subject knowledge, clarity of presentation, viva, seminar report etc.

Examination System

- **Marks of External Examination**   : 75

- **Marks of Internal Evaluation : 25**

The *criteria for internal evaluation* of theory papers are as follows

Components of Internal Evaluation	Marks
Class performance	5
Assignments	5
Viva / Seminar	5
Test paper (2x5=10)	10
Total	25

The external evaluation of theory papers will be done by the university through a written examination of 3-hour duration with maximum 75 marks. The question paper pattern is as follows.

Sections	Type of Questions	Marks	Number of questions to be answered
A	Short answer type questions	3	10 out of 12
B	Long essay type questions	9	5 (Either / OR questions) Each question from each module

Total 75 Marks

Marks of Practical- Internal Evaluation: 25 and External Evaluation : 75

Internal Evaluation		External Evaluation	
Components	**Marks**	**Components**	**Marks**
Attendance & Lab involvement	5	Lab Test	50
Lab Record / Class performance	10	Lab involvement & Record	10
Lab Test	10	Viva	15
Total	25	Total	75

Training, Placement and Co-Curricular Activities Specific to MCA
Semester I

- Training Program for icebreaking and adaptability and Public Speaking Skills (Two day)
- Bridge course by teachers handling C and CFDP
- Subject Seminar
- 2 IAEs & 1 Model exam
- Individual mentoring session for every student
- Individual presentations on a general topic of current affairs/News
- A session on counselling
- Individual Counselling
- Remedial sessions
- Individual Parents meeting
- NPTEL Course 1
- Industry Visit

Semester II

- Training Program on Personality development- Role of positive Thinking in life (one day) by a trainer
- A fun packed competition (a game/troll/puzzle) to enhance current affairs and thought process of students organised by teachers (TICSAS)
- 2 IAE's
- Remedial sessions
- Individual mentoring session for every student

- Individual presentations on a general topic related to Computer Science
- Counselling sessions
- PTA meeting
- Alumni interactions

Semester III

- NPTEL Course 2
- A seminar presentation competition on a technical topic for 5 minutes with one minute for self-introduction. (TICSAS)
- Welcome Programme for juniors
- Mini project Selection

- A training programme (one day) with trainers
- Aptitude training for Placement 30 hours
- An Individual presentation on a specific Technical Topic in Computer Science
- 2 IAE's and improvement exam
- Remedial sessions
- Counselling sessions
- Individual Parents meeting
- Industry Visit Mini project training weekly/7hours
- Academic seminar topic selection.
- Study Tour

Semester IV

- Main project Selection
- Academic seminar
- Counselling sessions
- CRL presentation
- Main project 3 internal reviews (2 with guide and one with a faculty other than guide)
- Viva Voce
- Mentoring

Consolidated Scheme of MCA – I to IV Semesters

Semester I

Course Code	Course Title	No of hours per week		Continual Evaluation (Marks)	University Evaluation (Marks)	Total Marks	No. of Credits
		L	P				
MCA 101	Mathematical & Statistical foundation for Computer Applications	4	-	25	75	100	
MCA 102	Digital Logic & Computer Organization	4	-	25	75	100	
MCA 103	Structured programming in C	4	-	25	75	100	
MCA 104	Software Engineering and Object oriented modeling	4	-	25	75	100	
MCA 105	Database technology and NoSql	4	-	25	75	100	
MCA 106	Database technology Lab(Mysql & Mongodb)	-	4	25	75	100	
MCA 107	Software Development Lab- I(C programming)	-	4	25	75	100	
MCA 108	Employability Skill Training-Phase 1	2	-	50	0	50	
Total		22	8			750	

Semester II

Course Code	Course Title	No of hours per week	Continual	University	Total Marks	No. of
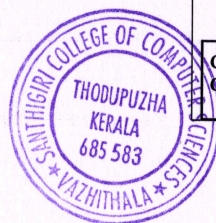
Course Code	Course Title	L	P	Evaluation (Marks)	Evaluation (Marks)	Total	Credits
MCA 201	Optimization Techniques for Computer Applications	4	-	25	75	100	
MCA 202	Data structures and Algorithm Analysis	4	-	25	75	100	
MCA 203	Computer Networking with TCP/IP	4	-	25	75	100	
MCA 204	Data Science & Big data Analysis	4	-	25	75	100	
MCA 205	Object oriented Lab(Java Lab)	-	6	25	75	100	
MCA 206	Software development lab-II (PHP)	-	4	25	75	100	
MCA 207	Data structures Lab using C	-	4	25	75	100	
MCA 305	Data Science Lab using Python		4	25	75	100	
MCA 306	Advance OS Lab using Linux	-	4	25	75	100	
MCA 307	Mini Project	-	4	100	-	100	
MCA 308	Employability Skill -Phase 2	2	-	50	0	50	
Total		18	12			750	

| Total | | L 16 | P 14 | | | 700 | |

Semester III

Course Code	Course Title	No of hours per week L	No of hours per week P	Continual Evaluation (Marks)	University Evaluation (Marks)	Total Marks	No. of Credits
MCA 301	Machine Learning Techniques	4	-	25	75	100	
MCA 302	Cyber Forensics	4	-	25	75	100	
MCA 303	Elective-1	4	-	25	75	100	
MCA 304	Elective-2	4	-	25	75	100	

Elective 1		Elective 2	
MCA 303_EL1	AI	MCA 304_EL1	Cloud computing
MCA 303_EL2	ERP	MCA 304_EL2	Data Security
MCA 303_EL3	Computer Graphics And Multimedia	MCA 304_EL3	Business Management And Information System
MCA 303_EL4	Digital Image Processing	MCA 304_EL4	IOT

Semester IV

Course Code	Course Title	No of hours per week L	No of hours per week P	Continual Evaluation (Marks)	University Evaluation (Marks)	Total Marks	No. of Credits
MCA 401	Seminar	3		50	-	50	
MCA 402	Main Project		-	150	150	300	
MCA 403	Course Viva		-		100	100	
Total						450	
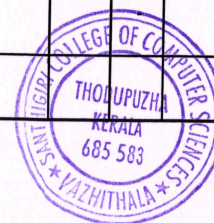
Second Semester
Duration and Subjects

This semester is planned to commence on 19/02/2024 and the regular classes supposed to be conclude by 15/5/2024
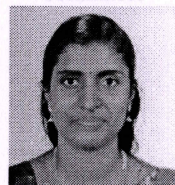
S1 MCA Faculties

Subject	Facilitator	Contact Number
Optimization Techniques for Computer Applications	Ms. Siji Antony	9947868535
Data structures and Algorithm Analysis	Mr. Gibin George	9744524459
Computer Networking with TCP/IP	Ms. Leema George	9745955148
Data Science & Big data Analysis	Dr. Neetha Thomas	9539993761
Object oriented Lab(Java Lab)	Ms.Neena Raj	6282920549
Software development lab-II (PHP)	Ms.Dalbina Dalan	9847545698
Data structures Lab using C	Mr. Gibin George	9744524459

MCA CT 201 Optimization Techniques for Computer Applications

COURSE OUTCOME (CO'S)	Facilitators
CO1-To Familiarize participants with the scope and applications of Operations Research CO2-To impart basic insights to students about use of various Scientific Tools and Models in Operations Research CO3- To provide basic insights into different applications in Operations Research	 **Ms. Siji Antony** **9947868535**

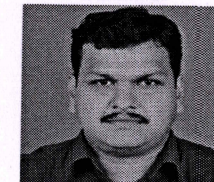| Module No.	Title & Contents	No. of Sessions
1	Introduction to OR-The origin and development of OR, Nature and uses of OR, Modelling in OR Introduction to Linear Programming-Mathematical formulation of Linear Programming Problem, Graphical solution, special cases of graphical method	7
2	Solving LPP-The simplex method-slack and surplus variables, the simplex method ,special cases in simplex method Artificial variable-use of artificial variable, Big M method Duality in LPP, Dual-simplex method	12
3	Transportation Problem-Introduction, The transportation Table, Loops in Transportation Table, Solutions of Transportation Problem, Finding an initial basic feasible solution, Degeneracy in T.P, MODI method, maximization in T.P Assignment Problem-Introduction, Hungarian method, maximization in Assignment Problem. The Travelling Salesman problem.	10
4	Game Theory- basic terms, Two-person zero sum game, saddle point, strategy, games with saddle point, maximin - minimax principle, games without saddle point-mixed strategy, arithmetic method , graphical method for 2*n and m*2 games, Dominance principle-solving m*n game Queueing Theory-queueing system, elements of queueing system, characteristics of queueing system, classification of queueing models, problems of model1 only.	9
5	Networking analysis- introduction, basic terms, rules of network construction, Critical Path Method(CPM), Programme Evaluation and Review Technique(PERT). Simulation-simulation concepts, basic ideas of Monte-Carlo simulation. Sequencing-models-basic terms, processing n jobs through 2 machines, processing n jobs through 3 machines.	10

Text Books & References
1. Operations Research: Kanti Swarup, P.K Gupta and Man Mohan,14 th edition
2. Operations Research: S Kalavathy, 2nd edition.
3. Operations Research: Hillier, Liberman 4. Operations Research: An Introduction: Taha H.

MCA CT 202 Data structures and Algorithm Analysis

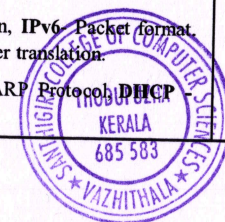| COURSE OUTCOME (CO'S)	Facilitator
CO1 - To impart the basic concepts of data structures, algorithms and the analysis phase of algorithms. CO2 - To Understand basic concepts, implementation and applications of stacks, queues, lists, trees and graphs · CO3-To understand concepts about searching and sorting techniques CO4 - To be familiarized with various algorithm design strategies. CO5- To choose the appropriate data structure and algorithm design method for a specified application.	 **Mr.Gibin George** **9744524459**

Mod. No.	Title & Contents	No. of Sessions
1	**Introduction:** Data Structures, Concepts of Data Structures, Implementation of Data Structures. **Algorithms:** Definition, Performance analysis– Space complexity, Time complexity-Asymptotic notation, Practical Complexities, Performance Measurement. **Arrays:** Ordered lists – representation of array, polynomial addition. **Stacks and Queues:** Definition and concepts, Operations on stacks. Application of stacks- Evaluation of arithmetic expression, infix to postfix conversion, evaluation of postfix expressions. Queue:- representation of queue, Operations on queue, Circular queue, Deque, Priority queue, Application of queues.	10
2	**Linked List:** Singly linked list- Insertion, deletion, traversing and searching. Linked stacks and queues, Doubly linked list- Insertion, deletion, Traverse and Search operations. **Trees :** Basic terminology, binary trees, binary tree representation, algebraic expressions, binary tree traversals, Binary Search Tree –Insertion and Searching, Balanced Trees – AVL Tree. **Graphs:** Terminology and representations, Traversals- BFS, DFS.	10
3	**Searching and Sorting:** Searching – Linear search, Binary search, Comparison of both methods. **Sorting** – Insertion, Selection, Heap, Radix, Comparison of various sorting methods. **Hashing:** Hashing Concept, Hash functions, Collision Resolution	8
4	**Divide and Conquer method** – General method, Finding the maximum and minimum, Analysis of Binary search, Quick sort and Merge sort. **Greedy Method**– The general method, Knapsack Problem, Minimum cost spanning tree- Prim's algorithm and Kruskal's algorithm.	10
5	**Dynamic programming Method**- General method, Multistage graphs, All pairs shortest paths. **Backtracking:**-The general method, The 8-Queens problem. **Branch and Bound**-General Method, Least Cost search, control abstraction for LC search. Lower Bound Theory- Comparison Trees for Ordered searching, Sorting.	10

Text Books & References

1. Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia , 1994)
2. Data Structures (Schaum's Outline Series) by Lipschutz Seymour, Tata Mcgraw-hill
3. Classic data structures – D Samanta, 2 Edn. (PHI, 2009)
4. Fundamentals of computer algorithms- Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajeshekharan(Universities Press , 2008)

5. Data Structures – a pseudocode approach with C –Richard F Gilberg, Behrouz A Forouzan,Thomson Learning, 2 Edn., Cengage Learning C 2005
6. Data Structures Through C in Depth, S.K. Srivastava, Deepali Srivastava, (BPB Publications,2003).

MCA CT 203	Computer Networking with TCP/IP

COURSE OUTCOME (CO'S)

- CO1 - To understand the functionality of a reference model for data communication.
- CO2 - To understand the various protocols of different layers.
- CO3 - Allow the student to gain expertise in some specific areas of networking such as the design andmaintenance of individual networks.
- CO4 -Introduce the student to advanced networking concepts, preparing the student for entry to Advancedcourses in computer networking
- CO5 - To understand the basic concept of socket programming and client server model.

Facilitator

Ms. Leema George
9745955148

Mod. No.	Title & Contents	No. of Sessions
1	**Networking Models:** The OSI ref. Model, Layers in the OSI Model, TCP/IP protocol Suite, Comparison of the OSI and TCP/IP ref. Models, Addressing. **Physical Layer and functions. Data Link Layer:** Need for data link control, Framing, flow control - stop and wait, sliding window protocol, error detection - parity check, CRC, Error control - Stop and wait ARQ, Go back-N ARQ, Selective Repeat ARQ	8
2	**Wired LAN:** IEEE Standards-Frame Format-Addressing-Ethernet evolution. **Wireless LANS:** IEEE802.11, MAC Sub layer, Addressing Mechanism, Bluetooth-Architecture, Frame format, **Switched WANS:** X.25, ATM-ATM Architecture, ATM Layers. **Network Layer:** Introduction, Switching-Circuit switching, Packet switching, connection oriented and connectionless service, services provided by network layer.	10
3	**Network layer protocols**- Network Layer: **IP addressing**, IPv4 Addresses-Introduction, Classful addressing, Classless addressing. IPv6 Addresses-Introduction, Address space Allocation. **Internet Protocol (IPv4)** Datagram format, Fragmentation, **IPv6** Packet format, Transition from IPv4 to IPv6- Dual stack, Tunneling, Header translation. **Address mapping protocols:** ARP-Address Mapping, ARP Protocol, **DHCP** Introduction, Configuration.	12

	Error Reporting protocol: ICMP-Introduction, Messages, **ICMPv6** Introduction, Error Messages, Information messages,Neighbour Discovery messages, Group Membership message. **Routing Protocols**- Introduction,Intra understand the operation of various protocol and Inter domain routing, distance vector routing algorithm, **RIP –** message format, RIP Timers, Link state Routing, **OSPF**-Areas, Types of Links, OSPF packets, Link state update packet, Path vector routing, **BGP –** external and Internal BGP , Types of packets	
4	**Transport Layer**: Services, Transport - layer protocol. **UDP**: User Datagram, UDP Services, And use of UDP.**TCP**: TCP Services, TCP features, TCP Segment Header,TCP Connection management, Flow Control, Error Control, TCP Congestion control, TCP timers.	10
5	**Application Layer: Domain Name System (DNS)** - Name space, DNS in the Internet, Resolution, DNS messages, Types of Records. **TELNET** -Time sharing Environment, Network virtual terminal, Embedding, options, **File Transfer Protocol(FTP)** -Connection, Communication, Command Processing, File transfer, Anonymous FTP, **World Wide Web**-Architecture, Web documents, **HTTP**-- HTTP transaction, Message formats, Persistent and Non persistent connection. **Electronic Mail**: - Architecture, User Agent, Message Transfer Agent (SMTP), Message Access Agent:POP, IMAP. Web-based mail.	8

Text Books & References

1. Data and Computer Communications – William Stallings, Eighth Edition.
2. Behrouz A. Forouzan - Data Communications and Networking- Fourth Edition- Tata McGraw Hill.
3. Behrouz A. Forouzan – TCP/IP Protocol Suite- Fourth Edition- Tata McGraw Hill.
4. Andrew S Tanenbaum- Computer Networks – Third Edition- PHI.

MCACT 204 Data Science & Big Data Analysis

COURSE OUTCOME (CO'S)	Facilitator
- CO1 - To Familiarize participants with the scope and applications of Big Data. - CO2-To impart basic insights to students about use of various Scientific Models in Data Science - CO3 - To provide basic insights into Big Data analysis through Data Mining .	**Dr. Neetha Thomas** **9539993761**

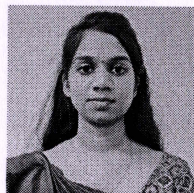| Mod. No.	Title & Contents	No. of Sessions
1	**Introduction to Data Mining** Introduction – Need for Data Mining – What Kinds of Data, Kinds of Patterns, Technologies, Applications and Issues - Data Objects and Attribute Types Data - Basic Statistical Descriptions of Data - Data Visualization - Measuring Data Similarity and Dissimilarity - Data Pre-processing-An overview, Data Cleaning, Data Integration, Data Reduction- Overview, Attribute subset selection, Feature creation, Data Transformation and Discretization, OLTP vs OLAP.	9
2	**Mining Frequent Patterns, Associations, and Correlations: Basic Concepts and Methods** Basic Concepts-Market Basket Analysis, Frequent Itemsets, Closed Itemsets and Association Rules, Frequent Itemset Mining Methods - Apriori Algorithm: Finding Frequent Itemsets by Confined Candidate Generation, Generating Association Rules from Frequent Itemsets, Improving the Efficiency of Apriori, A Pattern- Growth Approach for Mining Frequent Itemsets, Mining Frequent Itemsets Using the Vertical Data Format, Mining Closed and Max Patterns, Classification- Basic Concepts, General Approach to Classification, Cluster Analysis- Basic Concepts, Requirements for Cluster Analysis, Overview of Basic Clustering Methods	11
3	**Introduction to Data Science** Benefits and uses of data science and big data, Facets of data, The data science process, The data Science Process- Defining goals, Retrieving Data, Cleansing and Transforming data, Exploratory Data analysis, Build Models, Visualization. **Understanding Big Data** - What is big data; why big data – convergence of key trends – unstructured data – Industry examples of big data – web analytics – big data and marketing – fraud and big data – risk and big data – credit risk management – big data and algorithmic trading – big data and healthcare – big data in medicine advertising and big data – big data technologies.	10
4	**Overview of Big Data, Techniques**: Structuring Big Data, Elements of Big Data,Big Data Analytics –Introducing Technologies for Handling Big Data : Hadoop, Cloud computing and Big data, In-memory computing - Understanding Hadoop Ecosystem: HDFS, MapReduce, Hbase, Understanding MapReduce fundamentals	9
5	**Storing Data in Databases and Data Warehouses**: RDBMS and Big Data, Non-Relational Database issues, Polyglot Persistence, Integrating Big Data with Traditional Data Warehouses - Processing Your Data with MapReduce: Developing Simple MapReduce Application - Understanding Hadoop YARN Architecture: Advantage, Architecture, Working , YARN Schedulers – Introducing Hive, Getting Started with Hive, Hive Services, Data Types in Hive, Built-In Functions in Hive.	9

Text Books & References

1. Jiawei Han, Micheline Kamber and jain Pei "Data Mining Concepts and Techniques" Third Edition,Elsevier, (c) 2012.
2. Davy Cielen, Arno D.B. Meysman, Mohamed Ali "Introducing Data Science" 2nd edition, 2016.
3. DT Editorial Services,BIG DATA, Black Book: Covers Hadoop 2, MapReduce, Hive, YARN, Pig,R and Data Visualization.
4. Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, "Big Data, Big Analytics: EmergingBusiness Intelligence and Analytic Trends for Today's Businesses", Wiley, 2013.
5. G. K. Gupta "Introduction to Data Mining with Case Studies", Easter Economy Edition, PrenticeHall of India, 2006.
6. Eric Sammer, "Hadoop Operations", O'Reilley, 2012.
7. Tom White, "Hadoop: The Definitive Guide", Third Edition, O'Reilley, 2012.
8. Bill Schmarzo, "Big Data : Understanding How Data Powers Big Business", Wiley, 2013
9. The Apache HBase HandBook Online : http://hbase.apache.org/book.html

MCA CP 205 Object oriented Lab(Java Lab)

COURSE OUTCOME (CO'S)	Facilitator
➢ CO1 - Familiarize students with the scope and applications of object oriented concepts and techniques. ➢ CO2 - Create Java application programs using exceptions, threads and interfaces. ➢ CO3 - Learn the database connectivity through API programming. ➢ CO4 -Develop GUI applications to analyse the real world problems.	Ms.Neena Raj 6282920549

Mod. No.	Title & Contents	No. of Sessions
1	**Basics of Java:** Programming concepts, Array implementation, Strings, Reading input from keyboard **Introduction to Object Oriented Programming concepts :** Classes, Methods, Constructors, access specifiers, Encapsulation, Polymorphism, Method & constructor overloading, Inheritance and its different types, super keyword, abstraction through abstract classes.	17
2	**Interfaces and Packages-** Built in and user defined packages, access protection in packages **Exception handling-** basic concepts, types of exception, user defined exception **Multithreading Programming -** Defining threads, Life cycle, creating single and multiple threads, Thread priorities, Synchronization **File handling -** Built in methods, Reading , writing, copying and appending a file.	16
3	**Applets -** Basics, Life cycle, applet methods, applet tag, passing parameters to applet, adding image file to applet, **Working with Graphics, AWT Controls and Text :** Graphics programming, Color class, Font class, Font Metrics **Swings -** Introduction, Hierarchy of classes, Controls with event handling	18
4	**Layout Managers ,Menus -**Menubars, submenus, Dialog boxes, File Dialog **Database Connectivity -** JDBC overview, JDBC implementation & its architecture, Establishing connectivity and working with connection interface, Working with statements, Creating and executing SQL statements, Working withResult Set	11
5	**Networking-**Socket programming, TCP/IP, Datagram, Multicast **Developing a GUI application**	10

Text Books & References

1. Java The Complete Reference , Herbert Schildt 7th Edition. Tata McGraw-Hill Edition
2. Object Oriented Programming With Java, E.Balagurusamy 5th Edition, McGraw-Hill Education
3. Core Java VolumeII -Advanced Features, Cay S Horstmann and Gary Cornell,9th Edition,Pearson
4. Java Networking Programming, Elliotte Rusty Harold, 4th Edition,O'REILLY
5. Core Java For beginners, Rashmi Kanta Das, Revised Edition, Vikas Publishing House Pvt.Ltd
6. Programming with Java, Dr.T.V Suresh Kumar, Dr,B.Eswara Reddy, Raghavan P,First EditionPearson
7. Introduction to Object Oriented Programming through Java, First Edition, ISRD Group,TataMcGraw Hill
8. A Text book on Object Oriented Design and Programming using Java, Divya B, Neena V.V andAkhil Paulose, First Edition
9. Online Resources : https://www.oracle.com/in/java/technologies/javase-downloads.html, https://docs.oracle.com/javase/tutorial/

MCACP 206 Software development lab-II (PHP)

	Facilitator
o CO1 - To understand the general concepts of PHP scripting language for the development of Internetwebsites. o CO2-To understand the basic functions of MySQL database program. o CO3-To learn the relationship between the client side and the server side scripts. o CO4-To develop a basic understanding about software development framework. o CO5-To understand the concepts of semantic web and web hosting..	Ms.Dalbina Dalan 9847545698

Module No.	Title & Contents	No. of Sessions
1	**PHP: I**ntroduction, Variables, echo / print , Data types , Strings , Constants , Operators , Control structures: Functions, Arrays, Super-global variables Implementing .**object-oriented programs using PHP**: Creating classes and accessing class members in different php pages, inheritance.	10
2	**PHP Forms**: Form handling, form validation, form required, Form Complete,Date and time, Cookies, Sessions. **File Handling in PHP, File Upload, Sending Email.**	12
3	**PHPMyAdmin** : db management in PHPMyadmin (create, drop, rename), tablemanagement (create, drop, rename, setting primary key, auto increment, default values, null),import data to the db (CSV/SQL**)**, export data from db(CSV/SQL). **Connecting MySql from PHP:** mysqli_Connect, mysqli_querry(create, insert, update, delete, limit data) ,mysql_close,	8
4	**JavaScript**- Variables, Operators, Functions, Event Handling, Form Validationusing JavaScript. **AJAX**- submitting a section of a page using AJAX Sorting, Indexing & Create Backup	6
5	**Introduction to PHP frameworks**- Introduction to MVC architecture, Laravel, Basic features, Creating projects using Laravel, Mini Project. **Introduction to Semantic Webs:-** What is semantic web?, RAP: RDF API for PHP. **Introductionto Web Hosting**: Demonstration of how to host a php project on a server	12

Text Books & References

1. Web Programming, Chris Bates, 3 rd Edition; Pub: John Wiley & Sons
2. The complete reference PHP, Holzner; 1st Edition McGraw Hill Education,
3. https://github.com/PHPMailer/PHPMailer
4. Official Laravel Documentation https://laravel.com/docs/7.x
5. https://www.phptpoint.com/laravel-tutorial/

6. https://www.tutorialandexample.com/creating-first-laravel-project/
7. http://wifo5-03.informatik.uni-mannheim.de/bizer/rdfapi/tutorial/introductionToRAP.htm
8. https://o7services.com/blog/2019/12/21/upload-php-project-on-server-php

MCACP 207 **Data structures Lab using C)**

COURSE OUTCOME (CO'S)	Facilitator
• CO1- Develop skills to design simple linear and nonlinear data structures • CO2-Be capable to identity the appropriate data structure for a given problem · • CO-3 Have practical knowledge on the applications of data structure.	**Mr.Gibin George** 9744524459
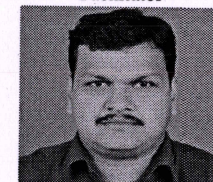
Module No.	Title & Contents	No. of Sessions
1	**Arrays, Stacks and Queues:** • Demonstrate polynomial addition. • Implementation of stack • Conversion of an infix expression to postfix expression • Evaluating a postfix expression • Implementation of linear queue. • Implementation of circular queue.	16
2	**Linked List, Trees** • Implementation of linked list and performing insertions and deletions at bothends and also in between • Implementation of linked stack • Implementation linked queue • Implementation of a doubly linked list • Creation of binary tree and binary search tree and performing the traversals	26
3	**Searching and Sorting** • Demonstrate linear search and binary search. • Demonstrate various sort algorithms – insertion sort, merge sort, quick sort andheap sort	6

Text Books & References

1. Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia , 1994)
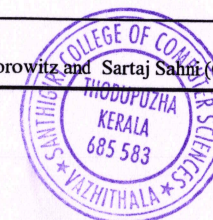
2. Data Structures (Schaum's Outline Series) by Lipschutz Seymour, Tata Mcgraw-hill
3. Classic data structures – D Samanta, 2 Edn. (PHI, 2009).

Academic Calendar

| Date	Day		Event
19-02-2024	Monday		Semester Begins
20-02-2024	Tuesday		
21-02-2024	Wednesday		
22-02-2024	Thursday		
23-02-2024	Friday		Assignment 1: OT
24-02-2024	Saturday		
25-02-2024	Sunday		
26-02-2024	Monday		
27-02-2024	Tuesday		
28-02-2024	Wednesday		Assignment 1:DSAA
29-02-2024	Thursday		
01-03-2024	Friday		
02-03-2024	Saturday		
03-03-2024	Sunday		
04-03-2024	Monday		
05-03-2024	Tuesday		Holy Mass
06-03-2024	Wednesday		
07-03-2024	Thursday		
08-03-2024	Friday		Sivarathri
09-03-2024	Saturday		
10-03-2024	Sunday		
11-03-2024	Monday		
12-03-2024	Tuesday		
13-03-2024	Wednesday		Assignment 1:TCP/IP
14-03-2024	Thursday		
15-03-2024	Friday		
16-03-2024	Saturday		
17-03-2024	Sunday		
18-03-2024	Monday		
19-03-2024	Tuesday		
20-03-2024	Wednesday		IAE1-OT
21-03-2024	Thursday		IAE1-DSAA
22-03-2024	Friday		IAE1-TCP/IP
23-03-2024	Saturday		
24-03-2024	Sunday		
25-03-2024	Monday		IAE 1-BD
26-03-2024	Tuesday		
27-03-2024	Wednesday		
28-03-2024	Thursday		Maundy Thursday
29-03-2024	Friday		Good Friday
30-03-2024	Saturday		
31-03-2024	Sunday		Easter
01-04-2024	Monday		
02-04-2024	Tuesday		Holy Mass
03-04-2024	Wednesday		
04-04-2024	Thursday		
05-04-2024	Friday		
06-04-2024	Saturday		
07-04-2024	Sunday		
08-04-2024	Monday		IAE1-Result Publishing
09-04-2024	Tuesday		
10-04-2024	Wednesday		Eid al-Fitr
11-04-2024	Thursday		
12-04-2024	Friday		
13-04-2024	Saturday		
14-04-2024	Sunday		
15-04-2024	Monday		Assignment1:BD
16-04-2024	Tuesday		
17-04-2024	Wednesday		
18-04-2024	Thursday		PTA meeting
19-04-2024	Friday		
20-04-2024	Saturday		
21-04-2024	Sunday		
22-04-2024	Monday		
23-04-2024	Tuesday		
24-04-2024	Wednesday		IAE2-OT
25-04-2024	Thursday		IAE2-DSAA
26-04-2024	Friday		IAE2-TCP/IP
27-04-2024	Saturday		
28-04-2024	Sunday		
29-04-2024	Monday		IAE2-BD
30-04-2024	Tuesday		
1-05-2024	Wednesday		
2-05-2024	Thursday		
3-05-2024	Friday		
4-05-2024	Saturday		
5-05-2024	Sunday		
6-05-2024	Monday		
7-05-2024	Tuesday		
8-05-2024	Wednesday		
9-05-2024	Thursday		
10-05-2024	Friday		IAE2 Result Publishing
11-05-2024	Saturday		
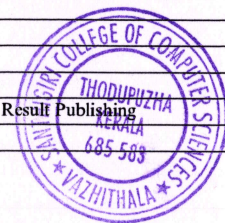
12-05-2024	Sunday		
13-05-2024	Monday		
14-05-2024	Tuesday		
15-05-2024	Wednesday		Semester Ending

HEAD OF THE DEPARTMENT
DEPT. OF COMPUTER SCIENCE
SANTHIGIRI COLLEGE OF COMPUTER SCIENCES
VAZHITHALA P.O, THODUPUZHA
IDUKKI, KERALA - 685 583

SANTHIGIRI COLLEGE

Affiliated to MG University and Approved by AICTE

CORE VALUES OF SANTHIGIRI COLLEGE

OUR VISION

Awakening to the Future. Awaken this generation to the gauntlet of tomorrow.

OUR MISSION

Holistic and Integral development of the individual rooted in faith in God, justice, knowledge and human values.

OUR MOTO

Quality and Excellence

As individuals we have our fundamental beliefs and ideals. So too every organization or institution should have certain guiding principles that paves the way for greater success. They are the Core values. Holistic and integral development of the students of Santhigiri College is actualized through the core values of our institution. By internalizing and living the core values our students are enabled to attain the mission of our college. Their personal values will be made consistent with the core values of the college.

1. Faith in God

Faith is the conscious knowledge and ultimate acceptance of the divine authority of God. Faith is based on a deep personal understanding of religious teachings. Santhigiri College exhorts the students to practice the religion to which they belong ardently. Faith in God and practice of one's religion will emulate deep spirituality that is inherent in Indian culture, which will make them more humane.

2. Commitment

Commitment is the willingness to give your time and energy to a job, activity, or something that you believe in: something that you must do. The commitment of the teachers and students of Santhigiri College in their own fields of activity is promoted and ensured.

3. Integrity

Adhering to ethical principles in life is integral to the personality of an individual and this is integrity. We do what we say. Our students are trained to behave ethically and practice honesty and justice in all their inter-personal interactions and maintain integrity in their lives.

4. Excellence

'Be the best among the best' is an ambitious goal. Santhigiri College strives assiduously for excellence. Excellence with tangible results that trespasses the mediocrity at all levels of education is our goal. It can be attained by providing an experience of high quality through the promotion of excellence in teaching and learning

5. Social Responsibility

Santhigiri College with its unique background of evolution in alignment with rehabilitation of persons with disabilities proves the unparalleled social responsibility it has inherited from its inception. Serving the community, especially the marginalized sections of the society by responding to social issues is a critical component of a socially responsible institution. We imbue our students to involve in charitable interventions to acquire social awareness and social responsibility
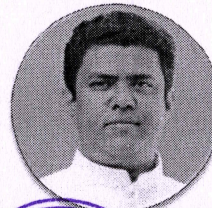
MANAGER

Rev. Fr. Paul Parakattel CMI

PRINCIPAL

Rev. Fr. Prof. Dr. Baby Joseph CMI

BURSAR

Rev. Fr. Shinto Kannukettiyil CMI

PROGRAM OUTCOME (PO'S)

By the time of graduation, graduates will attain the following.

PO1 Computational Knowledge: Understand and apply mathematical foundation, computing and domain knowledge for the conceptualization of computing models from defined problems.

PO2 Communication Efficacy: Communicate effectively with the computing community as well as society by being able to comprehend effective documentations and presentations.

PO3 Logical and Analytical skill: Enhances Logical reasoning skills, arithmetic skills, and aptitude skills communication skills, self-confidence for better employability in IT field.

PO4 Modern Tool Usage: Ability to select modern computing tools, skills and techniques necessary for innovative software solutions

PO5 Design / Development of Solutions: Ability to transform complex business scenarios and contemporary issues into problems, investigate, understand and propose integrated solutions using emerging technologies and manage projects in multidisciplinary environments.

PO6 Critical Thinking: Apply knowledge of Computer Science to identify, analyze problems and to provide effective solution in the area of Computing.

PO7 Societal & Environmental Concern: Ability to recognize economic, environmental, social, health, legal, ethical issues, cyber regulations involved in the use of computer technology and develops the youth with social commitments.

PO8 Professional skills& Team Work: Ability to work as a member or leader in diverse teams in multidisciplinary environment and practice the responsibilities relevant to professional practice.

PO9 Self directed and Life-long Learning: Engaged in lifelong learning to equip them to the changing environment and be prepared to take-up masters, and Inculcate skills to excel in the fields of Information Technology, Government and Private sectors, teaching and Research.

Head of Department
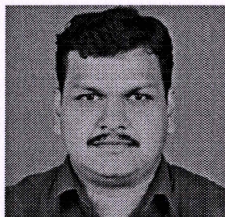
Mr. Gibin George

Class Tutor

Ms. Dalbina Dalan

Program Specific Outcome (PSOs)

The student will be able to:-

PSO1 Apply probability, statistics, mathematics through differential and integral calculus, use algorithms, data structures/management, software design, concepts of programming languages and computer organization & architecture.

PSO2 Develop Communication Skills both oral and written Communication and about students to communicate effectively and to improve their competency skills to solve real time problems.

PSO3 Analyze a problem, Ability to design, and define the computing requirements, develop algorithms and provide software solutions to cater the industrial needs.

PSO4 The program prepares the young professional for a range of Computer Applications, Computer Network, E-commerce Application, Web Designing, Big Data, IOT, Python and Advance JAVA by mastering the Programming Languages such as C, CPP, JAVA, PHP and Python.

PSO5 Be acquainted with the contemporary issues and latest trends in technological development, attain the ability to design and develop computer applications, evaluate and recognize potential risks and provide innovative new ideas and solutions to existing problems.

PSO6 Demonstrate critical thinking skills in understanding problems and technical issues related to the various subjects and training Programs conducted during the period of study.

PSO7 The students will become integral human being in the society with Human Values, Ethics and moral Principles and have a concern over the society and are able to design and develop reliable software applications for social needs.

PSO8 To enrich team work, professional and leadership skill, assessment skills, problem solving skills, respect for diversity, intervention skills, documentation skills, organizational skills, understanding of human relationships and perform professionally with social, cultural and ethical responsibility as an individual as well as in multifaceted teams with positive attitude.

This semester is planned to commence on 18-01-2024 and the regular classes supposed to be conclude by the end of April.

This semester comprises of six subjects
1. **English II**
2. **Discrete Mathematics**
3. **Data Base Management System**
4. **Computer Organization and Architecture**
5. **Object Oriented Programming Using C++**
6. **Software Lab II**

Programming Lab for this semester is intended to familiarize the students with Data Base Management and Programming Language C++.

Examination System

a) Marks of external Examination: 80
b) Marks of internal evaluation: 20

All the three components of the internal assessment are mandatory.

Marks of Theory- Internal Evaluation

Components of Internal Evaluation	Marks
Attendance	5
Assignment /Seminar/Viva	5
Test paper (2x5=10)	10
Total	20

Marks of Practical- Internal Evaluation

Components of evaluation	Marks
Attendance	4
Record	10
Lab involvement	6
Total	20

Attendance Evaluation

Theory		Practical	
% of Attendance	Marks	% of Attendance	Marks
90 and above	5	90 and above	4
85 – 89	4	85—89	3
80-84	3	80—84	2
76-79	2	75-79	1
75	1		

Training, Placement and Co-Curricular Activities Specific to S2 BCA

- Subject Assignments

- NPTEL

- A Video presentation competition on a technical topic for 5 minutes with one minute for self-introduction.

- Personality Development Training.

- Aptitude Training.

- Resume Preparation

- An Individual presentation on a specific Technical Topic in computer Science.

- Remedial Sessions.

- Mentoring

- Counselling

- Holistic Education Classes

- Alumni Interactions

- Seminar Day-General Topic

ENGLISH II

COURSE OUTCOME (CO'S)

Upon the completion of the course the student will be able

CO1. Identify the psychological burden and human cost of war

CO2. Recognize realities without fear of peer pressure or censure

CO3. Analyze connection between theoretical learning in classrooms to current developments in the world and relate to their everyday experiences

CO4. Discuss the serious need to preserve the natural resources

CO5. Determine various notions of refugee problem to get a better understanding of refugee category

CO6. Criticize the treatment of marginalized communities all over the world

Facilitator
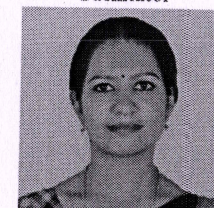
Ms. Merin Seban
8547933433

Syllabus

Module 1

1. The Unsurrendered People - Kenzaburo Oe

2. The Old Prison – Judith Wright

3. War– Luigi Pirandello

Module 2

4. Persuasions on the Power of the Word - Salman Rushdie Peril - Toni Morrison

5. The Burning of the Books- Bertolt Brecht

6. The Censors – Luisa Valenzuela

Module 3

7. "The Poisoned Bread" – Bandhumadhav

8. "A Westward Trip" –Zitkala-Sa

9. "The Pot Maker" – Temsula Ao

Module 4

10. Does it Matter – Richard Leakey (18hours) (18hours)

11. On Killing A Tree - Gieve Patel

12. Hagar: A Story of a Woman and Water – Sarah Joseph

Module 5

13. Understanding Refugeeism: An Introduction to Tibetan Refugees in India

14. Refugee Blues – W. H. Auden

15. The Child Goes to the Camp(from Palestine's Children)– GhassanKanafani Core

Text: **ISSUES THAT MATTER**

Discrete Mathematics

COURSE OUTCOME (CO'S)

Upon the completion of the course the student will be able

CO1. Understand the use of graphs as models

CO2. Demonstrate various types of trees and tree traversal

CO3. Evaluate matrix operations and solve application problems

CO4. Examine the ability to identify and solve computer engineering problems

CO5. Apply knowledge of mathematics

Facilitator

Ms. Gisha Mathew
9446538378

Syllabus

Module I: Graphs
Graphs and Graph Models, Graph Terminology and Special types of Graphs,Representing Graphs and Graph Isomorphism, Connectivity, Euler and Hamilton Paths.

Text 1 Chapter 8 (Sections 8.1, 8.2, 8.3, 8.4 and 8.5 only)

Module II: Trees
Introduction to Trees, Application of Trees, Tree Traversal, and Spanning Trees.

Text 1 Chapter 9 (Sections 9.1, 9.2, 9.3 and 9.4 only)

Module III: Boolean Algebra
Boolean Function, Representing Boolean Functions and Logic Gates

Text 1 Chapter 10 (Sections 10.1, 10.2 and 10.3 only)

Module IV: Matrices
Definitions and examples of Symmetric, Skew-symmetric, Conjugate, Hermitian, Skewhermitian matrices. Rank of Matrix , Determination of rank by Row Canonical form and Normal form , Linear Equations, Solution of non homogenous equations using Augmented matrix and by Cramers Rule , Homogenous Equations, Characteristic Equation, Characteristic roots and Characteristic vectors of matix, Cayley Hamilton theorem and applications.

Text 2. Relevant Sections of Chapters 2, 5 , 10 , 19 and 23 (Proofs of all Theorems in Module IV are Excluded)

References
1. Clifford Stien, Robert L Drysdale, KennethBogart ; Discrete Mathematics for Computer Scientists; Pearson Education; Dorling Kindersley India Pvt. Ltd

2. Kenneth A Ross; Charles R.B. Wright ; Discrete Mathematics; Pearson Education; Dorling Kindersley India Pvt.Ltd

3. Ralph P. Grimaldi, B.V.Ramana; Discrete And Combinatorial Mathematics ; Pearson Education; Dorling Kindersley India Pvt. Ltd

4. Richard Johnsonbaugh; Discrete Mathematics; Pearson Education; Dorling Kindersley India Pvt.Ltd

5. Winfried Karl Grassman, Jean-Paul Tremblay; Logic And Discrete Mathematics A Computer Science Perspective ; Pearson Education; Dorling Kindersley India Pvt. Ltd
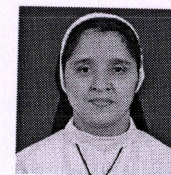

Data Base Management System

Facilitators

Sr. Dr. Bindu George
8547523879

Ms. Leema George
9745955148

COURSE OUTCOME (CO'S)

Upon the completion of the course the student will be able

CO1. Understand various advantages and features of Data base system

CO2. Determine the concepts of ER Model and ER Diagrams

CO3. Compare Relational Data Model with its constraints

CO4. Demonstrate on how to translate ER Model to relational Data Model

CO5. Formulate the concepts of Relational Algebra and SQL through access the data

CO6. Rank to normalize a relation

Syllabus

Unit 1: Introduction

Characteristics of the Database Approach – Database users :DBA , Database Designers ,End users – Advantages of using the DBMS Approach – Data models, Schemas , and Instances – Three- Schema Architecture and Data Independence. DBMS Languages: DDL, DML – The Database System Environment: DBMS Component Modules.

Unit 2: Relational Model

Entity Relationship Modeling: Introduction –Entity Types, Entity Sets, Attributes and Keys – Relationship Types, Relationship Sets, Roles, and Structural Constraints – Weak Entity Types – Notation for ER diagrams – Sample ER diagrams. Relational Model concepts: Domains, Attributes, Tuples, and Relations – Characteristics of Relations – Relational Model Constraints and Relational Database Schemas: Domain Constraints, Key Constraints, Relational Database Schemas, Entity Integrity, Referential Integrity, and Foreign Keys.

Unit 3: SQL

Data Types – Data Definition commands: CREATE, ALTER, DROP - Adding constraints in SQL-Basic SQL Queries: INSERT, SELECT, DELETE, UPDATE - Substring comparison using LIKE operator, BETWEEN operator – Ordering of rows – SQL set operations UNION, EXCEPT, INTERSECT - Complex Queries: Comparison involving NULL and Three-valued logic, Nested queries, EXISTS and UNIQUE functions, Renaming of attributes and Joining of tables, Aggregate functions, Grouping – Managing Views.

Unit 4: Normalization and Indexing Structures for Files

Normalization: Informal Design Guidelines for Relational Schemas –Functional Dependencies – Normal forms: First Normal Form, Second Normal Form, Third Normal Form – General Definitions of Second and Third Normal Forms –BCNF. Indexing Structures for files: -Types of Single-Level Ordered Indexes: Primary Indexes, Clustering Indexes, and Secondary Indexes.

Unit 5: Transaction Processing and Database Security

Transaction Processing: Introduction to Transaction Processing - Transaction and System Concepts – Desirable properties of Transactions. Database Security and Authorization: Types of Security – Control measures – Database Security and DBA – Access Control, User Accounts, and Database Audits –Access Control based on Granting and Revoking Privileges.

Books of study:
1.Ramez Elmasri and Shamkant B.Bavathe - DATABASE SYSTEMS , Sixth Edition, Pearson Education.
References:
1.   C.J Date- An Introduction to Database Systems, Eighth edition, Pearson Education,2003

2. Reghu Ramakrishnan and Johannes Gehrke- Database Management Systems , Third edition, Mc Graw Hill International Edition.
3. Dipin Desai , An Introduction to Database Systems , First Edition, Galgoria Publications .

Computer Organization and Architecture

COURSE OUTCOME (CO'S)

Facilitator

Upon the completion of the course the student will be able

CO1. Demonstrate computer architecture concepts related to design of modern processors

CO2. Analyze the performance of commercially available computers

CO3. Evaluate the efficiency of different memory units

CO4. Compare the detailed operation of a simple microprocessor, different processor architectures.

CO5. Design a pipeline for consistent execution of instructions with minimum problems

Ms. Dalbina Dalan
9847545698

Syllabus

Unit 1 :Basic computer Organization and Design:

Operational concepts, Instruction codes, Computer Registers, Computer Instructions, Memory locations and addresses, Instruction cycle, Timing and control, Bus organization.

Unit 2 :Central Processing Unit:

General Register Organization, Stack Organization, Addressing modes, Instruction Classification, Program control.

Unit 3: Memory Organization

Memory Hierarchy, Main Memory, Organization of RAM, SRAM, DRAM, Read Only Memory- ROM-PROM,EROM,EEPROM, Auxiliary memory, Cache memory, Virtual Memory, Memory mapping Techniques.

Unit 4: Parallel Computer Structures:

Introduction to parallel processing, Pipeline computers, Multi processing systems, Architectural classification scheme-SISD, SIMD, MISD, MIMD.

Unit 5: Pipelining and Vector processing:

Introduction to pipelining, Instruction and Arithmetic pipelines (design) Vector processing, Array Processors.

Book of study :

1. M.Morris Mano-Computer Systems Architecture, Third Edition, Pearson Education
2. Kai Hwang and F A Briggs-Computer Architecture and parallel processing, McGraw Hills,1990

Reference

1. Carl Hamacher -Computer Organization, Fifth Edition, Tata McGraw Hill.
2. John P Hayes -Computer Architecture & Organization–Mc Graw Hill
3. William Stallings-Computer Organization and Architecture , Seventh Edition, Pearson Education

Object Oriented Programming using C++

COURSE OUTCOME (CO'S)

Facilitator

Upon the completion of the course the student will be able

CO1. Understand the features of C++ supporting object oriented programming

CO2. Demonstrate the implementation of arrays and functions in cpp

CO3. Practice the various methods of usage and creation of destructors and constructors

CO4. Analyze the various oop concepts like inheritance, polymorphism etc

CO5. Understand the advanced file management concepts in oops with examples.

Ms. Remya R
8606472892

SYLLABUS

Unit 1: Principles of Object Oriented Programming, Beginning with C++

Procedure Oriented Programming-Object Oriented Programming-Basic concepts of object–oriented programming- Benefits of OOP- Applications of OOP-A simple C++program-Structure of C++ program-C++ data types- Symbolic constants- Reference by variables-Operators in C++- Operator precedence-Control structures- Function in C++ - The main function, Function prototyping- Call by reference- Return by reference- Inline function- Default arguments- Function overloading.

Unit 2: Classes and Objects

Specifying a class- Defining member functions- Nesting of member functions - Private member functions - Arrays within a class - Memory allocation for objects-Static data members - Static member functions -Arrays of objects - objects as function arguments -Friendly functions- Returning Objects.

Unit 3: Constructors and Destructors, Overloading

Constructors- Default constructor-Parameterized constructor-Copy constructor- Multiple constructors-Constructors with default arguments- Dynamic constructor-Destructors- Operator overloading- Unary and Binary operator overloading- Overloading using friends- Rules for overloading- Type conversion.

Unit 4: Inheritance

Inheritance - Defining derived classes-Visibility modes-Single, Multilevel, Multiple, Hierarchical and Hybrid inheritance- Virtual base classes- Abstract classes- Constructors in derived classes- Nesting of classes.

Unit 5: Pointers, Virtual Functions and Polymorphism, Working with Files

Pointers- Pointers to objects- this pointer-Pointers to derived classes- Virtual functions- Pure virtual functions- File Stream classes, Opening and closing a file- File opening modes- File pointers and their manipulations- Sequential input and output operations.

Book of Study:

1. E. Balagurusamy - Object Oriented Programming with C++, Fifth edition, Tata McGraw Education Hill , 2011.

Reference:

1. Ashok N. Kamthane, Object oriented Programming with ANSI & Turbo C++, First Edition, Pearson India
2. Robert Lafore, Object Oriented Programming in Turbo C++, First Edition, Galgotia Publications.
3. D Ravichandran, Programming with C++, Second edition, Tata McGraw- Hill.
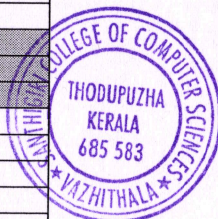
Software Lab II

Syllabus

CO1. Design a relational schema of a system using DDL statements
CO2. Understand and apply data manipulation commands using through DML commands
CO3. Learn DCL commands for access permission granting and revoking
CO4. Understand and apply transactional concepts through TCL Statements
CO5. Demonstrate the applications and uses of various constraints
CO6. Learn PL/SQL procedures to manipulate the data
C07. Understand the basic c++ concepts and the various problem techniques using object oriented concept.
CO8. Create the usage of functions and arrays in oops technology.
CO9. Practice about how the values initialized to objects using different constructors and destructors.
CO10.Analyze the core design principles of oops like polymorphism, inheritance, data hiding through examples.

I. SQL Commands (2 hrs. per week)
1. Data Definition Commands- CREATE, ALTER, DROP, Adding Constraints Primary key, foreign key, unique key, check, not null.
2. Basic SQL queries INSERT, SELECT, DELETE, UPDATE, Using multiple tables, ordering of rows using ORDER BY option, Set operations using UNION, EXCEPT, INTERSECT, Substring Comparison using LIKE operator, BETWEEN operator.
3. Complex Queries Nested Queries, EXISTS and UNIQUE/DISTINCT functions, NULL values, Renaming of attributes and Joining of tables, Aggregate functions and grouping.
4. Managing views, Simple stored procedures.
5. Data Control commands - Access Control and Privilege commands.
II. Object Oriented Programming using C++ (3 hrs. per week)
1. Programs based on default arguments, function overloading.
2. Programs based on array of objects, friend functions, passing objects as arguments to function.
3. Programs based on operator overloading (binary, unary) using member functions and friend functions.
4. Programs based on constructors, different types of constructors.
5. Programs based on inheritance, different types of inheritance.

Scheme of Evaluation for software lab II external is as follows: (There will be two questions; the first from DBMS and second from C++)

Academic Calendar

Date	Day	No.	Event
18-01-2024	Thursday	1	Semester Begins
19-01-2024	Friday	2	
20-01-2024	Saturday		
21-01-2024	Sunday		
22-01-2024	Monday	3	
23-01-2024	Tuesday	4	
24-01-2024	Wednesday	5	
25-01-2024	Thursday	6	
26-01-2024	Friday		Republic Day
27-01-2024	Saturday		
28-01-2024	Sunday		
29-01-2024	Monday	7	Assignment Submission-English II
30-01-2024	Tuesday	8	
31-01-2024	Wednesday	9	
01-02-2024	Thursday	10	
02-02-2024	Friday	11	
03-02-2024	Saturday		
04-02-2024	Sunday		
05-02-2024	Monday	12	Assignment Submission-Discrete Mathematics
06-02-2024	Tuesday	13	Holy Mass
07-02-2024	Wednesday	14	
08-02-2024	Thursday	15	
09-02-2024	Friday	16	
10-02-2024	Saturday		
11-02-2024	Sunday		
12-02-2024	Monday	17	Assignment Submission-Data Base Management System
13-02-2024	Tuesday	18	
14-02-2024	Wednesday	19	
15-02-2024	Thursday	20	
16-02-2024	Friday	21	
17-02-2024	Saturday		
18-02-2024	Sunday		
19-02-2024	Monday	22	Assignment Submission-Computer Organization and Architecture
20-02-2024	Tuesday	23	
21-02-2024	Wednesday	24	IAE1-English II
22-02-2024	Thursday	25	IAE1-Discrete Mathematics
23-02-2024	Friday	26	IAE1-Data Base Management System
24-02-2024	Saturday		
25-02-2024	Sunday		
26-02-2024	Monday	27	IAE1-Computer Organization and Architecture
27-02-2024	Tuesday	28	IAE1-Object Oriented Programming Using C++
28-02-2024	Wednesday	29	IAE1-Software Lab II
29-02-2024	Thursday	30	
01-03-2024	Friday	31	
02-03-2024	Saturday		
03-03-2024	Sunday		
04-03-2024	Monday	32	Assignment Submission-Object Oriented Programming Using C++
05-03-2024	Tuesday	33	Holy Mass
06-03-2024	Wednesday	34	
07-03-2024	Thursday	35	
08-03-2024	Friday		Sivarathri
09-03-2024	Saturday		
10-03-2024	Sunday		
11-03-2024	Monday	36	IAE1-Result Publishing
12-03-2024	Tuesday	37	
13-03-2024	Wednesday	38	
14-03-2024	Thursday	39	
15-03-2024	Friday	40	
16-03-2024	Saturday		
17-03-2024	Sunday		
18-03-2024	Monday	41	PTA Meeting
19-03-2024	Tuesday	42	
20-03-2024	Wednesday	43	IAE2-English II
21-03-2024	Thursday	44	IAE2-Discrete Mathematics
22-03-2024	Friday	45	IAE2-Data Base Management System

Date	Day	No.	Event
23-03-2024	Saturday		
24-03-2024	Sunday		
25-03-2024	Monday	46	IAE2-Computer Organization and Architecture
26-03-2024	Tuesday	47	IAE2-Object Oriented Programming Using C++
27-03-2024	Wednesday	48	IAE2-Software Lab II
28-03-2024	Thursday		Maundy Thursday
29-03-2024	Friday		Good Friday
30-03-2024	Saturday		
31-03-2024	Sunday		Easter
01-04-2024	Monday	49	
02-04-2024	Tuesday	50	Holy Mass
03-04-2024	Wednesday	51	
04-04-2024	Thursday	52	
05-04-2024	Friday	53	
06-04-2024	Saturday		
07-04-2024	Sunday		
08-04-2024	Monday	54	
09-04-2024	Tuesday	55	
10-04-2024	Wednesday		Eid al-Fitr
11-04-2024	Thursday	56	IAE1-Result Publishing
12-04-2024	Friday	57	
13-04-2024	Saturday		
14-04-2024	Sunday		
15-04-2024	Monday	58	
16-04-2024	Tuesday	59	
17-04-2024	Wednesday	60	Semester Ends
18-04-2024	Thursday		
19-04-2024	Friday		
20-04-2024	Saturday		
21-04-2024	Sunday		
22-04-2024	Monday		
23-04-2024	Tuesday		
24-04-2024	Wednesday		
25-04-2024	Thursday		
26-04-2024	Friday		
27-04-2024	Saturday		
28-04-2024	Sunday		
29-04-2024	Monday		
30-04-2024	Tuesday		

HEAD OF THE DEPARTMENT
DEPT. OF COMPUTER SCIENCE
SANTHIGIRI COLLEGE OF COMPUTER SCIENCES
VAZHITHALA P.O, THODUPUZHA
IDUKKI, KERALA - 685 583

SANTHIGIRI COLLEGE OF COMPUTER SCIENCES
THODUPUZHA
KERALA
685 583
VAZHITHALA

SANTHIGIRI COLLEGE

Affiliated to MG University and Approved by AICTE

DEPARTMENT OF MANAGEMENT

STUDIES

STUDENTS MANUAL-BBA

THIRD SEMESTER

OUR VISION

Awakening to the Future.
Awaken thisgeneration to
the gauntlet of tomorrow.

OUR MISSION

Holistic and Integral
development of the
individual rooted in faith
in God, justice,knowledge
and human values.

PROGRAM OUTCOME (PO'S)

By the time of graduation, graduates will attain thefollowing.

PO1. Critical Thinking and Decision Making Ability: Students can identify and analyze problems concerning business management by the use of analytical and reflectivethinking techniques. And they should be able to make the right effective decisions in alternative and complex managerial situations.

PO2. Communication Skills: Effective management is possible through effective communication in any form verbal or non-verbal and to develop professional skills that prepare them for career development sustainable development throughout their professional progression.

PO3 Social and Ethical Responsibility of Business: Students can identify and analyze and balance business goals thatmay in conflict with ethical and social responsibility issues involving different stakeholders such as customers, employees, government, society and the entire environment.

PO4. Core Business Management Knowledge: Students can prepare, plan, and run successful business enterprises. The core management principle is to achieve the objective with and through others, therefore, students learn how to lead and work effectively with people within the organization.

PO5. Global Setting: Students can set their career goals at the beginning of the BBA programme. And throughout this educational program lay the foundation that prepares them for excellence.

Core Values

As individuals, we have our fundamental beliefs and ideals. So to every organization or institution should have certain guiding principles that pave the way for greater success. They are the core values. The holistic and integral development of the students of Santhigiri College is actualized through the core values of our institution. By internalizing and living the core values our students are enabled to attain the mission of our college. Their values will be made consistent with the core values of the college.

1. **Faith in God**

   Faith is the conscious knowledge and ultimate acceptance of the divine authority of God. Faith is based on a deep personal understanding of religious teachings. Santhigiri College exhorts the students to practice the religion to which they belong ardently. Faith in God and the practice of one's religion will emulate deep spirituality that is inherent in Indian culture, which will make them more humane.

2. **Commitment**

   Commitment is the willingness to give your time and energy to a job, activity, or something that you believe in: something that you must do. The commitment of the teachers and students of Santhigiri College in their fields of activity is promoted and ensured.

3.

Adhering to ethical principles in life is integral to the personality of an individual and this is integrity. We do what we say. Our students are trained to behave ethically and practice honesty and justice in all their interpersonal interactions and maintain integrity in their lives.

4. **Excellence**

   Be the best among the best is an ambitious goal. Santhigiri College strives assiduously for excellence. Excellence with tangible results that trespasses mediocrity at all levels of education is our goal. It can be attained by providing an experience of high quality through the promotion of excellence in teaching and learning

5. **Social Responsibility**

   Santhigiri College with its unique background of evolution in alignment with the rehabilitation of persons with disabilities proves the unparalleled social responsibility it has inherited from its inception. Serving the community, especially the marginalized sections of society by responding to social issues is a critical component of a socially responsible institution. We imbue our students to involve in charitable interventions to acquire social awareness and social responsibility.

Program Specific Outcome (PSO)

The student will be able to:-s

PRINCIPAL
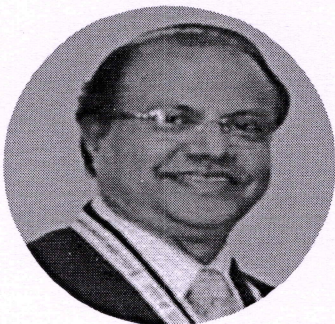
Dr. Baby Joseph CMI

PSO1: Imparting theoretical knowledge of areas specific to business viz- Management, Economics, Business Mathematics, Business Accountings, Operations Management, Marketing, Human Resource Management & Corporate Law

PSO2. Enabling students to identify and analyze problems concerning business management by the use of analytical and reflective thinking techniques.

BURSAR

Fr. Shinto Kannukettiyil CMI

PSO3: Develop business communications through the presentation, practicing conversation, verbal and non-verbal communications, business etiquettes

PSO4: Learn corporate and civic laws that govern Social and Ethical responsibilities

PSO5. Inculcate Self-employment desire, identify and develop traits and provide an arena of opportunity to do entrepreneurial activities
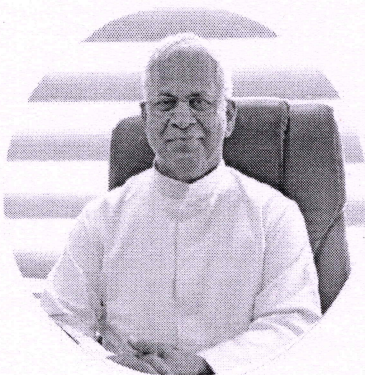
MANAGER
Fr. Paul Parekattil CMI

PSO6. Understand vulnerability of nature, learn to protect, preserve and improve the biodiversity of the environment and means to do it through responsible business activities that enhance sustainable development in the relevant sphere.

Duration and Subjects

This semester is planned to commence on 3rd June 2023 and the regular classes are supposed to be concluded by 15th, November 2023.

This semester comprises of six subjects

1.

Examination System

a) *Marks of external Examination: 80*

b) *Marks of internal evaluation: 20*

All three components of the internal assessment are mandatory.

Marks of Theory- Internal Evaluation

Components of Internal Evaluation	Marks
Attendance	5
Assignment /Seminar/Viva	5
Test paper (2x5=10)	10
	20

Attendance Evaluation
Theory

% of Attendance	Marks
90 and above	5
85 – 89	4
80-84	3
76-79	2
75	1

Head of the Department

Mrs. Divya Jose

Training, Placement and Co-Curricular Activities Specific to S5 BBA

- Group Discussion -Increase conversation ability and Debate power

- Company Presentation - Company profile, product/services, company values, vision and mission, leadership, market share & competitors

- Statistical survey - compliment Statistic for Research

- Newspaper reading – to cultivate reading habit

- Topic presentation -comprehension and exposition

- IAE - for the subject comprehension assessment tool

- Subject Assignments

- Personality Development Training.

- Aptitude Training.

- Resume Preparation

- Remedial Sessions.

- Mentoring

- Counselling

- Holistic Education Classes

- Alumni Interactions

HUMAN RESOURCE MANAGEMENT:

COURSE OUTCOME (CO'S)

Facilitator

Treesa Thomas
9526261294

Upon the completion of the course, the student will be able

- **CO1**: Familiarizing them with the importance of Human Resource Management, in connection with the handling of other resources.
- **CO2**: Preparing them to get placed in companies
- **CO3**: Being capable of planning a career with a vision of the future.
- **CO4**: Equipping to analyse different jobs in the career columns on media and select the suitable one.
- **CO5**: Making them capable of aiming for higher performance and achievement in professional life.

Syllabus

MODULE- I

Definition, Nature, scope, role, the objective of Personnel management, level of management, Organization of Personnel Dept. its functions, Ergonomics, Challenger and relevance of HRM. Manpower planning.

MODULE- II

Recruitment - Sources of recruitment, Selection- Selection process, Training - Definition. Types of training Executive Development.

MODULE- III

Performance Appraisal, techniques Promotion, Career Planning.

MODULE- IV

Job analysis, Job Design, Job Evaluation Wage. Definition. Factors affecting wage policy, Wage Boards Fringe Benefits, Prerequisites, Incentives, Bonus, Profit sharing, VRS, Maintenance of service files pension.

MODULE- V

Drafting charge sheets, Model standing orders, code of conduct, Bond of service, wage & salary records, E.S.I, P.F. Gratuity, pension and bonus records.

Research Methodology

COURSE OUTCOME
(CO'S)
Upon the completion of the course, the student will be able

Facilitator

Mr Shibu Abraham
9495214733

- **CO1:** Learning about the basic concept of research and its methodologies
- **CO2:** Getting acquainted with the knowledge to solve the various business problems.
- **CO3:** Realizing the cause and effect relationship between the variables.
- **CO4:** Identifying the parameters for scrutinizing the research problem.
- **CO5:** Getting acquainted with the procedure of conducting research.

Syllabus

MODULE -I
Research methodology- meaning. Research, meaning, objectives, significance. Research process- different steps, criteria for good research. Types of research-descriptive, analytical, applied, fundamental, quantitative, qualitative, empirical and conceptual.

MODULE- II
Selection of research problem-sources-technique involved in defining a problem.

MODULE -III
Research design-meaning-need, concepts-elements Sampling design-steps-criteria of selecting a sampling procedure-sampling process

MODULE -IV
Types of data-primary data -meaning-advantages-disadvantages-methods of collecting primary data sources. Secondary data- meaning, advantages-disadvantages-sources.

MODULE -V
Interpretation-meaning-techniques-of interpretation. Report writing-significance-types of reports; (technical and popular) steps-layout-oral presentation.

Note on course work.
This course should not be taught in the conventional lecture method alone. Every lecture should be complemented by an appropriate activity (For example, reference, assignments, project reports etc.).

Business Laws:

COURSE OUTCOME (CO'S)

Facilitator

Jomol Joy
9747098414

Upon the completion of the course, the student will be able

- **CO1**: Get a clear understanding of the general principles of Business Law.
- **CO2**: Familiarizing with the speciality of various contracts.
- **CO3**: Equipping the students with the rights and duties related to buying and selling.
- **CO4**: Motivating them to take up legal projects.
- **CO5**: Developing the habits of analytical thinking and logical reasoning to support organizational decision making.

Syllabus

MODULE -I: General principles of the law of contract

Law of contracts; Definition-essentials of a valid contract-kinds of contracts-Offer and accept revocati communication-consideration. Doctrine of privity of contract-capacity to contract-con coercion-undue influence-misrepresentation-fraud-mistake-performance-discharge of contract-breach contract-remedie for breach of contract.

MODULE- II: Contracts of indemnity and guarantee

Definition of indemnity–essential elements-rights of parties-definition of guarantee –essential element: rights of surety-nature of surety'sliability-discharge of guarantee

MODULE -III: Contract of bailment and pledge

Definition –essential elements- rights and duties of bailor and bailee-termination of a bailment- finder goods-Pledge-definition-rights and duties of pawnor and pawnee.

MODULE-IV: Contract of agency

Definition- essentials-types of agency-mercantile agents-extent of agent's authority-delegation of authority personal liability of agent- liability of agent to third parties- termination of agency.

MODULE- V: Contract of sale of goods

Sale of Goods Act; Contract of sale and agreement to sell-conditions and warranties- transfer of property- the title of goods-rights and duties of seller and buyer- rights of an unpaid seller.

References

Resources:

Text Books:

T1. Business Law   - K.C. Garg, Vijay Gupta, Joy Dhingra – Kalyani Publishers

T2. Business Law   – Biju P. Mani – Prakash Publications

Additional Resources:

AR1. Web sources

Marketing Management

COURSE OUTCOME (CO'S)

- **CO1**: Learning the fundamental concepts of Marketing

- **CO2**: Obtaining knowledge on the functions of Marketing.
- **CO3**: Acquiring knowledge about marketing mix, product mix and Consumer Buying Behaviour.
- **CO4**: Making them capable of developing marketing strategies by taking into account price, place and promotion.
- **CO5**: Understanding the importance of promotion in Marketing.

Facilitator

Divya Jose
8606820833

Syllabus

MODULE- I
Introduction

Meaning and definition of different marketing concepts - functions of marketing - environmental factors - market segmentation - buying motive and process - consumer and customer - factors affecting consumer Behavior - marketing plan

MODULE -II
Marketing mix

Marketing mix: meaning - product, product mix- - product life cycle - the importance of branding -packaging and labelling

MODULE- III
Pricing

Pricing policies - objectives - factors influencing pricing decisions - different pricing strategies: skimming- penetration
Market structure -channel of distribution and its importance

MODULE -IV
Promotion

Advertising -objectives and functions - types of advertising - personal selling and direct marketing - sales promotion

MODULE -V

Marketing research -definition, scope and process.
Marketing risk and marketing audit

Personality Development and Management Skills

COURSE OUTCOME (CO'S)

Upon the completion of the course, the student will be able The students will have the opportunity to explore current management literature to develop an individual style and sharpen their skills in the area of leadership, communication, decision making, motivation and conflict management.

The students will have the opportunity to explore current management literature to develop an individual style and sharpen their skills in the area of leadership, communication, decision making, motivation and conflict management.

Case study Presentation*

Suggested Topics for Minor Projects:
1. Goals of an Organization
2. Work values
3. Character Ethics
4. Working Conditions
5. Decision Making Strategies
6. Goal Setting
7. Customer Satisfaction and
8. Any other relevant topic chooses by the student or assigned by the college.

* Case studies can be chosen by the students in this respective area of interest.

Academic Calendar June-December

JUNE -2023			
Day			**Activities**
01-06-2023	Thursday		
02-06-2023	Friday		
03-06-2023	Saturday		
04-06-2023	Sunday		
05-06-2023	Monday	1	World Environment Day,S3 UG Semester Begins
06-06-2023	Tuesday	2	
07-06-2023	Wednesday	3	
08-06-2023	Thursday	4	
09-06-2023	Friday	5	
10-06-2023	Saturday		Second Saturday
11-06-2023	Sunday		
12-06-2023	Monday	6	
13-06-2023	Tuesday	7	Holy Mass
14-06-2023	Wednesday	8	
15-06-2023	Thursday	9	
16-06-2023	Friday	10	Feast of Sacred Heart of Jesus
17-06-2023	Saturday	11	
18-06-2023	Sunday		
19-06-2023	Monday	12	World Ethnic Day
20-06-2023	Tuesday	13	
21-06-2023	Wednesday	14	
22-06-2023	Thursday	15	
23-06-2023	Friday	16	
24-06-2023	Saturday	17	
25-06-2023	Sunday		
26-06-2023	Monday	18	

	Day		Activities
27-06-2023	Tuesday	19	
28-06-2023	Wednesday		Bakrid
29-06-2023	Thursday	20	
30-06-2023	Friday	21	

JULY -2023

	Day		Activities
01-07-2023	Saturday	22	
02-07-2023	Sunday		
03-07-2023	Monday		Feast of St. Thomas, Apostle
04-07-2023	Tuesday	23	Holy Mass
05-07-2023	Wednesday	24	
06-07-2023	Thursday	25	
07-07-2023	Friday	26	
08-07-2023	Saturday		Second Saturday
09-07-2023	Sunday		
10-07-2023	Monday	27	
11-07-2023	Tuesday	28	
12-07-2023	Wednesday	29	
13-07-2023	Thursday	30	
14-07-2023	Friday	31	
15-07-2023	Saturday	32	World Youth Skills Day
16-07-2023	Sunday		Our Lady of Mount Carmel
17-07-2023	Monday		Karkidavav
18-07-2023	Tuesday	33	
19-07-2023	Wednesday	34	IAE1-HRM
20-07-2023	Thursday	35	IAE1-MM
21-07-2023	Friday	36	IAE1-RM
22-07-2023	Saturday	37	IAE1-BL
23-07-2023	Sunday		
24-07-2023	Monday	38	

Date	Day	No.	Activities
25-07-2023	Tuesday	39	
26-07-2023	Wednesday	40	
27-07-2023	Thursday	41	
28-07-2023	Friday		Muharam, Saint Alphonsa
29-07-2023	Saturday	42	Feast of St. Peter & Paul, Apostleers
30-07-2023	Sunday		
31-07-2023	Monday	43	

AUGUST -2023

Date	Day		Activities
01-08-2023	Tuesday	44	Holymass
02-08-2023	Wednesday	45	
03-08-2023	Thursday	46	
04-08-2023	Friday	47	
05-08-2023	Saturday	48	
06-08-2023	Sunday		
07-08-2023	Monday	49	
08-08-2023	Tuesday	50	
09-08-2023	Wednesday	51	
10-08-2023	Thursday	52	S3 UG IAE1 – Result Publication
11-08-2023	Friday	53	
12-08-2023	Saturday		Second Saturday
13-08-2023	Sunday		
14-08-2023	Monday	54	
15-08-2023	Tuesday		Independence Day, Assumption of our Lady
16-08-2023	Wednesday	55	
17-08-2023	Thursday		
18-08-2023	Friday	57	

19-08-2023	Saturday	58	
20-08-2023	Sunday		
21-08-2023	Monday	59	
22-08-2023	Tuesday	60	
23-08-2023	Wednesday	61	
24-08-2023	Thursday	62	
25-08-2023	Friday	63	Onam Celebrations
26-08-2023	Saturday		Onam Holidays
27-08-2023	Sunday		Onam Holidays
28-08-2023	Monday		Onam Holidays
29-08-2023	Tuesday		Onam Holidays, Saint Euphrasia, Thiruonam
30-08-2023	Wednesday		Onam Holidays
31-08-2023	Thursday		Onam Holidays, Sri Narayana Guru Jayanthi

SEPTEMBER-2023

Day			Activities
01-09-2023	Friday		Onam Holidays
02-09-2023	Saturday		Onam Holidays
03-09-2023	Sunday		Onam Holidays
04-09-2023	Monday	64	College Reopening after Onam Vacation
05-09-2023	Tuesday	65	Holy Mass, Teachers' Day
06-09-2023	Wednesday		Sree Krishna Jayanthi
07-09-2023	Thursday	66	
08-09-2023	Friday	67	The Nativity of our Lady
09-09-2023	Saturday		Second Saturday
10-09-2023	Sunday		
11-09-2023	Monday	68	
12-09-2023	Tuesday	69	

Date	Day	No.	Activities
13-09-2023	Wednesday	70	IAE 2 HRM
14-09-2023	Thursday	71	IAE2 MM
15-09-2023	Friday	72	IAE2 RM
16-09-2023	Saturday	73	IAE 2 BL
17-09-2023	Sunday		
18-09-2023	Monday	74	
19-09-2023	Tuesday	75	
20-09-2023	Wednesday	76	
21-09-2023	Thursday	77	
22-09-2023	Friday		Sri Narayana Guru Samadhi
23-09-2023	Saturday	78	
24-09-2023	Sunday		
25-09-2023	Monday	79	
26-09-2023	Tuesday	80	
27-09-2023	Wednesday		Id-e-Milad
28-09-2023	Thursday	81	
29-09-2023	Friday	82	
30-09-2023	Saturday	83	

OCTOBER-2023

Date	Day		Activities
01-10-2023	Sunday		
02-10-2023	Monday		Gandhi Jayanti
03-10-2023	Tuesday	84	Holy Mass
04-10-2023	Wednesday	85	S3 UG IAE2 RESULT PUBLICATION
05-10-2023	Thursday	86	
06-10-2023	Friday	87	

07-10-2023	Saturday	88	
08-10-2023	Sunday		
09-10-2023	Monday	89	
10-10-2023	Tuesday	90	
11-10-2023	Wednesday	91	
12-10-2023	Thursday	92	
13-10-2023	Friday	93	
14-10-2023	Saturday		Second Saturday
15-10-2023	Sunday		
16-10-2023	Monday	94	
17-10-2023	Tuesday	95	
18-10-2023	Wednesday	96	
19-10-2023	Thursday	97	S3 UG Semester Ends
20-10-2023	Friday	98	
21-10-2023	Saturday	99	
22-10-2023	Sunday		Pooja Holidays
23-10-2023	Monday		Pooja Holidays
24-10-2023	Tuesday		Pooja Holidays
25-10-2023	Wednesday	100	
26-10-2023	Thursday	101	
27-10-2023	Friday	102	
28-10-2023	Saturday	103	
29-10-2023	Sunday		
30-10-2023	Monday	104	
31-10-2023	Tuesday	105	

NOVEMBER-2023

Day			Activities
01-11-2023	Wednesday	106	Feast of all Saints

Date	Day		Notes
02-11-2023	Thursday	107	
03-11-2023	Friday		Tentative date of S3 UG University Examination
04-11-2023	Saturday		
05-11-2023	Sunday		
06-11-2023	Monday		
07-11-2023	Tuesday		Holy Mass
08-11-2023	Wednesday		
09-11-2023	Thursday		
10-11-2023	Friday		
11-11-2023	Saturday		Second Saturday
12-11-2023	Sunday		Deepavali
13-11-2023	Monday		
14-11-2023	Tuesday		
15-11-2023	Wednesday		
16-11-2023	Thursday		
17-11-2023	Friday		
18-11-2023	Saturday		
19-11-2023	Sunday		
20-11-2023	Monday		
21-11-2023	Tuesday		
22-11-2023	Wednesday		
23-11-2023	Thursday		
24-11-2023	Friday		
25-11-2023	Saturday		
26-11-2023	Sunday		Christ the King
27-11-2023	Monday		
28-11-2023	Tuesday		
29-11-2023	Wednesday		
30-11-2023	Thursday		

DECEMBER-2023				
Day			**Activities**	
01-12-2023	Friday		25 days Fasting begins for Christians	
02-12-2023	Saturday			
03-12-2023	Sunday		International Day of Persons with Disabilities	
04-12-2023	Monday			
05-12-2023	Tuesday		Holy Mass	
06-12-2023	Wednesday			
07-12-2023	Thursday			
08-12-2023	Friday			
09-12-2023	Saturday			
10-12-2023	Sunday			
11-12-2023	Monday			
12-12-2023	Tuesday			
13-12-2023	Wednesday			
14-12-2023	Thursday			
15-12-2023	Friday			
16-12-2023	Saturday			
17-12-2023	Sunday			
18-12-2023	Monday			
19-12-2023	Tuesday			
20-12-2023	Wednesday			
21-12-2023	Thursday			
22-12-2023	Friday			
23-12-2023	Saturday			
24-12-2023	Sunday			
25-12-2023	Monday		Christmas	

26-12-2023	Tuesday		
27-12-2023	Wednesday		
28-12-2023	Thursday		
29-12-2023	Friday		
30-12-2023	Saturday		
31-12-2023	Sunday		End of the year

HEAD OF THE DEPARTMENT
DEPT. OF MANAGEMENT
SANTHIGIRI COLLEGE OF COMPUTER SCIENCES
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IDUKKI, KERALA - 685 583