



St. JOHN'S COLLEGE OF ARTS & SCIENCE

(Accredited with B++ by NAAC & Approved by UGC under section 2(f) & 12(B) status)

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(A Christian Minority Institution)

**St. John's College Road, Ammandivilai, Kanyakumari District - 629 204,
Tamil Nadu, South India. Visit us at : www.stjohnskk.ac.in**



Ph : 04651 200014 | E-mail : Off.: stjcas@gmail.com | e-mail Per. : edwingnanadhas@gmail.com | Mob. 9488272021

DEPARTMENT OF COMPUTER SCIENCE - MSC ELECTIVE PAPERS

SEMESTER WISE COURSE LIST

SEMESTER I					
Semester	Course No.	Course type	Course Name	Contact Hrs./ Week	Credits
I	1	Core-1	Design and Analysis of Algorithms	5	4
	2	Core-2	Advanced Java Programming	5	4
	3	Core-3	Mathematical Foundation for Computer Science	4	4
	4	Core-4	Compiler Design	4	4
	5	Core - 5	Distributed operating system	4	4
	6	Core - 6 Practical - 1	Algorithm Lab	4	2
	7	Core - 7 Practical - 2	Advanced Java Lab	4	2
Subtotal				30	24
SEMESTER II					
Semester	Course No.	Course Type	Course Name	Contact Hrs./ Week	Credits
(1)	(2)	(3)	(4)	(5)	(6)
II	8	Core- 8	Advanced Web Technology	5	4
	9	Core- 9	Machine Learning	5	4
	10	Core- 10	Advanced DBMS	4	4
	11	Core- 11	Cryptography and Network Security	4	4
	12	Elective– 1 (Select any one)	1.Free open source Software 2.Data Mining 3.Data Science and Big Data Analytics	4	3
	13	Core - 12 Practical - 3	Advanced Web Technology Lab	4	2
	14	Core - 13 Practical - 4	Machine Learning Lab using Python	4	2
Subtotal				30	23
SEMESTER III					
Semester	Course No.	Course Type	Course Name	Contact Hrs./ Week	Credits
(1)	(2)	(3)	(4)	(5)	(6)

III	15	Core-14	Digital Image Processing	4	4
	16	Core-15	Soft Computing	4	4
	17	Core-16	Advanced Computer Networks	4	4
	18	Core-17	Research Methodology	4	4
	19	Elective - 2 (Select any one)	1. Cloud Computing 2. Mobile Computing 3. Optimization Technique	4	3
	20	Core - 18 Practical - 5	Digital Image Processing using Sci lab	4	2
	21	Core –19	Mini Project	6+2*	6
	Subtotal			30	27
IV	22	Core – 20	Major Project	30+2*	16
	Subtotal			30	16
Cumulative total				120	90

Scheme of Examination / Question Paper Pattern I - Theory Course:

(Total Marks: 100 (Internal: 25 Marks, External: 75 Marks))

Parameters	
Student shall secure pass in both internal and external and also obtain 50 marks together to get a pass	
CIA- Internal Marks	End semester Examination - External Marks
i. Average of best two tests from three: 15 Marks ii. Seminar: 05 Marks iii. Assignment: 05 Marks ----- Total : 25 Marks	Total : 75 Marks
Passing minimum 40% i.e. 10 marks	Passing minimum 50% i.e. 38 marks

Elective 1- (b) DATA MINING

[C L T P 3 4 1 0]

Course Objectives:

- Examine the types of the data to be mined.
- Explore and understand data mining algorithms.

Course Outcomes:

- CO1:** To evaluate various mining techniques on complex data objects
- CO2:** To develop applications using Data Mining Tools.
- CO3:** To develop ability to design various algorithms based on data mining tools.
- CO4:** To develop further interest in research and design of new Data Mining techniques

Course Outline

(Total 45 hours)

UNIT-1

(9 hours)

Data Mining and Data Preprocessing: Data Mining – Motivation – Definition – Data Mining on what Kind of Data –Functionalities – Classification – Data Mining Task Primitives – Major Issues in Data Mining .Data Preprocessing – Definition – Data Cleaning – Integration - Transformation – Data Reduction.

UNIT – II

(9 hours)

Data Warehousing: Definition -Data Warehouse Architecture- Multidimensional Data Model. Frequent Patterns, Associations: Market basket analysis - Association Rule, Support and Confidence - apriori algorithm - Generating association rule from frequent itemset - Mining frequent item sets without candidate generation (FP- growth) - Overview of multilevel association rule - Multidimensional association rule- - closed item set - maximal item set.

UNIT – III

(9 hours)

Definition of Classification and Prediction – Classification by Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back Propagation – Lazy Learners – K-Nearest Neighbor – Other Classification Methods.

UNIT – IV

(9 hours)

Cluster Analysis: Definition – Types of data in Cluster Analysis – Categorization of major Clustering Techniques – Partitioning Methods – Hierarchical Clustering – BIRCH - ROCK – Grid Based Methods – Model Based Clustering Methods – Outlier Analysis.

UNIT – V

(9 hours)

Spatial, Multimedia, Text and Web Data: Spatial Data Mining – Multimedia Data Mining – Text Mining – Mining the World Wide Web – Data Mining Applications – Trends in Data Mining. Data mining tool – Orange Tool.

Mapping of COs to POs and PSOs

Course Outcome	PO Addressed PO1 to PO7			Correlation Level L/M/H			PSO Addressed PSO1 to PSO7			Correlation Level L/ M/ H			Cognitive Level K ₁ to K ₆
CO1	PO1			H			PSO1			H			K ₁ ,K ₂
CO2	PO2	PO3		M	M		PSO2			M			K ₃
CO3	PO4	PO7		M	M		PSO2,	PSO3	PSO4	M	M	M	K ₄ ,K ₅
CO4	PO4	PO5	PO7	M	M	M	PSO2,	PSO3	PSO4	M	M	M	K ₄ ,K ₅

(L – Low, M – Medium, H – High; K₁ – Remember, K₂ – Understand, K₃ – Apply, K₄ – Analyze, K₅ – Evaluate, K₆ – Create)

Text and Reference books

1. Jiawei Han and Micheline Kambar, — “Data Mining Concepts and Technique:”, Second Edition, Elsevier, Reprinted 2008.
2. Marget H. Dunham, — “Data Mining Introductory and Advanced Concepts” Pearson Education 2003.
3. Pang-Ning Tan, Michael Steinbach and Vipin Kumar, - “Introduction to Data Mining”, Pearson Education, 2007.
4. G.K. Gupta, - “Introduction to Data Mining with Case Studies”, 3rd Edition, PHI, 2015.
5. <http://www.celta.paris-sorbonne.fr/anasem/papers/miscelanea/InteractiveDataMining.pdf>

Elective - 2 (b) MOBILE COMPUTING

[C L T P 4 3 1 0]

Course Objectives:

- To learn the fundamental technologies that help in the networking of wireless devices.
- To learn about different wireless technologies
- To learn about the evolution of cellular systems
- To understand the various wireless standards

Course Outcomes:

At the end of the course, the student will be able to

CO1 : Describe what Mobile Computing is and how it works today

CO2 : Recognize the factors that contributed to the emergence of Mobile Computing

CO3 : Able to Understand different mobile application paradigms

CO4 :Apply different protocols for mobile communication

CO5 : Define and identify infrastructure requirement for Mobile Applications

CO6 :Ability to conceptualize new ideas and present them as intellectual property

Course Outline

(Total 45 hours)

UNIT-1

(9 hours)

Introduction: Mobility of bits and bytes–Mobile Device Profiles–Wireless the beginning–Mobile Computing–Dialogue control–Networks–Middle ware and gateways–Applications and services–Developing mobile computing applications. Mobile Computing Architecture: Architecture of Mobile Computing – Three Tire Architecture –Design Consideration for mobile computing – Making existing applications to mobile enabled. Mobile Computing Through Telephony: Multiple Access procedure – Satellite Communication System- Mobile Computing Through Telephone–Developing an IVR Application –Voice XML– Telephony Application Program Interface–Multi Channel and Multi-mode user Interface–Developing Mobile GUI's – VUI's

UNIT – II

(9 hours)

Emerging Technologies: Introduction – Bluetooth – Radio Frequency Identification(RFID) – Wireless Broadband(WIMAX)– Mobile IP –Internet Protocol version6(IPV6). Global System for Mobile Communication: Introduction – GSM Architecture and Services– GSM Entities –Call Routing in GSM – PLMN interface – GSM addresses and identifiers – Network Aspects in GSM – Mobility Management – GSM frequency allocation – Personal Communication service – Authentication and Security. Short Message Service: Mobile Computing over SMS - Short Message Service (SMS) – SMS Architecture–Value added Services through SMS– Accessing the SMS bearer.

UNIT – III

(9 hours)

General Packet Radio Service (GPRS): Introduction – GPRS and Packet data Networking –GPRS Network Architecture - GPRS Network Operations – Data Services in GPRS – Applications for GPRS–Limitations of GPRS– Billing and Charging in GPRS– Enhanced Data rate for GSM Evaluation (EDGE).Wireless Application Protocol: Introduction–WAP–MMS –GPRS Applications. CDMA and 3G: Introduction – Spread Spectrum Technology – IS-95 – Wireless Data – Third Generation Networks–Applications of 3G.

UNIT – IV

(9 hours)

Wireless Networks: Wireless Network and Topology-Cellular Telephony-Wireless Transmission and Wireless LAN - Wireless LAN Advantages–IEEE802.11Standards–Wireless LAN Architecture – Mobility in Wireless LAN – Deploying Wireless LAN – Mobile Adhoc Networks and Sensor Networks – MAC Protocol-Routing Protocol-Transport Layer Protocol – QOS - Dynamic Linking and Services-Communication via Web-Wireless LAN security – Wireless Access in Vehicular Environment –Wireless Local Loop– Hiper LAN–WIFI versus 3G. Intelligent Networks and Interworking: Fundamentals of Call Processing – Intelligence in the Networks – SS#7 Signaling – IN Conceptual Model (INCM) – Soft switch – Programmable Networks– Technologies and Interfaces for IN .Client Programming: Mobile Phones–Features of Mobile phones–PDA–Design constraints in Applications for Handheld devices– Recent Developments in Client Technology.

UNIT – V

(9 hours)

Programming for the PALM OS: History of PALM OS–PALM OS architecture–Application Development– Communication in PALM OS– Multimedia. Wireless Devices with Symbian OS: Introduction to Symbian OS- Symbian OS Architecture –Security on Symbian OS. Security Issues in Mobile Computing: Information Security– Web Security-Security Techniques and Algorithms – Security Protocols– Public Key Infrastructure.

Mapping of COs to POs and PSOs

Course Outcome	PO Addressed PO1 to PO7		Correlation Level L/M/H		PSO Addressed PSO1 to PSO7	Correlation Level L/ M/ H		Cognitive Level K ₁ to K ₆
CO1	PO1		M		PSO2	M		K ₁ , K ₂
CO2	PO1	PO2	M	H	PSO2	H		K ₁
CO3	PO3	PO4	M	L	PSO2	M		K ₂
CO4	PO3		H	M	PSO4 PSO2	M	L	K ₂
CO5	PO5		M		PSO4	M		K ₃
CO6	PO6	PO7	M	M	PSO5	M		K ₅

(L – Low, M – Medium, H – High); K₁ – Remember, K₂ – Understand, K₃ – Apply, K₄ – Analyze, K₅–Evaluate, K₆– Create



St. JOHN'S COLLEGE OF ARTS & SCIENCE

(Accredited with B++ by NAAC & Approved by UGC under section 2(f) & 12(B) status)
(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
(A Christian Minority Institution)

St. John's College Road, Ammandivilai, Kanyakumari District - 629 204,
Tamil Nadu, South India. Visit us at : www.stjohnskk.ac.in



Ph : 04651 200014 | E-mail : Off.: stjcas@gmail.com | e-mail Per.: edwingnanadhas@gmail.com | Mob. 9488272021

DECLARATION

I hereby declare that the details and information given above are complete and true to the best of my knowledge and belief.


Dr. M. EDWIN GNANADHAS
PRINCIPAL
St. John's College of Arts and Science
Ammandivilai- 629 204