MANONMANIAM SUNDARANAR UNIVERSITY
TIRUNELVELI
PG - COURSES – AFFILIATED COLLEGES

Course Structure for M.Sc. Information Technology and E.Commerce
(Choice Based Credit System)
(with effect from the academic year 2016- 2017 onwards)
(44th SCAA meeting held on 30.05.2016)

Sem	Sub 'Pr. No.	Subject status	Subject Title	Hrs/week	Cre-dits	Marks				
						Maximum			Passing minimum	
						Int.	Ext	Tot.	Ext.	Tot
III	15	Core – 11	Internet Programming	4	3	25	75	100	38	50
	16	Core - 12	Data Mining and Warehousing	4	3	25	75	100	38	50
	17	Core - 13	Computer Networks	4	3	25	75	100	38	50
	18	Core – 14	Research Methodology	4	3	25	75	100	38	50
	19	Elective – III (Choose any one)	a. Cloud Computing b. Mobile Computing	4	3	25	75	100	38	50
	20	Practical	Internet Progamming	5	5	50	50	100	25	50
	21	Mini Project	Mini Project	5	5	50	50	100	25	50
IV	22	Project	Main Project & Vivo Voce	--	15	50	50	100	25	50

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Internet Programming

Unit-I

Basics of Web Technology: Web page creation- Scripting Language - HTML Tags – VBScript- JavaScript- Looping -Array handling -Functions and Procedures - Object creation - Validating Form Elements**.**

Unit-II

ASP: Active Server Pages- Server Side Scripting- Servers: IIS, PWS _ ASP Objects – Request- Response- Session- Server- Application objects- globel.asa file - Cookies - External & Internal cookies.

Unit-III

ASP Components - Ad Rotator- Context Rotator- Browser Capability- Page counter - Server objects- Database connectivity - DSN -Retrieving information from table – Manipulating records in tables. Implementation of ASP concepts in .NET environment.

Unit-IV

XML: XML essentials - XML Documents - Valid Documents- Entities and attributes - Cascade Style Sheets - XML Scheme - Handling XML Documents and Data Binding.

Unit-V

XML DOM - XSL Transformations - XSL Formatting Objects - XML and ASP- XML and Servlets - XML and Perl- WML

REFERENCE BOOKS

1. Steven Holzner – "Inside XML ", 2000 Edition, Techmedia Publishers.
2. "Unleashed ASP"- Techmedia Publisher.
3. "Interactive VBScript" – Techmedia Publishers.

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Data Mining and Warehousing

Unit- I

Introduction : Data mining application – data mining techniques - data mining case studies –the future of data mining - data mining software – Association rules mining : Introduction –basics-task and a naive algorithm- apriori algorithm- improve the efficiency of the apriori algorithm-mining frequent pattern without candidate generation.

Unit-II

Classification: Introduction – decision tree – over fitting and pruning – DT rules estimation predictive accuracy of classification methods – other evaluation criteria for classification method – classification software.

Unit- III

Cluster Analysis: cluster analysis - types of data - computing distances- types of cluster analysis methods - partitioned methods- hierarchical methods – density based methods – dealing with large databases- quality and validity of cluster analysis methods – cluster analysis software.

Unit- IV

Web Mining: Introduction -Web Terminology and Characteristics – Locality and Hierarchy in the Web – Web content Mining – Web Usage Mining- Web structure Mining – Web mining Software - **Search Engines**: Search Engines Functionality – Search Engines Architecture – Ranking of Web Pages

Unit- V

Data warehousing: Introduction – Operational data sources - data warehousing - data warehousing design- Guidelines for data warehousing implementation - data warehousing metadata - Online analytical processing(OLAP): Introduction - OLAP - characteristics of OLAP system – Multidimensional view and data cube – Data cube implementation – Data cube operations - Data cube implementation guidelines.

REFERENCE BOOKS

1. "Introduction to Data mining with case studies", G.K. Gupta, PHI Private Limited, New Delhi, 2008.
2. Margaret H. Dunham, "Data mining introductory and advanced topics", Pearson education, 2003.
3. C.S.R. Prabhu, "Data warehousing concepts, techniques, products and a applications", PHI, Second Edition.

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Computer Networks

Unit-I

Introduction : Data Communications – Networks – The Internet – Protocols and Standards. Network Models : The OSI Model – Layers in the OSI Model. Physical Layer and Media : Analog and Digital – Periodic Analog Signals – Digital Signals. Digital Transmission : Digital to Digital Conversion – Analog to Digital Conversion . Transmission Media : Guided Media – Unguided Media. Using Telephone and Cable Networks for Data Transmission : Telephone Network – Digital Subscriber Line.

Unit-II

Data Link Layer : Error Detection and Correction : Introduction – Block Coding – Cyclic Codes – Noisy Channels – HDLC. Multiple Access : Random Access. Wired LANs : Ethernet – Standard Ethernet – Fast Ethernet – Gigabit Ethernet.

Unit-III

SONET/SDH : Architecture – Sonet Layers Virtual-Circuit Networks : Frame Relay and ATM –. Network Layer : IPv4 Address – IPv6 Address.

Unit-IV

Network Layer : Internet Protocol – Internetworking – IPv4 – IPv6. Network Layer :Address Mapping , Error Reporting and Multicasting – ICMP – IGMP. Network Layer : Delivery ,Forwarding, and Routing – Unicast Routing Protocols – Multicast Routing Protocols.

Unit-V

Process-to-Process Delivery: UDP , TCP – Process-to-Process Delivery – User Datagram Protocol(UDP) – TCP. Congestion Control and Quality of Service – Data Traffic – Congestion – Congestion Control – Quality of Service – Techniques to Improve. Application Layer : Name space – Domain Name System – Distribution of Name Space.

REFERENCE BOOKS

1.Data Communication and Networking – Behrouz A Forouzan – McGraw Hill – 4th Edition - 2006
2.Data and Computer Communications – William stallings – Pearson – 2013
3. Computer Networks – Bhushan Trivedi – Oxford University Press - 2011

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Research Methodology

Unit-I

Research Methodology: An Introduction - Meaning of Research - Objectives of Research - Types of Research, Motivation in Research - Research Approaches, Significance of Research - Research Methods Verses Methodology - Research and Scientific Method - Research Process - Criteria of Good Research - Problems Encountered by Researchers in India. Defining the Research Problem: What is a Research Problem? - Selecting the Problem - Technique Involved in Defining a Problem - Research Design: Meaning - Need for research Design - Features of a Good Design - Important Concept relating to Research Design - Different Research Designs - Basic Principles of Experimental Designs.

Unit-II

Sampling Design: Census and sample survey - Implications of a sample design - Steps in sample design - Criteria of selecting a sampling procedure - Characteristics of a good sample design - Different types of sample designs - How to select a random sample? - Random sample from an infinite Universe - Complex random sampling designs - Measurement and scaling Techniques: measurement in research - Measurement scales - Sources of error in measurement - Tests of sound measurements - Technique of developing measurement tools - Scaling, meaning of scaling - Scale classification bases - Important scaling techniques - Scale construction techniques.

Unit-III

Methods of Data Collection - Collection of Primary Data - Observation Method - Interview method - Collection of Data through Questionnaires - Collection of Data through Schedules - Some Other Methods of Data Collection - Collection of Secondary Data - Selection of Appropriate Method for Data Collection - Interpretation and Report writing - Meaning of Interpretation, Why Interpretation? - Technique of Interpretation, Precaution in Interpretation - Significance of Report Writing - Different Steps in Writing Report - Layout of the Research Report - Types of Reports - Mechanics of Writing a Research Report - Precautions for Writing Research Reports.

Unit-IV

Chi-Square Test for large samples – Definition of Chi-Square – Limitations of Chi-Square test - Chi-Square test as a test of goodness of fit and as a test of independence – Yate's correction and its applications – Analysis of variance(ANOVA) : Concept – One way ANOVA – ANOVA in test in Latin Square Design

Unit-V

Algorithmic Research – Introduction - Algorithmic Research Problems - Types of Solution procedure/Algorithm - Steps of Development of Algorithm - Steps of algorithmic Research - Design of Experiments and Comparison of Algorithms - Meta Heuristics for Combinatorial Problems - The Computer: Its Role in research - The computer and Computer Technology - The Computer System - Important Characteristics - Computer Applications- Computers and Researchers.

REFERENCE BOOKS:

1. C.R.Kothari, "Research Methodology Methods and Techniques", (Second Revised Edition), New Age International Publishers, New Delhi, 2010.
2. R.Panneerselvam, "Research Methodology", PHI Learning Private Limited, New Delhi, 2009.

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Cloud Computing

Unit-I

Distributed System Models and Enabling Technologies: Scalable Computing over the Internet, Technologies for Network-Based Systems, System Models for Distributed and Cloud Computing, Software Environments for Distributed Systems and Clouds, Performance, Security and Energy Efficiency

Computer Clusters for Scalable Parallel Computing: Clustering for Massive Parallelism, Computer Clusters and MPP Architectures, Design Principles of Computer Clusters, Cluster Job ad Resource Management

Unit-II

Cloud Platform Architecture over Virtualized Data Centers: Cloud Computing and Service Models, Data-Center Design and Interconnection Networks, Architectural Design of Compute and Storage Clouds, Public Cloud Platforms GAE, AWS, and Azure, Inter-cloud Resource Management, Cloud Security and Trust Management

Unit-III

Service-Oriented Architectures for Distributed Computing: Services and Service-Oriented Architecture, Message-Oriented Middle-ware, Portals and Science Gateways, Discovery, Registries, Metadata and Databases, Work-flow in Service-Oriented Architectures.

Unit-IV

Cloud Programming and Software Environments: Features of Cloud and Grid Platforms, Parallel and Distributed Programming Paradigms, Programming Support of Google App Engine, Programming on Amazon AWS and Microsoft Azure, Emerging Cloud Software Environments.

Unit-V

Ubiquitous Clouds and the Internet of Things: Cloud Trends in Supporting Ubiquitous Computing, Performance of Distributed Systems and the Cloud, Enabling Technologies for the Internet of Things, Innovative Applications of the Internet of Things, On-line Social and Professional Networking.

REFERENCE BOOKS

1. Distributed and Cloud Computing- Kai Hwang, Geoffrey C. Fox, Jack J. Dongarra – Elsevier-2012
2. Cloud Computing – A Hands-on Approach – Arshdeep Bahga, Vijay Madisetti – University Press, 2014
3. Enterprise Cloud Computing – Gautam Shroff – Cambridge University Press – 2010

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Mobile Computing

Unit-I

Introduction: Wireless transmission, Frequencies for radio transmission, Signals, Antennas, Signal Propagation, Multiplexing, Modulations, Spread spectrum, MAC, SDMA, FDMA, TDMA, CDMA, Cellular Wireless Network.

Unit-II

Telecommunication systems: GSM, GPRS, DECT, UMTS, IMT-2000, Satellite Networks, Basics, Parameters and Configurations, Capacity Allocation, FAMA and DAMA, Broadcast Systems, DAB, DVB.

Unit-III

Wireless LAN: IEEE 802.11, Architecture, Services, MAC, Physical layer, IEEE802.11a-802.11b standards, HIPERLAN, BlueTooth.

UNIT-IV

Mobile IP, Dynamic Host Configuration Protocol, Routing, DSDV, DSR, Alternative Metrics

UNIT-V

Traditional TCP, Classical TCP improvements, WAP, WAP 2.0, WML Basics, WML Cards.

REFERENCE BOOKS

1. Jochen Schiller, ”Mobile Communications”, 2/e, PHI/Pearson Education, 2003.
2. William Stallings, ”Wireless Communication and Networks”, PHI/Pearson Education, 2002
3. Kaveh Pahlaven, Prasanth Krishnamoorthy, ”Principles of Wireless Networks”, PHI/Pearson Education, 2003.
4. Hazysztof Wesolowshi, ”Mobile Communication Systems”, John Wiley and Sons Ltd, 2002.

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Internet Programming Lab – Practical Lists

1. Write a HTML code to display information about your college use
   1)Bold Tag
   2)Centre Tag
   3)Heading & Font tags. Add background colour and picture
2. Create a HTML document to display a list of four flowers and link each one to another document displaying brief description of the flower. Add pictures wherever possible.
3. Create a table to display the marks obtained in the exam.
4. Write an HTML code to display a list of 5 cars in a frame .Link each one to a brief description in second frame The left frame should display the list and the right frame should display the paragraph about the frame.
5. Page hit counter
6. Input/output operations
7. Reading/writing files and Directories
8. Calendar application using PHP
9. MySQL Connectivity and Database manipulations
10. Session maintenance in PHP.

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Mini Project Lab -

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IV Semester No Theory and Practical Courses - Only 6 Months External Main Project.