



SATHYABAMA UNIVERSITY
(Established under section 3 of UGC Act, 1956)
Jeppiaar Nagar, Rajiv Gandhi Salai (OMR), Chennai – 600 119, Tamil Nadu. India.
Phone: 044-2450 3150/3151/3152/3154/3155 Fax: 044-2450 2344
www.sathyabamauniversity.ac.in



SCHOOL OF COMPUTING

DEPARTMENT OF INFORMATION TECHNOLOGY

ACADEMIC YEAR 2017-2018_ELECTIVES



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SCHOOL OF COMPUTING
DEPARTMENT OF INFORMATION TECHNOLOGY
STUDENT CIRCULAR 2014 BATCH

03.05.2017

This is to inform you that it is mandatory to select Two elective subjects for the VII semester of Academic year 2017-2018 based on your area of interest. You can select any two of the following subjects

1. SIT1606-Big data
2. SCSX1061 – Python Programming
3. SITX1003 – Enterprise Resource Planning

Confirm the elective subject through your counselors to the HOD on or before
11-05-2017


HOD-IT
(Dr.R.Subhashini)



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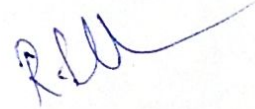
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03.05.2017

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1. SIT1606-Big data
2. SCSX1061 – Python Programming
3. SITX1003 – Enterprise Resource Planning

Confirm the elective Confirm the elective subject through your counselors to the HOD on or before
11-05-2017


HOD-IT
(Dr.R.Subhashini)

SIT1606	BIG DATA	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION

9 Hrs.

Introduction to Big Data - Challenges of Conventional Systems - Nature of Data - Small data - Medium data - Big Data - Small data vs Big data - Sources of Big Data - Big Data Characteristics - Big Data Analytics - Importance of Big Data, Big Data in the Enterprise - Big Data Enterprise Model - Building a Big Data Platform - Big data in Social and Behavioral sciences.

UNIT 2 HDFS, HADOOP AND HADOOP INFRASTRUCTURE

9 Hrs.

Hadoop and Databases - Typical Datacenter Architecture - Adding Hadoop to the Mix - Key Benefit - Flexibility: Complex Data Processing - HDFS - Hadoop Infrastructure - Architecture - Different in Data Model and Computing Model - HDFS Files and Blocks, Components of HDFS - Hadoop framework - HDFS - Map Reduce Framework - Data Loading techniques - Hadoop Cluster Architecture - Hadoop Configuration files - Hadoop Cluster modes - Single Node - Multi Node - Fully distributed node.

UNIT 3 HADOOP MAP REDUCE FRAMEWORK

9 Hrs.

Relationship between MapReduce and HDFS - Relationship between MapReduce and HDFS - Clients, Data Nodes, and HDFS Storage - MapReduce workloads. Hadoop framework - Hadoop data types - Hadoop map reduce Paradigm - Map and Reduce Tasks - Map reduce Execution framework - Partitioners and Combiners - Input formats (Input Splits and Records, Text Input, Binary Input, Multiple Inputs) - Output Formats (TextOutput, BinaryOutput, Multiple Output) - Hadoop Mapreduce programming - Advanced Map reduce concepts - Counters, Custom Writables - Unit testing framework - Error Handling - Tuning - Advanced Map reduce.

UNIT 4 HADOOP IMPLEMENTATION AND HADOOP ECO SYSTEM TOOLS

9 Hrs.

Hadoop Implementation - Job Execution - Hadoop Data Types - Job Configurations - Input and Output Formats - ECO system tools - Pig's Data Model, Pig Latin, Developing & Testing Pig Latin Scripts - Writing Evaluation, Filter, Load & Store Functions - Hive - Hive Architecture - Comparison with Traditional Database - HiveQL: Data Types, Operators and Functions - Hive Tables - Querying Data - Advance Hive, NoSQL Databases - HBase - Loading Data in Hbase - Querying Data in Hbase

UNIT 5 HADOOP PROJECT ENVIRONMENT

9 Hrs.

HBase: Introduction to HBase, Client API's and their features, Available Client, HBase Architecture, MapReduce - Integration. HBase: Advanced Usage, Schema Design, Advance Indexing, Coprocessors, Hadoop 2.0 - MRv2 - YARN - NameNode High Availability, HDFS Federation, MRv2, YARN, Running MRv1 in YARN, Upgrade your existing MRv1 code to MRv2, Programming in YARN framework-cover Apache Oozie Workflow Scheduler for Hadoop

Max. 45 Hours

COURSE OUTCOMES

On completion of the course, student will be able to-

1. Comprehend Enterprise Data to make Business Decisions
2. Analyse methods of loading voluminous data into Big Data framework using Flume and Sqoop.
3. Demonstrate the functions of Map Reduce Framework on any huge amount of Data
4. Apply Ecosystem tools for querying structured and unstructured Data.
5. Manage Data using HBase Framework.
6. Develop an application using Big Data tools.

TEXT / REFERENCES BOOKS

1. WA Gmob, "Big Data and Hadoop", Kindle Edition, 2013
2. Eric Miller, "A Overview of Map Reduce and its impact on Distributed Data", Kindle Edition, 2012.
3. Strata, "Big Data Now", O'Reilly Media Inc., Kindle Edition, 2012.

END SEMESTER EXAM QUESTION PAPER PATTERN	
Max. Marks : 100	Exam Duration: 3 Hrs.
PART A: 10 questions of 2 marks each - No choice	20 Marks
PART B : 2 Questions from each unit with internal choice, each carrying 12 marks	80 Marks

Name List-Big Data

<u>Reg.No</u>	<u>NAME</u>
3412003	ADITYA SHANKAR
3412004	AJAY GUPTA
3412009	AKSHAY TIWARI
3412011	AKSHAYA R
3412013	ANDENA SONIA
3412019	ASHISH ANAND
3412023	BADRI VISHAL S
3412026	BOTTA DINESH
3412031	CHOWDAM SAIKIRAN
3412033	DASARI RAKESH
3412034	DEBALIKA CHATTERJEE
3412037	DEEPSIKHA SAHA
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3412208	YASHVANTHI B

SCSX1061	PYTHON PROGRAMMING	L	T	P	Credits	Total Marks
		3	0	0	3	100

Unit-I	Introduction to the IDLE interpreter (shell) -Expressions – Data Types - Built-in function -Conditional statements - Iterative statements- Input/output -Compound Data Types - Nested compound statements – Introduction to Object Oriented Concepts.	9 Hrs
Unit-II	File Handling - File Operations –Iterators - Exception handling - Regular Expressions	9 Hrs
Unit-III	GUI Programming in Python - Introduction to GUI library - Layout management - Events and bindings - Fonts – Colours - Canvas - Widgets (frame, label, button, check box, entry, listbox, message, radiobutton, text, spinbox).	9 Hrs
Unit-IV	Database (using NoSQL):Connector Module –Cursor – Statements - Exceptions in database. Network connectivity: Socket module - Client – Server – Email – URL Access	9 Hrs
Unit-V	Case Study - Web Programming using Python. Image Processing – Facebook Analysis – Twitter Analysis	9 Hrs

COURSE OUTCOMES

On completion of the course, student will be able to:

1. To learn and demonstrate the decision controls, looping constructs, lists and dictionaries in the design of Python Program.
2. To design and develop GUI based applications.
3. To deploy Web based applications by integrating with NoSQL Database.
4. To analyze the contents social media on Text mining, Sentiment Analysis.
5. To implement Machine Learning Algorithms (Cluster Algorithms, Decision Trees) using libraries.
6. To demonstrate visualization using open source data sets.

Text books:

1. Y. Daniel Liang, Introduction to Programming Using Python, Pearson, 2013.
2. Paul Gries , Jennifer Campbell, Jason Montojo, Practical Programming: An Introduction to Computer Science Using Python 3, Pragmatic Bookshelf, 2/E 2014
3. Magnus Lie Hetland, Beginning Python: From Novice to Professional, Apress

References:

1. James Payne, Beginning Python: Using Python 2.6 and Python 3, Wiley India, 2010
2. Lukaszewski, MySQL for Python: Database Access Made Easy, Pact Publisher, 2010
3. Charles Dierbach, Introduction to Computer Science using Python, Wiley, 2013
4. AdeshPandey, Programming Languages – Principles and Paradigms, Narosa, 2008

Name List – Python Programming

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SITX1003	ENTERPRISE RESOURCE PLANNING	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT I INTRODUCTION TO ERP AND RELATED TECHNOLOGIES

10hrs.

Introduction to ERP, Its Evolution, Its Growth, Its Advantages, Its need, Integrated Management Information, Business Model in g, Integrated Data Model.

BPR, MIS, DSS, EIS, Data Warehousing, Data Mining, OLTP, Supply Chain Management.

UNIT II MANUFACTURING PERSPECTIVE AND VARIOUS MODULES

10hrs.

MRP, BOM, Closed loop MRP, MRP-11, DRP, JIT and Kanban, CAD/CAM, PDM, Data Management, Benefit of PDM, MTO and MTS, ATO, ERP Modules – Finance, Plant Maintenance, Quality Management, Materials Management.

UNIT III BENEFITS AND MARKET

10hrs.

Reduction of lead-time-On-time shipment, Reduction in Cycle Time, Improved Resource Utilization, Better Customer Satisfaction, Improved Supplier Performance, Increased Flexibility, Reduced Quality Costs.

UNIT IV IMPLEMENTATION

10hrs.

Market, SAP AG, Baan, Oracle, PeopleSoft, JDEdwards, SSA, QAD. ERP Implementation Lifecycle – Pro- evaluation Screening, Package Evaluation, Project Planning Phase, Gap-Analysis, Re-engineering, Configuration, Implementation Team Training, Testing, Going Live, End-User Training.

UNIT V FUTURE DIRECTIONS AND CASE STUDIES

10hrs.

Post-implementation, In-house Implementation – Pros and Cons. Faster Implementation Methodologies, Business Models and BAPIs.

REFERENCE BOOKS:

1. Alex Leon, "Enterprise Resource Planning", Tata McGraw-Hill, 1999.
2. Avraham Shtub, Reuven Kamir, "ERP: The Dynamics of Supply Chain and Process Management", Springer Science and Business media, Second Edition
3. Daniel E. O'Leary, "Enterprise Resource Planning Systems", Cambridge University Press, 2001

UNIVERSITY EXAM QUESTION PAPER PATTERN

Max Marks: 80

Exam Duration: 3hrs.

Part A: 2 Questions from each unit, each carrying 2 marks

20 Marks

Part B: 2 Questions from each unit with internal choice, each carrying 12 marks

60 Marks



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SCHOOL OF COMPUTING
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STUDENT CIRCULAR 2015 BATCH

03.12.2017

This is to inform you that it is mandatory to select Two elective subjects for the VI semester of Academic year 2017-2018 based on your area of interest. You can select one of the following subjects

1. SIT1619 – Internet of Things
2. SCS1621 - R Programming

Confirm the elective Confirm the elective subject through your counselors to the HOD on or before
11-12-2017


HOD-IT
(Dr.R.Subhashini)

SIT1619	INTERNET OF THINGS	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1

9 Hrs.

Introduction to IoT, Current technological trends and future prospects, - Evolution of IoT - IoT and related terms – Business Scope, Relation with embedded system, Introduction to Arduino and Raspberrypi, Overview of Elements of IoT - Basic Architecture of an IoT.

UNIT 2

9 Hrs.

Application Sensors & Actuators - Edge Networking (WSN) – Gateways - IoT Communication Model – WPAN & LPWA, IoT platform for available applications, Hardware Devices: Arduino, Raspberry pi and Smartwifi, etc, Wearable Development Boards, Softwares, Programs and Stacks available for building IoT applications, Installation of various packages necessary for project and list of tools.

UNIT 3

9 Hrs.

IoT Communication Model, Cloud computing in IoT, IoT in cloud architecture, Logging on to cloud, Selecting and Creating cloud service ,Managing Cloud Account Credentials and Generating Key Pair, Creating IoT Cloud Service.

UNIT 4

9 Hrs.

Big Data Analytics – Data Exploration, Data Visualization, Visualization tools for IoT.

UNIT 5

9 Hrs.

DIY Kits – Soil moisture monitoring, Weather monitoring, Air quality Monitoring, Movement Detection, etc, IFTTT and other apps.

Max. 45 Hrs.

COURSE OUTCOMES:

On completion of the course, student will be able to

- CO1 : Illustrate the technology and current trends in Internet of things.
- CO2 : Understand the various elements of IoT system and hardware devices.
- CO3 : Learn the programming languages and platforms for building IoT applications
- CO4 : Demonstrate cloud computing and its relevance for developing IoT applications.
- CO5 : Implement IoT applications that manage big data with data analytics and visualization tools.
- CO6 : Implement hands-on projects using an appropriate software and hardware devices in various applications.

TEXT / REFERENCE BOOKS

1. The Internet of Things: Applications and Protocols, Wiley publications. Author(s): Oliver Hersent, David Boswarthick, Omar Elloumi.
2. Architecting the Internet of Things, Springer publications. Author(s):Dieter Uckelmann, Mark Harrison, Florian Michahelles.
3. Internet of Things with Arduino Cookbook, Packt Publications. Author(s): Marco Schwatz.
4. Internet of Things and Data Analytics, Wiley Publications.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks: 100

Exam Duration: 3 Hrs.

PART A: 2 Questions from each unit, each carrying 2 marks

20 Marks

PART B: 2 Questions from each unit with internal choice, each carrying 16 marks

80 Marks

Name List – Internet of Things

Reg. No.	Student Name
3512003	ABINAYA. K
3512004	ABINAYABHARATHI. A
3512005	ABIRAMI. D
3512009	AKILA SRIMATHI. P. T
3512010	ALAMPALLY PRANIDEEP
3512012	AMSAVALLI. P
3512020	ASHWATHI. V
3512022	AYSHWARYA. S
3512024	BALAMURUGAN. S
3512025	BALINA PRUDHVI
3512026	BANA SURESH KUMAR REDDY
3512028	BETHALA SONIYA
3512030	BINU. P
3512031	CHAGANTI SRINIVAS
3512032	CHALLA SIVA SAI KALYAN
3512034	DENISA. A
3512036	DEVARAJAN. K
3512039	DODDA SAI KRISHNA

3512041	GAJULA VENKATA PHANEENDRA
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3512084	MARIAMMAL SONIYA. M
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3512088	MOHAMED SHEIK DAWOOD. M
3512089	MOHAMMED THOUSEEF. D
3512090	MOHANA. S
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3512146	SUNDHARI. G

3512149	SURUTHI. S
3512151	TIMMASAMUDRAM YAGNA SRI SAMHITA
3512153	VAKULA. C.K
3512156	VATTIKUTI SAI BALAJI
3512157	VEDULLA POORNA CHANDRA GANESH PRASAD
3512158	VEDULLAPALLI LOKESH CHANDRA
3512160	VENKATA SAI SAMPATH NADAKUDITI
3512162	VISHALI. S

SCS1621	R PROGRAMMING	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1

9 Hrs.

Introduction to R - History and fundamentals of R, Installation and use of R / R Studio / R Shiny, Installing R packages, R – Nuts and Bolts -Getting Data In and Out - Control Structures and Functions- Loop Functions-Data Manipulation- String Operations- Matrix Operations.

UNIT 2

9 Hrs.

R Data interfaces - CSV Files, XML files, Web Data- Data Preprocessing: Missing Values, Principle Component Analysis - Data Visualization – Charts & Graphs-Pie Chart, Bar Chart, Box plot, Histogram, Line graph, Scatter Plot.

UNIT 3

9 Hrs.

Statistical Modeling in R - Descriptive statistics-R Packages: Regression (MASS package) - Distribution (STATS package) - ANOVA - Time Series Analysis.

UNIT 4

9 Hrs.

Machine Learning in R - Classification: Decision Trees, Random Forest, SVM – Clustering - Association Rule Mining - Outlier Detection.

UNIT 5

9 Hrs.

Overview of R Shiny - R Hadoop - Case Study - Hypothesis Generation, Importing Data set and Basic Data Exploration, Feature Engineering, Model Building..

Max. 45 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to:

- CO1 : Install R Packages and develop applications.
- CO2 : Demonstrate Data Preprocessing Algorithms and Visualization methods on data-sets in R.
- CO3 : Apply the Statistical Models in R.
- CO4 : Demonstrate Machine Learning Algorithms in R.
- CO5 : Create applications in R Frameworks.
- CO6 : Develop Engineering Models for Hypothesis Generation and Data Extraction.

TEXT / REFERENCE BOOKS

- Hands-On Programming with R: Write Your Own Functions and Simulations By Garrett Golemund, O'Reilly Media, Inc., 2014.
- R for Data Science, Hadley Wickham, Garrett Golemund, " O'Reilly Media, Inc.2016.
- Introduction to Statistics and Data Analysis - With Exercises, Solutions and Applications in R By Christian Heumann, Michael Schomaker and Shalabh, Springer, 2016
- The R Software-Fundamentals of Programming and Statistical Analysis -Pierre Lafaye de Micheaux, Rémy Drouilhet, Benoit Lique, Springer 2013
- A Beginner's Guide to R (Use R) By Alain F. Zuur, Elena N. Ieno, Erik H.W.G. Meesters, Springer 2009

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

Exam Duration: 3

Hrs.

PART A: 2 Questions from each unit, each carrying 2 marks

20 Marks

PARTB: 2 Questions from each unit with internal choice, each carrying 16 marks

80 Marks

Name List – R Programming

Reg. No.	Student Name
3512001	AATISHA CYRILL
3512006	ADITYA RAJ
3512008	AKHILESH. S
3512013	ANANT ANAND
3512014	ANINDYA KAR CHOUDHURY
3512015	ANKITA RAKSHIT
3512016	ANTARA DEBNATH
3512021	AVINASH PRAJAPATI
3512023	BABLOO KUMAR
3512027	BEAUTY
3512033	DEEP ACHARJEE
3512035	DESAI SAI ASRITH
3512042	GARIMA
3512043	GOBINATH. M
3512050	GUNNAM VEERA VENKATA RAJESH
3512056	JEFFREY VIVIAN SAMUEL
3512059	JOY BLESSY. U
3512061	KAARTHIKHA SUBHASRI. S
3512077	KOUSALYA. L
3512078	KSHITIJ CHOUDHARY

3512085	MARIYA CHRISTEENA VINITHA. K
3512086	MARY BENI RESHMA. A.B
3512091	MOHIT ANAND
3512092	MOHIT RAJ
3512097	MYLAPALLE YESHWANTH
3512099	NAGESH BHARTI
3512104	NILESH KUMAR
3512105	PALLA RATNA SAI KUMAR
3512110	PRATIKSHA RASHMI
3512114	PRIYA SINHA
3512118	RAHUL KUMAR
3512126	RISHAV KUMAR
3512129	SAI VENKATESH. M
3512130	SAJAL ARORA
3512137	SHAILESH KUMAR
3512140	SHASHANK SONI
3512141	SINDHU. K
3512147	SUNKARA SAINATH



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www.sathyabamauniversity.ac.in



SCHOOL OF COMPUTING

DEPARTMENT OF INFORMATION AND TECHNOLOGY

ACADEMIC YEAR 2017-2018_CBCS



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SCHOOL OF COMPUTING
DEPARTMENT OF INFORMATION AND TECHNOLOGY

03.05.2017

CIRCULAR

Department of IT, hereby inform you that, we are inviting students from inter disciplinary programmes to Register for the CBCS courses, which is offered by us for the academic year JUNE 2017. The Course code and the Subject names are listed below. The last date of registration is 10/05/2017.

CBCS-CHOICE BASED CREDIT SYSTEM

<u>YEAR/SEMESTER</u> (offered in the Year/Sem by Soc)	<u>COURSE CODE</u>	<u>COURSE NAME</u>	<u>ELIGIBLE STUDENTS</u>
<u>III/IV</u>	SCS1306	DATABASE MANAGEMENT SYSTEM	<u>ALL BRANCHES</u>
<u>II/III</u>	SCS1305	SOFTWARE ENGINEERING	<u>CSE,IT</u>

Kindly Fill up the Excel sheet with the required details Given.

S.No Name Regno. Student Name Branch Batch

Registered students name are reported to the respective department HOD and the Dean in due course for the Credit updation. The Syllabus for the Subjects is attached herewith for your reference. Kindly See your mail for further details


HOD-IT
(Dr.R.Subhashini)

SCS1306	DATABASE MANAGEMENT SYSTEM	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION TO DATABASES

9 Hrs.

Databases and Databases users - Database system concepts and architecture - Data modeling using Entity Relationship (ER) Model. **Relational Model** - The Relational Data Model and Relational Database Constraints - The Relational Algebra and Relational Calculus.

UNIT 2 DATABASE DESIGN

9 Hrs.

Overview of the QBE Language - Overview of the Hierarchical Data Model - Overview of the Network Data Model - SQL-99: Schema Definition, Constraints, Queries, and Views- Functional Dependencies and Normalization for Relational Databases.

UNIT 3 QUERY PROCESSING

9Hrs.

Algorithms for Query Processing and Optimization - Introduction to Transaction Processing Concepts and Theory - Concurrency control techniques.

UNIT 4 RECOVERY AND SECURITY

9Hrs.

Database Recovery Techniques - Database Security - Distributed databases and Client- Server Architecture

UNIT 5 OBJECT DATABASE

9Hrs.

Concepts for Object Database - Enhanced Data Models for Advanced Application Emerging Database Technologies and Application

Max. 45 Hours

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 : Construct ER model for a given application..

CO2 : Apply normalization on Relational Databases

CO3: Demonstrate query optimization and concurrent transaction processing

CO4: Analyse recovery techniques, security mechanism, fragmentation and load balancing of databases.

CO5 : Design database using Object Oriented techniques...

CO6: Create database for a specified application

TEXT / REFERENCE BOOKS

1. Elmasri & Navathe - Fundamentals of Database Systems - 3rd Edition, 2nd Reprint, Addison Wesley, 2000

2.Abraham Silberschatz, Henry. F. Korth and S. Sudharshan "Database System Concepts", 4th Edition, 2002.

3.C. J. Date, "Introduction to database systems", Addison Wesley, 7th Edition, 2001.

4.Jan L. Harrington, "Object oriented database design", Harcourt India private limited

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

Exam Duration : 3 Hrs.

PART A : 10 questions of 2 marks each- No choice

20

Marks

PART B : 2 questions from each unit of internal choice, each carrying 16 marks

80

Marks

SCS1305	SOFTWARE ENGINEERING	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION

9 Hrs

S/W engineering paradigm - Life cycle models - Water fall - Incremental - Spiral - Evolutionary - Prototyping - Object oriented system engineering - Computer based system - Verification - Validation - Life cycle process - Development process - System engineering hierarchy - Introduction to CMM - Levels of CMM.

UNIT 2 SOFTWARE ENGINEERING PROCESS

9 Hrs.

Functional And Non-Functional - User - System - Requirement Engineering Process - Feasibility Studies - Requirements - Elicitation - Validation and management - Fundamental of requirement analysis - Analysis principles - Software prototyping - Prototyping in the Software Process - Rapid Prototyping Techniques - User Interface Prototyping - Software Document Analysis and Modeling - Data - Functional and Behavioral Models - Structured Analysis and Data Dictionary.

UNIT 3 DESIGN PROCESS AND CONCEPTS

9 Hrs.

Design process - Modular design - Design heuristic - Design model and document - Architectural design - Software architecture - Data design - Architecture data - Transform and transaction mapping - User interface design - User interface design principles.

UNIT 4 BASIC CONCEPTS OF SOFTWARE TESTING

9 Hrs.

Levels - Software Testing Fundamentals - Types of s/w test - White box testing - Basis path testing - Black box testing - Control Structure testing - Regression testing - Testing in the large - S/W testing strategies - Strategic approach and issues - UNIT testing - Integration testing - Validation testing - System testing and debugging. Case studies - Writing black box and white box testing.

UNIT 5 COST ESTIMATION & MAINTENANCE

9 Hrs.

Software cost estimation - COCOMO model - Quality management - Quality concepts - SQA - Software reviews - Formal technical reviews - Formal approaches of SQA and software reliability - Software maintenance - SCM - Need for SCM - Version control - Introduction to SCM process - Software configuration items. Re-Engineering - Software reengineering - Reverse engineering - Restructuring - Forward engineering.

Max. 45 Hours

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1 : Select appropriate Software Development Lifecycle Model for a given requirement.
- CO2 : Comprehend various Functional and Non-Functional Requirements.
- CO3 : Create User Interface using Design concepts.
- CO4 : Generate Test cases for the developed Code.
- CO5 : Estimate Cost & Maintenance of the Project..
- CO6 : Generate an overall plan for a specific application

TEXT / REFERENCE BOOKS

1. Pressman, "Software Engineering and Application", 6th Edition, McGraw International Edition, 2005..
2. Shooman. M.C , "Software Engineering Design", McGraw International Edition, 1985. Compiler Principles, Techniques & Tools", Addison-Wesley Publishing Company, 1986
3. Richard Fairley, "Software Engineering - Design, Reliability And Management", McGraw International Edition, 1983.
4. Sommerville, "Software Engineering", 6th Edition, Pearson Education, 2000.
5. Pfleeger, "Software Engineering", 6th Edition, Prentice Hall of India, 2005
6. Ghezzi, "Software Engineering", 2nd Edition, Prentice Hall of India, 2005.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

PART A : 10 questions of 2 marks each- No choice

PART B : 2 questions from each unit of internal choice, each carrying 16 marks

Exam Duration : 3 Hrs.

20 Marks

80 Marks



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SCHOOL OF COMPUTING
DEPARTMENT OF INFORMATION AND TECHNOLOGY

04.12.2017

CIRCULAR

Department of IT, hereby inform you that, we are inviting students from inter disciplinary programmes to Register for the CBCS courses, which is offered by us for the academic year DEC 2017. The Course code and the Subject names are listed below. The last date of registration is 11/12/2017.

CBCS-CHOICE BASED CREDIT SYSTEM

<u>YEAR/SEMESTER</u> <u>(offered in the</u> <u>Year/Sem by Soc)</u>	<u>COURSE CODE</u>	<u>COURSE NAME</u>	<u>ELIGIBLE STUDENTS</u>
<u>III/VI</u>	SIT1301	DATA MINING AND DATA WAREHOUSING	<u>CSE, IT, BIO-TECH</u>
<u>IV/VIII</u>	SIT1304	CLOUD COMPUTING	<u>CSE, IT, ECE</u>

Kindly Fill up the Excel sheet with the required details Given.

S.No Name Regno. Student Name Branch Batch

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HOD-IT
(Dr.R.Subhashini)

SIT1301	DATA MINING AND DATAWAREHOUSING	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 DATA WAREHOUSING

9 Hrs.

Data warehousing components - Building a data warehouse - Multi Dimensional Data Model - OLAP Operation in the Multi-Dimensional Model - Three Tier Data Warehouse Architecture - Schemas for Multi-dimensional data Model - Online Analytical Processing (OLAP) - OLAP Vs OLTP Integrated OLAM and OLAP Architecture.

UNIT 2 DATA MINING

9 Hrs.

Introduction - Data - Types of data - Steps in KDD - System Architecture - Data mining functionalities - Classification of data mining systems - Data mining task primitives - Integration of a data mining system with a data warehouse - Issues - Data pre-processing - Data Mining Application

UNIT 3 ASSOCIATION RULE MINING

9 Hrs.

Mining frequent patterns - Associations and correlations - Mining methods - Finding Frequent itemset using Candidate Generation - Generating Association Rules from Frequent Itemsets - Mining Frequent itemset without Candidate Generation - Mining various kinds of association rules - Mining Multi-Level Association Rule-Mining Multi-Dimensional Association Rule-Mining Correlation analysis - Constraint based association mining.

UNIT 4 CLASSIFICATION AND PREDICTION

9 Hrs.

Classification and prediction - Issues Regarding Classification and Prediction - Classification by Decision Tree Induction - Bayesian classification - Baye's Theorem - Naïve Bayesian Classification - Bayesian Belief Network - Rule based classification - Classification by Backpropagation - Support vector machines - Prediction - Linear Regression - Non Linear Regression.

UNIT 5 CLUSTERING, APPLICATIONS AND TRENDS IN DATA MINING

9 Hrs.

Cluster analysis - Types of data in Cluster Analysis - Categorization of major clustering methods -- Partitioning methods - K Means - K Medoids - Hierarchical methods - Density-based methods - Grid-based methods - Model based clustering methods -- Constraint Based cluster analysis - Outlier analysis - Data mining applications.

Max. 45 Hours

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1 : Comprehend knowledge about the transactional processing & analytical processing concepts
- CO2 : Analyze the characteristics of data and pre-process to make it ready for analysis.
- CO3 : Build a model for analysis by identifying the correlation between the attributes.
- CO4 : Estimate the future trends by relating the past trends and present scenario..
- CO5 : Evaluate various supervised learning algorithms.
- CO6 : Compare and contrast Supervised and unsupervised learning approaches.

TEXT / REFERENCE BOOKS

1. Jiawei Han and Micheline Kamber, "Data Mining Concepts and Techniques", 2nd Edition, Elsevier, 2007
2. Alex Berson and Stephen J. Smith, "Data Warehousing, Data Mining & OLAP", Tata McGraw Hill, 2007.
3. Pang-Ning Tan, Michael Steinbach and Vipin Kumar, "Introduction To Data Mining", Person Education, 2007.
4. K.P. Soman, Shyam Diwakar and V. Ajay, "Insight into Data mining Theory and Practice", Easter Economy Edition, PrenticeHall of India, 2006.
5. G. K. Gupta, "Introduction to Data Mining with Case Studies", Easter Economy Edition, Prentice Hall of India, 2006.
6. Daniel T.Larose, "Data Mining Methods and Models", Wile-Interscience, 2006.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

Exam Duration : 3 Hrs.

PART A : 10 questions of 2 marks each - No choice

20 Marks

PART B : 2 questions from each unit of internal choice, each carrying 16 marks

80 Marks

SIT1304	CLOUD COMPUTING	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 UNDERSTANDING CLOUD COMPUTING

9 Hrs.

History of Cloud computing - Cloud Computing Architectural Framework - Types of Clouds - pros and cons of cloud computing - difference between web 2.0 and cloud - key challenges in cloud computing - Major Cloud players - Cloud Deployment Models - Virtualization in Cloud Computing - types of virtualization - Parallelization in Cloud Computing - cloud resource management - dynamic resource allocation - Optimal allocation of cloud models.

UNIT 2 CLOUD SERVICE MODELS

9Hrs.

Software as a Service (SaaS) - Infrastructure as a Service (IaaS)- Platform as a Service (PaaS)- Service Oriented Architecture (SoA) - Elastic Computing - On Demand Computing.

UNIT 3 CLOUD DEPLOYMENT MODELS

9Hrs.

Deployment of applications on the cloud - Hypervisor - Case studies - Xen, VMware, Eucalyptus, Amazon EC2, KVM, Virtual Box, Hyper-V.

UNIT 4 CLOUD COMPUTING FOR EVERYONE

9 Hrs.

Cloud data centers - Energy efficiency in data centre - Mobile cloud computing service models - Collaboration with services and applications: CRM management - Project management - Email - on line database - calendar - schedules - Word Processing - Presentation - Spreadsheet - Databases - Desktop - Social Networks and Groupware.

UNIT 5 CLOUD SECURITY

9 Hrs.

Cloud security - Security threats and solutions in clouds - Auditing protocols - dynamic auditing - storage security - Privacy preserving -- Fully Homomorphic Encryption - big data security - Cloud availability - DoS attacks - Fault tolerance management in cloud computing - Cloud computing in India.

Max. 45 Hours

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 : Comprehend the type, architecture and features of a given Cloud setup with its suitability for a given application.

CO2 : Compare the types of cloud services and connect to the service requirements of an application.

CO3 : Deploy an application on suitable cloud and make use of the suitable virtualization tool to create cloud infrastructure.

CO4 : Evaluate a cloud data centre and measure its energy efficiency.

CO5 : Appraise the Cloud security and the associated risks to protect the online and cloud infrastructure from external threats and third party attacks.

CO6 : Manage and collaborate cloud services with dynamic auditing.

TEXT / REFERENCE BOOKS

1. Cloud computing a practical approach - Anthony T.Velte, Toby J. Velte Robert Elsenpeter TATA McGraw - Hill, New Delhi - 2010
2. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online - Michael Miller - Que 2008
3. Cloud Security: A Comprehensive Guide to Secure Cloud Computing, Ronald L. Krutz, Russell Dean Vines, Wiley-India, 2010

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

Exam Duration : 3 Hrs.

PART A : 10 questions of 2 marks each - No choice

20 Marks

PART B : 2 questions from each unit of internal choice, each carrying 16 marks

80 Marks