



**VALUE ADDED COURSES**

**2017-2018**

**BROCHURE**




**ACADEMIC YEAR  
2017 - 2018**

**LIST OF COURSES  
&  
SYLLABUS**



**P.K.R. ARTS COLLEGE FOR WOMEN**  
 Accredited with 'A' Grade by NAAC  
 Autonomous Institution – Affiliated to Bharathiar University  
 Gobichettipalayam

<b>DEPARTMENT</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>
PHYSICS	17VAPHU1	Introduction to Basic Electricity & Electronics
	17VAPHP1	Fundamental of Embedded Software Development using IBM Rational Rhapsody
	17VAPHP2	Introduction to Object Oriented Programming using Java
COMPUTER SCIENCE	17CSUVA01	Big Data using Hadoop and IBM Info sphere
	17CAUVA01/17ITVA01/ 17CAPVA01	Cloud Computing Advanced
	17CSUVA01	Mobile Application Development and Deployment
COMMERCE	17CGUVA1/17CCUVA1/ 17CPUVA1	Tally ACE
	18GPVA01	Fundamental Course in Business Intelligence using IBM Cognos
	18GPVA02	Fundamental Course in Predictive Analytics using IBM SPSS
MANAGEMENT	17BAPVA1	Fundamental Course in Business Intelligence using IBM Cognos
	17BAPVA2	Fundamental Course in Predictive Analytics using IBM SPSS



**DEPARTMENT  
OF  
PHYSICS**

***COURSES***

- **Introduction to Basic Electricity & Electronics**
- **Fundamental of Embedded Software Development using IBM Rational Rhapsody**
- **Introduction to Object Oriented Programming using Java**

## **SYLLABUS**

### **INTRODUCTION TO BASIC ELECTRICITY AND ELECTRONICS**

#### **UNIT I – INTRODUCTION**

History of Electronics – Evolution of Electronics - Impact of Electronics in the Modern World – Need to understand Basic Principles of Electronics

#### **UNIT II- ELECTRICITY**

Introduction - Basic Electricity – Electricity and Magnetism Basics- Sine waves-AC vs. DC- AC Voltage- Single- Phase and Three –Phase – Electric power - Watt

#### **UNIT III – BASIC ELECTRONIC COMPONENTS**

Resistors and Capacitors: Types, Specifications – Resistors-Standard values, Marking, Colour Coding-Inductors and Transformers: Types, Specifications, Principle of Working

#### **UNIT IV – LEARNING BY DOING**

Test equipments - Soldering- Construction of Basic Electronic Circuits

#### **UNIT V – FAULT FINDING AND REPAIR OF PERIPHERALS**

Fault finding and Repair of Peripherals in Basic Electronic and Electric Devices – Repair of Advanced Devices (UPS, Mobile Phones, Mixer Grinder) - Device – I- Device – II

#### **Reference:**

1. Concepts of Physics – Volume I & II- H.C.Verma- Bharathi bhavan Patna
2. Basic Physics – Second Edition – Karl F.Kuhn



**DEPARTMENT  
OF  
COMPUTER  
SCIENCE**

## ***COURSES***

- **BigData using Hadoop and IBM Infosphere**
- **Cloud Computing Advanced**
- **Mobile Application Development and Deployment**

# BIG DATA USING HADOOP AND IBM INFO SPHERE

## About the Technology:

Hadoop changes the economics and the dynamics of large scale computing. Its impact can be boiled down to four salient characteristics. Hadoop enables a computing solution that Scalable, Cost effective, Flexible, Fault tolerant.

IBM Info Sphere Big Insights brings the power of Hadoop to the enterprise. With built-in analytics, extensive integration capabilities and the reliability, security and support required, IBM helps to put your big data to work for you.

## About the course:

In this training you will learn about Big data and Hadoop using IBM InfoSphere Big Insights Basic edition. You will also get acquainted with IBM InfoSphere Streams, a product that can help analyze data 'on the go'.

After completing this course, you should be able to:

- Learn what big data and Hadoop are
- Understand the two types of big data
- Work with Hadoop using IBM InfoSphere Big Insights
- Get acquainted with IBM InfoSphere Streams
- Gain practical knowledge with the hands-on labs

## Contents:

What is bigdata?  
What is Hadoop?  
Working with Big In sights  
Hadoop architecture  
    Hands-on lab  
Map Reduce  
    Hands-on lab  
Big Insights Web Console  
    Hands-on lab  
Pig,Hive,andJ aql  
    Hands-on lab  
Moving data with Flume  
    Hands-on lab

# CLOUD COMPUTING – ADVANCED

## Module:1

Define cloud computing -Identify the key characteristics of cloud computing

**List the benefits of using clouds** – Describe some of the challenges to adopting a cloud architecture –Describe key cloud computing concepts and terminology –**Describe the service delivery models in cloud computing:** Identify the software as a service(SaaS)delivery model Identify the platform as a service(PaaS)delivery model – Identify the infrastructure as a service (IaaS) delivery model – **List the various cloud deployment scenarios:** Describe the features of private, public, hybrid, and community clouds –Lists on additional cloud deployment types –Select the most appropriate deployment model based on as to business and technical requirements- Review the integration of security in to the cloud reference model.

Describe security considerations in cloud computing –Identify security options available in cloud computing - Identify the top security threats to cloud computing - Describe the architecture of IBM cloud computing and IBM cloud computing offerings: Position the various vendor sin the service delivery model of cloud computing -Illustrate an IBM example cloud architectural configuration – Describe some of the IBM cloud offerings -Describe the capabilities of WebSphere Cloud Burstand WebSphere Hypervisor Edition

## Module:2

Cloud Definitions Public, Private, Hybrid :Market View Business Models –Workload based approaches – Overview of Foundation Technologies - Overview of Cloud Services

**Virtualization** : VMMs ,KVM, XEN, VMWare –Storage Virtualization-Network Virtualization

**Cloud Service Management** : Cloud Service Management (Breiter)- Life cycle of a Cloud Service Cloud Computing Reference Architecture –Cloud Computing Management Platform –Selected Management Areas –Exploitability of the Cloud Management Platform –Multi Tenancy –Design of the Cloud Management Platform Reference Architecture1 Service Orchestration–**Tivoli Service Automation Manager (Spatzier):** Architecture – Standardization –Life cycle of a Service - Security (Waidner)-ITIL based Service Management and Service Orchestration(Breh) – Cloud Customer Projects/Cloud Platform Exploitation (Behrendt)-Cloud Performance Considerations (UlrichHild) –Cloud Resiliency (Thomas Lump) - Cloud Service Metering, Account and Billing (JuergenSchneider)

**Infrastructure as a Service** : CIMS Cloud vs.Uni Stuttgart, Amazon EC2,Eucalyptus (RalphMietzner-UniStuttgart) – Demo using Uni CIMS Cloud (Ralph Mietzner and Team) - Storage in the Cloud (AmazonS3,SoNAS(VSC))(DietmarNoll)- Network Considerations (GerhardKoch) –Cloud Appliances (Harald Daur) -PaaS, Hybrid Clouds, SaaS - Platform as a Service -Principles–some basic mechanisms from Tanenbaum- Amazon Framework – Hadoop Google App Engine1 –Aspects of Hybrid Clouds -Outlook on Software as a Service - Examples: Sales force, Analytics, Collaboration (Lotus Live)



# IBM RATIONAL SOLUTIONS FOR MOBILE APPLICATIONS DEVELOPMENT & TESTING FOR ANDROID BASED DEVICES

## About the Technology:

The exponential growth of smart phone usage has created a sudden demand in mobile application development skills in the market. Today, there is handful of platforms (smart phones and tablets) that runs these smart devices. This platform domain is led by Apple IOS, Google Android, Microsoft Windows Phone, Symbian platforms - with Apple and Android being the front runners. Apple iOS is a propriety platform, on the otherhand, Android is an opensource platform that requires developments kills in Java. It has right set of components available for open source IDEs like Eclipse.

### Module:1

- UML2andSysML overview
- Basic Rational Rhapsody tool usage(hands-on exercise)
- Starting a project
- Creating and editing diagrams
- Using browser and features dialog
- Rational Rhapsody properties
- Project navigation
- Generating a report
- Model verification
- Subsystem interfaces

### Module:2

- Model-Driven Development (MDD)for Embedded Systems using IBM Rational Rhapsody
- Converging MDD with Android Software Development in Rhapsody
  - UsingtheAndroidAPI'sasPartoftheRhapsodyModelbyreverseengineering the Android SDK into Rhapsody
  - Creation of basic Android application sin the Rhapsody environment
  - VisualizationofthestructureandthealgorithmofanAndroidapplication within Rhapsody
  - Code generation and updatation from the Rhapsody model
- Overview of JAZZ platform
- Android based testing using Rational Quality Manager
  - Debugging and testing of Android applications within Rhapsody at the model level and code level
  - Creation of test plans, building test cases, managing the test lab, executing test and generating test reports in Rational Quality Manager



# DEPARTMENT OF COMMERCE

## ***COURSES***

- **Tally ACE**
- **Fundamental Course in Business Intelligence using IBM Cognos**
- **Fundamental Course in Predictive Analytics using IBM SPSS**

# **SYLLABUS**

## **TALLYACE**

This beginner level certification will recognize skills of a candidates learning Tally.ERP 9. Online assessment will be conducted and successful candidates will earn a verifiable digital certificate from Tally.

TallyACE certifies candidate as job ready and opens up multiple career opportunities. A certified candidate can opt to become an entrepreneur as well.

### **Syllabus**

- Fundamentals of Accounting
- Maintaining Chart of Accounts in Tally.ERP 9
- Maintaining Stock Keeping Units (SKU)
- Recording Day-to-Day Transactions in Tally.ERP 9
- Accounts Receivable and Payable Management
- MIS Reports
- Goods and Services Tax (GST)
- Recording Vouchers with TDS (Tax Deducted at Source)

### **Assessment Features**

- Assessment Format : Online
- Duration : One Hour
- No. of Exams : One Exam
- Certification Type : Digital

# COGNOS

## UNIT : I

Understanding the field of business intelligence in a global world -Understanding the BI process and choosing Place and tasks of the study of private and public Intelligence.

Overview of BI: Introduction to Bigdata-Data warehouse concepts- Basics of data integration – Data warehousing

## UNIT : II

RALPH KIMBALL's Approach Vs. WHINMON's approach- Data staging- Approaches, advantages and technologies of data integration OLTP, OLAP - Installation of Cognos Insight.

Star schema, Snow flake schema, and Fact Constellation schema, Grain of dimensional model, transactions, Recurring Snapshots, Accumulating Snapshots ,Facts (additive, semi-additive, non-additive), Hierarchy in dimensions, parent child relationships, Many-Many Dimensional relationship, Multi Valued Dimensions and Dimension Attributes.

## UNIT : III

Data Quality, Data profiling, Data enrichment, data duplication - ETL Architecture and what is ETL - Extraction concept and Change data capture - Transformation concept, lookups, time lag, formats, consistency - Loading concept, Initial and Incremental loading, late arriving facts, What is Staging - Data marts, Cubes, Scheduling and dependency matrix.

Building a data warehouse -Data warehouse architecture-Data modeling and meta data Star schema  
Populating the data warehouse and Anomalies in data fields.

## UNIT : IV

Accessing the data warehouse-Meta data layer, presentation layer, data layer, use of different layers and overall Reporting architecture - Various report elements such as Charts, Tables, prompts - Data

aggregation: Table based, Materialized views, Query rewrite, OLAP, MOLAP, Dashboards, Ad-hoc reports, interactivity in analysis (drill down, drill up)

Report level, data level (row, column) - Scheduling - Create a baseline project – Framework manager, Introduction to report studio, query studio, analysis studio -Analytics Concepts and use in Business Intelligence, Exploratory and Statistical Techniques.

## UNIT : V

Introduction to reporting application-Creating list report-Focus reports using filters, prompts-Crosstab reports-Present data graphically-Extend reports using calc-Customize reports with conditional formatting-Drill through from one report to another -Creating a report using relational data.

Create the reports-Datamining -Introduction to accessing the data warehousing -Data warehouse usage-Query reporting-Data mining -WRAP up BI technologies .

# STATISTICAL PACKAGE FOR SOCIAL SCIENCES - SPSS

## UNIT : I

Introduction of Statistics -Basic Scales of Statistics- Importance of Statistical theory- Industrial Application of Statistics- Introduction of SPSS- Basic windows and their uses- Industrial applications of SPSS.

How to install SPSS-SPSS Windows- Introduction to Frequency Distribution-Application of frequency Distribution-Introduction of Bar Diagrams-Application of Bar Diagrams.

## UNIT : II

Introduction to Two types of Statistics-Descriptive Statistics-Application of Descriptive statistics  
Introduction of Correlation and Regression.

Frequency and Diagrams- How it is used in SPSS- Types of data- Histograms- Applications- Types of diagrams- Editing the content- Analysis and Interpretation.

## UNIT : III

Correlation and Regression – Objectives-Testing correlation in SPSS-Regression analysis-Estimating the coefficient.

**Oneway ANOVA**-Logic of ANOVA-Assumptions for the test-Levene test of homogeneity of variances-Sampling distribution-Test statistic-Decision and interpretation-Differences in population means-Inflation of type I error

## UNIT : IV

**Non parametric tests**-Two types of Statistical test-The Mann-Whitney test-The Wilcoxon test-Kruskal-Wallis test-Friedman's test-

**Principal component analysis**-Split sample validation-Outliers-Reliability of summated scales-Computing a PCA-Level of measurement requirement-Evaluating communalities-Repeating the factor analysis-Replicating the factor analysis-Analysis and interpretation

## UNIT : V

Discriminant analysis-Introduction-Applications of DA-Multiple discriminant analysis-The output of MDS-Running discriminant analysis-Two groups case-Coefficients estimates-Classification options-Discriminant functions-Analysis and interpretation

Revision to all topics



# DEPARTMENT OF MANAGEMENT

## ***COURSES***

- **Fundamental Course in Business Intelligence using IBM Cognos**
  - **Fundamental Course in Predictive Analytics using IBM SPSS**
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# **FUNDAMENTAL COURSE IN BUSINESS INTELLIGENCE USING IBM COGNOS**

## **UNIT 1**

### **OVERVIEW OF IBM COGNOS BI:**

IBM Smarter analytics-IBM Cognos Business-Data sources and Model Types- Differentiate Data Entites- Identify common Data structure-Gather Requirements-Modeling Recommendations Overview-Interview and View Samples-Identify Required Business Areas

## **UNIT 2**

### **CREATE A BASELINE PROJECT:**

Introduction to the Reporting Application- Create list Reports-Framework Manager Model Types-What is Report Studio-Explore the Environment-Examine the Explore Bar-Examiner List Reports -Group Data -Format List Columns -Demo 1

## **UNIT 3**

### **FOCUS REPORTS USING FILTERS: CREATE CROSSTAB REPORTS:**

Present Data Graphically- Creates Filters -Filter Yours Data With Advance Detail Filters-Demo 1- Create a Crosstab -Add Measure to Crosstab Reports-Create a Charts Reports-Demo1 -Examine Parameters and Promots

## **UNIT 4**

### **FOCUS REPORTS USING PROMPTS:**

Extent Reports Using Calculation- Customize Reports Using Calculation- Derive Additional Information from the Data Source-Display Prompt Selection in Reports Titles-Change Display Based on Conditions-3 Steps for Conditions Formatting-Demo 1-Demo2

## **UNIT 5**

### **DRILL-THROUGH FROM ONE REPORTS TO ANOTHER:**

Create a Reports Using Relation Data- Introduction to IBM Cognos BI Administration- Let User Navigation to Related Data in IBM Cognos BI-Set Up Drill-Through Access from a Report-Relational Data -List Objects-List Example-Administration Workflow

# **FUNDEMENTAL COURSE OF PREDECTIVE ANALYSIS OF IBM USING SPSS**

## **UNIT-1**

### **INTRODUCTION TO STATISTICAL ANALYSIS:**

Objectives – Introduction - Basis steps of the research process - Populations and samples – Research design – Independent and Dependent variables.

## **UNIT – 2**

### **DATA DISTRIBUTION FOR CATEGORICAL VARIABLES:**

Objectives – Introduction – Using frequencies to summarize nominal and ordinal variables – requesting Frequencies – Procedure: Frequencies – Demonstration: Frequencies – Level of measurement and Statistical methods

## **UNIT – 3**

### **DATA DISTRIBUTION FOR SCALE VARIABLE:**

OBJECTIVES – Introduction – Basis of the inference about populations from samples – influence of the sample size – Hypothesis Testing – The nature of probability – Types of Statistical error - Statistical significance and the practical importance – summarizing scale variables using descriptive – Cross tabs and the assumption – Requesting crosstabs and the output – Adding the control variables

## **UNIT – 4**

### **THE INDEPENDENT – SAMPLE T TEST:**

Objectives- The independent sample T test – Requesting the Independent – Sample T Test – Error Bar Chart – Error Bar Chart Output – Demonstration : Error Bar Chart with Chart Bulider

## **UNIT – 5**

### **NONPARAMETRIC TESTS:**

The independent sample for Non – Parametric tests – requesting and the samples for the non parametric tests – Demonstration: Related samples for the Non parametric tests - scatters plots – Pearson correlation coefficient of the variables [- discussion questions and the examples related to the problems – Requesting simple linear regression.