

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

REVISED UG SYLLABUS UNDER CBCS

(Implemented from Academic Year 2020-21)

PROGRAMME: HONOURS B.A./B.Com

Domain Subject: Computer Applications for Arts/Commerce

Semester – VII

Core Papers

Course No.	Name of the Course	Hrs./Week	L	P	Credits
1	Digital Marketing	5	5	0	5
2	Social Network Analysis	5	5	0	5
3	Cloud Computing	5	5	0	5
4	Business Intelligence	5	5	0	5
5	Management Information System	5	5	0	5
6	Introduction to Bioinformatics	5	5	0	5

Skill Based Papers

Course No.	Name of the Course	Hrs./Week	L	P	Credits
1	Data Analysis Using Python	6	4	2	5
2	Tally ERP 9	6	4	2	5
3	Chemi Informatics	6	4	2	5
4	Introduction to Computer Networking & Administration	6	4	2	5

Semester – VIII

Core Papers

Course No.	Name of the Course	Hrs./Week	L	P	Credits
1	Fundamentals of IoT & Applications	5	5	0	5
2	Blockchain Technology & Management	5	5	0	5
3	Digital Forensics	5	5	0	5
4	Statistical Methods for Business Data Analysis	5	5	0	5
5	Functional E - Business	5	5	0	5
6	Computational Biology	5	5	0	5

Skill Based Papers

Course No.	Name of the Course	Hrs./Week	L	P	Credits
1	Data Visualization with Power BI	6	4	2	5
2	Data Analysis with JASP	6	4	2	5
3	Character Design for Animation	6	4	2	5
4	Dynamic Webpage Designing	6	4	2	5

SEMESTER - VII

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A.P. State Council of Higher Education
Semester-wise Revised Syllabus under CBCS 2020-21
Subject: Computer Applications for Arts / Commerce
Honours B.A./B.Com. Semester –VII

Course Code:

Max Marks: 100

Course: DIGITAL MARKETING

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Digital Marketing	5 (Theory: 5)	5 (Theory:5)

Course Outcomes:-

On successful completion of the course, students will be able to:

1. Understanding Communication Process in Digital Market.
2. Understanding and analyzing the Optimization Strategy.
3. Able to work with Google AdWords and Adsense .
4. Understands the Comprehensive knowledge of Social Media Marketing and YouTube Advertising.

Unit I: Digital Marketing

Introduction to Digital Marketing: What is Digital Marketing?, Why Digital Marketing, What are Digital Marketing Platforms?, Digital Marketing students, professional and Business?

Email Marketing: Importance of email marketing, email Marketing platforms, Creating e-mailers, Creating a Contact Management and Segmentation Strategy, Understanding Email Deliverability & Tracking emails, How to create Effective & Unique Email Content, Outlining the Design of Your Marketing Emails, Open rates and CTR of email, Drive leads from email, What are opt-in lists , Develop Relationships with Lead Nurturing & Automation

Content Marketing: Understanding Content Marketing, Generating Content Ideas, Planning a Long-Term Content Strategy, Building a Content Creation Framework, Becoming an Effective Writer, Extending the Value of Your Content through Repurposing , How to Effectively Promote Content , Measuring and Analyzing Your Content , Mindset, Creating a Blog Post, Creating Topic Clusters and Pillar Pages, Promotion of blog post, use of Infographics in Content

Unit II: Search Engine Optimization (SEO)

Search Engine Optimization (SEO): What is SEO?, SEO Importance and Its Growth in recent years, Ecosystem of a search Engine, kinds of traffic, Keyword Research & Analysis (Free and Paid tool & Extension), Recent Google Updates & How Google Algorithms works On Page Optimization (OPO), Off-Page Optimization Misc SEO Tools: Google Webmaster Tools, Site Map Creators, Browser-based analysis tools, Page Rank tools, Pinging & indexing tools, Dead links identification tools , Open site explorer, Domain information/who is tools, Quick sprout, Google My Business

Unit III: Google AdWords & Google AdSense

Google AdWords: Google Ad-Words Fundamentals, Google AdWords Account Structure, Key terminologies in Google AdWords, How to Create an AdWords account, Different Types of AdWords and its Campaign & Ads creation process, Ad approval process, Keyword Match types, Keyword targeting & selection (Keyword planner), Display Planner , Different

types of extensions , Creating location extensions, Creating call extensions, Create Review extensions, Bidding techniques – Manual / Auto , Demographic Targeting / Bidding, CPC-based, CPA- based & CPM-based accounts., Google Analytics Individual Qualification (GAIQ)

Google AdSense: Understanding ad networks and AdSense's limitations, Learning which situations are best for using AdSense, Setting up an AdSense account , Creating new ad units, Displaying ads on a website, Configuring channels and ad styles , Allowing and blocking ads, Reviewing the AdSense dashboard , Running AdSense reports and custom reports, Exporting data, Reviewing payee and account settings

Unit IV:

Social Media Marketing (SMM) & Web Analytics Social Media Marketing (SMM) Facebook Marketing, Twitter Marketing, LinkedIn Marketing, Google plus Marketing, YouTube Marketing, Pinterest Marketing , Snapchat Marketing, Instagram Marketing, Social Media Automation Tools , Social Media Ad Specs The ROI in Social Media Marketing , Tools and Dashboards, Reputation management Web Analytics: The need & importance of Web Analytics, Introducing Google Analytics, The Google Analytics layout, Basic Reporting, Basic Campaign and Conversion Tracking, Google Tag Manager, Social Media Analytics, Social CRM & Analytics, Other Web analytics tools, Making better decisions, Common mistakes analysts make.

Unit V: Youtube Advertising (Video Ads) & Conversions

Youtube Advertising (Video Ads): Youtube advertising?, Why should one advertise on youtube?, Creating youtube campaigns, Choose the audience for video ads, In-stream ads , In-video ads, In-search ads, In-display ads, Measuring your YouTube ad performance, Drive leads and sales from YouTube ads Conversions: Understanding Conversion Tracking, Types of Conversions, Setting up Conversion Tracking, Optimizing Conversions, Track offline conversions, Analyzing conversion data, Conversion optimizer

Text Books:

1. Understanding DIGITAL Marketing, Marketing strategies for engaging the digital generation Damian Ryan & Calvin Jones
2. Social Media Marketing: A Strategic Approach By Melissa Barker, Donald I. Barker, Nicholas F. Bormann, Krista E. Neher

Reference Books:

1. The Art of Digital Marketing: The Definitive Guide to Creating Strategic By Ian Dodson
2. Internet Marketing: a practical approach By Alan Charlesworth
3. Digital Marketing Analytics by Chuck Hemann AND Ken Burbary

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))

4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Try to Use Google AdSense.
3. Others

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A.P. State Council of Higher Education
Semester-wise Revised Syllabus under CBCS 2020-21
Subject: Computer Applications for Arts / Commerce
Honours B.A./B.Com. Semester –VII

Course Code:

Max Marks: 100

Course: SOCIAL NETWORK ANALYSIS

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Social Network Analysis	5 (Theory:5)	5 (Theory: 5)

Course Outcomes

1. Understanding the basic concepts and principles of social network analysis, such as nodes, edges, centrality, clustering, and community detection.
2. Ability to use software tools to collect, visualize, and analyse social network data.
3. Understanding the different types of social networks, such as online social networks, organizational networks, and interpersonal networks.
4. Ability to apply social network analysis to various fields, such as sociology, psychology, business, and healthcare.
5. Developing critical thinking skills in evaluating social network research and identifying limitations and biases.
6. Ability to design and conduct social network research projects, including data collection, analysis, and interpretation.
7. Understanding ethical issues in social network analysis, such as privacy, confidentiality, and informed consent.
8. Developing communication skills to present social network analysis results to different audiences, such as academic researchers, policymakers, and general public.

UNIT I

Social Network Analysis: Preliminaries and definitions, Erdos Number Project, Centrality measures, Balance and Homophily.

UNIT II

Random graph models: Random graphs and alternative models, Models of network growth, Navigation in social Networks, Cohesive subgroups, Multidimensional Scaling, Structural equivalence, roles and positions.

UNIT III

Network topology and diffusion, Contagion in Networks, Complex Contagion, Percolation and information, Navigation in Networks Revisited.

UNIT IV

Small world experiments, small world models, origins of small world, Heavy tails, Small Diameter, Clustering of connectivity, The ErdosRenyi Model, Clustering Models.

UNIT V

Network structure -Important vertices and page rank algorithm, towards rational dynamics in networks, basics of game theory, Colouring and consensus, biased voting, network formation

games, network structure and equilibrium, behavioural experiments, Spatial and agent-based models.

Text Books:

- 1) S. Wasserman and K. Faust. “Social Network Analysis: Methods and Applications”, Cambridge University Press.
- 2) D. Easley and J. Kleinberg, “Networks, Crowds and Markets: Reasoning about a highly connected world”, Cambridge University Press, 1st edition,2010

Reference Books:

- 1) Maarten van Steen. “Graph Theory and Complex Networks. An Introduction”, 2010.
- 2) Reza Zafarani, Mohammed Ali Abbasi, Huan Liu.“Social Media Mining: An Introduction”. Cambridge University Press 2014.
- 3) Maksim Tsvetovat and Alexander Kouznetsov. “Social Network Analysis for Startups”. O’ReillyMedia, 2011

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2. Try to solve MCQ’s available online.
- 3.Others

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5 0 0 5

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Course: CLOUD COMPUTING

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Cloud Computing	5 (Theory: 5)	5 (Theory:5)

Course Outcomes:

CO1: Articulate the main concepts, key technologies, strengths, limitations of cloud computing and the possible applications for state-of-the-art cloud computing.

CO2: Identify the architecture and infrastructure of cloud computing, including cloud delivery and deployment models.

CO3: Analyze the core issues of cloud computing such as security, privacy, and interoperability.

CO4: Identify problems, analyze, and evaluate various cloud computing solutions.

CO5: Analyze appropriate cloud computing solutions and recommendations according to the applications used

UNIT - I

Cloud Computing fundamentals: Essential characteristics, Architectural Influences, Technological Influences, and Operational Influences.

UNIT - II

Cloud Computing Architecture: Cloud Delivery models, The SPI Framework, Cloud Software as a Service (SaaS) , Cloud Platform as a Service(PaaS), Cloud Infrastructure as a Service(IaaS),Cloud deployment models, Public Clouds, Community Clouds, Hybrid Clouds, Alternative Deployment models, Expected benefits.

UNIT - III

Cloud Computing Software Security fundamentals: Cloud Information Security Objectives, Confidentiality, Integrity, Availability, Cloud Security Services, Relevant Cloud Security Design Principles, Secure Cloud Software Requirements, Secure Development practices, Approaches to Cloud Software Requirement Engineering, Cloud Security Policy Implementation.

UNIT - IV

Cloud Computing Risk Issues: The CIA Traid, Privacy and Compliance Risks, Threats to Infrastructure, Data and Access Control, Cloud Access Control Issues, Cloud Service Provider Risks. Cloud Computing Security challenges: Security Policy Implementation, Policy Types, and Computer Security Incident Response Team (CSIRT).

UNIT - V

Cloud Computing Security Architecture: Architectural Considerations, General Issues, Trusted Cloud Computing, Secure Execution environments and Communications, Micro architectures, Identity Management and Access Control, Autonomic Security.

TEXT BOOK

1. Ronald L. Krutz, Russell Dean Vines, “Cloud Security A comprehensive Guide to secure Cloud Computing” Wiley.
2. Borko Furht. Armando Escalante, “Handbook of Cloud Computing”, Springer

REFERENCE BOOKS:

1. John W.F.Ransome, “Cloud Computing Implementation, Management and Security”, CRC Press.
2. Charles Badcock, “Cloud Revolution”, TMH

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Course: BUSINESS INTELLIGENCE

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Business Intelligence	5 (Theory: 5)	5 (Theory: 5)

Course outcomes

This course will enable students to Understand techniques of business intelligence and data analysis

1. Understand data visualization using BI
2. Understand data warehousing
3. Understand data mining.
4. Learn how to use BI tools to extract meaningful insights from data and make informed business decisions.

Unit - I: Introduction to Business Intelligence

What is business intelligence? , The history and evolution of BI, Key BI concepts and terminology, The BI process and lifecycle

Unit – II: Data Analysis and Visualization

Data analysis techniques (e.g. descriptive statistics, regression analysis, clustering), Visualization techniques (e.g. charts, graphs, dashboards), Choosing the right visualization for the data

Unit – III: Data Warehousing and ETL

Data warehousing concepts and architecture, Extract, Transform, Load (ETL) process, Data integration and data quality

Unit – IV: Data Mining

Data mining techniques (e.g. association rules, decision trees, neural networks), Machine learning algorithms for predictive modelling, Text mining and sentiment analysis

Unit – V: Business Intelligence Applications

BI applications in different industries (e.g. finance, healthcare, retail), Best practices for implementing BI in an organization, Ethics and privacy considerations in BI

Textbook:

- 1."Business Intelligence: A Managerial Perspective on Analytics" by Ramesh Sharda, DursunDelen, and Efraim Turban (4th edition)

Reference Books:

1. Business Intelligence by Carlo Verecellis
2. Business Intelligence and Data Mining by Anik K. Maheswari
3. Business Intelligence Strategy by John Boyer

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Course Code:

Max Marks: 100

Course: MANAGEMENT INFORMATION SYSTEM

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Management Information System	5 (Theory: 5)	5 (Theory: 5)

Course Outcomes

Upon completion of this course, students will be able to:

1. Relate the basic concepts and technologies used in the field of management information systems;
2. Compare the processes of developing and implementing information systems.
3. Outline the role of the ethical, social, and security issues of information systems.
4. Translate the role of information systems in organizations, the strategic management processes, with the implications for the management.
5. Apply the understanding of how various information systems like DBMS work together to accomplish the information objectives of an organization.

Unit – I

Management information system in a digital firm: MIS concept - Definition –Role of the MIS - Impact of the MIS-MIS and the user - Management as a control system - MIS a support to management - Development process of the MIS.

Unit – II

System analysis and design: System - Need for system analysis - System analysis of the existing system - System analysis of a new requirements - System Development Model - Structured System Analysis and Design - Object Oriented Analysis.

Unit- III

Information system applications: MIS applications, DSS – GDSS - DSS applications in E enterprise - Knowledge Management System and Knowledge Based Expert System- Enterprise Model System and E-Business, E- Commerce, E-communication, Business Process Engineering.

Unit – IV

Technology of information system: Data process- Transaction and application process Information system process; Unified communication and network; Security challenges in E-enterprises; Security threats and vulnerability-Controlling security threat and vulnerability.

Unit – V:

Data base management system: Objectives of data base approach- Characters of database Management systems- Data processing system- Components of DBMS packages- Data base administration- Data models - Data warehouse.

Case Study: Compulsory. Relevant cases have to be discussed in each unit.

Text Books:

1. Management Information System by James A. O' Brien and George M. Marakas.
2. Management Information System by Prof. Nithin C. Kamat

Reference Books

1. Jawadekar, W.S., "Management Information Systems", Tata McGraw Hill Private Limited, New Delhi, 2009.
2. Kenneth C. Laudon and Jane P. Laudon: "Management Information Systems" 9/e, Pearson Education, New Delhi.
3. Alex Leon and Mathew Leon: "Data Base Management Systems", Vikas Publishing House, New Delhi.
4. Goyal, D.P.: "Management Information System", MACMILLAN India Limited, New Delhi, 2008.

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B. General

1. Group Discussion / Seminar
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3. Others

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Course Code:

Max Marks: 100

**Course: INTRODUCTION TO BIOINFORMATICS ALGORITHMS &
APPLICATIONS**

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Introduction to Bio Informatics Algorithms & Applications	5 (Theory:5)	5 (Theory: 5)

Course Outcomes:

By the end of this course, students will be able to:

1. Understand the basic concepts and principles of bioinformatics and their applications in biology and medicine.
2. Retrieve and analyze biological data from various databases and understand their significance.
3. Analyze and align biological sequences using various algorithms and methods.
4. Perform gene expression analysis using clustering and classification techniques.
5. Construct and interpret phylogenetic trees using various methods.
6. Understand the basics of structural bioinformatics, protein structure prediction, and drug design.
7. Analyze advanced topics in bioinformatics such as genomics, metagenomics, epigenetics, and regulatory networks.
8. Apply machine learning and data mining techniques to analyze and interpret biological data.
9. Work independently on bioinformatics projects using various tools and software.
10. Communicate effectively about bioinformatics concepts, methods, and results to peers and other scientists.

Unit - I: Introduction to Bioinformatics and Biological Databases

Introduction to bioinformatics and its applications, Overview of biological databases and their use in bioinformatics, Retrieval and analysis of sequence data from biological databases, Introduction to sequence analysis and alignment methods, Applications of bioinformatics in biology and medicine

Unit- II: Sequence Alignment and Gene Expression Analysis

Introduction to sequence alignment and its importance, Pairwise sequence alignment algorithms (Needleman-Wunsch, Smith-Waterman), Multiple sequence alignment algorithms (ClustalW, MUSCLE), Gene expression analysis and its importance, Clustering and classification of gene expression data

Unit- III: Phylogenetic Analysis and Evolutionary Biology

Introduction to phylogenetic analysis and its applications, Phylogenetic trees and their construction, Distance-based methods (UPGMA, Neighbor Joining), Maximum likelihood and Bayesian methods, Applications of phylogenetics in evolutionary biology

Unit - IV: Structural Bioinformatics and Protein Structure Prediction

Introduction to structural bioinformatics and its applications, Protein structure prediction methods (Homology modeling, Ab initio modeling), Protein folding and stability, Protein-ligand interactions and drug design, Applications of structural bioinformatics in drug discovery

Unit - V: Advanced Topics in Bioinformatics

Genomics and genome assembly, Metagenomics and microbiome analysis, Epigenetics and regulatory networks, Machine learning and data mining in bioinformatics

Text Book:

1. "Bioinformatics Algorithms: An Active Learning Approach" by Phillip Compeau and Pavel Pevzner

Reference Books:

1. Bioinformatics: genes, proteins and computers by Christine Orengo, David Jones, Janet Thornton
2. Bioinformatics: Methods and Applications: Genomics, Proteomics and Drug Discovery by S. C. Rastogi

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

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Honours B.A./B.Com. Semester –VII

Course Code:

Max Marks: 100

Course: DATA ANALYSIS USING PYTHON

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Data Analysis Using Python	5 (Theory: 4 + Practical: 1)	6 (Theory: 4 + Practical: 2)

Course Outcomes:-

On successful completion of the course, students will be able to:

1. Understanding basics of python
2. Performing data analysis using python
3. Understanding the data, performing pre-processing, processing and data visualization to get insights from data.
4. Use different python packages for mathematical, scientific applications and for web data analysis.
5. Develop the model for data analysis and evaluate the model performance.

UNIT I: Python Fundamentals for Data Analysis

Python data structures, Control statements, Functions, Object Oriented programming concepts using classes, objects and methods, Exception handling, Implementation of user-defined Modules and Package, File handling in python.

UNIT II: Introduction to Data Understanding and Pre-processing

Knowledge domains of Data Analysis, Understanding structured and unstructured data, Data Analysis process, Dataset generation, Importing Dataset: Importing and Exporting Data, Basic Insights from Datasets, Cleaning and Preparing the Data: Identify and Handle Missing Values.

UNIT III: Data Processing and Visualization

Data Formatting, Exploratory Data Analysis, Filtering and hierarchical indexing using Pandas. Data Visualization: Basic Visualization Tools, Specialized Visualization Tools, Seaborn Creating and Plotting Maps.

UNIT IV: Mathematical and Scientific applications for Data Analysis

Numpy and Scipy Package, Understanding and creating N-dimensional arrays, Basic indexing and slicing, Boolean indexing, Fancy indexing, Universal functions, Data processing using arrays, File input and output with arrays.

UNIT V: Analysing Web Data

Data wrangling, Web scrapping, Combing and merging data sets, Reshaping and pivoting, Data transformation, String Manipulation, case study for web scrapping

Text Books

1. David Ascher and Mark Lutz, Learning Python, Publisher O'Reilly Media.
2. Reema Thareja, "Python Programming using Problem Solving approach", Oxford University press
3. Wes Mckinney "Python for Data Analysis", First edition, Publisher O'Reilly Media.

Reference Books

1. Allen Downey ,JeffreyElkner ,Chris Meyers,: Learning with Python, DreamtechPress
2. David Taieb ,"Data Analysis with Python: A Modern Approach " 1st Edition,Packt Publishing

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B. General

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3. Others

Practical List

1. Write a list of Operators in Python
2. Define a Programme for LISTS
 - a. Length of a list
 - b. Reversing of List
 - c. Joining of Two List
 - d. Other List operators
3. Define a Programme for Sets and Dictionaries and perform various operators for it
4. How to Write a Function in python prepare a function in writing all arithmetic operators
5. Write a programme for Tuple, Assignment operators and comparison operators and execute with the examples
6. Frame steps involving handling a Data frame, Handling Missing Data- dropna, fillna, Grouping data, Read, Write .csv, .html, excel file ,
7. Write a programme for plotting various graphs using Matplot lib
 - a. Scatter and line Chart
 - b. Bubble Chart
 - c. Histogram and Distribution plot
 - d. Trend line
8. Write a programme on Categorical Data, Splitting Data Testing Set Normalize Data
9. Write a programme for application of Statistical techniques using Python.
10. Write a programme for application of Statistical techniques using Python.

Note: The list of experiments need not be restricted to the above list. Detailed list of Programming / software tool based exercises can be prepared by the concerned faculty members.

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Honours B.A./B.Com. Semester –VII

Course Code:

Max Marks: 100

Course: TALLY ERP 9

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Tally ERP 9	5 (Theory: 4 + Practical: 1)	6 (Theory: 4 + Practical: 2)

Objective of this paper: This paper is designed to impart knowledge regarding concepts of Financial Accounting Tally is an accounting package which is used for learning to maintain accounts. This course is useful for Students to get placements in different offices as well as companies in Accounts departments.

Course Outcomes:

1. Understanding the power and potential of Tally Accounting Software from the business perspective
2. Company Setup & Configurations
3. Recording Financial Transactions
4. Financial Reports Analysis

UNIT – I

Installation of Tally package – Various versions of Tally – Tally company types – Tally Accounting features -- Creation of Company Using Accounts Only.

UNIT - II:

Shutting a company – Alteration of Company – Deleting a Company – Quit Tally package with and without confirmation --- Splitting Company Data – Creation of Group Companies.

UNIT - III:

Creation of Foreign Currency and Exchange rates – Creation of Groups and Ledgers – Single Ledger and Multi Ledger creation –Interest parameters setting - Cost categories and Cost centers – Budgets – Budget Types in Tally– Creation of budget types in Tally-- Voucher Entry – Types of Voucher Entry – Types of Vouchers – Contra – Payment – Receipt – Journal – Sales – Credit Note – Purchases – Debit Note.

UNIT - IV:

Interest calculations – Interest class voucher creation – Working with Bank Reconciliation Statement in Tally– Displaying Day Book -- Displaying Trial Balance – Displaying Profit and Loss Account -- Displaying Balance Sheet

UNIT - V:

Security Control – Tally Vault Password – Change in Tally Vault Password Defining User levels – Types of Access - Creating users and Pass words.

Note: No Inventory related questions shall be given.

Text Books:

1. Getting Start with Tally.ERP9
2. "Tally.ERP 9 Made Easy" by G.S. Rawat

REFERENCE BOOKS:

1. Implementing Tally 9-A.K Nadhani,K.K Nadhani
2. BK Learn Tally.Erp 9
3. Tally.ERP 9 Dr.k.Kiran Kumar
4. "Tally.ERP 9: The Complete Reference" by V. Rajaraman
5. "Tally 9: A Practical Guide" by R.K. Jain
6. "Learning Tally.ERP 9 with GST" by A.J. Arora
7. "Tally.ERP 9: A Beginner's Guide" by B. S. Raghu

RECOMMENDED CO-CURRICULAR ACTIVITIES:

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A. Measurable

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2. Student seminars (on topics of the syllabus and related aspects (individual activity))
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4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

Practical List

1. Install Tally on your computer and create a new company using Accounts Only.
2. Create a new group company in Tally and set up the necessary ledgers.
3. Create and manage foreign currencies and exchange rates in Tally.
4. Create cost categories and cost centers in Tally and assign them to appropriate ledgers.
5. Creation of different types of Vouchers, Reversing Journal Voucher
6. Creation of Stock Groups, Categories, Items – Inventory Master
7. Inventory Vouchers, Receipt Note, Return Out, Return In, Inventory Journals
8. Purchase and Sales Order Processing, Treatment of Sales Tax, VAT and other related taxes Entries into Day Book, Cash/Bank Book
9. Bank Reconciliation Statement, Cash Flow and Fund Flow Statements
10. Sales Book, Purchase Book
11. Statement of Accounts, Trial Balance, Treatment of Depreciation
12. Profit and Loss Account and Balance Sheet
13. Generation of Financial Reports other than Financial Statements
14. Managing cash and bank accounts
15. Managing receipts and payments
16. Fixed assets management

Note: The list of experiments need not be restricted to the above list. Detailed list of programming/software tool based exercises can be prepared by the concerned faculty members.

A.P. State Council of Higher Education
Semester-wise Revised Syllabus under CBCS 2020-21
Subject: Computer Applications for Arts / Commerce
Honours B.A./B.Com. Semester –VII

Course Code:

Max Marks: 100

Course: CHEMI INFORMATICS

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Chemi Informatics	5 (Theory: 4 + Practical: 1)	6 (Theory: 4 + Practical: 2)

Course Objectives:

The main objectives of this course are to:

1. Explain the primary and secondary structures of proteins with stereochemistry.
2. Retrieve chemical information from structural and visualization tools.
3. To make students familiar on existing databases and their application.
4. Give a clear view on algorithms which is involved in biomolecular networks.

Unit – I: Molecular Numerology

Graph theory and molecular numerology; Logic, sets and functions; Algorithms, integers and Matrices, Mathematical reasoning, induction and recursion, Counting; graphs, trees and sets, basic probability and statistics; Markov processes. Application: Biomolecule Networks, Metabolic Pathways.

Unit - II: Stereochemistry

Basic Stereochemistry, Amino acids and Proteins and Properties; pKa, pH and ionization of acids and bases; Protein structure - Primary structure, Secondary structure - helix & sheet; Tertiary structure; Quaternary structure; covalent and non-covalent forces that maintain structures. Introduction to drug action, pro drug design and applications.

Unit – III: Chemical Information

History of scientific information communication-chemical literature-chemical information chemical information search-chemical information sources-chemical name and formulasearching-analytical chemistry-chemical history-biography-directories and industry sources. Chemical Structure: Databases, Formats, Drawing Tools and Structure Visualizations.

Unit – IV: Database Management

Introduction to data and Database; Data Type; Experimental sources of biological data; Publiclyavailable databases; Database Management; Gene expression monitoring; Genomics andProteomics; Metabolomics; Visualization of sequence data; Visualization of structures using Rasmol or Pymol or CHIME; Genetic basis of disease; Personalised medicine and gene-based

Unit – V: Structure-Based Drug Design

Introduction to drugs, Chemical structural data files, Structure-based drug design, Proteinstructure, Drug action & enzymes. Drug action & receptors, Drug Design, Ligand-Based Designand De Novo Drug Design Virtual screening/docking of ligands. Pharmacophore Design, Molecular similarity and molecular descriptors. Prediction of Binding Modes, Protein–Ligandbinding free energies, ADMET prediction, QSAR and 3D-QSAR Methods.

Text Books

- 1 "Mathematical Methods for Physicists" Arfken, Academic Press 1985
- 2 Schaum's Outline of Probability and Statistics, Murray R Spiegel, John J. Schiller, R. Alu Srinivasan
3. Stereochemistry, by David G. Morris, Eddie Abel
4. Computer-Aided Drug Design: Methods and Applications, T.J. Perun C.L. Propst

Reference Books

1. Introduction to Protein Structure: Second Edition, Carl Branden , John Tooze
2. Combinatorial Chemistry and Molecular Diversity in Drug Discovery, Eric M. Gordon, James F.Kerwin
3. Chemical Information Sources (Mcgraw-Hill Series in Advanced Chemistry) ,Gary Wiggins
4. Introduction to Bioinformatics, Teresa K. Attwood, David Parry-Smith
5. Molecular Modelling: Basic Principles and Applications, 3rd Edition,Hans-Dieter Höltje, Wolfgang Sippl, Didier Rognan, Gerd Folkers
6. Trends in Bioinformatics. By Dr. P. Shanmughavel. 2006 Pointer publishers, Jaipur, India.

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

CHEMI INFORMATICS: PRACTICALS

1. Construction of small molecules.
2. Energy minimization and generation of SMILES Notation.
3. Property calculation.
4. QSAR Equation generation (linear regression method/multiple linear regression).
5. Searching RCSB for protein information, download protein and Literature search.
6. Protein preparation.
7. Active site identification and grid Generation.
8. Docking of ligand.
9. Protein ligand interaction studies.
10. Design of new molecules.

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A.P. State Council of Higher Education
Semester-wise Revised Syllabus under CBCS 2020-21
Subject: Computer Applications for Arts / Commerce
Honours B.A./B.Com. Semester –VII

Course Code:

Max Marks: 100

Course: INTRODUCTION TO COMPUTER NETWORKING & ADMINISTRATION

Semester	Title of the Course	Number of Credits	Number of Hours
VII	Introduction to Computer Networking & Administration	5 (Theory: 4 + Practical: 1)	6 (Theory: 4 + Practical: 2)

Course Outcomes:

On completion of this course, students will be able to

CO-1: Recall the fundamental knowledge in computer network communication and security

CO-2 summarize the technical aspects of every layer of OSI reference model

CO-3 identify the issues in the layers of OSI reference model K3

CO-4 analyse the technical factors involved network communication K4

CO-5 evaluate the network security issues and propose appropriate security solution

Unit-I

Introduction: Definition of Computer Networks - Uses of Networks - Network Architecture Protocol hierarchies - Service Primitives - OSI Reference Model - ARPANET - Internet - Physical Layer Transmission Media - Telephone Systems.

Unit-II

Data link layer: Data link layer - Design Issues - Error Detection and Correction Data Link Protocols - Sliding Window Protocols - Finite state Machine Model - Petri Networks-PPP Polling - FDM.

Unit-III

Network Layer: Design Issues - Routing Algorithms - Congestion Control Algorithms – Inter Network Routing - Fragmentation.

Unit-IV

Transport Layer - Design Issues - Elements of Transport Protocols - The Internet – Transport Protocol (TCP &UDP) - Application Layer: Design Issues.

Unit-V

Linux/ Windows Network Administration

Installing Linux/Windows Server: Hardware & Software requirements. Installing the Linux/Windows server.

Creating Groups & Users: User management. Group management, Role based administration

Connectivity: Assign IP address to the Server, Connecting to the Linux /Window server via Windows(Window domain) or Linux desktops via telnet using terminal application(Putty).

Text Books

1. Andrew S Tanenbaum, “Computer Networks”, Prentice Hall of India, New Delhi, 1999.
Unit I – Chapters I and II
Unit II – Chapters III and IV
Unit III – Chapter V
Unit IV – Chapter VI
2. William Stallings, “Data and Computer Communications”, Pearson, Eighth Edition, 2007.
Unit V – Chapter 21

Books for Reference

1. Vijay Ahuja, “Design and Analysis of Computer Communication Networks”, McGraw Hill, New York, 1985.
2. Behrouz A Fourouzan, “Data Communications and Networking”, McGraw Hill, Fourth Edition, 2006.
3. Andrew S Tanenbaum, David J. Wetherall, “Computer Networks”, Prentice Hall, 2011.
4. Gregory B. White, Eric A. Fisch, Udo W. Pooch, “Computer System and Network+ Security”, CRC Press, 2017

For Windows

1. Administering windows server 2012 Orin Thomas Microsoft press

For Linux

2. Linux server administrator Guide

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

Practical List

1. Identify/List out the components required to connect computers in a network
2. Study your computer(s) network card details (in windows /Linux)
 - a. Physical address(MAC ID)
 - b. Logical address (IP address)
3. Identify the cables types and connectors
 - a. Copper
 - b. Fiber
4. Simple demonstration of preparation of **simplestright** cable and cross cable
5. Identify the devices
 - (a) hub
 - (b) switch
 - (c) router
 - (d) Media convertor (fiber to copper) (optional)
 - (e) PON /EPON /GPON - devices used by BSNL/AIRTEL/JIO for Fiber to the Home (FTTH) connections. (Optional)
6. Study of IP Addressing (IPV4/IPV6)
 - a. IPV4 address classes
 - b. Public and Private IP address
 - c. Subnet mask
 - d. CIDR
 - e. DNS
7. Study of basic Network / Network configuration commands.
 - a. ipconfig
 - b. ping
 - c. tracert/traceroute
 - d. nslookup
 - e. arp
8. Introduction to CISCO packet tracer (Download tool - No license is required)
9. Customise LAN card (Replacing 100Mbps to Gigabit) with cisco packet tracer and assign IP address along subnet mask Gateway and DNS.
10. Design a simple LAN with one server and 5 computers (with static IP address) using cisco packet tracer
11. Design a simple LAN with one server and 5 computers (DHCP server) using cisco packet tracer
12. Configuration home wifi-router (optional)
13. Installing Linux / Windows server
14. Creating Groups in Linux / Windows server and creating users in Linux / Windows server
15. Connecting Linux server/windows server via Window/Linux desktop

Note: Student(s) can also do Free Cisco packet tracer online course(s)
<https://www.netacad.com/courses/packet-tracer>

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SEMESTER-VIII

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A.P. State Council of Higher Education
Semester-wise Revised Syllabus under CBCS 2020-21
Subject: Computer Applications for Arts / Commerce
Honours B.A./B.Com. Semester –VIII

Course Code:

Max Marks: 100

Course: FUNDAMENTALS OF IoT & APPLICATIONS

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Fundamentals of IoT & Applications	5 (Theory: 5)	5 (Theory:5)

Course Outcomes:

On completion of the course, student will be able to

1. Understand the various concepts, terminologies and architecture of IoT systems.
2. Use sensors and actuators for design of IoT.
3. Understand and apply various protocols for design of IoT systems
4. Use various techniques of data storage and analytics in IoT
5. Understand various applications of IoT
6. Understand APIs to connect IoT related technologies

UNIT-I

Fundamentals of IoT: Introduction, Definitions & Characteristics of IoT, IoT Architectures, Physical & Logical Design of IoT, Enabling Technologies in IoT, History of IoT, About Things in IoT, The Identifiers in IoT, About the Internet in IoT, IoT frameworks, IoT and M2M.

UNIT-II

Sensors Networks: Definition, Types of Sensors, Types of Actuators, Examples and Working,

IoT Development Boards: Arduino IDE and Board Types, RaspberriPi Development Kit, RFID Principles and components, Wireless Sensor Networks: History and Context, The node, Connecting nodes, Networking Nodes, WSN and IoT.

UNIT-III

Wireless Technologies for IoT: WPAN Technologies for IoT: IEEE 802.15.4, Zigbee, HART, NFC, Z-Wave, BLE, Bacnet, Modbus. IP Based Protocols for IoT IPv6, 6LowPAN, RPL, REST, AMPQ, CoAP, MQTT. Edge connectivity and protocols

UNIT-IV

Data Handling& Analytics: Introduction, Bigdata, Types of data, Characteristics of Big data, Data handling Technologies, Flow of data, Data acquisition, Data Storage, Introduction to Hadoop. Introduction to data Analytics, Types of Data analytics, Local Analytics, Cloud analytics and applications

UNIT-V

Applications of IoT: Home Automation, Smart Cities, Energy, Retail Management, Logistics, Agriculture, Health and Lifestyle, Industrial IoT, Legal challenges, IoT design Ethics, IoT in Environmental Protection.

Text Books:

1. HakimaChaouchi, — “The Internet of Things Connecting Objects to the Web” ISBN : 978-1- 84821-140-7, Wiley Publications
2. Olivier Hersent, David Boswarthick, and Omar Elloumi, — “The Internet of Things: Key Applications and Protocols”, WileyPublications
3. Vijay Madiseti and ArshdeepBahga, — “Internet of Things (A Hands-on-Approach)”, 1st Edition, VPT, 2014.
4. J. Biron and J. Follett, "Foundational Elements of an IoT Solution", O'Reilly Media, 2016.
5. Keysight Technologies, “The Internet of Things: Enabling Technologies and Solutions for Design and Test”, Application Note, 2016.

References

1. Daniel Minoli, — “Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications”, ISBN: 978-1-118-47347-4, Willy Publications
2. Pethuru Raj and Anupama C. Raman, "The Internet of Things: Enabling Technologies, Platforms, and Use Cases", CRC Press
3. Internet of Things by Surya Durbha, Jyothi Joglekar
4. Vijay Madiseti and ArshdeepBahga, — “Internet of Things (A Hands-on-Approach)”, 1st Edition, VPT, 2014.
5. J. Biron and J. Follett, "Foundational Elements of an IoT Solution", O'Reilly Media, 2016.
5. Keysight Technologies, “The Internet of Things: Enabling Technologies and Solutions for Design and Test”, Application Note, 2016.

Online Web Resources

1. https://onlinecourses.nptel.ac.in/noc17_cs22/course
2. http://www.cse.wustl.edu/~jain/cse570-15/ftp/iot_prot/index.html

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

L T P C
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Honours B.A./B.Com. Semester –VIII

Course Code:

Max Marks: 100

Course: BLOCKCHAIN TECHNOLOGY & MANAGEMENT

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Block Chain Management	5 (Theory: 5)	5 (Theory: 5)

Course Outcomes:

Upon successful completion of the course, the student will be able to:

CO1: Understands basic concepts of Blockchain & Limitations.

CO2: Learn How Bitcoin Achieves Decentralization.

CO3: Familiar with How to Store Bitcoins and How to Use Bitcoins.

CO4: Know Ethereum and Smart Contracts and Blockchain Applications.

CO5: To gain knowledge on Mining Consensus and Bitcoin Security.

UNIT - I

Why Blockchain is Need: Discovering the Core Problem - Public Ledgers - Block in Blockchain - Public versus Private Blockchain.

How Blockchain Works: Planning the Blockchain - Hashing Data - Identifying & Protecting userAccounts - Authorizing Transactions - Using Data Store - Protecting Data Store – ChoosingTransaction History - Paying for Integrity.

Limitations: Seeing the Limitations - Reinventing the Block Chain.

UNIT - II

How Bitcoin Achieves Decentralization: Centralized versus Decentralization - Distributed Consensus - Bitcoin Transactions - Bitcoin Scripts - Applications of Bitcoin Scripts - Bitcoin Blocks.

UNIT - III

How to Store Bitcoins: Simple Local Storage - Hot and Cold Storage - Splitting and Sharing Keys.How to Use Bitcoins: Online Wallets and Exchanges - Payment Services - Transaction Fees - Currency Exchange Markets.

UNIT - IV

Ethereum and Smart Contracts: Smart Contract Programming Model, Name coin in Ethereum, Gas Incentives and Security, Data Structures in Ethereum.

Blockchain Applications: Applications from Building Blocks, Colored Coins, Counterparty, Payment Channels and State Channels, Routed Payment Channels.

UNIT - V

Mining Consensus: Decentralized Consensus - Independent Verification of Transactions – Mining Nodes - Aggregating Transactions into Blocks - Mining the Block - Validating a New Block - Assembling and Selecting Chains of Blocks - Consensus Attacks.

Bitcoin Security: Security Principles - User Security Best Practices.

Text Books

- 1 Daniel Drescher Block chain Basics A Press, Second Edition, 20172
2. Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, and Steven Goldfeder Bit coin and Crypto currency Technologies: A Comprehensive Introduction. Princeton University Press, 2016, Second Edition

Reference Books

- 1 Melanie , Block chain : Blue Print for New Economy , ORELLY,2015
2. Andreas M Antonopoulos Mastering Bit coin: Unlocking Digital Crypto Currencies ORELLY, 2015

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3. Others

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Honours B.A./B.Com. Semester –VIII

Course Code:

Max Marks: 100

Course: DIGITAL FORENSICS

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Digital Forensics	5 (Theory: 5)	5 (Theory: 5)

Objective

1. To understand the basic digital forensics and techniques for conducting the forensic examination on different digital devices.
2. To understand how to examine digital evidences such as the data acquisition, identification analysis.

Course Outcome

1. Know the basics of forensic
2. Understanding computing investigation and procedures.
3. Understand the different storage formats
4. Know how to apply forensic analysis tools to recover important evidence for identifying computer crime.
5. To be well-trained as next-generation computer crime investigators.

Unit -I

Computer forensics fundamentals, Benefits of forensics, computer crimes, computer forensics evidence and courts, legal concerns and private issues.

Unit- II

Understanding Computing Investigations – Procedure for corporate High-Tech investigations, understanding data recovery work station and software, conducting and investigations.

Unit-III

Data acquisition- understanding storage formats and digital evidence, determining the best acquisition method, acquisition tools, validating data acquisitions, performing RAID data acquisitions, remote network acquisition tools, other forensics acquisitions tools.

Unit-IV

Processing crimes and incident scenes, securing a computer incident or crime, seizing digital evidence at scene, storing digital evidence, obtaining digital hash, reviewing case.

Unit-V

Current computer forensics tools- software, hardware tools, validating and testing forensic software, addressing data-hiding techniques, performing remote acquisitions, E-Mail

investigations- investigating email crime and violations, understanding E-Mail servers, specialized E-Mail forensics tool.

Text Books:

1. Warren G. Kruse II and Jay G. Heiser, “Computer Forensics: Incident Response Essentials”, Addison Wesley, 2002.
 2. Nelson, B, Phillips, A, Enfinger, F, Stuart, C., “Guide to Computer Forensics and Investigations, 2nd ed., Thomson Course Technology, 2006, ISBN: 0-619-21706-5.
-

Reference Books:

1. Vacca, J, *Computer Forensics, Computer Crime Scene Investigation*, 2nd Ed, Charles River Media, 2005, ISBN: 1-58450-389. Cyber Forensics by Dejeje

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B. General

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2. Try to solve MCQ’s available online.
3. Others

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Semester-wise Revised Syllabus under CBCS 2020-21
Subject: Computer Applications for Arts / Commerce
Honours B.A./B.Com. Semester –VIII

Course Code:

Max Marks: 100

Course: STATISTICAL METHODS FOR BUSINESS DATA ANALYSIS

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Statistical Method for Business Data Analysis	5 (Theory: 5)	5 (Theory: 5)

Course Outcomes:

By the end of the course, students should be able to:

1. Understand and apply statistical thinking to analyze business data
2. Collect and sample data using appropriate methods
3. Use inferential statistics to make inferences and draw conclusions about business data
4. Implement statistical quality control measures to monitor and improve business processes
5. Use decision analysis and risk management techniques to make informed business decisions
6. Create effective data visualizations to communicate statistical results
7. Apply statistical methods to various business systems, such as marketing, finance, and operations management.

UNIT – I

Introduction to Statistical Thinking, The role of statistics in business decision-making, Types of data and variables, Measures of central tendency and variability, Probability distributions, Data Collection and Sampling Methods, Types of sampling methods, Sampling bias and errors, Data collection techniques, Survey design and implementation

UNIT – II

Inferential Statistics, Estimation and hypothesis testing, Confidence intervals Parametric and nonparametric tests, ANOVA and regression analysis

UNIT - III

Statistical Quality Control, Statistical process control, Control charts and process capability analysis, Six Sigma methodology

UNIT – IV

Decision Analysis and Risk Management, Decision trees and expected value analysis Monte Carlo simulation, Risk assessment and management

UNIT - V

Data Visualization and Communication, Graphical displays of data, Data storytelling, and Effective communication of statistical results, Applications in Business Systems, Forecasting and time series analysis, marketing research and consumer behaviour

Textbook:

1. Lind, D. A., Marchal, W. G., & Wathen, S. A. (2018). Statistical techniques in business and economics. McGraw-Hill Education

References:

1. An Introduction to Statistical Methods & Data Analysis by R. Lyman Ott and Michael Longnecker.

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

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Semester-wise Revised Syllabus under CBCS 2020-21
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Honours B.A./B.Com. Semester –VIII

Course Code:

Max Marks: 100

Course: FUNCTIONAL E-BUSINESS

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Functional E-Business	5 (Theory: 5)	5 (Theory: 5)

COURSE OBJECTIVES:

1. To understand the use of Computers in decision making.
2. To provide an insight into various processing and information systems.
3. The objective is to expose the students to electronic modes of commercial operations..

LEARNING OUTCOMES:

1. Maintaining database and processing software.
2. Analyzing records according to management policy.
3. Systems to give practical exposure in various reporting methods and Internet Accessibility

UNIT – I : E-BUSINESS– An Introduction:

Introduction, E-Commerce – definition, History of E-commerce, types of E-Commerce B to B etc. Comparison of traditional commerce and e-commerce. E-Commerce business models – major B to B, B to C model, Consumer-to-Consumer (C2C), Consumer-to-Business (C2B) model, Peer to-Peer (P2P) model – emerging trends. Advantages/ Disadvantages of ecommerce, web auctions, virtual communities, portals, e-business revenue models.

UNIT – II: SECURITY FOR E-BUSINESS

Security threats – An area view – implementing E-commerce security – encryption – Decryption, Protecting client computers E-Commerce Communication channels and web servers Encryption, SSL protocol, Firewalls, Cryptography methods, VPNs, protecting, networks, policies and procedures.

UNIT- III: E-PAYMENTS:

E-payment systems – An overview. B to C payments, B to B payments. Types of E- payment system – Credit card payment, debit cards, accumulating balance, online stored value payment systems, digital cash, digital (electronic) wallets, agile wallet, smart cards and digital cheques. Secure Electronic Transaction (SET) protocol.RFID Concepts.

UNIT - IV: E-BUSINESS MARKETING TECHNOLOGIES

E-Commerce and marketing B to B and B to C marketing and branding strategies. Web transaction logs, cookies, shopping cart database, DBMS, SQL, data mining, CRM (customer relationship Management) system – permission marketing, affiliate marketing, viral marketing.

UNIT – V: CYBER LAWS

Legal Aspects of E-Business, Internet frauds – Cyber Laws. IT Act 2000 salient features. Guidelines on cyber securities to be included

Text Books:

1. Marippa M, E – Commerce, 13th edition
2. R.G.Saha, E – Business, HPH, 10th edition.

REFERENCES:

1. M. Suman – E – Commerce & Accounting
2. Kalakota Ravi and A. B. Whinston : “Frontiers of Electronic Commerce”, Addison Watson R T : “Electronic Commerce – the strategic perspective.” The Dryden press
3. .Agarwala K.N and DeekshaArarwala: “Business on the Net – Whats and Hows of E Commerce”
4. Agarwala and Ararwala : “Business on the Net – Bridge to the online store front,” Murthy CSV: “E. Commerce” Himalaya Publishing House Pvt.Ltd

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ’s available online.
3. Others

L T P C
5 0 0 5

A.P. State Council of Higher Education
Semester-wise Revised Syllabus under CBCS 2020-21
Subject: Computer Applications for Arts / Commerce
Honours B.A./B.Com. Semester –VIII

Course Code:

Max Marks: 100

Course: COMPUTATIONAL BIOLOGY

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Computational Biology	5 (Theory: 5)	5 (Theory:5)

Course Outcome:

1. Understand the fundamental concepts of computational biology and their applications in biological research
2. Develop a working knowledge of the algorithms and tools commonly used in computational biology
3. Apply computational biology methods to analyze and interpret biological data
4. Develop skills in interpreting and communicating the results of computational biology analyses to a non-technical audience

UNIT – I: Introduction to Bioinformatics

Overview of computational biology and its applications: Historical overview of bioinformatics, The central dogma of molecular biology, The impact of computational biology on biological research

Introduction to biological databases and sequence analysis tools: Overview of biological databases: GenBank, UniProt, PDB, etc., Retrieving and analyzing biological data using sequence analysis tools: BLAST, FASTA, etc.

Pairwise sequence alignment algorithms: Needleman-Wunsch and Smith-Waterman: Scoring matrices and gap penalties, Dynamic programming algorithm for pairwise sequence alignment, Local and global alignment, and their applications

Multiple sequence alignment algorithms: Clustal and MUSCLE: Scoring methods and progressive alignment, Iterative refinement and hidden Markov models, Applications of multiple sequence alignment: phylogenetic analysis, protein domain identification

UNIT – II: Sequence Analysis

Sequence databases and database searching: BLAST and FASTA: Sequence databases and their organization, Sequence database searching algorithms: BLAST and FASTA, Interpretation and analysis of BLAST results

Sequence alignment refinement: progressive alignment and iterative refinement: Progressive alignment methods: Clustal and T-Coffee, Iterative refinement methods: PSI-BLAST and HHblits, Analysis of protein families and superfamilies

Phylogenetic analysis: distance-based and character-based methods: Distance-based methods: neighbor-joining and UPGMA, Character-based methods: maximum parsimony and maximum likelihood, Applications of phylogenetic analysis: molecular evolution, biogeography, etc.

Protein domain analysis: PFAM and InterPro: Protein domain classification and annotation, The PFAM database and its applications, InterProScan and functional annotation of protein domains

UNIT - III: Gene Expression Analysis

Microarray technology and data normalization: Overview of microarray technology and gene expression profiling, Data pre-processing and normalization methods, Quality control and outlier detection

Differential gene expression analysis: t-test and ANOVA: Statistical methods for differential gene expression analysis, T-tests, ANOVA, and their applications, False discovery rate correction and multiple hypothesis testing

Gene ontology analysis and functional enrichment analysis: Gene ontology and its hierarchical structure, Functional annotation of gene sets using gene ontology, Functional enrichment analysis using hypergeometric tests

Gene regulatory network analysis: clustering and motif detection: Overview of gene regulatory networks and their construction, Clustering methods for identifying co-regulated gene modules, Motif detection algorithms for identifying common regulatory elements

UNIT - IV: Genomics and Transcriptomics

Genome sequencing and assembly: Methods for sequencing genomes: Sanger sequencing, next-generation sequencing, Genome assembly algorithms and software tools

Genome annotation, Gene prediction algorithms and software tools, Functional annotation of genes: Gene ontology and pathway analysis

UNIT - V: RNA Sequencing and Applications of Genomics

Transcriptomics and RNA sequencing: RNA sequencing technologies and data analysis, Differential expression analysis and functional analysis of differentially expressed genes

Applications of genomics and transcriptomics: Genome-wide association studies and identification of disease-causing genes, Identification of biomarkers and drug targets

Text books

1. "An Introduction to Bioinformatics Algorithms" by Neil C. Jones and Pavel A. Pevzner.
2. "Fundamentals of Bioinformatics and Computational Biology" by Gautam B Singh, Springer.

Reference Books:

1. Computational Biology & Bioinformatics by Ka-Chun Wong.
2. "Bioinformatics Algorithms: An Active Learning Approach" by Phillip Compeau and Pavel Pevzner

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

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Honours B.A./B.Com. Semester –VIII

Course Code:

Max Marks: 100

Course: DATA VISUALIZATION TO POWER BI

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Data Visualization to Power BI	5 (Theory: 4 + Practical: 1)	6 (Theory: 4 + Practical: 2)

Course Outcomes:

At the end of this course, students should be able to:

CO1: Understand the concept Power Pivot and interface with excel analytic way

CO2: Write the algorithms for combine data quickly from a variety of sources into your model

CO3: Prepare the data various sources, clean, merge, filter data and calculated methods

CO4: Compose and choose the model, relationships between in themodels, user friendly models

CO5: Define BI environment, data clean, shaping, table relationships and analysis techniques

UNIT – I: Introduction Power Pivot

Introduction of Pivot - Use Power Pivot –x Velocity in-memory analytics engine- Exploring the Data Model Management interface-Analyzing data using a pivot table

UNIT – II: Power BI Data Import and Data Cleaning

Working with Data - Import data from relational databases -Import data from text files - Import data from a data feed -Import data from other sources, Discover and import data from various sources

UNIT – III: Data Cleaning Techniques

Data Munging - Getting, cleaning, and shaping data, Cleanse data - Merge, shape, and filter data - Group and aggregate data –Insert calculated columns.

UNIT – IV: Power BI Data Model

Creating data Model - Explain what a data model is – Create relationships between tables in the model - Create and use a star schema - Understand when and how to be normalize the data -Create and use linked tables

UNIT – V: Power BI Visuals and DAX

Adding calculations and measures-Incorporating time-based analysis

Textbooks

1. PowerBI 2021 – volume 3 (English, Paperback, FsilvaRoger) by PowellBrett, ISBN: 9798711316824
2. Microsoft PowerBI Desktop – Creating Visual Reports by HutchinsonJeff, ISBN: 9781081588908
3. Mastering Microsoft PowerBi by Fsilva Roger, ISBN: 9781788297233, 9781788297233, publisher: PacktPublishing Limited

Reference Books

1. Microsoft PowerBI Desktop – Creating Visual Reports by HutchinsonJeff, ISBN: 9781081588908
2. Beginning PowerBI: A Practical Guide to Self Service Data Analytics with Excel 2016 and PowerBI Desktop Second Edition by Dan Clark.

Online Web Resources:

[1.https://books.google.co.in/books?id=Da8DgAAQBAJ&newbks=0&printsec=frontcover&hl=en&source=newbks_fb&redir_esc=y#v=onepage&q&f=false](https://books.google.co.in/books?id=Da8DgAAQBAJ&newbks=0&printsec=frontcover&hl=en&source=newbks_fb&redir_esc=y#v=onepage&q&f=false)

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Case Studies
4. Others

Practical List

1. Loading data in power BI
2. Data model in power BI
3. Data visualisation in power BI
4. Advanced data visualisation in power BI
5. Basic data munging
6. Advanced data munging
7. Data Wrangling
8. Measures and Quick Measures
9. Basic Dax Formulas

Note: The list of experiments need not be restricted to the above list. Detailed list of Programming/software tool based exercises can be prepared by the concerned faculty members.

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Course Code:

Max Marks: 100

Course: DATA ANALYSIS WITH JASP

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Data Analysis with JASP	5 (Theory: 4 + Practical: 1)	6 (Theory: 4 + Practical: 2)

Course Description: This course is designed to introduce students to JASP, a free and open-source software for statistical analysis. The course will cover basic statistical concepts and their implementation in JASP, including descriptive statistics, hypothesis testing, and regression analysis.

Course Outcomes:

1. Students will be able to navigate the JASP interface and import data into JASP
2. Students will be able to calculate descriptive statistics and create data visualizations in JASP
3. Students will be able to conduct one-sample, independent-samples, and paired-samples t-tests in JASP
4. Students will be able to interpret p-values and make decisions based on statistical significance
5. Students will be able to conduct one-way and factorial ANOVA in JASP
6. Students will be able to interpret post-hoc test results and effect sizes Students will be able to conduct Bayesian analysis in JASP

Unit - I

Introduction to JASP and Data Exploration, Introduction to JASP and its interface, Importing and exploring data, Descriptive statistics and data visualization.

Unit - II: Hypothesis Testing

Understanding statistical significance and p-values, One-sample t-tests and z-tests, Independent-samples t-tests, Paired-samples t-tests

Unit – III: Analysis of Variance (ANOVA)

One-way ANOVA, Factorial ANOVA, Post-hoc tests and effect sizes

Unit – IV

Correlation and Regression, Pearson correlation coefficient, Simple linear regression, multiple linear regression

Unit - V

Advanced Topics, Bayesian statistics in JASP, Structural equation modelling

Text Book:

1.JASP: A Fresh Way to Do Statistics, by Eric-Jan Wagenmakers, Jonathon Love, Ravi Selker, Tahira Jamil, and Quentin F. Gronau (2020).

Reference Books:

1. Statistical Analysis in JASP, A Guide for Students, JASP v0.14 by Mark A – Goss, Sampson
2. Exploring Statistical Analysis Using Jasp: Frequentist and Bayesian Approaches by Christopher P Halte

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

Practical List

- 1 Diagrams and Graphs
- 2 Computation of measures of Central Tendency and Dispersion
- 3 Testing for normality
- 4 Linear Correlation and Regression
- 5 Logistic Regression
- 6 Multiple Correlation and regression analysis
- 7 t-Test for significance of single mean, difference means and paired t-test
- 8 Chi-Square test for independence of attributes and goodness of fit.
- 9 Analysis of Variance (ANOVA) – One way and Two way.

Note: The list of experiments need not be restricted to the above list. Detailed list of programming/software tool based exercises can be prepared by the concerned faculty members.

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Course Code:

Max Marks: 100

Course: CHARACTER DESIGN FOR ANIMATION

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Character Design for Animation	5 (Theory: 4 + Practical: 1)	6 (Theory: 4 + Practical: 2)

CHARACTER DESIGN FOR ANIMATION

Course Objective:

Character design for animation is intended to provide the student with an understanding of the anatomy of a human body, a creature or a cartoon character.

UNIT - I

Human Anatomy: Anatomy of different age groups (Babies, Kids, Teens, Young Adults, Aged). Basic Proportions, Basic understanding of the skeletal and muscle system, Human forms in Perspective

UNIT - II

Male and female anatomy. Body Structure - Proportion and construction of body parts (Torso, Face, Eyes, Nose, Ears, Mouth, Hand, Feet etc.) Motion analysis, Study of poses

UNIT - III

Anatomy of animals, birds, reptiles. Body structure: Basic forms, proportion and construction of body parts: head, legs, tails. Use of perspectives while drawing animals, birds, reptiles and Insects. Understanding motion and grace

UNIT - IV

Cartoon characters, Understanding cartoon characters, Cartoon constructions, Character development. Drawing from basic shapes, Distortion of proportions. Cartoon faces, Eyes, Mouths, Hair, Nose, Hands, Feet, Facial expressions

UNIT - V

Classic cartoon characters (Humans, Animals, Birds, Reptiles - Cute, Screwball, Goofy, Heavy, Pugnacious - Fairy tale characters, Gnomes, Elves, Dwarves, Witches). Anime Style

Text Books:

1. How to Draw What You See: Rudy De Reyna
2. How to Draw Animation - Learn the Art of Animation from Character Design to Storyboards and Layouts: Christopher Har

Reference Books

1. Figure Study Made Easy: Aditya Chari
2. Figure Drawing Without a Model: Ron Tiner
3. Anatomy for the Artist: Sarah Simblet
4. The Art of Animal Drawing: Construction, Action, Analysis, Caricature: Ken Hultgen
5. Animal Drawing: Anatomy & Action for Artists: Charles R. Knight
6. Animal Anatomy for Artists: Eliot Goldfinger
7. Cartoon Animation: Preston Blair
8. Disney Animation - The Illusion of Life: Frank Thomas and Ollie Johnston

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

Practical List

CHARACTER DESIGN FOR ANIMATION Using GIMP

1. Black & White color photo conversion.
2. Designing a cover page of a book.
3. Designing a pamphlet.
4. Passport size photo designing.
5. Image size modifications.
6. Filter effects and Eraser effects.
7. Fill this new layer with some color to add some interest by using the Plasma plugin.
8. Titles designing.
9. Apply a layer mask to layer.
10. Copy the "Visible" layer, and paste it into the layer mask for the plasma layer. So first, Left-Click on the "Visible" layer in the layers palette to activate it.
11. Add a new layer to the image and place it below the plasma layer.
12. Adjusting the Levels for text sharpening.
13. Creating a Drop Shadow.
14. Invert the colors of the layer to make the text black.
15. Visiting Card design.

Note: The list of experiments need not be restricted to the above list. Detailed list of Programming / software tool based exercises can be prepared by the concerned faculty members. Faculty have an adhere to choose other open sources and tools too.

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A.P. State Council of Higher Education
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Subject: Computer Applications for Arts / Commerce
Honours B.A./B.Com. Semester –VIII

Course Code:

Max Marks: 100

Course: DYNAMIC WEB PAGE DESIGNING

Semester	Title of the Course	Number of Credits	Number of Hours
VIII	Dynamic Web Page Designing	5 (Theory: 4 + Practical: 1)	6 (Theory: 4 + Practical: 2)

Course Objectives:

The main objectives of this course are to:

1. To enable the students to learn basics of web designing with ASP.NET and VB script.
2. To learn the ADO.NET model to develop data base web applications.

Course Outcomes:

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

- 1 Understand the basics of web design and web design process.
- 2 Understand the ASP and VB script, ASP objects, and server side components.
- 3 Understand the basics of ASP.NET, program flow, coding techniques, ASP.NET objects and components.
- 4 Knowledge on web services ActiveX data objects, ADO.NET model, and developing data base applications.
- 5 Knowledge on working with ADO.NET and SQL server and creating web application using it.

UNIT – I: INTRODUCTION TO WEB DESIGN

Introduction to web design : what is web design – the web design process – frames – LINKING :text – buttons – icons & graphics – search & designing – text : fonts –text layout – colors – imagesand backgrounds – cookies

UNIT – II: ASP AND VB SCRIPT

Introduction to ASP VB Script –active server objects: Applications, server, session, response,request - active server components: server side components.

UNIT– III: ASP.NET

Introduction to ASP.Net: what is ASP.Net – setting up for ASP.Net – Programming basics: basicsof programming –program flow – effective coding techniques –processing ASP.Net applications.Web founds and ASP.Net – ASP.Net and state – scope – ASP.Net objects and components.

UNIT - IVWEB SERVICES AND ASP.NET WITH SQL SERVER 15 hours

Web services and ASP.Net –ASP.Net and SQL server –using SQL server –using database in ASP.Net applications – ActiveX data objects –ADO.Net object model.

UNIT – V : ADO AND ADO.NET

Introduction to ADO- working with ADO connection object, command object and record setobjects – over view of ADO and ADO.Net – ADO.Net providers , process – editing data withADO.Net – ADO and SQL server.

Text Books:

- 1 The Complete reference WEB design by ThomosA Powel TMH Publications 2000 Edn. 2 Using Active server pages by Scot Johnson PHI SplEdn.
- 3 ASP.Net a beginners guide by Dave Merces TMH 2002 Edn.
- 4 ADO & ADO.Net programming by Mike Yenderloy BPB publications 2002 Edn.

Reference Books:

1. Internet and Web Design, IITL Education, Macmillan India Ltd.
2. Web Technologies by Uttam K. Roy

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B. General

1. Group Discussion / Seminar
2. Try to solve MCQ's available online.
3. Others

Practical List

1. Introduction to ASP: Write a simple "Hello World" program using ASP to display a message on a web page.
2. Basic HTML Forms: Create a web page that contains a form with various input fields such as text, radio buttons, checkboxes, and select lists.
3. Handling Form Data: Write an ASP program that retrieves and displays the data submitted through the form created in the previous lab.
4. Creating a Database: Use ASP to create a database and populate it with data.
5. Retrieving Data from a Database: Write an ASP program that retrieves data from the database created in the previous lab and displays it on a web page.

Note: The list of experiments need not be restricted to the above list. Detailed list of programming/software tool based exercises can be prepared by the concerned faculty members.