



Govt. Digvijay Autonomous PG College Rajnandgaon(CG)

SCHEME OF EXAMINATION & SYLLABUS

**FOR
THE FOUR-YEAR UNDERGRADUATE PROGRAMME
(FYUGP)**

**As per provision of NEP-2020 to be implemented from
Academic Year 2022 onwards**

**BACHELOR OF COMPUTER APPLICATION
(BCA- 7TH & 8TH) SEMESTER EXAM**

**UNDER
DEPARTMENT OF COMPUTER APPLICATION**

SESSION – 2025-26




(APPROVED BY BOARD OF STUDIES)

**Govt. Digvijay Autonomous PG College ,
Rajnandgaon(CG)**

Department of Computer Application

Session – 2025 -26

List of Members of Board of Studies (BOS)

S.No	Name of Member	Nominee Type	Signature
1	Mrs. Hempushpa	Chairman	
2	Dr. Durga Prasad Rao	VC Nominee	
3	Prof. Gulame Mustafa Ansari	Principal Nominee	
4	Prof. Shailendra Arya	Principal Nominee	
5	Mr. Anshu Ramteke	Adviser Member	
6	Ms. Nadini sahu	Ex-Student	

Syllabus and Marking scheme

BCA- VIII Semester (Honours with Research project/Dissertation)

S. No	Course Type	Course-code	Subject	Periods			Credit	Theory Marks	Internal Marks	Total Marks	
				L	T	P				Max	Min
1	DSC	UBCCT801	Big data Analytics	3	1	0	4	80	20	100	40
2	DSE	UBCCT802	Soft Computing	3	1	0	4	80	20	100	40
3	Research project /dissertation		Research Project / Dissertation	0	0	12	12	300	-	300	120
Total				06	2	12	20	-		500	

Department of Computer Application
BCA- VIII Semester
DSC – Big Data Analytics

Session 2025-26	Programme- UG
Semester - VIII	Subject- Big Data Analytics
Course Type - DSC	Course Code-
Credit – 3+1=4	Lecture -60
MM - 100	Min Marks-40

Course Title	Big Data Analytics
Course Objective	<ul style="list-style-type: none"> Students will learn to present data findings effectively using charts, graphs, and other visualization tools. Students will learn to collect data from various sources (web, social media, databases, etc.), understand different data types (structured, semi-structured, unstructured), and analyze existing datasets.

Course Learning Outcome	<p>After Completing this course, students will be able to:</p> <ul style="list-style-type: none"> Understand the concepts, characteristics and benefits of cloud computing. Understand the key security and challenges of cloud computing Understand the concept of Cloud Security and governance. Learn the Concept of Cloud Infrastructure Model. Understand the cloud storage, Cloud Virtualization & Micro services
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Unit	Lecture	Contents/Topic	Credit
I	14	Understanding Big Data: Datasets, Data Analysis, Data Analytics- Descriptive Analysis, Diagnostics Analytics, Predictive Analytics, Perceptive Analytics, Big Data Characteristics – volume, velocity, variety, veracity, value, Different Types of Data – Structured Data, Unstructured Data, Semi – Structured Data.	04
II	15	Introduction Hadoop: Big Data – Apache Hadoop& Hadoop Eco System – Moving Data in and out of Hadoop – Understanding inputs and outputs of MapReduce – Data Serialization.	
III	15	Hadoop Architecture: Hadoop Architecture, Hadoop Storage: HDFS, Common Hadoop Shell commands, Anatomy of File Write and Read, NameNode, Secondary NameNode, and DataNode, Hadoop MapReduce paradigm, Map and Reduce tasks.	
IV	16	Theory and Methods for Big Data Analytics: Regression Modeling, Multivariate Analysis, Bayesian Modeling, Interface and Bayesian Networks, Support Vector and Kernel Methods, Analysis of Time Series: Linear System Analysis, Nonlinear Dynamics, Rule Induction, Decision Tree.	
Total	60		





Department of Computer Application
BCA- VIII Semester
DSE – Soft Computing

Session 2025-26	Programme- UG
Semester - VIII	Subject- Soft Computing
Course Type - DSE	Course Code-
Credit – 3+1=4	Lecture -60
MM - 100	Min Marks-40

Course Title	Soft Computing
Course Objective	At the end of the course , the student will be able to: <ul style="list-style-type: none"> • Ability to appreciate the importance of optimizations and its use in computer engineering fields and other domains. • To introduce the ideas of fuzzy sets, fuzzy logic and use of heuristics based on human experience.

Course Learning Outcome	At the end of the course , the student will be able to: <ul style="list-style-type: none"> • Analyze and appreciate the applications which can use fuzzy logic. • Understand the difference between learning and programming and explore practical applications of Neural networks (NN). • Students would understand the efficiency of a hybrid system and how neural network and fuzzy logic can be hybridized to from a Neuro - fuzzy networks and its various applications.
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Unit	Lecture	Contents/Topic	Credit
I	16	Introduction: Soft computing, different tools of soft computing: Fuzzy logic, Artificial, Neural Network, Genetic Algorithm), Area of Application. Fuzzy Logic: Introduction to classical set and fuzzy sets, Membership Function. Properties and operations of classical set and Fuzzy set, a-cuts, Properties of a-cuts, Linguistic Variables, Membership function, Classical Relation and Fuzzy Relation and its properties and operations, Defuzzification and its methods, Fuzzy rule base.	04
II	16	Artificial Neural Network (ANN): Big Data – Architecture, Introduction, Evolution of Neural Network, Biological Neural Network Vs ANN, Basic Model of ANN, Different types of ANN, Single Layer Perceptron, Solving XOR Problem, Activation Function, Linear Satiability, Supervised and unsupervised learning, perceptron learning, delta learning, feed-Forward and Feedback Network, Error Back Propagation Network(EBPN), Associative memories and its types, Hopfield Network, Kohenenself – organizing Map.	
III	16	Genetic Algorithm: What is Optimization?, Introduction, Application GA Operators: selection crossover and mutation, different techniques of selection, crossover and mutation, different types of chromosomes, Application of GA.	
IV	12	Hybrid Soft Computing: Design of Neuro – Fuzzy model like ANFIS, Neuro -Genetic Fuzzy-Genetic model.	
Total	60		

