GOVT. COLLEGE FOR MEN (A) KADAPA

NAAC Reaccredited with 'B++' Grade

Kadapa-516001

BOARD OF STUDIES MEETING
IN
COMPUTER SCIENCE

w.e.f 2025-26

DEPARTMENT OF COMPUTER SCIENCE

Date: 15-09-2025

III & IV SEMESTER

GOVERNMENT COLLEGE FOR MEN

(Autonomous)

Reaccredited with 'B++' Grade by NAAC

Kadapa – 516004

B.Sc. HONOURS ARTIFICIAL INTELLIGENCE

Board of Studies

on

15th September 2025

with effect from **2025–26** Academic Year

DEPARTMENT

OF

COMPUTER SCIENCE & APPLICATIONS

BOARD OF STUDIES MEETING

IN

B.Sc. Honours ARTIFICIAL INTELLIGENCE

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours Artificial Intelligence

	Category	Name & Designation of the Person	Chairperson /Member
1.	Head Department of Computer Science and Applications	**Smt Y Anitha** Lecturer in Computer Science	Chairman
2.	Faculty Members	**Sri T Manohar Reddy,** Lecturer in Computer Science **Sri K H Sampath Kumar Raju** Lecturer in Computer Science **Smt B Renuka Devi** Lecturer in Computer Science **Sri M Mahaboob Subhani** Lecturer in Computer Science **Sri K Deepthi** Lecturer in Computer Science **Sri P. Rama Lakshumma** Lecturer in Computer Science	Member Member Member Member Member Member
3	Subject expert in the Subjectto be nominated by the Vice-Chancellor from a panel of six recommended by the principal	**Dr B Reddaiah,** Associate Professor, Dept. of CSE, YVCET of YVU, Proddatur, Andhra Pradesh.	Member
4	Subject Experts in the Subject from outside the college to be nominated by the Academic Council	**Dr C. Shoba Bindu,** Professor, Department of CSE, JNTUA Anantapuramu, Andhra Pradesh. **Dr A Sri Lakshmi,** Lecturer in Computer Applications, Govt. Degree College, Nagari, Chittoor(dt), Andhra Pradesh.	Member Member
5	A representative from industry/ corporate sector related to placements nominated by the principal	**Sri. G Trivikram,** Senior project Manager, Kumaran Systems, Bangalore.	Member
6	One Meritorious Alumnus	**Sri K Krishna Geeth,** Senior Software Engineer, Wipro Technologies, Hyderabad.	Member

BOS Chairman

Principal

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours Artificial Intelligence

Minutes of Board of Studies

Date: 15-09-2025

Members of the board of studies attended meeting Online through Google Meet Video Conferencing tool under the chairmanship of **Smt. Y. Anitha**, in-charge of theDepartment of Computer Science and Applications on **15-09–2025 at 12:00 PM** to discuss and finalize the following agenda.

Agenda:

1. To discuss the syllabus for 3rd and 4th Semester of B.Sc. Honours Computer Science with effect from 2025-2026 academic year.
2. To discuss the internal and external question papers patterns for 3rd and 4th Semester of B.Sc. Honours Computer Science with effect from 2025-2026 academic year.
3. To consider the list of question paper setters and list of examiners.

Resolution: All the members unanimously resolved to approved

1. It is resolved to approve the Course structure of the programme for 3rd and 4th Semester of B.Sc. Honours Artificial Intelligence with effect from 2025-2026.
2. The proposed syllabus for 3rd and 4th Semester of B.Sc. Honours Computer Science witheffect from 2025-26 academic year.
3. External and Internal Evaluation with the ratio of 60 and 40.
4. Internal and external question papers pattern and blueprint for external questionpaper for 3rd and 4th Semester of B.Sc. Honours Computer Science are also finalized.

Internal Evaluation Pattern for 3rd and 4th Semester of BSc Honours Computer Science

1st Internal Examination	: Max. 20 Marks
2nd Internal Examination	: Max. 15 Marks
Assignment	: Max. 05 Marks
Seminar	: Max. 05 Marks
Extra-curricular activities	: Max. 05Marks
Total	**: Max. 50Marks**

- *Should scale down 50 marks to 40 marks by using formula:*

$$scaled\ marks = \frac{total\ scored\ marks * 40}{50}$$

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours COMPUTER SCIENCE

External Evaluation Pattern for III Semesters of BSc Honours

Time: 3 Hrs | Model Question Paper | Max. Marks: 60

Section – A **5 x 4 = 20 Marks**

Answer any **FIVE** questions from the following **1 to 8** questions.

Each question carries **4** marks.

[**At least one question should be given from each unit**]

Section – B **5 x 8 = 40 Marks**

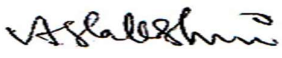
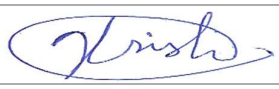
Answer any **FIVE** questions from the following **9 to 16** questions.

Each question carries **8** marks.

[**At least one question should be given from each unit**]

5. The list of Question paper setters and the list of examiners.

Members Present:

	Name of the Member	Signature with date
1.	Smt Y. Anitha (Chairman)	
2.	Dr B. Reddaiah (Nominee from the University)	
3	Dr C. Shoba Bindu (Subject Expert)	
4	Dr A. Sri Lakshmi (Subject Expert)	
5	Sri. G Trivikram (Industrialist)	
6	Sri K Krishna Geeth (Alumnus)	
7	Sri T. Manohar Reddy (Member)	
8	Sri K. H. Sampath Kumar Raju (Member)	
9	Smt B Renuka Devi (Member)	
10	Sri M Mahaboob Subhani (Member)	
11	Sri K. Deepthi (Member)	
12	Sri P. Rama Lakshumma (Member)	

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

Revised UG Syllabus under CBCS
with effect from 2025–2026 Academic Year

Structure for III Year B.Sc. Honours ARTIFICIAL INTELIGENCE

MAJOR SUBJECTS

Year	Semester	Course Code	Course Name	Hours per week			Credits
				L	T	P	
II	III		Document Oriented Database (T)	3	0	0	3
			Document Oriented Database (P)	0	0	2	1
			Operating Systems (T)	3	0	0	3
			Operating Systems (P)	0	0	2	1
			Introduction to OOP using JAVA (T)	3	0	0	3
			Introduction to OOP using JAVA (P)	0	0	2	1
			Computer Organization(T)	3	0	0	3
			Computer Organization(P)	0	0	2	1
						Total	16

Year	Semester	Course Code	Course Name	Hours per week			Credits
				L	T	P	
II	IV		Data Warehousing and Data Mining (T)	3	0	0	3
			Data Warehousing and Data Mining (P)	0	0	2	1
			Machine Learning using Python (T)	3	0	0	3
			Machine Learning using Python (P)	0	0	2	1
			Introduction to AI (T)	3	0	0	3
			Introduction to AI (P)	0	0	2	1
						Total	12

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours ARTIFICIAL INTELLIGENCE

Course Code	Document Oriented Database (T)	II BSC Honours AI III SEMESTER			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites		3	0	0	3

Course Objective:

- To educate student regarding databases and how to manage databases.
- To handle the large amount of data handling demands of business
- To implement a data store that provides high performance, high availability, and automatic scaling
- To Process an immense diversity of data that needs to be stored and processed.
- To make use of features and functionalities to work on NO SQL Data Base Mongo DB

Unit –I :

Overview of Database Management Systems:

Introduction ,Data and Information , Characteristics of the Database Approach - Self-Describing Nature of the a Database System , Insulation between Programs and Data, Data Abstraction , Support of Multiple Views of the data , Sharing of Data and multiuser Transaction Processing , Actors on the Scen - Database Administrators , Database Designers , End Users , System Analysts and Application Programmers , Advantages of using a DBMS - Controlling Redundancy ,Restricting unauthorized Access , Providing Persistent Storage for Program Objects and Data Structures, Permitting Inferencing and Actions Using Rules ,Providing Multiple User Interfaces , Representing Complex Relationships Among data , Enforcing Integrity Constraints , Providing Backup and Recovery, Database System Concepts and Architecture , DBMS Architecture and Data Independence - The Three-Schema Architecture , Data Independence , Database Languages and Interfaces.

Unit – II

Mongo DB Features and Installation, The Need for No SQL Databases, What Are No SQL Databases? CAP Theorem, BASE Approach, Types of NoSQL Databases, MongoDB Features, Document Database MongoDB Is Schemaless MongoDB Uses BSON , Rich Query Language, Terms Used in MongoDB, Data Types in MongoDB, Working with Database Commands, Create Database, Drop Database.

htm **Unit III**

MongoDB CRUD Operations, Collections, Create a Collection, Create Capped Collections, Create Operations, Insert Documents, Read Operations, Query Documents, Update Operations, Update Documents, Delete Operations, Delete Documents, Working with Arrays.

Unit IV

Data Modelling and Aggregation, Data Models, Embedded Data Models, Normalized Data Models Data Model Relationship Between Documents, Data Model Using an Embedded Document, Data Model Using Document References.

Unit V

Indexes and Working with Indexes, Index Types, Index Properties, Indexing Strategies.

Text Book:

1. "Fundamentals of Database Systems" by R.Elmasri and S.Navathe
2. "Database System Concepts" by Abraham Silberschatz, Henry Korth, and S. Sudarshan, mcGrawhill, 2010.
3. MongoDB Recipes: With Data Modeling and Query Building Strategies By Subhashini Chellappan, Dharanitharan Ganesan , Publisher : Apress

Reference Book:

1. "Database Management Systems" by Raghu Ramakrishnan, NcGrawhill,2002
2. "Prinicples of Database Systems" by J.D.Ullman
3. MongoDB Basics 1st ed. Edition , by Peter Membrey (Author) Publisher : Apress Web Resources

Web Links:

1. https://docs.mongodb.com/manual/tutorial/getting-started
2. https://www.tutorialspoint.com/mongodb/index.

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DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours - ARTIFICIAL INTELLIGENCE

Course Code	DOCUMENT ORIENTED DATABASE LAB	Program & Semester II B.Sc. Honours AI III Semester)			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites	Fundamental Programming	0	0	2	1

Course Objective:

The objective of this course is to enable student to implement database related queries using MongoDB.

WEEK 1:

Installing configuring running of Mongo db

Week 2:

Working with data base commands in mongo db

Week 3:

Working with crud operations in mongo db

Week 4:

Implementing aggregation operations in mongo db

Week 5:

Implementing index operations

Week 6:

Working with create, alter, drop, rename and Truncate tables using MYSQL

Week 7:

Working with insert, update, delete, se

Week 8:

Write an MYSQL Program to retrieve the data from two tables using joins.

Week 9:

Write a MYSQL program to retrieve and display the names of the top5 students .

Week 10:

Write an MYSQL Program to calculate the average marks of all students and display it along with their name.

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With effect from 2025–26 Academic Year

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

Model Question Paper

II B.Sc. Honours - ARTIFICIAL INTELLIGENCE

Paper Title: DOCUMENT ORIENTED DATABASE

Time: 3 hours **SECTION – A**

Answer any Five of the following questions. **5 x 4 = 20 M**

1. Define data and information with examples.
2. What is data abstraction in DBMS?
3. What is NoSQL? Why is it needed?
4. List any four features of MongoDB.
5. What is a collection in MongoDB?
6. Define embedded data model in MongoDB.
7. What is a normalized data model?
8. What is an index in MongoDB?

SECTION – B

Answer any Five of the following questions. **5 x 8 = 40 M**

9. Explain the characteristics of the database approach in detail.
10. Describe the three-schema architecture of DBMS. How does it support data independence?
11. Explain the CAP theorem with suitable examples.
12. Discuss the BASE approach in NoSQL and differentiate it from the ACID approach.
13. Explain different CRUD operations in MongoDB with examples.
14. Write short notes on capped collections. How are they different from normal collections?
15. Explain the relationship between documents in MongoDB with examples of embedded documents and document references.
16. Explain different types of indexes in MongoDB and discuss their properties.

With effect from 2025–26 Academic Year

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DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

II B.Sc. Honours ARTIFICIAL INTELLIGENCE III Semester

Paper Title: DOCUMENT ORIENTED DATABASE

BLUE PRINT FOR THE MODEL PAPER

S.NO.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section – A (Short Questions)	8	4	32	5	4	20
2	Section – B (Essay Questions)	8	8	64	5	8	40
Total Marks				**96**	**Total Marks**		**60**

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Short Questions 4 Marks	Essay Questions 8 Marks	Marks allotted to the Chapter
UNIT - I	2	2	24
UNIT - II	2	2	24
UNIT - III	1	2	20
UNIT - IV	2	1	16
UNIT - V	1	1	12
Total No. of Questions	**8**	**8**	**96**

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours Artificial Intelligence

Course Code:	OPERATING SYSTEMS	Program & Semester: II B.Sc. Honours AI, III Semester			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites	Basic Programming	3	0	0	3

Course Objectives

1. To understand the services provided by and the design of an operating system.
2. To understand what a process is and how processes are synchronized and scheduled.
3. To understand different approaches to memory management.
4. To understand the structure and commands in unix
5. Students should be able to understand shell programming

Course Outcomes:

1. Analyse the services and functions of operating systems

2. Analyse the concepts of processes in operating system and illustration of the scheduling of processor for a given problem instance
3. Analyse memory management techniques, concepts of virtual memory
4. To understand Introduction to Unix:- Architecture of Unix, Features of Unix , Unix Commands
5. To understand Shell programming and Simple shell program examples

UNIT – I

Operating System:

Introduction, Operating Systems Objectives and functions, Computer System Architecture, OS Structure, OS Operations. Evolution of Operating Systems ,types of operating system, Simple ,Batch, Multi programmed, time shared, Parallel, Distributed Systems, Real-Time Systems, Operating System services.

UNIT – II

Process and CPU Scheduling –

Process concepts The Process, Process State, Process Control Block, Process communication. Threads. Process Scheduling Scheduling Queues, Schedulers, Context Switch, Pre-emptive Scheduling, Dispatcher, Scheduling Criteria, Scheduling algorithms,Process Synchronization, The Critical section Problem, Semaphores, Classic Problems of Synchronization,

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B.Sc. Honours Artificial Intelligence

UNIT – III

Memory Management and Virtual Memory –

Logical & physical Address Space, Swapping, Contiguous Allocation, Paging-Structure of Page Table Segmentation, Segmentation with Paging,Virtual Memory, Demand Paging, Performance of Demanding Paging Page Replacement Page Replacement Algorithms, Allocation of Frames.

UNIT – IV

Introduction to Unix:- Architecture of Unix, Features of Unix , Unix Commands – PATH, man, echo, printf, script, passwd, uname, who, date, stty, pwd, cd, mkdir, rmdir, ls, cp, mv, rm, cat, more, wc, lp, od, tar, gzip.

UNIT – V Shell programming:

Ordinary and environment variables. The profile. Read and read only commands. Command line arguments. exit and exit status of a command. Logical operators for conditional execution. The test command and its shortcut. The if, while, for and case control statements. The set and shift commands and handling positional parameters. The here (<<) document and trap command. Simple shell program examples.

TEXT BOOK:

"Operating System Concepts"-Silberschatz, Galvin, Gagne-–eight Edition-John Willey & Sons INC 1,2,3 units

Sumitabha Das., Unix Concepts and Applications., 4thEdition., Tata McGraw Hill(4,5) units

REFERENCES BOOKS:

1. Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne 8th Edition, Wiley Student Edition.
2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press

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DEPARTMENT OF COMPUTER SCIENCE &APPLICATIONS

B.Sc. Honours Artificial Inteligence

Course Code	Course Title OPERATING SYSTEMS LAB	Program & Semester II B.Sc. Honours AI III Semester			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites	Basic Programming	0	0	2	1

Course Objective:

This course enables students to develop OS scheduling logics and also to gain hands-on experience of UNI

LAB LIST

1. Write the program to implement CPU scheduling algorithm for first come first serve Scheduling
2. write a program to implement CPU scheduling algorithm for shortest job first scheduling.
3. Write a ‘C’ program to perform priority scheduling.
4. Write a ‘C’ program to perform priority scheduling.
5. Write a program to implement CPU scheduling for Round Robin Scheduling.
6. Execute various file/directory handling commands in UNIX.
7. Execute various file/directory handling commands in UNIX.
8. Write a Simple shell script for basic arithmetic and logical calculations.
9. Write a shell script to display list of users currently logged in.
10. Write a shell script to delete all the temporary files.
11. Write a shell script to search an element from an array using binary searching.
12. Write a shell script to determine whether a given number is a prime number or not
13. Write a shell script to print the first *n* Fibonacci numbers.
14. Execute various system administrative commands

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DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

Model Question Paper

II B.Sc. Honours ARTIFICIAL INTELIGENCE III&IV Semester

Paper Title: OPERATING SYSTEMS

Time: 3 hours **SECTION – A**

Answer any Five of the following questions. $5 \times 4 = 20$ M

1. What are the basic functions of an Operating System?
2. Write short notes on Time Sharing Systems.
3. Explain the concept of system calls with an example.
4. Differentiate between processes and threads.
5. What are the necessary conditions for deadlock?
6. Explain the concept of semaphores.
7. Write short notes on paging.
8. Explain different file allocation methods.

SECTION – B

Answer any Five of the following questions. $5 \times 8 = 40$ M

9. Discuss the evolution of Operating Systems and their types.
10. Explain different process scheduling algorithms with examples.
11. Define deadlock. Explain various deadlock handling approaches.
12. Explain process synchronization with reference to the producer-consumer problem.
13. Discuss memory allocation strategies with suitable examples.
14. Explain paging and segmentation with examples.
15. Describe file operations and directory structures in Operating Systems.
16. Discuss disk scheduling algorithms with suitable examples.

With effect from 2025–26 Academic Year

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

III rd B.Sc. Honours -ARTIFICIAL INTELIGENCE - III&IV Semester

Paper Title: : OPERATING SYSTEMS

BLUEPRINT (Unit-wise Distribution)

Unit	Topics	Section – A (4 Marks)	Section – B (8 Marks)	Total Marks
Unit I	OS basics, functions, types, history, real-time systems	Q1, Q2	Q9	12M
Unit II	Processor modes, kernels, system calls, threads, scheduling	Q3, Q4	Q10	12M
Unit III	Deadlock, concurrency, semaphores, synchronization	Q5, Q6	Q11, Q12	20M
Unit IV	Memory management, allocation, paging, segmentation	Q7	Q13, Q14	16M
Unit V	File & I/O management, security, allocation, disk scheduling	Q8	Q15, Q16	16M

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DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours Artificial Inteligence

Program Code	Course **Introduction to OOP using JAVA**	Program & Semester II B.Sc. Honours AI III Semester			
Teaching	Hours Allocated:	**L**	**T**	**P**	**C**
Pre-requisites		**3**	**0**	**0**	**3**

Course Objectives:
The Objective of the course is to assist the student in understanding the concepts of Object Oriented Programming using Java language.
Course Outcomes: At the end of this course the student is able to
CO1: Overview of java programming, history and its features**.(PO5,PO7)**
CO2: Understand fundamentals of programming such as variables, conditional and iterative execution, statements, etc**.(PO5,PO6,PO7)**
CO3: Understand the principles of arrays, inheritance, packages and multi-threading**.(PO5,PO6,PO7)**
CO4: Understand the Fundamental features of Managing Errors, Exceptions and Applet Programming**.(PO5,PO6,PO7)**
CO5: Understand the Files concept in java**.(PO5,PO6,PO7)**

UNIT -I
JAVA Evolution: History – Features, Overview of Java Language: Introduction - Simple Java program - Structure - Java tokens - Statements - Java virtual Machine. Constants - Variables - Data types - Operators and expressions.

UNIT -II
Decision making and Branching: Simple If Statement, the IF…Else statement, The Else... If ladder, The Switch Statement, The? : Operator, Decision making and looping: The While statement, The do Statement - The for Statement - Jumps in loops - labelled loops - Classes, Objects and Methods. Arrays, Strings

UNIT -III
Vectors – Interfaces- Multiple Inheritance – Packages: Putting classes together –Threaded Programming - Thread life cycle, Multi threads, Deadlocks. Managing Errors and Exceptions, I/O Exceptions.

UNIT -IV
Collections FrameWork :- What is Collection, FrameWork, Collections FrameWork, Hierarchy of Collection FrameWork, Collection Interface, Methods of Collection Interface, Collection Classes.

UNIT -V
Files: Introduction – concept of streams – Stream classes – Using stream – I/O classes – File class – creation of files – Reading / Writing characters/ Bytes.

Text Books:			
	Author	**Title**	**Publisher**
1	E. Balaguruswamy,	Programming with JAVA - A Primer, 2015	McGraw Hill Professional

	Reference Text Books:		
	Author	**Title**	**Publisher**
1	Sachin Malhotra	Programming in Java	OXFORD University Press
2	John R. Hubbard	Programming with Java, Second Edition	Schaum's outline Series, TATA McGraw-Hill Company.

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B.Sc. Honours ARTIFICIAL INTELIGENCE

3	Deitel &Deitel.	Java TM: How to Program 2007	PHI
4	D.S Mallik	Java Programming: From Problem Analysis to Program Design	
5	P. Radha Krishna	Object Oriented Programming Through Java, 2008	Universities Press

Course Delivery method: Face-to-face / Blended
Course has focus on: Skill Development.
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
2. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:
Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerised adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours - Artificial Inteligence

Program Code	Course **Introduction to OOP using JAVA LAB**	Program & Semester II B.Sc. Honours AI III Semester			
Teaching	Hours Allocated:	**L**	**T**	**P**	**C**
Pre-requisites	Basic Programming	**0**	**0**	**2**	**1**

Practical Credits: 1 2 hrs/week

Course Objective:

The Objective of this course is to apply programming skills in java.

Course Outcomes: At the end of this course the student is able to

CO1: Overview of java programming**. (PO5,PO7)**

CO2: Understand fundamentals of programming such as variables, conditional and iterative execution, statements, etc**. (PO5,PO7)**

CO3: Understand the principles of arrays, inheritance, packages and multi-threading**. (PO5,PO7)**

CO4: Understand the Fundamental features of Exceptions and Applet Programming**. (PO5,PO7)**

CO5: Understand the Files concept in java**. (PO5,PO7)**

LAB LIST

1. Write a java program to print Hello World.
2. Write a java program on Variables.
3. Write a java program to use various Data types.
4. Write a java program to implement main method inside and outside of a class.
5. Write a java program on Operators.
6. Write a java program on Looping.
7. Write a java program to display Fibonacci series.
8. Write a java program to find out the given number is palindrome or not.
9. Write a java program on single and Multi-dimensional array.
10. Write a java program on Strings.
11. Write a java program on interface.
12. Write java programs on various types of Inheritance.
13. Write java programs on Packages.
14. Write a java program on Multi-Threading.
15. Write java programs on various types Exceptions.
16. Write a Java program to demonstrate ArrayList Collection Framework.
17. Write a Java program to demonstrate Stack Collection Framework.
18. Write a java program to create a file.
19. Write a java program to perform read data from a file.
20. Write a java program to perform write data from a file.

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With effect from 2025–26 Academic Year

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

Model Question Paper

II B.Sc. Honours- ARTIFICIAL INTELIGENCE

Paper Title: Introduction to OOP using JAVA

Time: 3 hours **Max. Marks: 60 Marks**

SECTION – A

Answer any Five of the following questions. **5 x 4 = 20 M**

1. Write about Java program Structure?
2. Write about Constants in Java?
3. Explain about switch statement in JAVA.
4. Define String. Write about any String Methods.
5. Define Interface. Explain about extending and implementing interfaces.
6. Explain about Hierarchy of Collection FrameWork?
7. Write about concept of streams.
8. Write a note on creation of files.

SECTION – B

Answer any Five of the following questions. **5 x 8 = 40 M**

9. Explain in detail about Java Features?
10. What is an operator? Explain in detail about various types of Operators in JAVA?
11. Explain about Looping statements in JAVA with examples?
12. What is an Array? Explain in detail about types of Arrays?
13. Define Package. Explain about creating and accessing a package using JAVA.
14. Describe about Life cycle of Thread.
15. Explain the difference between the Collection interface and the Collections class in Java.
16. Explain about Reading / Writing characters?

With effect from 2025–26 Academic Year

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

II B.Sc. Honours (Artificial Intelligence)- III Semester

Paper Title: Introduction to Object Oriented Programming using Java

BLUE PRINT FOR THE MODEL PAPER

S.NO.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section – A (Short Questions)	8	4	32	5	4	20
2	Section – B (Essay Questions)	8	8	64	5	8	40
Total Marks				**96**	**Total Marks**		**60**

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Short Questions 4 Marks	Essay Questions 8 Marks	Marks allotted to the Chapter
UNIT - I	2	2	24
UNIT - II	2	2	24
UNIT - III	1	2	20
UNIT - IV	1	1	12
UNIT - V	2	1	16
Total No. of Questions	**8**	**8**	**96**

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours Artificial Inteligence

Program Code	Course Computer Organization	Program & Semester II B.Sc. Honours AI III Semester			
Teaching	Hours Allocated:3	L	T	P	C
Pre-requisites	Computer Fundamentals	3	0	0	3

Course Objectives: To familiarize with organizational aspects of memory, processor and I/O.

Course Outcomes: Upon successful completion of the course, the students will be able to

1. Identify different types of instructions
2. Differentiate between micro-programmed and hard-wired control units.
3. Analyze the performance of hierarchical organization of memory.
4. Summarize different data transfer techniques.
5. Demonstrate arithmetic operations on fixed- and floating-point numbers and illustrate concepts of parallel processing.

UNIT – I: Register Transfer Language and Micro Operations: Introduction- Functional units, computer registers, register transfer language, register transfer, bus and memory transfers, arithmetic, logic and shift micro-operations, arithmetic logic shift unit. Basic Computer Organization and Design: Instruction codes, instruction cycle. Register reference instructions, Memory – reference instructions, input – output and interrupt.

UNIT – II: CPU and Micro Programmed Control: Central Processing unit: Introduction, instruction formats, addressing modes. Control memory, address sequencing, design of control unit - hard wired control, micro programmed control.

UNIT – III: Memory Organization: Memory hierarchy, main memory, auxiliary memory, associative memory, cache Memory and mappings.

UNIT – IV: Input-Output Organization: Peripheral Devices, input-output interface, asynchronous data transfer, modes of transfer- programmed I/O, priority interrupt, direct memory access, Input – Output Processor (IOP).

UNIT – V: Computer Arithmetic and Parallel Processing: Data representation- fixed point, floating point, addition and subtraction, multiplication and division algorithms. Parallel Processing-Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline.

Text Books:

1. M. Moris Mano, “Computer Systems Architecture”, 3rd edition, Pearson/ PHI.
Reference Books: 1. Carl Hamacher, ZvonksVranesic, SafeaZaky, “Computer Organization”, 5th edition,McGraw Hill.
2. William Stallings, “Computer Organization and Architecture”, 8th edition, Pearson/PHI.

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours - ARTIFICIAL INTELIGENCE

Program Code	Course Computer Organization LAB	Program & Semester II B.Sc. Honours AI III Semester			
Teaching	Hours Allocated:2	L	T	P	C
Pre-requisites		0	0	2	1

List of Experiments:

1. Implement a C program to convert a Hexadecimal, octal, and binary number to decimal number vice versa.
2. Implement a C program to perform Binary Addition & Subtraction.
3. Implement a C program to perform Multiplication of two binary numbers.
4. Implement arithmetic micro-operations using logic gates.
5. Implement logic and shift micro-operations using logic gates.
6. Implement a C program to perform Multiplication of two binary numbers (signed) using Booth's Algorithms.
7. Implement a C program to perform division of two binary numbers (Unsigned) using restoring division algorithm.
8. Implement a C program to perform division of two binary numbers (Unsigned) using no restoring division algorithm.
9. Write assembly language code for A+B*(C-D) using various instruction formats in MASM or any open-source assembler.
10. Write assembly language code for A+B*C using various addressing modes in MASM or any open-source assembler.

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

Model Question Paper

II B.Sc. Honours ARTIFICIAL INTELIGENCE

Paper Title: Computer Organization

Time: 3 hours **Max. Marks: 60 Marks**

SECTION – A

Answer any Five of the following questions. **5 x 4 = 20 M**

1. Define register transfer language and explain its importance in computer architecture.
2. Describe the functions of arithmetic micro-operations in computer systems.
3. Explain the instruction cycle with a neat diagram.
4. What are addressing modes? Give examples.
5. Describe the memory hierarchy in computer systems.
6. Explain the concept of asynchronous data transfer.
7. Differentiate between fixed point and floating-point data representation.
8. Describe pipelining in the context of parallel processing.

SECTION – B

Answer any Five of the following questions. **5 x 8 = 40 M**

9. Explain in detail the bus and memory transfers in a computer system.
10. Describe the design of a control unit using hard-wired control.
11. Explain the associative memory and its applications.
12. Discuss the different modes of transfer in input-output organization.
13. Describe in detail the multiplication and division algorithms used in computer arithmetic.
14. Explain the role and functioning of an Input-Output Processor (IOP).
15. Describe the concept of instruction pipeline and its significance in parallel processing.
16. Explain the design and functioning of a micro-programmed control unit.

With effect from 2025–26 Academic Year

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

III rd B.Sc. Honours ARTIFICIAL INTELIGENCE III&IV Semester

Paper Title: : INFERENTIAL STATISTICS

BLUE PRINT FOR THE MODEL PAPER

S.NO.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section – A (Short Questions)	8	4	32	5	4	20
2	Section – B (Essay Questions)	8	8	64	5	8	40
Total Marks				**96**	**Total Marks**		**60**

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Short Questions 4 Marks	Essay Questions 8 Marks	Marks allotted to the Chapter
UNIT - I	2	2	24
UNIT - II	2	2	24
UNIT - III	1	2	20
UNIT - IV	2	1	16
UNIT - V	1	1	12
Total No. of Questions	8	8	96

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours Artificial Intelligence

Program Code	Course DATA WAREHOUSING AND DATA MINING	Program & Semester II B.Sc. Honours AI IV Semester			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites		3	0	0	3

OBJECTIVE:

The course should enable the students to learn principles of Data warehousing and data mining with its architecture and understand data preprocessing methods to perform classification and prediction of data. Technical knowledge is helpful to implement Data Mining principles and techniques for real time applications.

Course Outcomes:

1. To understand the principles of Data warehousing and Data Mining.
2. To be familiar with the Data warehouse architecture and its Implementation.
3. To know the Architecture of a Data Mining system.
4. To understand the various Data preprocessing Methods.
5. To perform classification and prediction of data.

UNIT I

Data Warehousing and Business Analysis: - Data warehousing Components –Building a Data warehouse – Data Warehouse Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata – reporting – Query tools and Applications – Online Analytical Processing (OLAP) – OLAP and Multidimensional Data Analysis.

UNIT II

Data Mining: - Data Mining Functionalities – Data Preprocessing – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation Architecture Of A Typical Data Mining Systems- Classification Of Data Mining Systems. Association Rule Mining: - Efficient and Scalable Frequent Item set Mining Methods – Mining Various Kinds of Association Rules – Association Mining to Correlation Analysis – Constraint-Based Association Mining.

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours Artificial Intelligence

UNIT III

Classification and Prediction: - Issues Regarding Classification and Prediction – Classification by Decision Tree Introduction – Bayesian Classification – Rule Based Classification – Classification by Backpropagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction – Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor – Ensemble Methods – Model Section.

UNIT IV

Cluster Analysis: - Types of Data in Cluster Analysis – A Categorization of Major Clustering Methods – Partitioning Methods – Hierarchical methods – Density-Based Methods – Grid-Based Methods – Model-Based Clustering Methods – Clustering High-Dimensional Data – Constraint-Based Cluster Analysis – Outlier Analysis.

UNIT V

Mining Object, Spatial, Multimedia, Text and Web Data:

Multidimensional Analysis and Descriptive Mining of Complex Data Objects – Spatial Data Mining – Multimedia Data Mining – Text Mining – Mining the World Wide Web.

Text Book

1. Jiawei Han, Micheline Kamber and Jian Pei“Data Mining Concepts and Techniques”, Third Edition, Elsevier, 2011.

Reference Books

1. Alex Berson and Stephen J. Smith “Data Warehousing, Data Mining & OLAP”, Tata McGraw – Hill Edition, Tenth Reprint 2007.

2. K.P. Soman, Shyam Diwakar and V. Ajay “Insight into Data mining Theory and Practice”, Easter Economy Edition, Prentice Hall of India, 2006.

3. G. K. Gupta “Introduction to Data Mining with Case Studies”, Easter Economy Edition, Prentice Hall of India, 2006.

4. Pang-Ning Tan, Michael Steinbach and Vipin Kumar “Introduction to Data Mining”, Pearson Education, 2007.

With effect from 2025–26 academic year

GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours ARTIFICIAL INTELIGENCE

Program Code	Course DATA WAREHOUSING AND DATA MINING	Program & Semester II B.Sc. Honours AI IV Semester			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites		0	0	2	1

Course Objectives:

This course enables students to practically implement various data mining techniques.

Course Outcomes:

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

1. implement data files conversions and can train, test data sets for an application.
2. generate accurate models, and demonstrate data pre - processing.
3. Demonstrate text mining and web mining techniques.

LAB EXPERIMENTS:

1. List applications for mining
2. File format for data mining
3. Conversion of various data files
4. Training the given dataset for an application
5. Testing the given dataset for an application
6. Generating accurate models
7. Data pre-processing – data filters
8. Feature selection
9. Web mining
10. Text mining
11. Design of fact & dimension tables
12. Generating graphs for star schema

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

Model Question Paper: DATA WAREHOUSING AND DATA MINING

II B.Sc. Honours ARTIFICIAL INTELIGENCE IV Semester

Paper Title: Data Warehousing And Data Mining

Time: 3 hours **Max. Marks: 60 Marks**

SECTION – A

Answer any Five of the following questions. **5 x 4 = 20 M**

1
2
3
4
5
6
7
8

SECTION – B

Answer any Five of the following questions. **5 x 8 = 40 M**

9
10
11
12
13
14
15
16

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

III rd B.Sc. Honours ARTIFICIAL INTELIGENCE II&IV - Semester

Paper Title: DATA WAREHOUSING AND DATA MINING

BLUE PRINT FOR THE MODEL PAPER

S.NO.	Type of Question	To be given in the Question Paper			To be answered		
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UNIT - III	2	2	24
UNIT - IV	1	1	12
UNIT - V	1	1	12
Total No. of Questions	**8**	**8**	**96**

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours - ARTIFICIAL INTELIGENCE

Program Code	Course Machine Learning using Python	Program & Semester II B.Sc. Honours AI IV Semester			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites		3	0	0	3

OBJECTIVES:

- To understand the basic concepts of machine learning.
- To understand and build supervised learning models.
- To understand and build unsupervised learning models.
- To evaluate the algorithms based on corresponding metrics identified.

Course Outcomes : At the end of this course, the students will be able to:

1. Explain the basic concepts of machine learning.
2. Construct supervised learning models.
3. Construct unsupervised learning algorithms.
4. Evaluate and compare different models

UNIT I INTRODUCTION TO MACHINE LEARNING

Review of Linear Algebra for machine learning; Introduction and motivation for machine learning; Examples of machine learning applications, VapnikChervonenkis (VC) dimension, Probably Approximately Correct (PAC) learning, Hypothesis spaces, Inductive bias, Generalization, Bias variance trade-off.

UNIT II SUPERVISED LEARNING

Linear Regression Models: Least squares, single & multiple variables, Bayesian linear regression, gradient descent, Linear Classification Models: Discriminant function – Perceptron algorithm, Probabilistic discriminative model - Logistic regression, Probabilistic generative model – Naive Bayes, Maximum margin classifier – Support vector machine, Decision Tree, Random Forests

UNIT III ENSEMBLE TECHNIQUES AND UNSUPERVISED LEARNING

Combining multiple learners: Model combination schemes, Voting, Ensemble Learning - bagging, boosting, stacking, Unsupervised learning: K-means, Instance Based Learning: KNN, Gaussian mixture models and Expectation maximization.

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UNIT IV NEURAL NETWORKS

Multilayer perceptron, activation functions, network training – gradient descent optimization – stochastic gradient descent, error backpropagation, from shallow networks to deep networks –Unit saturation (aka the vanishing gradient problem) – ReLU, hyperparameter tuning, batch normalization, regularization, dropout.

UNIT V DESIGN AND ANALYSIS OF MACHINE LEARNING EXPERIMENTS

Guidelines for machine learning experiments, Cross Validation (CV) and resampling – K-fold CV, bootstrapping, measuring classifier performance, assessing a single classification algorithm and comparing two classification algorithms – t test, McNemar's test, K-fold CV paired t test

TEXT BOOKS:

1. Ethem Alpaydin, "Introduction to Machine Learning", MIT Press, Fourth Edition, 2020.

2. Stephen Marsland, "Machine Learning: An Algorithmic Perspective, "Second Edition", CRC Press, 2014.

REFERENCES

1. Christopher M. Bishop, "Pattern Recognition and Machine Learning", Springer, 2006.

2. Tom Mitchell, "Machine Learning", McGraw Hill, 3rd Edition, 1997.

3. Mehryar Mohri, Afshin Rostamizadeh, Ameet Talwalkar, "Foundations of Machine Learning", Second Edition, MIT Press, 2012, 2018.

4. Ian Goodfellow, Yoshua Bengio, Aaron Courville, "Deep Learning", MIT Press, 2016

5. Sebastain Raschka, Vahid Mirjalili , "Python Machine Learning", Packt publishing 3rd Edition, 2019.

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours - ARTIFICIAL INTELIGENCE

Program Code	Course Machine Learning using Python LAB	Program & Semester II B.Sc. Honours AI IV Semester			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites		0	0	2	1

Experiment List:

1. Write a python program to import and export data using Pandas library functions.
2. Demonstrate various data pre-processing techniques for a given dataset
3. Implement Dimensionality reduction using Principle Component Analysis (PCA) method.
4. Write a Python program to demonstrate various Data Visualization Techniques.
5. Implement Simple and Multiple Linear Regression Models.
6. Develop Logistic Regression Model for a given dataset.
7. Develop Decision Tree Classification model for a given dataset and use it to classify a new sample.
8. Implement Naïve Bayes Classification in Python.
9. Build KNN Classification model for a given dataset.
10. Build Artificial Neural Network model with back propagation on a given dataset.
    a. Implement Random Forest ensemble method on a given dataset.
    b. Implement Boosting ensemble method on a given dataset.
11. Write a python program to implement K-Means clustering Algorithm.

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours - ARTIFICIAL INTELIGENCE

Program Code	Course INTRODUCTION TO AI	Program & Semester II B.Sc. Honours AI IV Semester			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites		0	0	2	1

Course Objective:

- The objective of this course is to educate students in basic Artificial Intelligence concepts and provide insights of solving problems using AI.
- This course also aims to educate students in basics of practical natural language processing and robotics.

Course Outcomes:

1. Understand the need of AI and Intelligent Agents.
2. Understand knowledge based agents and prepositional logic.
3. Gain knowledge about learning agents and decision trees.
4. Gain knowledge about practical applications of NLP
5. Understand parts, tasks and architecture of Robotics.

UNIT – I:

Introduction to AI:

What is AI? AI problems, foundation of AI and history of AI intelligent agents: Agents and Environments, the concept of rationality, the nature of environments, structure of agents, problem solving agents, problem formulation.

UNIT-II: Searching:

Searching for solutions, uniformed search strategies – Breadth first search, depth first Search. Search with partial information (Heuristic search) Hill climbing, A*, AO* Algorithms, Problem reduction, Game Playing-Adversial search, Games, mini-max algorithm, optimal decisions in multiplayer games, Problem in Game playing, Alpha-Beta pruning, Evaluation functions.

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DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours - ARTIFICIAL INTELIGENCE

UNIT-III:

Knowledge representation issues, predicate logic- logic programming, semantic nets- frames and inheritance, constraint propagation, representing knowledge using rules, rules based deduction systems. Reasoning under uncertainty, review of probability, Baye's probabilistic interferences and dempster shafer theory.

UNIT-IV First order logic:

Inference in first order logic, propositional vs. first order inference, unification & lifts forward chaining, Backward chaining, Resolution, learning from observation Inductive learning, Decision trees, Explanation based learning, Statistical Learning methods, Reinforcement Learning.

UNIT-V: Expert systems:-

Introduction, basic concepts, structure of expert systems, the human element in expert systems how expert systems works, problem areas addressed by expert systems, expert systems success factors, types of expert systems, knowledge engineering, scope of knowledge, difficulties in knowledge acquisition methods of machine learning, selecting an appropriate knowledge acquisition method, societal impacts reasoning in artificial intelligence, inference with rules, with frames: model based reasoning, case based reasoning, explanation & meta knowledge inference with uncertainty.

TEXT BOOKS

Stuart Russell, Peter Norvig: "Artificial Intelligence: A Modern Approach",2nd Edition, Pearson Education, 2007

REFERENCES

1. Artificial Neural Networks B. Yagna Narayana, PHI
2. Artificial Intelligence, 2nd Edition, E.Rich and K.Knight (TMH).
3. Artificial Intelligence and Expert Systems – Patterson PHI.
4. Expert Systems: Principles and Programming- Fourth Edn, Giarrantana/ Riley, Thomson.
5. PROLOG Programming for Artificial Intelligence. Ivan Bratka- Third Edition – Pearson Education.
6. Neural Networks Simon Haykin PHI.

Web Resources:

https://www.javatpoint.com/artificial-intelligence-ai

https://www.tutorialspoint.com/artificial_intelligence/artificial_intelligence_overview.html

https://www.academia.edu/32098490/Introduction_to_artificial_intelligence

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

B.Sc. Honours - ARTIFICIAL INTELIGENCE

Program Code	Course INTRODUCTION TO AI LAB	Program & Semester II B.Sc. Honours AI IV Semester			
Teaching	Hours Allocated:	L	T	P	C
Pre-requisites		0	0	2	1

Lab List

1. A) Basic programs in python.
   B) Programs demonstrating list, Vector, Matrix and Array
2. Solving water – jug problem using Python.
3. Implementing DFS and BFS using Python.
4. Solve 8 – puzzle problem using A* algorithm.
5. Solve 8 – puzzle problem using hill climbing Algorithm.
6. Implement Tic – Tac – Toe game using Python.
7. Develop Python code for mini – max algorithm.
8. Develop Python code for Hangman game.
9. A) Develop Python code for removing punctuation marks from the given string.
   B) Develop Python code for sorting the sentence in alphabetical order.
10. A) Using Pylog programming, display first order logic.
    B) Using Pylog programming, display unification process.
11. A) Find mean and mode for given data set.
    B) Calculate variance and standard deviation for given data set.
12. A) Determining probability of a prime number appearing when a 20 sided die is rolled.
    B) Time series analysis to predict rain fall information base on record.
13. Predict the class of testing sample using Bayes Classification.

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

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GOVERNMENT COLLEGE FOR MEN (A), KADAPA

DEPARTMENT OF COMPUTER SCIENCE/APPLICATIONS

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Thank You