Sri Indu
College of Engineering & Technology
UGC Autonomous Institution
Recognized under 2(f) & 12(B) of UGC Act 1956,
NAAC, Approved by AICTE &
Permanently Affiliated to JNTUH
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NAAC
NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

# R – PROGRAMMING LAB MANUAL

**B.Tech.– III Year – I Semester**

**DEPARTMENTOFCOMPUTERSCIENCEANDENGINEERING(AI&DS)**

**ACADEMICYEAR :2024-25**

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous Institution under UGC, New Delhi)
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Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

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DEPARTMENT OF COMPUTERSCIENCE ENGINEERING (AI& DS)

# LABMANUAL

**Branch:CSE(AI&DS)** **Class:B.Tech- III Year-Isem**

Subject:R Programming Lab Code: (R22CSD3126)

**AcademicYear: 2024-25Regulation: R22 Core**

**Credits:01**

PreparedBy
**Name:Mrs.Jyothi Reddy**

**Assistant Professor**

**Verified By**

**HeadoftheDepartment:**


SRIINDUCOLLEGEOFENGINEERING&TECHNOLOGY

**B.TECH–COMPUTERSCIENCEANDENGINEERING(AI&DS)**

## INSTITUTION VISION

To be a technologically adaptive center for computing by grooming the students as top notch professionals.

## INSTITUTION MISSION

**IM1** Provide high quality academic programs, training activities and research facilities.

**IM2** Promote Continuous Industry-Institute interaction for employ ability, Entrepreneurship, leadership and research aptitude among stakeholders.

**IM3** Contribute to the economic and technological development of the region, state and nation.

## DEPARTMENT VISION

To develop competent engineers in the domain of Artificial Intelligence & for Noteworthy contributions to the society.

## DEPARTMENT MISSION

DM1:To strengthen academic collaborations for better exposure.

DM2: Promote professional environment to imbibe ethical values and entrepreneurial skills

DM3: Encourage research & development by emphasizing on innovation

DM4: Facilitate Industry-Institute collaboration for mutual benefit

## PROGRAM EDUCATIONAL OBJECTIVES(PEOS)

PEO1: Generate contributions towards advancements in Artificial Intelligence and Data Science

PEO2: Promote design, research, and implementation of products through strong communication skills, leadership and entrepreneurial skills.

PEO3: Apply basic principles and practices of AI&DS to successfully complete software related projects to meet customer business objectives and/or productively engage in research.

# PROGRAMOUTCOMES(POs)

| PO | Description |
|---|---|
| **PO 1** | **EngineeringKnowledge:**Tobeabletoapplyknowledgeofcomputing,mathematics, ScienceandEngineeringappropriatetothediscipline |
| **PO 2** | **ProblemAnalysis:**Tobeableidentify,formulate&analyzeaproblem,andascertainanddefinethecomputingrequirementsappropriatetoitssolution. |
| **PO 3** | **Design&DevelopmentSolutions:**Tobeabletodesign,implement,andevaluateacomputer-basedsystem,process,component,orprogramtomeetdesiredneeds. |
| **PO 4** | **Investigationofcomplexproblems:**TobeabletoidentifyandanalyzeuserneedsAndconsiderthem inthe selection, creation,evaluation and administrationofcomputer-basedsystemsforprovidingvalidsolutionstocomplexproblems. |
| **PO 5** | **ModernToolUsage:**To possesskillsforcreatingandinusingcontemporarytechniques,skills,andtoolsnecessaryforcomputingpractice. |
| **PO 6** | **Engineering&Society:**Toapplyconceptualknowledgerelevanttoprofessionalengineeringpracticesinsocietal,health,safety,legalandculturalissuesandtheirconsequences |
| **PO 7** | **Environment&Sustainability:**TobeabletoAnalyzethelocalandglobalimpactofcomputingonindividuals,organizations,andsocietyandworktowardssustainabledevelopment. |
| **PO 8** | **Ethics:**Tounderstandcontemporaryprofessional,ethical,legal,securityandsocialissuesandresponsibilities. |
| **PO 9** | **Individual&Teamwork:**ToBeabletofunctioneffectivelyasanindividualandonteamsto accomplishacommongoal. |
| **PO 10** | **Communication:**Tocommunicatepreciselyandeffectivelybothinoralandwrittenforwitharangeof audiences. |
| **PO 11** | **Projectmanagement&finance:**ToapplyengineeringandmanagementprinciplesFormanaging and leading economically feasible projects in multi-disciplinaryenvironmentswithaneffectiveprojectplan. |
| **PO 12** | **Life Long Learning:** To recognize the need for and an ability to engage inindependent &lifelonglearningforcontinuingprofessionaldevelopment. |
| **ProgramSpecificOutcomes** | |
| **PSO 1** | Register mathematical methodology to crack problems using suitable data structures. |
| **PSO 2** | Competence to design and develop software for web based and mobiles androidsunder real world environment. |
| **PSO 3** | Skill to design the algorithms for machine learning, data compression can be usedin different applications. |

## COURSEOUTCOMES

| | |
|---|---|
| **C416.1** | 1. Learn the Fundamental Principles of. |
| **C416.2** | 2. Identify the for Various Types of Learning Tasks in various domains. |

## CosMAPPINGWITHPos&PSOs

| CourseOutcome | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C416.1 | 2 | 2 | 3 | 2 | 2 | - | - | - | - | 1 | - | - | 1 | 2 | 1 |
| C416.2 | 2 | 1 | 2 | 1 | 2 | - | - | - | - | - | 2 | - | 1 | 1 | 1 |
| **C416** | **1.6** | **1.6** | **2.0** | **1.6** | **1.6** | **-** | **-** | **-** | **-** | **0.3** | **0.6** | **-** | **1.3** | **1.3** | **1.16** |

## List of Experiments

| SNO | PROGRAM |
|---|---|
| 1 | STUDY OF DATA ANALYSIS USING MS-EXCEL |
| 2 | STUDY OF BASIC SYNTAXES IN R PROGRAMMING LANGUAGE |
| 3 | IMPLEMENTATION OF VECTOR DATA OBJECTS OPERATIONS IN R. |
| 4 | IMPLEMENTATION OF MATRIX, ARRAY AND FACTORS. |
| 5 | IMPLEMENTATION AND USE OF DATA FRAMES IN R |
| 6 | CREATE SIMPLE (DUMMY) DATA IN R AND PERFORM DATA MANIPULATION WITH R. |
| 7 | STUDY AND IMPLEMENTATION OF VARIOUS CONTROL STRUCTURES IN R |
| 8 | DATA MANIPULATION WITH DPLYR PACKAGE. |
| 9 | DATA MANIPULATION WITH DATABASE PACKAGE |
| 10 | STUDY AND IMPLEMENTATION OF DATA VISUALIZATION WITH ggplot2. |
| 11 | STUDY AND IMPLEMENTATION DATA TRANSPOSE OPERATIONS IN R |
| 12 | WRITE A R PROGRAM TO CONVERT A GIVEN MATRIX TO A 1-DIMENSIONAL ARRAY. |
| 13 | WRITE A R PROGRAM TO TAKE INPUT FROM THE USER(NAME AND AGE) AND DISPLAY THE VALUES. ALSO PRINT THE VERSION OF R INSTALLATION. |