Capacity Development and skills Enhancement Activity

<u>AWARENESS OF TRENDS IN TECHNOLOGY</u>

R PROGRAMMING

Website : www.rgcetpdy.ac.in, www.rgcet.edu.in

RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY
(Approved by AICTE and Affiliated to Pondicherry University)
(Accredited with 'A' Grade by NAAC)
(Sponsored by Sri Balaji Educational and Charitable Public Trust)
Pondy - Cuddalore Main Road, Kirumampakkam, Puducherry - 607 403.

Pondicherry
15.03.2023

From
Mrs.D.Suganya,
Event Coordinator,
Department of CSE,
Rajiv Gandhi College of Engineering and Technology,
Kirumampakkam, Puducherry - 607 403.

To
The Principal
Rajiv Gandhi College of Engineering and Technology
Kirumampakkam, Puducherry - 607 403.

THROUGH THE HEAD OF THE DEPARTMENT, DEPARTMENT OF CSE

Respected Sir,

Subject: Request for permission to conduct a workshop for CSE III year Students

We have planned to conduct a 3 days workshop on the topic "R programming" from 23.3.2023 to 25.3. 2023.Mr. S. Krishnan, CEO,Geedesk and Mr.S.Vimal Senior Software Developer jointly presenting the workshop. The above mentioned workshop will be offered to the III Year/V Semester students of the CSE Department.

I kindly request you to grant permission to conduct this program. Enclosed are the details of the syllabus for the R programming and the day-wise schedule for your kind perusal and approval.
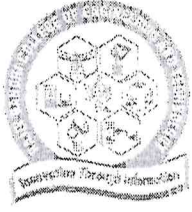
Thanking you,

Yours sincerely,

D.Suganya,
Event Coordinator

Forwarded to principal

VIJAYAKRISHNA RAPAKA
B.Tech. (Mech.), M.Tech.(Energy), Ph.D. (IIT Madras)
M.I.S.T.E., F.I.I.P.E., M.C.S.I M.C.I.I.,
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

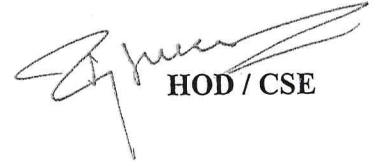### ACADEMIC YEAR 2022-2023

No: RGCET/CSE/Circular/2022-2023/WS01   Date:20.03.2023

CIRCULAR

This is to inform all B.Tech 3 rd. yr CSE students that the classes for value added course "R Programming" for the academic year 2022-2023 will commence from 23.03.2023 to 25.03.2023.

All are invited

HOD / CSE

Copy to:

1. Circulate to all Faculty Members and students of CSE department.
2. Notice board / file

Dr. E. VIJAYAKRISHNA RAPAKA
B.Tech. (Mech.), M.Tech.(Energy), Ph.D. (IIT Madras)
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Email: info@rgcetpdy.ac.in

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

WORKSHOP ON
R PROGRAMMING

FROM: 23/03/2023 TO 25/03/2023

TIMING : 6 HOURS

Resource Person :

Mr. Krishnan s, CEO, geedesk
Mr. Vimal.S, Senior Software Developer Nurturespark Digital L.L.C

Principal: Dr. E. Vijayakrishna Rapaka

Vice Principal: Dr.K.Ayyappan

HOD: Dr. R. G. Suresh Kumar

CONTACT:

Event Coordinator:

Mrs. D.Suganya
Assitant Professor , CSE,RGCET
(91+ 9600629526)

Dr. E. VIJAYAKRISHNA RAPAKA
B.Tech. (Mech.), M.Tech.(Energy), Ph.D. (IIT Madras
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mpakkam, Puducherry

RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DEPARTMENT OF CSE

WORKSHOP DETAILS

Course Name	R PROGRAMMING		
Resource Person (s)	Mr S.Krishnan and S.Vimal		
Duration	From 23.3.2023 To 25.3.2023		
Course Offered to	Dept.: CSE	Year: III	Sem:V

DAY- WISE SCHEDULE

Day 1: Introduction to R Programming	
Session 1: Introduction to R	• Overview of R: What is R? Why use R? • Installing R and RStudio • RStudio interface tour
Session 2: Basics of R Programming	• Basic syntax and data types (vectors, matrices, data frames) • Variables and assignments • Basic operations (arithmetic, logical) • Functions and basic control structures (if-else, loops)
Session 3: Data Import and Manipulation	• Importing data from various sources (CSV, Excel, databases) • Data inspection and summary • Data manipulation using dplyr package • Case study: Cleaning and transforming data
Day 2: Data Visualization and Statistical Analysis	
Session 4: Data Visualization with ggplot2	• Introduction to ggplot2 • Creating basic plots (scatter plots, bar plots, histograms) • Customizing plots (labels, titles, themes) • Advanced plots and aesthetics

Session 5: Statistical Analysis with R	• Descriptive statistics (mean, median, variance, etc.) • Statistical tests (t-tests, chi-square tests) • Correlation analysis • Introduction to regression analysis
Session 6: Case Study	• Applying visualization and statistical analysis techniques to a real-world dataset • Presenting findings and insights
Day 3: Advanced Topics and Applications	
Session 7: Advanced Data Handling	• Working with time series data • Reshaping data (pivot_longer, pivot_wider) • Combining datasets (merge, join) •
Session 8: Machine Learning with R	• Introduction to machine learning concepts • Building predictive models (linear regression, decision trees) • Model evaluation and validation •
Session 9: R for Reproducible Research	• Introduction to RMarkdown • Creating reports and presentations with RMarkdown • Version control with Git and GitHub
Workshop Materials and Resources	
• Software: R, RStudio • Packages: dplyr, ggplot2, tidyr, etc. • Datasets: Provided datasets for hands-on exercises • Handouts: Printed or digital copies of session notes and exercises	

Event Co-Ordinator   **Head of the Department**

Report On Work Shop-R PROGRAMMING

R Programming workshop was conducted over three days with the objective of introducing participants to the fundamentals of R programming, data manipulation, visualization, statistical analysis, and advanced topics such as machine learning and reproducible research. The workshop aimed to equip participants with practical skills and knowledge that they can apply in data analysis and research contexts.

Day 1: Introduction to R Programming
The first day focused on laying the foundation of R programming skills:
- Session 1: Introduction to R
  - Participants were introduced to the R environment and RStudio, including installation and basic navigation.
- Session 2: Basics of R Programming
  - Covered fundamental concepts such as data types (vectors, matrices, data frames), variables, basic operations, and control structures.
- Session 3: Data Import and Manipulation
  - Participants learned how to import data from various sources, conduct data inspection and summary, and perform data manipulation using the dplyr package. A practical case study on data cleaning and transformation was also conducted.

Day 2: Data Visualization and Statistical Analysis
The second day focused on data visualization and statistical analysis:
- Session 4: Data Visualization with ggplot2
  - Introduction to the ggplot2 package for creating visualizations. Participants learned to create basic plots and customize them according to their needs.
- Session 5: Statistical Analysis with R
  - Covered descriptive statistics, statistical tests (t-tests, chi-square tests), correlation analysis, and an introduction to regression analysis. Participants applied these techniques to analyze datasets and interpret results.
- Session 6: Case Study
  - Applied visualization and statistical analysis techniques to a real-world dataset, emphasizing practical application and interpretation of findings.

Day 3: Advanced Topics and Applications
The third day delved into advanced topics and applications of R programming:
- Session 7: Advanced Data Handling
  - Covered handling time series data, reshaping data using pivot_longer and pivot_wider functions, and combining datasets through merging and joining operations.
- Session 8: Machine Learning with R
  - Introduced machine learning concepts, including building predictive models such as linear regression and decision trees. Participants learned model evaluation and validation techniques.

- Session 9: R for Reproducible Research
  - Introduction to RMarkdown for creating reports and presentations. Covered the integration of version control with Git and GitHub for managing code and project collaboration.
- Session 10: Workshop Conclusion and Q&A
  - Recapitulated key concepts and learning points from the workshop. Opened the floor for participant questions, discussions, and feedback to enhance future workshops.

Event Co-Ordinator

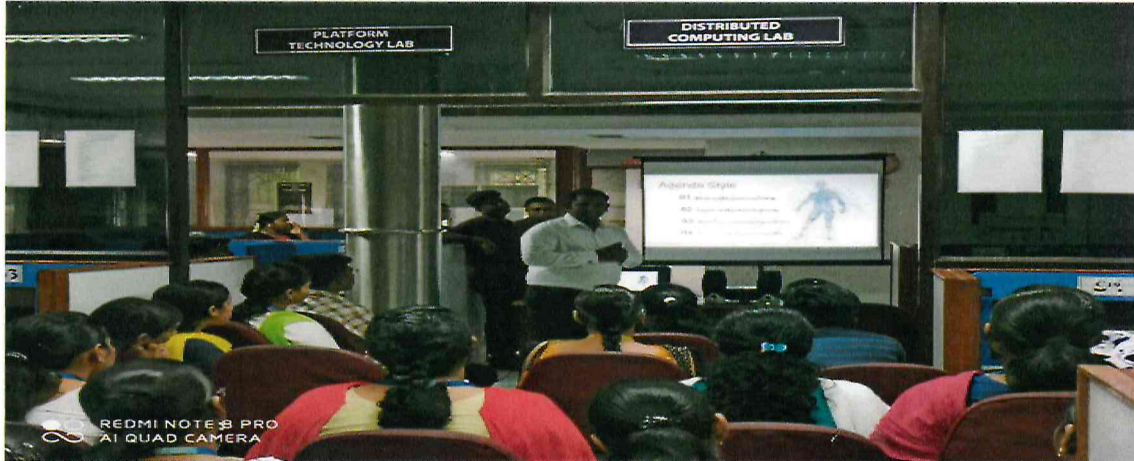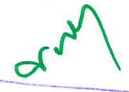**Head of the Department**

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RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R programming workshop

RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

STUDENT ENROLLMENT LIST

SL NO	REGISTER NO	STUDENT NAME
1	20TD0101	AAKASH M
2	20TD0102	ABISHEK E
3	20TD0103	AKASH J
4	20TD0104	AKSHAYA ANCY P
5	20TD0105	ANIRUDDH M
6	20TD0106	ANTHONI STEPAN RAJ A
7	20TD0107	ARAVINDH K
8	20TD0108	ARAVINDSAMY P
9	20TD0110	ARUN M
10	20TD0111	BEENADEVI A
11	20TD0112	BHARATHAPRIYAN S
12	20TD0113	CHARULATHA K
13	20TD0114	DAMESHWER V
14	20TD0115	DEVIPRIYA M
15	20TD0116	DEVISRI M
16	20TD0117	DHANUSH KUMAR S
17	20TD0118	DIMANCHE CILICIA.N
18	20TD0119	DINESH KUMAR C
19	20TD0120	EDWIN SINDOU RAYAL J
20	20TD0121	EMMANUEL K A
21	20TD0122	GOHILA S
22	20TD0123	GOPIGA B
23	20TD0124	GUGAPRADESH M
24	20TD0125	HARIHARAN M
25	20TD0126	HARIKUMARAN S
26	20TD0127	HARISH KUMAR K
27	20TD0128	JACKSON S
28	20TD0130	JOTHISHRI R
29	20TD0131	KABILAN A
30	20TD0132	KABILESH K
31	20TD0133	KALANITHI V
32	20TD0134	KAMALI V
33	20TD0136	KARTHIKEYAN K
34	20TD0137	KASTHOURIRANGANE A
35	20TD0138	KATHIRAVAN R
36	20TD0139	KAVIREKHA K
37	20TD0140	KAVYA M
38	20TD0141	KEERTHAN R DESAI
39	20TD0142	KISHORE H
40	20TD0143	LAKSHMI NARAYANAN V
41	20TD0144	LOKESHWARI K

RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

42	20TD0145	LOKHITHA D
43	20TD0146	MANJARY S
44	20TD0147	MEHALA K
45	20TD0148	MOHAMAD SATHIK S
46	20TD0149	NAGARAJ S
47	20TD0150	NARESH KRISHNAN B
48	20TD0151	NAVEEN R
49	20TD0152	NEHA THAMARAI R
50	20TD0153	NISHANTHAN A
51	20TD0154	PARTHASARATHI G
52	20TD0155	PAVITHRA E
53	20TD0156	PRASANTH E
54	20TD0157	RAGHUL G
55	20TD0159	RAMACHANDRAN J
56	20TD0160	RAMKUMAR S
57	20TD0162	SANJAI S
58	20TD0163	SARAN BALAJI M
59	20TD0164	SARANYASRI M
60	20TD0165	SAVIN SANGEERTHAN C
61	20TD0166	SHABANA BANU S
62	20TD0167	SREYACHANDRAN
63	20TD0168	SRINIVASAN R
64	20TD0169	SURESH S
65	20TD0170	SURIYA C
66	20TD0171	SWATHI D
67	20TD0172	SWATHI L
68	20TD0173	SWETHA B
69	20TD0174	VARADHARAJA PERUMAL G
70	20TD0175	VENKATESAN V
71	20TD0176	VIJAYAKRISHNAN B
72	20TD0177	VIJAYAKUMAR C
73	20TD0178	YASAR ARAFAT J
74	20TD0179	YOGEASHWAR S
75	20TD0202	AASHIKA PHILOMI J
76	20TD0213	ASWIN DHANAM J
77	20TDL001	SANTHOSH V
78	20TDL002	SWETHAVARSHNI J S
79	20TDL003	YUVARAJ S
80	20TH0063	JANANI V

Event Co-Ordinator

Head of the Department

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Kirumampakkam, Puducherry - 607

RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ATTENDANCE SHEET

SL NO	REGISTER NO	STUDENT NAME	23.03.23	24.03.23	25.03.23
1	20TD0101	AAKASH M	P	P	P
2	20TD0102	ABISHEK E	P	P	P
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15	20TD0116	DEVISRI M	P	P	P
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17	20TD0118	DIMANCHE	P	P	P
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37	20TD0140	KAVYA M	P	P	P
38	20TD0141	KEERTHAN R	P	P	P
39	20TD0142	KISHORE H	A	P	P

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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80	20TH0063	JANANI V			

Event Co-Ordinator

Head of the Department

RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Feedback Questionnaire for Workshop in R Programming

Student Name: _Janani·V_   Reg. No.: _20TH0067_

1. How relevant and comprehensive was the workshop content?
   a. Very Relevant
   b. Relevant ✓
   c. Neutral
   d. Not Very Relevant
   e. Not Relevant at All

2. How effective was the trainer in delivering the material?
   a. Very Effective
   b. Effective ✓
   c. Neutral
   d. Not Very Effective
   e. Ineffective

3. How helpful were the hands-on exercises and labs?
   a. Very Helpful
   b. Helpful ✓
   c. Neutral
   d. Not Very Helpful
   e. Not Helpful at All

4. How well was the workshop organized and scheduled?
   a. Very Well Organized
   b. Well Organized ✓
   c. Neutral
   d. Poorly Organized
   e. Very Poorly Organized

5. Do you feel more confident in applying R programming techniques after completing the course?
   a. Yes, definitely
   b. Yes, somewhat ✓
   c. Neutral
   d. No, not really
   e. No, not at all

6. What aspects of the training could be improved?
   a. More practical exercises ✓
   b. More in-depth coverage of certain topics
   c. Better pacing of sessions
   d. Other (please specify):
   _____

7. Overall, how satisfied are you with the training program?
   a. Very Satisfied
   b. Satisfied ✓
   c. Neutral
   d. Dissatisfied
   e. Very Dissatisfied

8. How relevant and comprehensive was the workshop content?
   a. Very Relevant
   b. Relevant ✓
   c. Neutral
   d. Not Very Relevant
   e. Not Relevant at All

Signature of Student

RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Feedback Questionnaire for Workshop in R Programming

Student Name: ARUN . M   Reg. No.: 20TD0110

1. How relevant and comprehensive was the workshop content?
   a. Very Relevant
   b. Relevant ✓
   c. Neutral
   d. Not Very Relevant
   e. Not Relevant at All

2. How effective was the trainer in delivering the material?
   a. Very Effective
   b. Effective ✓
   c. Neutral
   d. Not Very Effective
   e. Ineffective

3. How helpful were the hands-on exercises and labs?
   a. Very Helpful
   b. Helpful ✓
   c. Neutral
   d. Not Very Helpful
   e. Not Helpful at All

4. How well was the workshop organized and scheduled?
   a. Very Well Organized
   b. Well Organized ✓
   c. Neutral
   d. Poorly Organized
   e. Very Poorly Organized

5. Do you feel more confident in applying R programming techniques after completing the course?
   a. Yes, definitely
   b. Yes, somewhat ✓
   c. Neutral
   d. No, not really
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   b. Satisfied ✓
   c. Neutral
   d. Dissatisfied
   e. Very Dissatisfied

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   b. Relevant ✓
   c. Neutral
   d. Not Very Relevant
   e. Not Relevant at All

Signature of Student

RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Feedback Questionnaire for Workshop in R Programming

Student Name: __SURESH - S__   Reg. No.: __20 TD 0169__

1. How relevant and comprehensive was the workshop content?
   a. Very Relevant
   b. Relevant ✓
   c. Neutral
   d. Not Very Relevant
   e. Not Relevant at All

2. How effective was the trainer in delivering the material?
   a. Very Effective
   b. Effective ✓
   c. Neutral
   d. Not Very Effective
   e. Ineffective

3. How helpful were the hands-on exercises and labs?
   a. Very Helpful
   b. Helpful ✓
   c. Neutral
   d. Not Very Helpful
   e. Not Helpful at All

4. How well was the workshop organized and scheduled?
   a. Very Well Organized
   b. Well Organized ✓
   c. Neutral
   d. Poorly Organized
   e. Very Poorly Organized

5. Do you feel more confident in applying R programming techniques after completing the course?
   a. Yes, definitely ✓
   b. Yes, somewhat
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   d. No, not really
   e. No, not at all

6. What aspects of the training could be improved?
   a. More practical exercises ✓
   b. More in-depth coverage of certain topics
   c. Better pacing of sessions
   d. Other (please specify):
   _____

7. Overall, how satisfied are you with the training program?
   a. Very Satisfied
   b. Satisfied ✓
   c. Neutral
   d. Dissatisfied
   e. Very Dissatisfied

8. How relevant and comprehensive was the workshop content?
   a. Very Relevant
   b. Relevant ✓
   c. Neutral
   d. Not Very Relevant
   e. Not Relevant at All

Signature of Student