# Thiagarajar College of Engineering

**66 YEARS**
1957-2023
*Celebrating Academic Excellence*

*where quality and ethics matter*

Madurai - 15

## One-Week Faculty Development Program

on

## "Data Analysis using R (Online)"

### From 19.09.2023 to 25.09.2023

Organized by

### Department of Computer Science and Engineering

and

### IIT Bombay Spoken Tutorial Project

*Coordinators*

**Dr.K.Sundarakantham**

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**Mr.S.Santhana Hari**

## About the College

Thiagarajar College of Engineering (TCE), Madurai, an autonomous institution affiliated to Anna University, is one among the several educational and philanthropic institutions founded by the philanthropist and industrialist Late. Shri. Karumuttu Thiagarajan Chettiar.

- TCE was established in the year 1957.
- TCE is funded by Central and State governments and the Management.
- The Programmes in TCE were approved by AICTE and was granted autonomy in 1987.
- TCE offers 9 UG programmes, 10 PG programmes and 5 years integrated M.Sc Data Science.

## About the Department

The FIST Supported Computer Science and Engineering Department was established in the year 1984. The theme area of the department is Knowledge Engineering. The Vision of the department is "Excellence in Computer Science and Engineering education and research".

- The Department offers well-defined and unique curriculum broadly covering Theoretical Computer Science, Systems and Technology.
- The Department has well equipped industry supported laboratories with strong industry interface.
- The Department is a recognized Research Center affiliated to Anna University and AICTE QIP Center offering Part-time and Full-time Ph.D Programme.
- The Faculty members of the department specialize in the research groups of AI & Data Science, Systems Engineering & High Perfomance Computing, Software & Data Engineering and Networks & Security with publications in Scopus and Web of Science indexed journals from leading publishers like IEEE, Elsevier, Wiley, Taylor & Francis etc.
- The Department has the privilege of having completed many R&D projects from RCI, AICTE, UGC, DIT, DST, Honeywell Technology Solutions, and Linked-In.

- The Department was a consortium partner of CDBR Smart and Secure Environment project sponsored by NTRO, New Delhi.
- The Department has collaboration with EMC Data Storage Systems, VMware, Yahoo India, Unity Software and Red Hat.
- The Department was responsible for design and development of College Management Information System which has received many National Level Recognitions.

## About the IIT Bombay Spoken Tutorial Project

Spoken Tutorial is a flagship IT literacy program developed at IIT Bombay and established with funding from the Ministry of Education (then MHRD) through NMEICT in the year 2009.

The Spoken Tutorial project offers more than 90 skill-based IT Literacy courses ranging from basic computer skills, programming languages, domain specific free/libre open source software, numerical computational tool, etc, Many colleges across India have adopted Spoken Tutorial skill oriented courses as part of their curriculum.

Using Spoken Tutorials, one can learn various Free and Open Source Software all by themselves. The self-paced, multilingual features of the project ensure that anybody with a computer and a desire for learning can learn by themselves from any place, at any time, and in a language of their choice.

## About the FDP

R is a free software developed under GNU General Public License. It is a widely used tool for data analysis and statistical computing in research. R runs on variety of platforms like UNIX, Windows and MacOS. It consists of tools for manipulation, calculation, analysis and visual representation of data. The major strength of R is the easy design of graphical plots used in research and the results can be reported in the journal publications as per the required standards.

Teaching Faculty involved in research can make use of this R platform for extensive study on data analysis in their research. The objective of this Faculty Development Programme (FDP) is to introduce the functionality and R suite to the participants. The resource of the IIT Bombay Spoken Tutorials for "Data Analysis using R" is provided to the participants for self- learning and hands on training.

## Topics Covered

R Installation
Introduction to basics of R
Introduction to Data Frames in R
Introduction to RStudio
Introduction to R script
Working directories in RStudio
Indexing and Slicing Data Frames
Creating Matrices using Data Frames
Operations on Matrices and Data Frames
Merging and Importing Data
Data types and Factors
Lists and its Operations
Plotting Histograms and Pie Chart
Plotting Bar Charts and Scatter Plot
Introduction to ggplot2
Aesthetic Mapping in ggplot2
Data Manipulation using dplyr Package
More Functions in dplyr Package
Pipe Operator
Conditional Statements
Data Analysis Functions in R

## Resource

IIT Bombay Spoken Tutorials

## Participants

The Faculty Development Program is open to Faculty of Engineering Colleges, Arts and Science, Research Scholars, Polytechnic and Industry people.

## Registration Fee

The registration fee includes IIT Bombay Spoken Tutorials content, an e-certificate of participation and IIT Bombay online test.

- Faculty / Industry Member / Research Scholar: Rs.885/- (Rs.750+18% GST)

## Mode of Payment

Participants can pay the registration fee by using the online link given below.

## Online Registration Procedure

**Step 1:** Make your Registration at https://forms.gle/315ofDRBgcCXUggX7
**Step 2:** Complete your Payment
Click the link given (or) Search https://eazypay.icicibank.com/
Type "T C E" with Space (as mentioned) in the "Enter Institute Name".
Select the Last Option* ("T C E SOUVENIOR") from the drop-down menu.
Enter the Required Information (Email id, Mobile number, Name, Designation, College Name, Department, Registration Fee, etc…).
**Step 3:** Pay the fees and download the eazypay Transaction Receipt.
**Step 4:** Update Program Topic in Google Form with the Transaction ID and Receipt.
**Step 5:** Submit Google Form.

## Important Dates

Last date for Registration: 15.09.2023

## Contact Details

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