



**A Reflection Report For  
Ten Days  
Short Term Training Programme  
On  
“Python for Data Science”**

**June 24,2021 – July 3,2021**

**Organized By**

**Department of Computer Science & Engineering**

COORDINATOR

HOD

## ORGANIZING COMMITTEE

**Name of the Chief Patron** : Dr. M. Sivanandham, Secretary

**Name of the Patron** : Dr. S. Ganesh Vaidyanathan,  
Principal

**Name of the Convener** : Dr. R. Anitha, Prof & HOD/CS

**Name of the Coordinators** : Dr. R. Jayabhaduri, Asso Prof/CS  
Dr. N.M.Balamurugan, AssoProf/CS  
Ms. V. Rajalakshmi, AP/CS

# STTP BROCHURE

## About College

SVCE is a unit of Sri Venkateswara Educational and Health Trust (SVEHT). Dr. A. C. Muthiah, a renowned engineer, industrialist is the Chairman of the Governing Council of the college. The College supports the learning of the highest order through its quality infrastructure and eminent faculty. It also provides a wide scope for development of personality of students through Associations meant for professional, co-curricular and extracurricular activities.

## About STTP

The online Short Term Training Programme (STTP) on "Python for Data Science" introduces the learners

- Google Colab : Basics of Python Programming environment
- Fundamentals of Python: Basics & CSV files
- NumPy Library
- Data Manipulation and Cleaning using Pandas
- Data Visualization Using Matplotlib and Seaborn
- Machine Learning Models : Classification, Regression and Time Series Forecasting



**SVCE** | Sri Venkateswara  
College of  
Engineering  
Autonomous-Affiliated to Anna  
University



Department Of Computer  
Science And Engineering

## PYTHON FOR DATA SCIENCE

(24/06/2021 - 03/07/2021)

### Chief Patron

Dr.M.Sivanandham  
Secretary

### Patron

Dr.S.Ganesh Vaidyanathan  
Principal

### Convener

Dr.R.Anitha, Prof & HOD/CS

### Coordinators

Dr.R.Jayabhaduri, ASP/CS  
Dr.N.M.Balamurugan, ASP/CS  
Ms.V.Rajalakshmi, AP/CS

### Objective

To learn about

- Basics of Python and NumPy, Pandas and Matplotlib packages
- Plotting graphs
- Data Science
- Supervised Learning Tasks and
- Predicting future observations

### Targeted Audience

1 year B.E. / B.Tech Students  
(All branches)

### Registration Link



<https://anna.edu/COE/5y4dsgH2YADvw8>

Time : 16:00 – 17:00 IST

### Topics to be covered

- Introduction to Google Colab
- Python Data Structures
- NumPy
- Pandas
- Data Visualization with Python
- Control Structures
- Introduction to Data Science
- Classification Models
- Regression Models
- Time Series Forecasting Models

# AGENDA



SHORT TERM TRAINING PROGRAMME ON "PYTHON FOR DATA SCIENCE"



24/06/2021 – 03/07/2021

Date	Topic	Handled by
Day 1 - 24.06.2021	<ul style="list-style-type: none"> <li>• Introduction to Google Colab</li> <li>• Variable creation</li> <li>• Arithmetic and logical operators</li> <li>• Data types and associated operations</li> </ul>	Ms. G.Janakasudha, AP/CS
Day 2 - 25.06.2021	<b>Data Structures</b> <ul style="list-style-type: none"> <li>• Lists</li> <li>• Tuples</li> <li>• Dictionary</li> <li>• Sets</li> </ul>	Ms. S.Kalavathi, AP/IT
Day 3 - 26.06.2021	<b>Numpy</b> <ul style="list-style-type: none"> <li>• Array</li> <li>• Matrix and associated operations</li> <li>• Linear algebra and related operations</li> </ul>	Ms. A.Kala, AP/IT
Day 4 - 27.06.2021	<b>Pandas dataframe and dataframe related operations on a dataset</b> <ul style="list-style-type: none"> <li>• Reading files</li> <li>• Exploratory data analysis</li> <li>• Data preparation and preprocessing</li> </ul>	Ms. D.Sasikala, AP/CS
Day 5 - 28.06.2021	<b>Data visualization on a dataset using matplotlib and seaborn libraries</b> <ul style="list-style-type: none"> <li>• Scatter plot</li> <li>• Line plot</li> <li>• Bar plot</li> <li>• Histogram</li> <li>• Box plot</li> <li>• Pair plot</li> </ul>	Dr. R.Jayabhaduri, ASP/CS
Day 6 - 29.06.2021	<b>Control structures on a dataset</b> <ul style="list-style-type: none"> <li>• if-else family</li> <li>• for loop</li> <li>• for loop with if break</li> <li>• while loop</li> </ul>	Ms. S.Senthamizh Selvi, AP/CS
Day 7 - 30.06.2021	<b>Introduction to Data Science</b>	Ms. P.Sharon Femi, AP/IT
Day 8 - 01.07.2021	<b>Classification Models</b>	Dr. N.M.Balamurugan, ASP/CS
Day 9 - 02.07.2021	<b>Regression Models</b>	Ms. R.Gayathri, AP/CS
Day 10 - 03.07.2021	<b>Time Series Forecasting Models</b>	Ms. V.Rajalakshmi, AP/CS

# Report on “Python for Data Science”

The department of Computer Science and Engineering organized a Ten day Short Term Training Programme on “Python for Data Science” between June 24 2021 and July 3 2021 through Online platform (Google Meet).

## Objective :

The objective of this training programme is to nurture the first year B.E. / B.Tech students of all branches about Google Colab and its working environment, Python basics, NumPy, Pandas, Matplotlib and Seaborn libraries, and various machine learning models for Classification, Regression and Time Series forecasting.

## Report :

The Short Term Training Programme commenced with an inaugural address by Dr. R. Anitha, Convenor and Prof & HOD/CSE on June 24,2021 followed by a talk on “Google Colab” by Ms.G.Janakasudha, Assistant Professor, department of Computer Science and Engineering. Ms.G.Janakasudha explained about the Google Colab environment and gave a hands-on training to participants on creation of variables, arithmetic and logical operators and data types along with its associated operations. The participants learnt to execute code on an interactive environment called a Colab notebook. The session was very interactive. She conducted quiz for the participants at the end of the session.

On day 2, Ms.S.Kalavathi, Assistant Professor, department of Information Technology delivered lecture and gave hands-on training on “Python Data Structures”. She started with List Data Structure and demonstrated on creation of list, accessing list items, changing list items, looping lists, sorting, copying and joining lists. Later the students worked on Tuples – Creation, Accessing, Updation, Loops and Join methods. Ms.S.Kalavathi gave hands-on training on Sets and Dictionaries. The participants gained knowledge on the four collection data types in the Python programming language. The session was very interactive.

Day 3 session on “NumPy” was handled by Ms.A.Kala, Assistant Professor, department of Information Technology. Ms. A.Kala taught the basics of Numerical Python (NumPy Python library) for working with arrays. The participants learnt to execute linear algebra, fourier transforms and matrices by creating NumPy ndarray objects using array() function and slicing. They also learnt about various functions namely shape() to get the size of an array, concatenate() to join NumPy Arrays, array\_split() for splitting arrays, where() for Searching Arrays and sort() for sorting arrays.

Ms. D.Sasikala, Assistant Professor, department of Computer Science and Engineering delivered her talk on “Pandas Dataframe And Dataframe Related Operations on a Dataset” on the fourth day of the programme. During the handson session, participants learnt to create a Dataframe with data and perform selection of either rows or columns or both in a dataframe by importing pandas as pd commands in the Google Colab environment. They were introduced to a California Housing Prices (housing.csv) dataset where they executed dataframe operations.

“Data Visualization on a Dataset Using Matplotlib And Seaborn Libraries” was handled by Dr.R.Jayabhaduri, Associate Professor, department of Computer Science and Engineering on the fifth day of the programme. Dr.R.Jayabhaduri explained about the various methods of visualizing data using Matplotlib and Seaborn libraries, and installation of these packages using conda and pip. During this session, the participants learnt to draw Histogram charts, bar charts, Pie charts, and scatter plots with ggplot style using Matplotlib. The participants were introduced to a case study “Titanic Dataset” using Seaborn to draw various categorical plots namely bar plot, count plot, box plot, and factor plot.

Ms. S.SenthamizhSelvi, Assistant Professor, department of Computer Science and Engineering delivered her talk on “Control Structures on a Dataset” on the sixth day of the programme. She illustrated clearly about the role of sequential, selection and repetition mode of control structures with suitable examples.

Ms. P.Sharon Femi, Assistant Professor, department of Information Technology gave a lecture on “Introduction to Data Science” on the seventh day of the programme. In her talk, she explained about the need for data science, role of big data and its characteristics, differences between business intelligence and data science, role of data scientists, lifecycle of data science, machine learning basics and learning paradigms. The participants gained knowledge on understanding data science and machine learning for real-time applications.

Dr. N.M. Balamurugan, Associate Professor, department of Computer Science and Engineering delivered his talk on “Classification Models” on the eighth day of the training programme. He started his lecture session on importance of classification followed by various learning paradigms with suitable examples and various machine learning models for classification tasks. He also illustrated various machine learning models namely K-Nearest Neighbor, Decision tree and Logistic regression for classification tasks. During the hands-on training, the participants executed K-Nearest Neighbor, Decision tree and Logistic regression for various datasets.

Ms.R.Gayathri, Assistant Professor, department of Computer Science and Engineering delivered her lecture on “Regression” on the ninth day of the training programme. She started her talk on Regression analysis and covered various regression models like linear regression, Logistic regression and Lasso regression. The participants gained knowledge on these models by applying for various datasets.

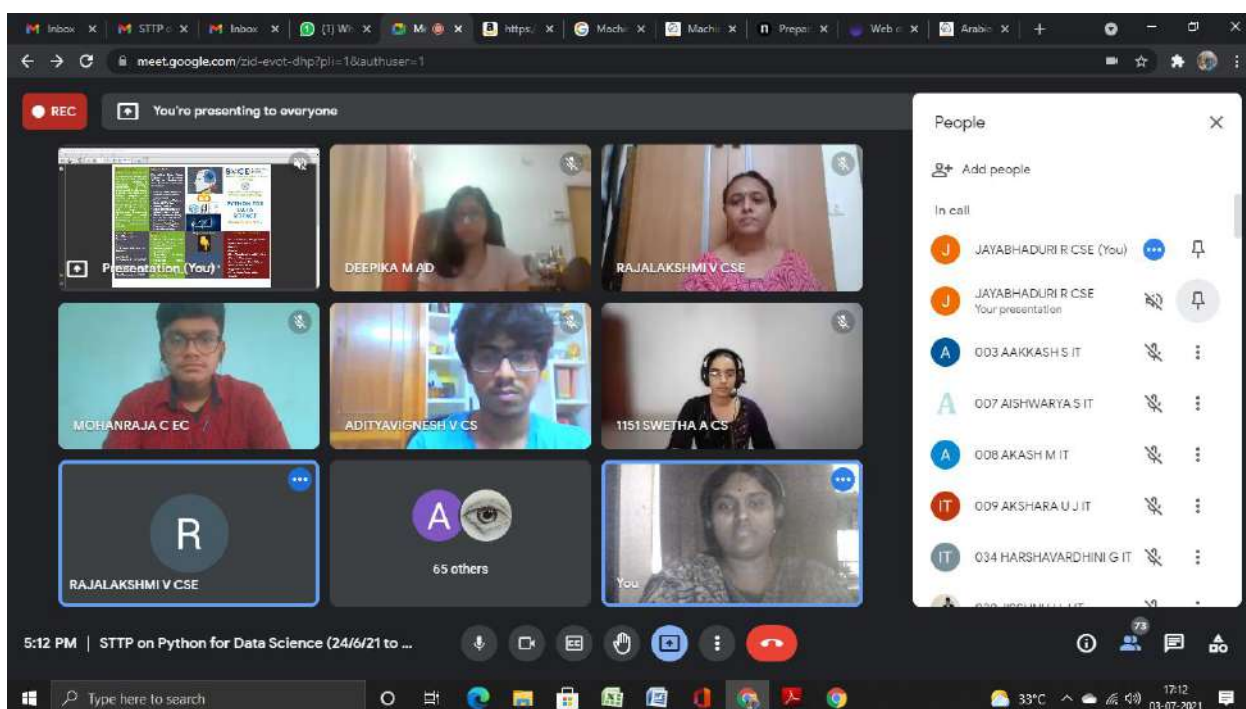
On the last day of the training programme, Ms. V. Rajalakshmi, Assistant Professor, department of Computer Science and Engineering and Coordinator of the programme gave her talk on “Time Series Forecasting Models”. She demonstrated two time-series forecasting models namely Auto-Regressive Integrated Moving Average (ARIMA) model and Long-Short-Term Memory Recurrent Neural Networks (LSTM RNN) models for time series forecasting. She also compared the above said time series forecasting models for stock prediction, sales forecasting and weather forecasting. During the hands-on session, participants were exposed to the working processes of ARIMA and LSTM RNN for stock prediction dataset.

The Short Term Training Programme attracted a heterogeneous group of 150 participants that encompassed UG students from I year, II year and III year of various branches of our esteemed institution.

**Participant details : Total - 150**

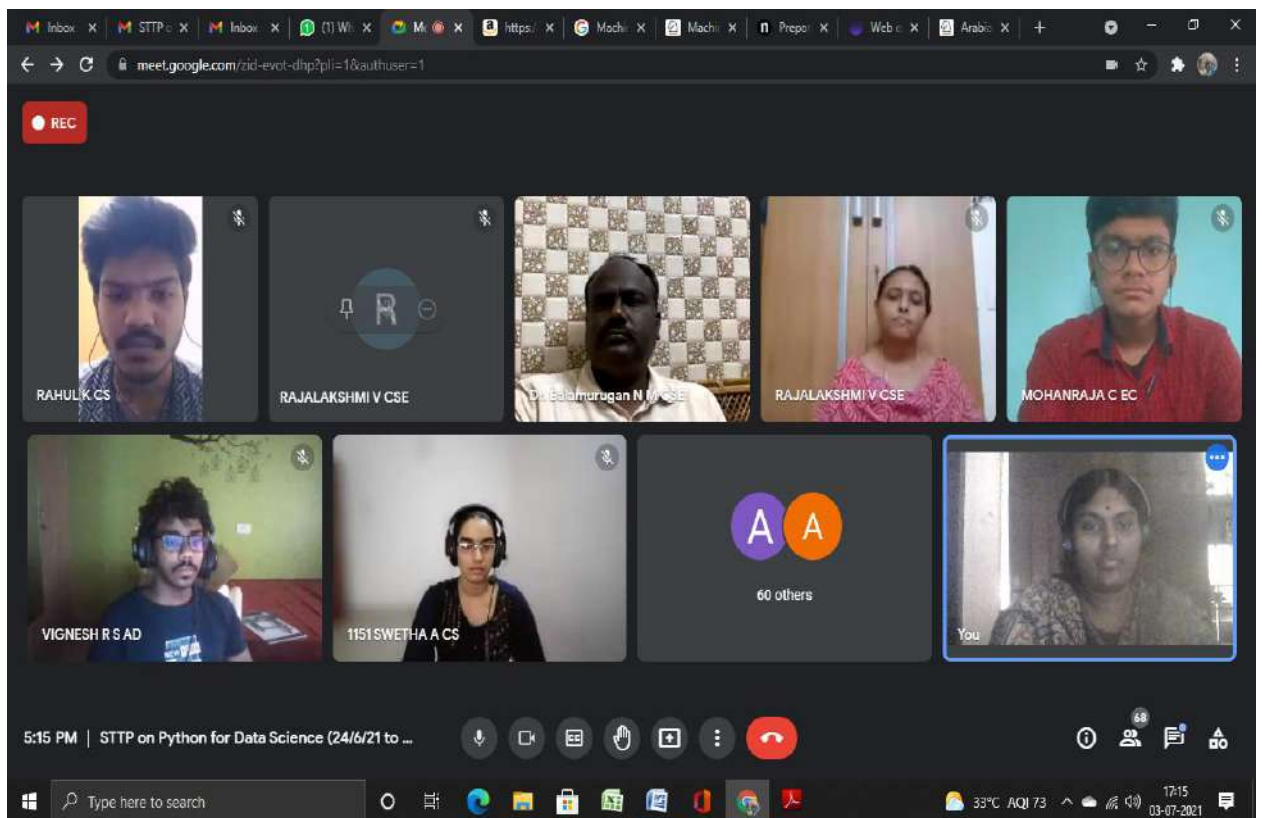
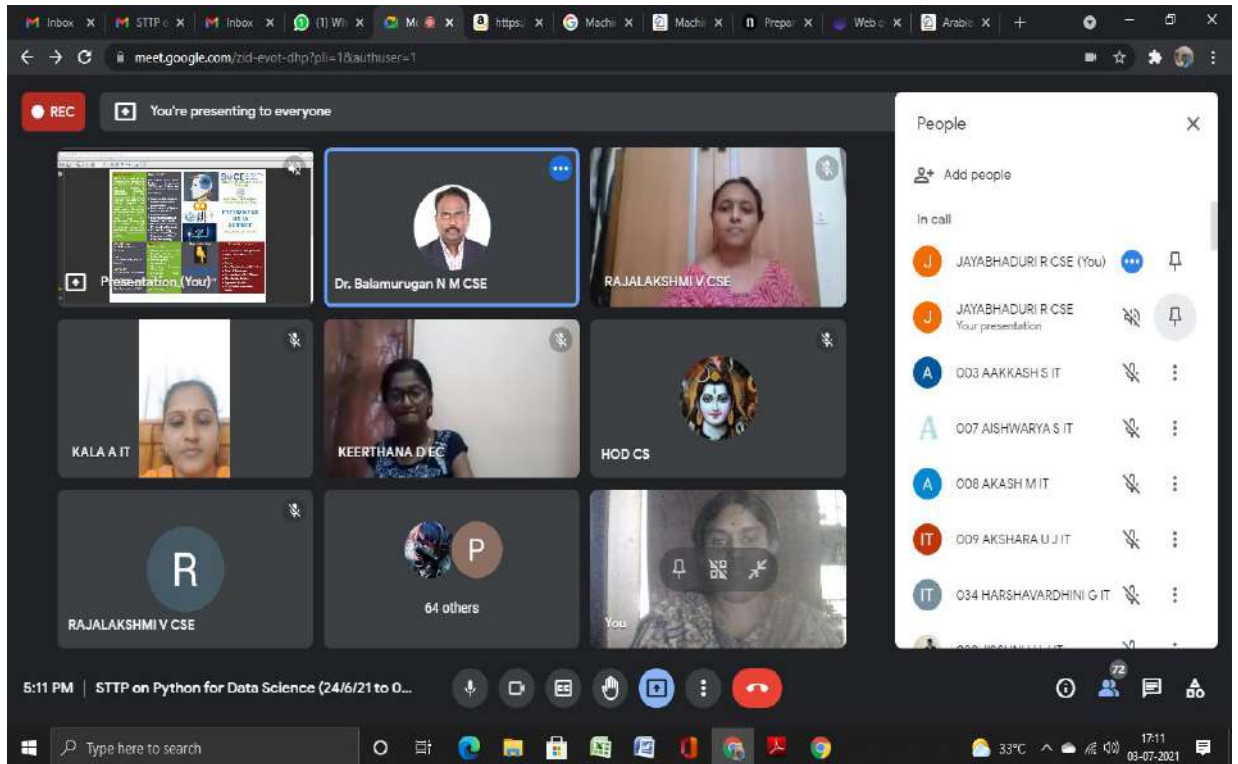
S.No	Branch	No of participants
1	Artificial Intelligence and Data Science	21
2	Biotechnology	12
3	Chemical Engineering	8
4	Computer Science and Engineering	47
5	Electrical and Electronics Engineering	3
6	Electronics and Communication Engineering	15
7	Information Technology	13
8	Mechanical Engineering	31
	<b>Total</b>	<b>150</b>

The Short Term Training Programme was well received and appreciated by all participants and faculty members. Online feedback was obtained from all participants on all days.





Dr. R. Anitha, Convenor delivered valedictory address for the short term training programme and Dr.N.M.Balamurugan delivered vote of thanks.



## APPENDIX

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## *A. Resource Persons' Profile*

# 1. Mrs. G.Janakasudha



Mrs. G.Janakasudha, is currently working as an Assistant Professor in the department of Computer Science and Engineering, Sri Venkateswara College of Engineering. She has a teaching experience of 17 years. Apart from teaching, she also act as the Co-ordinator for the Association of Computer Engineers and Co-ordinator of the Music club of SVCE. Her areas of interests includes Programming, Theory of Computation, Machine learning, Deep learning, Data science, Data Analytics and Computer Vision. She is currently pursuing her Ph.D. in Early diagnosis of Alzheimer’s Disease using Deep Learning under Anna University, Chennai. She has organised several workshops, guest lectures, symposiums and events in CS department. She has mentored students of the department to participate in various intra college as well as inter college competitions, internships and projects.

As a special mention, she has mentored a team that won second place in national level Smart India Hackathon organised by Government of India at Bhopal centre on the work titled “Tracking parking for persons with disabilities (pwws) in external environment” in the year 2018. Under her mentorship, in the year 2020 another team has won first place in the National level Smart India Hackathon organised by Government of India at Bangalore centre on the work titled “Efficient system for monitoring the midday meals scheme using the MV sense API of Cisco Devnet” .

## 11. Mrs.S.Kalavathi



Ms.S.Kalavathi completed her Bachelor of Engineering in the stream of Computer Science and Engineering in the year 2004 affiliated to Madras University. She completed her Masters of Engineering in the stream of Computer Science & Engineering during June 2011 at Sri Venkateswara College of Engineering affiliated to Anna University. She is currently pursuing her Ph.D in Anna University in the domain of Data Analytics. She is having a 15 years of total teaching experience in Sri Venkateswara College of Engineering. She is currently working as an assistant professor in the department of Information Technology Her area of interest includes Machine Learning, Network Analytics, Data Mining and Web Programming. She explored Many Web Modules in related to academic applications such as attendance management and project management. Also acted as web coordinator for many years. She has mentored many projects at the undergraduate and postgraduate students. She has published 4 papers in the National Conference, 2 papers in the International Conference.

### III. A. Kala



A.Kala is working as an Assistant Professor in the Department of Information Technology, Sri Venkateswara College of Engineering. She received her B.Tech degree in Information Technology and M.E. degree in Computer Science and Engineering. She is currently pursuing Ph.D. degree in Faculty of Information and Communication Engineering, Anna University.

She has over Sixteen years of teaching experience. Her research interests include Machine Learning and Data Analytics.

She has published papers in various international conferences and journals.

## IV. Ms. D.Sasikala



Sasikala completed her Bachelor of Engineering in the stream of Electronics & Instrumentation Engineering during May 1999 at Government College of Technology affiliated to Bharathiar University, Coimbatore. She completed her Masters of Engineering in the stream of Computer Science & Engineering during June 2010 at Sri Venkateswara College of Engineering affiliated to Anna University. She is currently pursuing her Ph.D at Pondicherry University in the domain of Natural Language Processing.

She has 10 years of teaching experience as assistant professor in the department of Computer Science and Engineering, Sri Venkateswara College of Engineering. Her research area of interest includes Machine Learning, Natural Language Processing, Data Mining, Computer Architecture

She is a Sun Certified programmer for Java2 platform. She has secured top 5% position in NPTEL Online Certification Course exam for the subject “ Introduction to Data Mining”

She has mentored projects for the undergraduate students and postgraduate students, notably one of her student final year project won best paper award in National Conference on Computational Biology & Medical Biotechnology in Health Care, held at Department of Bioinformatics, Sathyabama Institute of Science and Technology, October 2018.

## V. Dr. R.Jayabhaduri



Dr. R.Jayabhaduri started her career in the department of Computer Science and Engineering at Sri Venkateswara College of Engineering, Chennai on May 30,2003. Currently she is working as an Associate Professor and teaching for 18 years in the department of Computer Science and Engineering. She received her B.E. and M.E. degrees in Computer Science and Engineering from Mepco Schlenk Engineering College, Sivakasi, India in 2001 and 2003 respectively. She received her Ph.D. degree in Computer Science and Engineering from Anna University, Chennai in 2016.

Jayabhaduri's research interests include Artificial Intelligence, Machine Learning, Optimization Algorithms and Bioinspired Computing. She has published about 18 papers in international journals and conferences.

She is an active member in organizing STTPs, FDPs and Workshops for the benefit of students and faculty members in the areas of Machine Learning, Deep Learning, Natural Language Processing and Internet of Things. She has delivered around 25 guest lectures in the domain of Machine Learning, Deep Learning, Natural Language Processing, Big Data Analytics and Internet of Things.



## VI. Ms. S.Senthamizh Selvi



### Qualification

- B.E Electrical and Electronics Engineering, Crescent Engineering College, University of Madras
- M.E Computer Science and Engineering, B.S.A Crescent Engineering College, Anna University
- Pursuing Ph.D at Anna University in the domain Natural Language Processing

### Experience

- More than 12 years of experience in teaching.
- Working as Assistant Professor, Department of Computer Science and Engineering, SVCE

### Achievements

- Topper(Top 1%) and Gold medalist(Grade>90) in successfully completing the NPTEL Online Certification Course “Introduction to Data Mining” with a consolidated score of 92% conducted during Feb2019 to Apr 2019(Eight Week Course)
- First place in paper presentation for the paper titled “Developing a Language Translation System for Book Conversion from Foreign Language to Native Language” in the Faculty Research Day, Department of CSE, SVCE on 26 th April 2018.
- First place in paper presentation for the paper titled “Enhanced Rule based Machine Translation System for Language translation” in the Faculty Research Day, Department of IT, SVCE on 26th April 2017.

### Funded Projects

- Working under a project from AICTE(2017): Titled: Development of Language Translation Engine for Text book conversion from foreign to native Language in the field of Science & Engineering using cloud based Virtual dictionary based on Deep Neural Networks, December 2018. Period 2018-2021 Amount: Rs. 9,73,000.

## VII. Ms. P.Sharon Femi



P.Sharon Femi is working as an Assistant Professor in the Department of Information Technology, Sri Venkateswara College of Engineering. She received her B.Tech degree in Information Technology and M.E. degree in Computer Science and Engineering. She is currently pursuing Ph.D. degree in Faculty of Information and Communication Engineering, Anna University.

She has over Sixteen years of teaching experience. Her research interests include Machine Learning and Data Analytics.

She has published papers in various international conferences and journals.

## VIII. Dr. N.M.Balamurugan



Dr. Balamurugan N M received the B.E. Degree in Computer Science and Engineering from Madurai Kamaraj University, the M.E & Ph.D. Degrees in Network Engineering from Anna University, Chennai. He is currently an Associate Professor with Sri Venkateswara college of Engineering Sriperumbudur, Chennai.

His research interests are involving Wired & Wireless Networks, Network Security, Computer Graphics, CAD, QoS and applications of Artificial Intelligence. He has published two patents in the field of AI and IoT. He has guided hand full of UG, PG & SIH projects and published in the international journals and conferences.

He taught the following subjects to SVCE students: Information Retrieval Techniques, Computer Graphics, Computer Networks, Object oriented programming, Internet Programming, Mobile Computing, C# and .NET framework, Cloud Computing, Security Practices, Information Security, Cryptography and Network Security.

## IX. Ms. R.Gayathri



### Qualification

- Ph.D.,(Pursuing at Anna University, Chennai)
- M.E. – Multimedia Technology,College of Engineering,Anna University 2008-2010.
- M.B.A.- Alagappa University, 2006-2008.
- B.E. – Computer Science & Engineering, University of Madras 2000-2004.

### Academic Experience

- Worked as Lecturer in Computer Science & Engineering Department, from July 2005 to June 2010.
- Working as Assistant Professor in Computer Science & Engineering Department, SVCE from July 2010 to till date.

### Lectures Delivered

- Delivered a lecture in the topic “Database Programming Using Python” at Five Days Value Added Course in Python Programming during December 4th – 8th, 2018 at IT Dept., SVCE.
- Delivered a Talk in 2-days Hands-on Workshop on “Multitudinal Databases” held from 16/10/2019 t& 17/10/2019.

## X. Ms. V.Rajalakshmi



Ms. V.Rajalakshmi received her B.Tech Degree in Information Technology from Madras University and the M.E Degree in Computer Science and Engineering from Anna University, Chennai. She is currently pursuing PhD in the area of Machine learning. She is currently an Assistant Professor in Sri Venkateswara college of Engineering Sriperumbudur, Chennai.

Her research interests are Machine learning and Deep learning.

She taught the following subjects to SVCE students: Object Oriented Programming, Multicore Architectures and Programming, Design and Analysis of Algorithms, Programming Paradigms, Programming and Data Structures, Theory of Computation, Web Technology, Data Structures, Operating System, Principles of Compiler Design, Fundamentals of Computing & Programming, Computer Architecture, System Software and Internet Programming.

## **B. Online Feedback**