SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES
(AUTONOMOUS)
(Approved by AICTE, Affiliated to JNTUA, Accredited by NBA (EEE & MCA)

DOMAIN SPECIFIC WORKSHOP

On

"Full Stack Data Science Engineering from Raw Data to AI Deployment"

Organized by

Department of CSE-Data Science

SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES

AUTONOMOUS

(Approved by AICTE, Affiliated to JNTUA, Accredited by NBA (EEE & MCA)

Conducted during 22nd- 27th, Dec 2025

ABOUT THE COLLEGE:

Sreenivasa Institute of Technology and Management Studies (SITAMS) was established in the year 1998- 99 under Srinivasa Trust by a prominent industrialist late Dr.D.K.Audikesavulu, Ex.M.P, Former TTD Chairman. Over the last 20 years, SITAMS has made remarkable progress in teaching, research and consultancy in the field of technical education and management studies under the Chairperson Late. Smt. D.A.Sathyaprabha (W/o Late Dr.D.K.Audikesavulu), MLA, Chittoor.(2013-2021) and Chairman Shree K.Ranganatham, former Advisor for Power Sector, Govt of Andhra Pradesh. SITAMS, a pioneer of value based education, offers both U.G. (ECE, CSE, CSE(AIML), CSE(AI), CSE(DS), EEE, Civil & Mechanical) and P.G. (MBA, MCA & M.Tech.), courses under JNTUA, Anantapuramu and is approved by AICTE, New Delhi. The college got 2(f) and 12(b) status by the UGC in the year 2013, Autonomous in the year 2013-14 and NAAC accredited.

The Chairperson and the members of the Governing Body have felt the need of preparing a strategic development plan for the institution in a formal written document format. The mandate was given to the Principal to develop strategic plan 2024-2029 for the institution. The management & top leadership team met and brain stormed on SWOT and stake holders expectations. The Leadership team met a number of times, deliberated in detail and arrived at vision, mission, quality policy and core values for SITAMS. Environment scanning was done keeping vision in mind. The team also discussed about Institutes strategic High Level Goals (USG/HLG) to be achieved by 2029.

Academic institutions have been the bedrock for research for a very long time. At these places, the good teaching-learning and research go hand-in-hand. They are the two sides of the same coin. It is evident that for effective teaching, research is essential. The learning outcomes for the students who undergo research- based teaching are better and leading to a high rate of progression to higher education, research and career. The institution though predominantly a teaching-learning institution has been considering research as one of its prime growth verticals. Thus a conscious effort is made to prepare an objective policy to promote, monitor and evaluate development of the Institute.

Institution strategic goals formed the main theme for arriving at strategies, sub strategies and road to accomplish them. Each Strategy was deliberated and sub-strategies were arrived towards implementation plan. Implementation plan worked out all details such as budget, resources needed

and leaders responsible to implement with time lines. This implementation is separately maintained by the head of the institution.

Departments play a pivotal for the institution; hence each department worked out on their vision, mission and short, mid & long term goals. The implementation plan for the departments also reflected all details such as budget, resources needed as well as leader responsible with time lines. HODs form the core team for implementing departmental goals under the guidance of Deans/ Principal.

Strategic Development Plan emphasizes on evaluation measures, monitoring team along with deviation steps if any over a period of time. The evaluative components for each stake holder are clearly spelt out along with periodicity of performance evaluation reviews.

ABOUT THE DEPARTMENT:

The Department of Computer Science and Engineering (Data Science) was established in the year 2021 with an initial intake of 60 students, which was later increased to 96 students to meet the growing demand in the field of data-driven technologies.

Computer Science and Engineering (Data Science) is a rapidly evolving discipline aligned with the emerging needs of industries in areas such as data analytics, artificial intelligence, machine learning, big data, and intelligent systems. The department is equipped with modern computing laboratories, emphasizing a hands-on, practical approach and skill development to support outcome-based learning.

The department is supported by a team of well-qualified, knowledgeable, and dedicated faculty members who are committed to academic excellence, research, and innovation.

The goal of the Department of CSE (Data Science) is to prepare students for successful careers in the computing and data science profession through a carefully designed curriculum that balances theory and practice. The department strives to ensure high employability, professional competence, and ethical responsibility among its graduates.

A Technical Association was established with the objective of exploring emerging trends in data science, research, and smart technologies relevant to industry and society. To achieve this, the department regularly organizes technical workshops, seminars, guest lectures, hackathons, and technical fests. Students are actively encouraged to present research papers and participate in national-level technical events, fostering innovation, collaboration, and lifelong learning

ABOUT WORKSHOP

The workshop **"Full Stack Data Science Engineering: From Raw Data to AI Deployment"** introduces participants to the complete data science workflow, from data collection and preprocessing to machine learning model development and deployment. It emphasizes hands-on learning with real-world use cases, helping participants understand how raw data is transformed into intelligent, AI-driven solutions for practical applications.

OBJECTIVES OF THE WORKSHOP:

The objective of this workshop is to provide participants with a clear understanding of the complete data science lifecycle, starting from raw data acquisition and preprocessing to machine learning model development and AI deployment. The workshop aims to develop practical skills in data analysis, feature engineering, and model evaluation while exposing participants to real-world applications. It also focuses on bridging the gap between theoretical knowledge and practical implementation, enabling participants to design and deploy effective data-driven and AI-based solutions.

RELEVANCE

This workshop is highly relevant in today's data-driven and AI-focused technological landscape, where organizations rely on intelligent systems for decision-making and automation. By covering the complete journey from raw data to AI deployment, the workshop equips participants with industry-aligned skills required in domains such as data analytics, machine learning, smart systems, and intelligent applications. It helps students and professionals understand how data science engineering supports real-world solutions, improves system efficiency, and enhances employability in emerging roles related to Data Science and Artificial Intelligence.

BENEFITS

This workshop enables participants to gain a clear understanding of the complete data science workflow, from handling raw data to deploying AI models in real-world applications. It enhances practical skills in data analysis, machine learning, and model deployment, making participants industry-ready. The workshop also improves problem-solving and analytical thinking, provides

exposure to real-world use cases, and strengthens career prospects in data science, AI, and related emerging technologies.

OUTCOMES

By the end of the workshop, participants will be able to understand and apply the complete data science engineering pipeline from raw data to AI deployment. They will gain hands-on experience in data preprocessing, exploratory analysis, and building machine learning models. Participants will also develop the ability to evaluate model performance and understand basic deployment concepts, enabling them to translate data-driven insights into practical, real-world AI solutions.

CHAIRMAN

Sri. K. Ranganatham

Sreenivasa Institute of Technology and Management Studies (Autonomous), Chittoor, A.P, India.

CONVENOR

Dr. N.Venkatachalapathi

Principal, SITAMS,

Chittoor

COORDINATORS

Mr. A. Srinivasan

Associate Professor & HOD-DS

Mrs P Leelavathi

Assistant Professor

Mr G Yuvaraj

Assistant Professor

Department of CSE-Data Science, SITAMS Chittoor

ORGANIZING COMMITTEE

S.No	Name	Designation
1	Mr. A. Srinivasan	Associate Professor
2	Mrs. P. Leelavathi	Assistant Professor
3	Mr. G. Yuvaraju	Assistant Professor
4	Mr. R. Eswar Reddy	Assistant Professor
5	Mrs.A.Udayasree	Assistant Professor
6	Mr.D..Sai Kiran	Assistant Professor
7	Mr.G.Jaswanth	Assistant Professor
8	Mrs.K.Vishalini	Assistant Professor

AIM AND OBJECTIVES OF THE EVENT

AIM:

The aim of the event "Full Stack Data Engineering: From Raw Data to AI Deployment" is to provide participants with a comprehensive understanding of how raw data is transformed into intelligent, AI-driven solutions through modern data engineering and data science practices.

OBJECTIVES:

The objectives of the event are to familiarize participants with the end-to-end data engineering and data science pipeline, including data collection, preprocessing, storage, analysis, and machine learning model development. The event aims to develop practical skills in handling real-world data, applying analytical and AI techniques, and understanding deployment concepts, thereby bridging the gap between theoretical knowledge and industry requirements.

OUTCOME OF THE EVENT

The event "Full Stack Data Engineering: From Raw Data to AI Deployment" focuses on the complete lifecycle of data, starting from raw data ingestion to AI model deployment. It provides insights into data pipelines, data processing, exploratory analysis, and machine learning workflows using real-world use cases. The event emphasizes practical learning and industry relevance, enabling participants to understand how data engineering and AI work together to build scalable, intelligent-systems

Day 1: Dec 2025

- **22nd Dec Inauguration Function**: 9:30 AM – 11:00 AM

Address the gathering by Dr.N.Venkatachalapathi, Principal,

Address the gathering by Mr.A.Srinivasan, HOD-CSE-Data Science,

- The inaugural ceremony of the Domain Specific Workshop on **"Full Stack Data Science Engineering from Raw Data to AI Deployment"** commenced on 22nd **Dec 2025** at **Sreenivasa Institute of Technology and Management Studies (Autonomous), Chittoor**.
- The Chief Guest, **Dr. N Venkatachalapathi**, delivered an insightful address on the integration of technology in academia. He emphasized the transformative role of technology in enhancing teaching methodologies and research practices, inspiring students to embrace innovative tools for academic excellence.
- The event set the tone for a productive and enriching program, fostering collaboration and knowledge-sharing among students.

Day 1: 22nd Dec 2025

Session 1:

Topic: AI Unplugged: A Hands-On Journey into Data Science

Speaker: Dr T Vivekanandan, Associate Professor, Apollo University, Chittoor

Time: 11:00 AM – 12:30 PM

The first session introduced participants to the fundamentals of data science and artificial intelligence, emphasizing the role of data in modern intelligent systems. Dr. T. Vivekanandan discussed the data science lifecycle, beginning with data collection and preprocessing techniques required to handle real-world datasets. The session highlighted common data challenges such as missing values, noise, and data inconsistency, along with methods to address them. Through real-world examples and case studies, participants gained a clear understanding of exploratory data analysis and the importance of feature engineering in building effective machine learning models. The session laid a strong conceptual foundation for hands-on learning in the subsequent session.

Session 2:

Topic: AI Unplugged: A Hands-On Journey into Data Science

Speaker: Dr T Vivekanandan, Associate Professor, Apollo University, Chittoor

Time: 1:45 PM – 4:45 PM

The second session focused on hands-on implementation and practical application of data science concepts introduced earlier. Participants were guided through the process of building and training machine learning models using real-world datasets. Dr. T. Vivekanandan explained model evaluation techniques and demonstrated how data-driven insights are generated and interpreted. The session also covered an introduction to AI model deployment concepts and discussed real-time applications of data science in various domains. Interactive discussions, problem-solving activities, and practical demonstrations helped participants strengthen their analytical thinking and practical skills. The session concluded with insights into career opportunities, emerging trends, and future directions in data science and artificial intelligence.


Data Growth World Wide
Volume of data/information created, captured, copied, and consumed worldwide from 2010 to 2023, with forecasts from 2024 to 2028 (in zettabytes)


S I T A M S

Day 2: 23rd Dec 2025

Session 1: **Advanced Concepts in Routing Architecture**

Speaker: Dr. V. Jayaprakasan, SNIST, Autonomous Hyderabad

Time:11:00 to 12:45

The session on **Advanced Concepts in Routing Architecture** provided participants with an in-depth understanding of modern routing mechanisms used in computer networks and communication systems. Dr. V. Jayaprakasan explained the evolution of routing architectures and highlighted advanced routing strategies that enhance network scalability, reliability, and performance. The session covered key concepts such as hierarchical routing, dynamic and adaptive routing protocols, routing optimization techniques, and architectural challenges in large-scale networks. Emphasis was placed on how advanced routing architectures support emerging technologies including cloud computing, data centers, and high-speed networks. Through conceptual explanations and practical insights, participants gained clarity on how routing decisions are made, optimized, and implemented in real-world networking environments. The session concluded with discussions on current research trends and future challenges in routing architecture, making it highly beneficial for students and researchers interested in networking and communication systems.

Session : 2

Topic: Hands on session on implementation of Switching & Routing

Speaker: Dr. V. Jayaprakasan, SNIST, Autonomous Hyderabad

Time: 2.00 PM – 4:00 PM

The hands-on session on **Implementation of Switching & Routing** provided participants with practical exposure to core networking concepts and their real-time implementation. Dr. V. Jayaprakasan guided the participants through the fundamentals of switching and routing operations, focusing on how data packets are forwarded efficiently within and across networks. The session included practical demonstrations and configuration exercises related to switching

techniques, routing protocols, and network setup. Participants gained hands-on experience in understanding routing tables, configuring switches and routers, and troubleshooting common network issues. Emphasis was placed on translating theoretical networking concepts into practical implementation scenarios. This interactive session enhanced participants' practical skills, improved their understanding of network behavior, and strengthened their readiness for advanced networking studies and industry applications.

Day 3: 24th Dec 2025

Session:1

Topic:IPV6–Protocols

Speaker : Dr. C.Kumar, Associate Professor, MITS, Madanapalle

Time: 11:00 AM – 12:30 PM

This session provides a comprehensive overview of IPv6, the next-generation Internet protocol replacing IPv4. Participants will learn about IPv6 addressing schemes, including unicast, multicast, and anycast addresses. The session explains IPv6 header structure, key features such as Stateless Address Autoconfiguration (SLAAC), Neighbor Discovery Protocol (NDP), extension headers, and routing protocols. Dual-stack implementation and transition mechanisms from IPv4 to IPv6 are also discussed. Practical examples, configuration exercises, and troubleshooting techniques are included to ensure real-world-understanding.

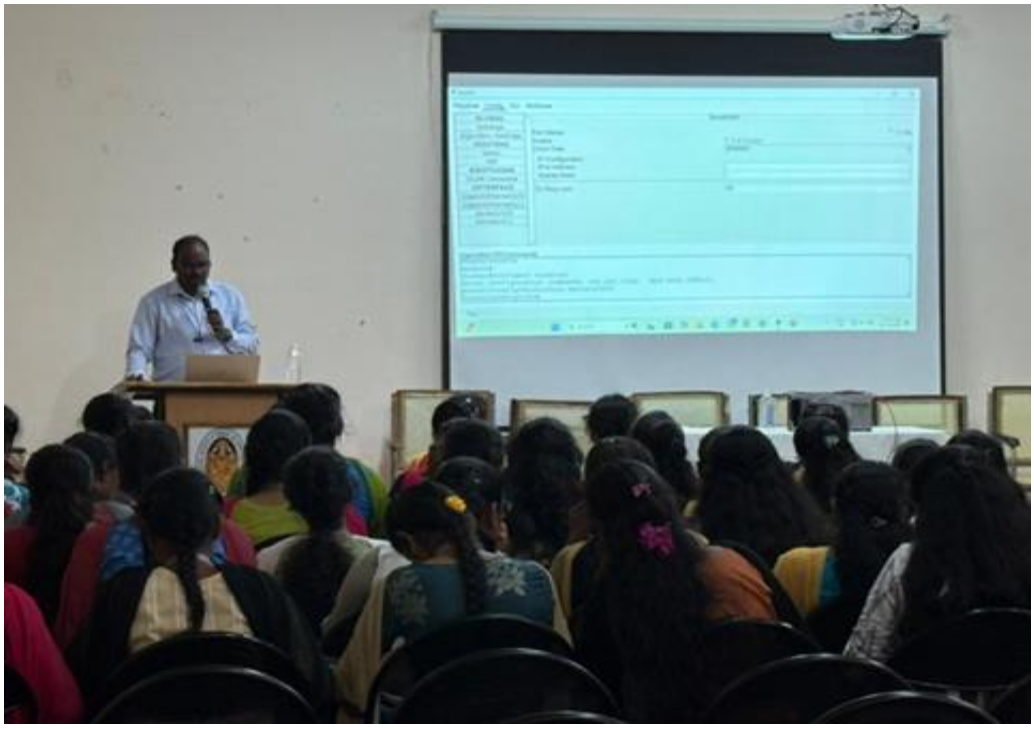
Session: 2

Topic: Hands-On Session on Implementation of Switching & Routing

Speaker: Dr. C. Kumar, Associate Professor, MITS, Madanapalle

Time: 1:45 PM – 4:45 PM

Hands-on lab session focusing on packet switching techniques, routing table configurations, and switching algorithms. Participants will simulate packet flow, analyze latency and throughput, and troubleshoot network issues. Exercises include packet fragmentation, encapsulation, and error handling. Collaborative group work ensures understanding of real-world networking practices, providing participants with practical skills in configuring and managing networks.



Day 4 : 26th Dec 2025

Session: 1

Topic: Developing Intelligent Web Applications using Python and Django

Speaker: Dr. B. Lakshmidevi, Assistant Professor, Sri Padmavathi Mahila Visvavidyalayam, Tirupati

Time: 11:00 AM – 12:30 PM

This session introduces participants to developing intelligent web applications using Python and Django. Attendees will learn about the Django framework, web development basics, database integration, and building dynamic applications. Practical exercises include creating web forms, handling user input, and implementing backend logic. Emphasis is placed on best practices, debugging, and deploying web applications. By the end, participants will have a functional understanding of web application development using Python and Django..

Session: 2

Topic: Generative AI

Speaker: Dr. B. Lakshmidevi, Assistant Professor, Sri Padmavathi Mahila Visvavidyalayam, Tirupati

Time: 1:45 PM – 4:45 PM

This session provides an introduction to Generative AI and its applications across industries. Participants will learn about AI models that can generate text, images, and audio. The session will cover the architecture of generative models, including GANs (Generative Adversarial Networks) and transformer-based models like GPT. Students will understand how AI learns patterns from data to create new, realistic outputs. Use cases in content creation, design, marketing, and entertainment will be discussed. Ethical considerations and responsible AI practices will also be highlighted. Participants will see live demonstrations of generative models creating content. The session encourages curiosity and experimentation with AI creativity. By the end, participants will understand how generative AI can augment human creativity and provide solutions in innovative applications.

Day 5 : 27th Dec 2025

Session: 1

Topic: Hands-On Session on Generative AI

Speaker: Mr A Srinivasan, Associate Professor, Mr G Yuavarju, Assistant Professor, Mrs P Leelavathi Assistant Professor, SITAMS, chittoor

Time: 10:00 AM – 01:00 PM

A practical session where participants will implement generative AI models using Python and popular libraries. Attendees will train models on sample datasets, generate outputs, and evaluate the results. The session includes exercises on text generation, image synthesis, and basic audio generation. Students will learn to fine-tune models for specific tasks and understand the limitations of generative AI. The workshop also covers integration of generative AI outputs into applications. Participants will collaborate in teams to experiment with creative use cases, encouraging problem-solving and innovation. By the end, attendees will have hands-on experience with state-of-the-art AI models and the confidence to explore generative AI in their own projects.

Day 5 : 27th Dec 2025

Session: 2

Valedictory Function Report: Domain Specific Workshop

The valedictory function of Domain Specific Workshop on "**Full Stack Data Science Engineering from Raw Data to AI Deployment**", held from 22nd to 27th Dec 2025, marked the successful conclusion of this event at **Sreenivasa Institute of Technology and Management Studies (Autonomous), Chittoor**.

Highlights of the Valedictory Session:

1. **Concluding Remarks:**

- Dr. V Jayaprakasan appreciated the enthusiastic students and active engagement of attendees throughout the workshop.
- Dr T Vivekanandan offered internship for the students who have actively participated and successfully completed the tasks provided by him.

2. **Acknowledgements:**

   - **Dr. N.Venkatachalapathi**, Principal and M**r. A,Srinivasan** Coordinator of the DSW, expressed gratitude to the Chief Guests, speakers, and students for their contributions to the success of the DSW.

3. **Conclusion:**

   - The valedictory function concluded on a patriotic note with the singing of the **National Anthem**, symbolizing unity and collective dedication to excellence in education.

The **Full Stack Data Science Engineering: From Raw Data to AI Deployment** workshop equipped participants with practical skills across the entire data science pipeline—from raw data processing to AI model deployment. Attendees gained hands-on experience in machine learning, generative AI, web development, and modern databases, bridging theory and real-world applications. By the end, participants were empowered to build end-to-end data-driven solutions and apply their knowledge confidently in professional AI and data science projects.