Report

The Department of Computer Science and Engineering, Ajay Kumar Garg Engineering College, Ghaziabad, conducted a five-day Faculty Development Programme/Short-Term Course on **"Social Network Analysis and Visualization"** in association with the Department of Computer Science and Engineering, National Institute of Technical Teachers Training and Research (NITTTR), Chandigarh, from 19 to 23 January 2026. The programme was designed to strengthen participants' conceptual and practical understanding of graph-based data analysis, social-network modelling, network visualization, information diffusion, influence analysis, graph machine learning, community detection, cybersecurity, and Python-based implementation.

The sessions were delivered by experienced academicians and industry professionals from NITTTR Chandigarh, Panjab University, Delhi Technological University, MNIT Jaipur, Jaypee Institute of Information Technology, Manipal University Jaipur and many more. Their subject expertise, demonstrations, and application-oriented discussions enabled participants to connect network-science concepts with teaching, research, and real-world analytical problems.

Objectives of the Programme

- Develop a clear understanding of social networks, graph structures, and their computational properties.
- Introduce Python libraries and tools such as NetworkX, SNAP, and iGraph for graph creation, processing, analysis, and visualization.
- Explain information-diffusion models, influence measures, centrality metrics, and influence-maximization techniques.
- Demonstrate graph machine-learning methods and their applications in complex networked systems.
- Discuss community detection, shortest-path algorithms, minimum spanning trees, network-generating models, and graph file formats.
- Create awareness of fake-news mitigation, information blocking, and contemporary cybersecurity practices.

Total 28 faculties from CSE, IT, department participated in the FDP. The coordinator of the FDP was Dr. Sonam Gupta, Professor CSE Department. The FDP was organised by Dr. Anuradha Taluja, Associate Professor, CSE dept., Dr. Pradeep Gupta, Assistant Professor, CSE Dept. Mr. Anuj Singh, Assistant Professor, CSE Dept, Dr. Sachin Jain, Assistant Professor, CSE Dept., Mr. Pronab Adhikari, Assistant Professor, CSE Dept. and Ms. Rekha Baghel, Assistant Professor, CSE Dept.

The schedule and speakers of the course are as follows:

DATE	10:00 a.m. to 11:30 a.m.		11:45 a.m. to 1:15 p.m.		3:00 p.m. to 4:30 p.m.
19.01.2026 **(Monday)**	Introduction to Python NetworkX Library for Creation and Visualization of Graphs (Dr. Shano Solanki)		Graph Data Representation using various Data Structures and Graph File Formats and their processing in Python		GUI Tool for Visualization of Graphs (Dr. Gaurav Kumar)

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20.01.2026 **(Tuesday)**	SNAP Library and iGraph Essentials (Dr. Rahul Saxena)	E A	Information diffusion on Social Networks Models and their Implementations (Dr. Rahul Saxena)	U N C	Decoding Network Influence: Centrality Measures for Identifying Key Nodes (Dr. Sarbjeet Singh)
21.01.2026 **(Wednesday)**	Information Blocking and Fake News Mitigation (Dr. Rahul Katarya)	B R E A	Graph Machine Learning: From Theory to Practical Applications (Dr. Mahipal Jadeja)	H B R	Influence Maximization on Social Networks (Dr. Bhawna Saxena)
22.01.2026 **(Thursday)**	Social Networks and Structural Properties Computation (Dr. Shano Solanki)	K	Clique-based Community Detection on Social Networks (Dr. Shano Solanki)	E A K	Cyber Security: Trends, tactics, and how to stay secure (Mr. Tarun Malhotra)
23.01.2026 **(Friday)**	Shortest Path Algorithms, finding minimum spanning tree using Python and its applications (Dr. Gaurav Kumar)		Network Generating Models (Dr. Seema Rani)		Quiz, Feedback, and Evaluation (Dr. Shano Solanki)

Outside Experts:

Dr. Shano Solanki, Associate Prof., NITTTR, Chandigarh
Dr. Sarbjeet Singh, Professor, UIET, Panjab University, Chandigarh
Dr. Rahul Katarya, Professor, DTU, Delhi
Dr. Mahipal Jadeja, Assistant Professor, MNIT, Jaipur
Dr. Gaurav Kumar, Managing Director, Magma Research and Consultancy Services, Ambala
Dr. Bhawna Saxena, Assistant Professor, Jaypee Institute of Information Technology, Noida
Dr. Rahul Saxena, Assistant Professor, Manipal University Jaipur, Rajasthan
Dr. Seema Rani, Assistant Professor, CGC Landran
Mr. Tarun Malhotra, Founder and CEO, Cyber Splunk, Mohali


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