SHARDA UNIVERSITY
Beyond Boundaries

NAAC A+ ACCREDITED

SHARDA SCHOOL OF COMPUTING SCIENCE & ENGINEERING

COURSE

Introduction to Disruptive Technologies (NV62003)

VALUE ADDED
Course Brochure
2025-26

ABOUT THE UNIVERSITY

Sharda University envisions serving society by being a global University of higher learning in pursuit of academic excellence, innovation, and nurturing entrepreneurship. It has 13,000+ students from 95+ countries, 29 states, and Union Territories, providing cultural diversity and global exposure to students. It has 26000+ alumni who are today leaders in their realms. Sharda University is a NAAC A+ University with an Overall NIRF Rank of 86. The Teaching Learning Center at Sharda University is to equip the faculty members with the expertise, skills, and knowledge they need for capacity building of students. Teaching as a profession requires highly specialized skills and knowledge to have a significant impact on student learning; therefore, teachers must continually refine their conceptual and pedagogical skills.

ABOUT SCHOOL

Sharda School of Computing Science & Engineering is an open platform for diverse voices where teaching runs parallel to the real world, and students are groomed to join the global workforce. SSCSE is distinguished as one of the top-ranked engineering schools in India. The students at SSCSE benefit through the professional grooming of renowned faculty and industry experts who have experience in tackling pressing engineering problems. Students discover their passion in one of the various offered Engineering majors at the Sharda School of Computing Science & Engineering. A student-centric pedagogy, project-based approach, and design-driven curriculum provide students with an inclination for complex problem-solving, design, innovation, and a passion for learning.

ABOUT DEPARTMENT

The Department of Computer Science & Engineering strives to equip faculty and students with all the computing resources needed to address a wide range of scientific, technological, and socially complex problems. The department imparts technical education for designing quirky technological applications and innovations. The department aims to become a center of excellence and impart knowledge to intellectual professionals so as to equip them with the requisite skills as per Industry standards. The department aims to foster an innovative research environment by providing a supportive, amiable, and challenge-based learning culture. The department utilizes high-performance computing equipment and facilities to impart state-of-the-art technical knowledge to students and instill a desire to pursue lifelong learning. To emerge as a world-class department, we focus on innovative research and quality learning in computer science applications that prepare entrepreneurs and professionals to lead the social, economic, and technical development of society. The Value Added Education Courses aim to provide additional learner-centric centric graded skill skill-oriented training, with the primary objective of improving the employability skills of students.

VALUE ADDED COURSE (VAC)

The Value Added Courses aim to provide additional learner-centric centric graded skill skill-oriented training, with the primary objective of improving the employability skills of students. The value added course on Introduction to Disruptive Technologies will train the students to understand basics of cyber security, IoT, blockchain, bigdata, AR/VR and apply the knowledge of sensors and designing automated systems and applications.

PURPOSE OF VALUE ADDED COURSE

VACs are pertinent instructional strategies designed to close knowledge gaps in students and provide them a competitive edge in the job market. The courses' well-defined structure makes these VACs highly effective in enhancing students' employability quotient by developing diverse competencies. They help students lay the creative groundwork for passion projects (such as interactive dashboards, business analytics, or sector-specific visual reports) beyond their core academic curriculum, offering skills that can transform their enthusiasm into career opportunities.

RESOURCE PERSONS

Dr. Subrata Sahan, is working as an Associate Professor in the Department of CSE at Sharda University, Greater Noida, U.P. He received Ph.D. in Computer Science from the JNU, New Delhi (Central University), India (NIRF Ranking-2020: 02), and M.Tech in Computer Science and Engineering form BIT, Mesra in 2010 (NIRF Ranking-2020 under 100) and B.Tech in Computer Science & Engineering from CEMK, Kolaghat affiliated from West Bengal University of Technology in 2007. He joined Sharda University as Assistant Professor in Aug. 2019 and promoted as Associate Professor on Jan. 2021. Prior to this, He was associated with Galgotias University as Assistant Professor from 2012-2019, V.I.T. University, Vellore as Assistant Professor from 2010-2012 and RVSCET, Jamshedpur as lecturer from 2007-08. He has rich experience in publication in many international journals and conferences with high repute.

RESOURCE PERSONS

Dr. Javed Ahmad received his Ph.D. degree from Jamia Millia Islamia (A Central University) New Delhi in 2022. He received his M. Tech degree in Computer Science from Jamia Hamdard, New Delhi in 2012. He Completed his B.Tech in Computer Science and Engineering from Uttar Pradesh Technical University in 2008. He has more than 10 years of teaching experience. He has qualified National Eligibility Test in December 2018, June 2019, and December 2019; and Graduate Aptitude Test in Engineering organized by Indian Institute of Technology Madras, India in 2019. He has published research papers in the following reputed conferences and SCIE/SCOPUS journals: Computer Science Review Journal (Impact Factor: 12.9), SN Computer Science Journal, IEEE International Conference on Computer Research and Development, Malaysia; IEEE International Conference on Computing, Communication, and Intelligent Systems, India; International Journal of Engineering and Technology. Software Engineering, Requirements Engineering, Security Requirements Engineering, Data Structures, Database Management System, Machine Learning.

Dr. Amit Seth is working as an Associate Professor in the Department of Computer Science & Engineering, Sharda School of Computing Science & Engineering, Sharda University. His area of research include AI, ML, IoT, etc.

Dr. Swati Singal is currently working as an Assistant Professor with the Department of Computer Science and Engineering at Sharda University, Greater Noida, India. Prior to this, she was associated with Amity University, Noida from 2012 to 2023. She obtained her PhD in CSE from Amity University, Noida, and Masters in CSE from Thapar University, Patiala. She has also served in MM University, Mullana. She has several research papers in journals and international conferences. Her research interests include Network Coding, Distributed Storage Systems, AI/ML, Cyber Security.

Dr. Dharmendra Kumar is working as an Assistant Professor in the Department of Computer Science & Engineering, Sharda School of Computing Science & Engineering, Sharda University. His area of research include AI, ML, IoT, etc.

Mr. Himanshu Sharma is presently working as an Assistant Professor in the Department of Computer Science Engineering at Sharda University, Greater Noida, India. With over seven years of invaluable experience in computer science and engineering, He contributes an abundance of knowledge and expertise to the academic and research community. He has a Bachelor of Technology (B.Tech) degree from Uttarakhand Technical University and has done Master of Technology (M.Tech) from GBPUAT Pantnagar, Uttarakhand. His pursuit of Doctor of Philosophy (Ph.D.) degree from the prestigious National Institute of Technology, Patna, demonstrates his dedication to lifelong learning and professional advancement.

Mr. Nikhil Ranjan is an Assistant professor at CSE, SSCSE, Sharda University, MTech. Cyber Forensics, SOIT, RGPV Bhopal, PhD(Pursuing) Malware Analysis , Manipal University Jaipur. He has worked as Assistant Professor and cyber security & forensics trainer (Poornima University, Rajasthan, Jaipur) . Professionally I have 5 years experience as cyber security trainer, course developer, Subject matter expert in academic field. I am a highly motivated and passionate professional with diverse technical experience.

Mr. Kanderp Narayan Mishra is an Assistant Professor in the CSE (IoT) department, currently pursuing his PhD at Jaypee University of Engineering and Technology (JUET), Guna, and holds an MTech, with connections to Sharda University through student project documentation, though his primary roles appear linked to NIET and Galgotias University for publications and faculty roles. He's involved in research, focusing on areas like Computational Intelligence within engineering education in the Greater Noida region.

Ms. Teena Verma is working as an Assistant Professor in the Department of Computer Science & Engineering, Sharda School of Computing Science & Engineering, Sharda University. His area of research include AI, ML, IoT, etc.

COURSE SCHEDULE

Week	Topic	Duration (Hrs)
1	Cyber Security, Security Threats and Vulnerabilities	2
2	Basics of Cryptography / Encryption	2
3	Security Management Practices, Access Control and Intrusion Detection	2
4	IOT & Cloud Computing, Applications, IOT Architecture, Hardware, Sensors and IOT Applications	2
5	Definition of Cloud, Delivery Models, Deployment Models, applications of cloud	2
6	Case study: Home Automation, AWS	2
7	Definition of Artificial Intelligence, Machine Learning, Neural Network and Deep Learning	2
8	Relationship between AI, ML, DL, AI in emerging technologies	2
9	Data Science and Blockchain, Bigdata Definition	2
10	Issues and challenges, Tools and Technologies to implement bigdata (Hadoop) and bigdata analytics	2
11	Bigdata analytics applications Definition and classification of data science techniques	2
12	Definition of Blockchain, working mechanism of blockchain, application of blockchain	2
13	Meta Verse, Augmented Reality and Virtual Reality	2
14	Difference between AR, VR, MR application of AR, VR, MR	2
15	Case Study: Technology used for metaverse creation.	2
Total		30 hrs.

School: Sharda School of Computing Science & Engineering, (Department of Computer Science & Engineering)
Program: B. Tech CSE **Semester:** VI
Batch: 2023-27 **Current Academic Year:** 2025-26

1. Course Code	NV62003	
2. Course Title	Introduction to Disruptive Technologies	
3. Credits	0	
4. Contact Hours (L-T-P)	30 Hours	
Course Type	Value added course	
5. Course Objective	• To understand basics of cyber security, IoT, blockchain, bigdata, AR/VR • To apply the knowledge of sensors and designing automated systems. • To understand extensive forms of cyber threats and their solutions • To understand applications of emerging technologies	
6. Course Outcomes	The students will be able to: **CO1**: Understand security threats, attack methodology and combat hackers from intrusion to a computer and its resources **CO2**: Understand the characteristics of IOT technologies and develop a small application using cloud and Raspberry pie. **CO3**: Develop a simple intelligent system using available tools and techniques of AI to analyze and interpret domain knowledge. **CO4**: Implement bigdata, perform data analytics and securing with blockchain. **CO5**: Understand the concept of metaverse and application in real-life. **CO6**: Understanding security solutions in shared resources.	
7. Course Description	The value added course on Introduction to Disruptive Technologies will train the students to understand basics of cyber security, IoT, blockchain, bigdata, AR/VR and apply the knowledge of sensors and designing automated systems and applications.	
8. Outline syllabus		CO Mapping
Unit 1	**Cyber Security**	
A	Security Threats and Vulnerabilities	CO1
B	Basics of Cryptography / Encryption	CO1
C	Security Management Practices, Access Control and Intrusion Detection	CO1
Unit 2	**IOT & Cloud Computing**	
A	IOT Definitions, IOT Architecture, Hardware, Sensors and IOT Applications	CO2
B	Definition of Cloud, Delivery Models, Deployment Models, applications of cloud	CO2
C	Case study: Home Automation, AWS	CO2
Unit 3	**Artificial Intelligence**	
A	Definition of Artificial Intelligence, Machine Learning, Neural Network and Deep Learning	CO3
B	Relationship between AI, ML, DL	CO3
C	AI in emerging technologies	CO2, CO3, CO4
Unit 4	**Data Science and Blockchain**	
A	Bigdata Definition, Issues and challenges, Tools and Technologies to implement bigdata (Hadoop) and bigdata analytics	CO4
B	Bigdata analytics applications Definition and classification of data science techniques	CO4
C	Definition of Blockchain, working mechanism of blockchain, application of blockchain	CO4, CO6
Unit 5	**Meta Verse**	
A	Augmented Reality and Virtual Reality	CO5
B	Difference between AR, VR, MR application of AR, VR, MR	CO5
C	Case Study: Technology used for metaverse creation.	CO5, CO6
Mode of examination	Jury/Practical/Viva	

Reference Book

1. Bali, V., Bhatnagar, V., Sinha, S., & Johri, P. (Eds.). (2024). *Disruptive technologies for society 5.0: Exploration of new ideas, techniques, and tools*. CRC Press.