SHARDA UNIVERSITY
Beyond Boundaries

NAAC A+ ACCREDITED

SHARDA SCHOOL OF COMPUTING SCIENCE & ENGINEERING

tableau

Power BI

COURSE

Foundation of Data Visualization with Tableau & Power BI

(NV61001)

VALUE ADDED
COURSE BROCHURE-30 HRS
2025-26

ABOUT THE UNIVERSITY

Sharda University envisions to serve the 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 **NAAC A+** University with Overall **NIRF Rank of 86**. 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 impact significantly on student learning and therefore teachers must 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 having experience of 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 provides students with an inclination for complex problem solving, design, innovation, and a passion for learning.

ABOUT DEPARTMENT

The Department of Computer Science and Applications 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 grails 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 prepares entrepreneurs and professionals to lead the social, economic, and technical development of society. The department enjoys the full patronage of the Chancellor, Vice-Chancellor, Pro-Vice-Chancellor, and the Dean of the School of Engineering (SSCSE) where it is housed presently. The Value added Education Courses aim to provide additional learner centric graded skill oriented training, with the primary objective of improving the employability skills of students.

VALUE ADDED COURSE (VAC)

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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 PERSON

Khushwant Virdi is an Assistant Professor in the Department of Computer Science & Applications at Sharda University with nearly nine years of teaching experience in Computer Science & Engineering. She holds an M.Tech from Guru Nanak Dev University, Amritsar, and a B.Tech from Punjab Technical University, Jalandhar. Her research focuses on IoT, cloud computing, and privacy, with several publications in reputed journals and conferences.

Himani Tyagi is an Assistant Professor in Computer Science & Applications with five years of academic and industrial experience in teaching and research. She holds an M.Tech (CS) from IIT Kharagpur. A GATE-2012 (AIR-139) and CSIR NET qualifier, her research interests include machine learning, cloud computing, and data science.

COURSE SCHEDULE

Week	Topic	Duration Hrs.
1	Importance of data visualization and real-world use cases	2
2	Principles of effective visual design	2
3	Data types, chart types, and storytelling basics	2
4	Tableau interface, connecting to data, working with dimensions & measures	2
5	Building basic and advanced visualizations (bar, line, pie, maps)	2
6	Dashboards, filters, calculated fields.	2
7	Introduction to Power BI Desktop, importing and transforming data using Power Query	2
8	Creating reports with visuals, slicers, and drill-down features.	2
9	Data modeling and simple DAX functions	2
10	Tableau vs Power BI: features, pros & cons, industry adoption.	2
11	Use cases from business, healthcare, education, and government	2
12	Performance optimization and storytelling with dashboards	2
13	Project planning, data sourcing (Kaggle, government datasets)	2
14	Dashboard creation using Tableau/Power BI	2
15	Final presentation and evaluation	2
Total		**30 h**

School: Sharda School of Computing Science & Engineering, (Department of Computer Science & Applications)

Program: BCA/BCA(AIML/CCIoT) B.Sc. (CS/IT/AIML/CCIoT) **Semester:** III

Batch: 2024-27 **Current Academic Year:** 2025-26

1. Course Code	NV61001
2. Course Title	**Foundation of Data Visualization with Tableau and Power BI**
3. Credits	0
4. Contact Hours (L-T-P)	30 Hours
Course Type	Value added course
5. Course Objective	The objective of this course is to provide students with foundational and practical knowledge in data visualization using leading BI tools—Tableau and Microsoft Power BI. The course aims to enhance analytical thinking, data interpretation, and dashboard-building skills for academic and real-world applications.
6. Course Outcomes	After the completion of this course, students will be able to: **CO1:** Demonstrate the concepts, importance, and principles of effective data visualization. **CO2:** Acquire proficiency in using Tableau for data connection, chart creation, and dashboard development. **CO3:** Gain hands-on experience with Power BI, including data transformation, visualization, and interactivity. **CO4:** Analyze and compare the strengths and use cases of Tableau and Power BI in various industries. **CO5:** Develop the ability to build interactive dashboards using real-world datasets. **CO6:** Apply data visualization techniques to communicate data-driven stories effectively.
7. Course Description	This course introduces students to the fundamentals of data visualization and equips them with hands-on skills in using two leading BI tools—Tableau and Power BI. Students will learn how to prepare, analyze, and present data visually to uncover insights and support decision-making. The course also covers dashboard development, tool comparison, and real-world applications through project-based learning.

8. Outline syllabus		CO Mapping
Unit 1	**Introduction to Data Visualization**	
A	Importance of data visualization and real-world use cases	CO1
B	Principles of effective visual design	CO1
C	Data types, chart types, and storytelling basics	CO1
Unit 2	**Tableau - Fundamentals and Visual Analytics**	
A	Tableau interface, connecting to data, working with dimensions & measures	CO2
B	Building basic and advanced visualizations (bar, line, pie, maps)	CO2
C	Dashboards, filters, calculated fields.	CO2
Unit 3	**Power BI - Core Tools and Visual Development**	
A	Introduction to Power BI Desktop, importing and transforming data using Power Query	CO3
B	Creating reports with visuals, slicers, and drill-down features.	CO3
C	Data modeling and simple DAX functions	CO3
Unit 4	**Comparative Analysis and Use Cases**	
A	Tableau vs Power BI: features, pros & cons, industry adoption.	CO4
B	Use cases from business, healthcare, education, and government	CO4
C	Performance optimization and storytelling with dashboards	CO4
Unit 5	**Capstone Project and Real-World Dataset Application**	
A	Project planning, data sourcing (Kaggle, government datasets)	CO5
B	Dashboard creation using Tableau/Power BI	CO5
C	Final presentation and evaluation	CO5

Mode of examination	Theory/Practical	**Weightage Distribution**	CA 100%
Text book/s*	• Tableau Your Data! – Daniel G. Murray • Power BI Cookbook – Brett Powell	**Other References**	Storytelling with Data – Cole Nussbaumer Knaflic Official documentation: Tableau (tableau.com/learn), Power BI (learn.microsoft.com)