TRIBHUVAN COLLEGE
Neemrana

Guru Gobind Singh Indraprastha University

Tribhuvan College, Neemrana, Rajasthan

B.Tech (Artificial Intelligence and Data Science)
Syllabus

Sr. No.	Heading	Particulars
1	Title of the course	B.Tech (Artificial Intelligence and Data Science)
2	Eligibility for admission	As per the GGSIP University Norms
3	Passing percentage	55% in PCM
4	Semesters	I to VIII
5	Level	UG
6	Pattern	04 years & 08 semesters (CBCS)
7	To be implemented from	From Academic year 2026–27 in a progressive manner

B.Tech (Artificial Intelligence & Data science)

Course Introduction:

Artificial Intelligence and Data Science are the twin pillars of the future. This future is driven by innovation, efficiency, decision making based on immense use of realistic data, transforming industries from regular usual approach to intelligence driven thereby redefining the work and output patterns. Our current world is filled with data all around which if correctly analysed with finesses, can lead to invariable possibilities. Extracting meaningful insights from any data is a real art which needs the user's expertise, knowledge, experience and learning. This is deliberately enhanced when parallel intelligence collaborates enhancing the manual skills in leaps and bounds. This is where artificial intelligence comes into play. AI detects the finer details and minute details that often skips the human observation. Thus patterns and possibilities of the future can never be missed if Data Science is augmented with Artificial Intelligence.

On one hand Data Science focuses on collecting, cleaning, analyzing, and visualizing data thus providing the foundation for understanding complex information. On the other hand, Artificial Intelligence uses these insights to build intelligent systems that can learn, reason, and make decisions. The current course is based on same ideology and deals with AI and DS in a similar approach.

Course Overview:

B.Tech in Artificial Intelligence and Data Science (AI-DS) is a four-year undergraduate program that is designed to equip students with the knowledge and skills required to build intelligent systems that learn, adapt, and improve from experience. Data Science and AI drive innovations across various sectors, from healthcare to finance. Data Science offers the necessary tools and analytical capabilities, while AI enhances these efforts with predictive analytics and automation. This program blends core computer science fundamentals with advanced knowledge and hands-on experience in AI and DS techniques, preparing graduates to lead innovation in the digital era.

Key Highlights:

Duration: 4 Years (8 Semesters)

1. AI & DS Focused Subjects:
    a. Foundations of Artificial Intelligence
    b. Data structures, Algorithms
    c. Database Management
    d. Mathematics and Statistics (calculus, probability)
    e. Big Data Analytics
    f. Machine Learning & Deep Learning
    g. Natural Language Processing
    h. Data Visualization

i. Computer Vision
j. Reinforcement Learning
k. Internet ofThings
l. Neural Networks and Fuzzy Logic

2. Tools & Technologies: Python, TensorFlow, PyTorch, OpenCV, Keras, Tableau, Jupyter, Numpy, Matplotlib, Seaborn, R, Scikit-Learn, SQL, Git
3. Capstone Projects & Industry Internships

Career Opportunities:

Graduates of this program are well-positioned for roles such as:

1. Data Scientist
2. Machine Learning Engineer
3. Data Engineer
4. Data Analyst
5. AI Research Scientist
6. Robotics Engineer
7. Computer Vision Engineer
8. NLP Engineer
9. AI Product Manager
10. Business Intelligence Developer

Why Choose This Program?

1. Industry-Aligned Curriculum: Co-designed with input from leading AI experts and tech companies.
2. Experienced Faculty: A mix of academic scholars and industry practitioners.
3. Project-Based Learning: Real-world projects and challenges throughout the course.
4. Research Opportunities: Access to AI/ML research labs and innovation centres.
5. Placement Support: Strong placement cell with partnerships with top tech companies

Course Structure

We offer a diverse range of courses in computer science and engineering across eight semesters. The descriptions of the courses for the semesters are provided:

Group	Paper Code	Paper
		*Any one of the following:
ES	ES-102	Programming in 'C'
BS	BS-104/BS-120#	Applied Chemistry / Basic Chemistry#
BS	BS-106	Applied Physics – II
		*Any one of the following:
ES	ES-108	Electrical Science
BS	BS-110	Environmental Studies
BS	BS-112	Applied Mathematics – II
HS	HS-114	**Group 1 or Group 2 shall be offered: Group 1: Communications Skills
		OR
		Group 2:
HS HS	HS-116 HS-118	Indian Constitution*** Human Values and Ethics***
ES	ES-114	Engineering Mechanics
BS	BS-152	Physics-II Lab
		*Any of the following corresponding to the theory
		paper offered:
ES	ES-154	Programming in 'C' Lab
BS	BS-156	Applied Chemistry
ES	ES-158	Engineering Graphics-II

		*Any of the following corresponding to the theory paper offered:
ES	ES-160	Electrical Science Lab
BS	BS-162	Environmental Studies Lab
ES	ES-164	Workshop Practice