Engineering and Technology (4 Years)

Bachelor of Technology in Artificial Intelligence and Data Science

---

Objectives:

The **Bachelor of Technology (B.Tech) in Artificial Intelligence and Data Science** at **Guru Ghasidas Vishwavidyalaya**, a Central University of national importance, is a visionary program designed to prepare students for the AI-driven future. This interdisciplinary course aims to impart advanced knowledge in Artificial Intelligence (AI), Machine Learning (ML), Data Science, and related computational technologies that are reshaping global industries.

This future-centric program is tailored to equip students with strong foundations in programming, mathematics, statistics, and modern AI frameworks. Students will learn to harness data-driven solutions to real-world problems in areas such as healthcare, finance, manufacturing, transportation, and smart cities. The program emphasizes experiential learning through projects, labs, and internships aligned with NEP 2020 and AICTE guidelines.

Learning Outcomes:

- **LO-1:** Gain proficiency in AI, ML, and Data Science technologies to become industry-ready professionals and researchers.

- **LO-2:** Develop the capability to design intelligent systems that analyze large datasets to make informed decisions in dynamic environments.

- **LO-3:** Build innovative AI-powered applications that cater to the domains of healthcare, agriculture, e-governance, and smart infrastructure.

- **LO-4:** Acquire hands-on expertise in tools and technologies such as Python, R, TensorFlow, Keras, Hadoop, and Spark.

- **LO-5:** Demonstrate ethical reasoning and critical thinking to develop responsible AI solutions with societal impact.

Skill-Based Objectives:

- **SBO 1:** Communicate complex AI and data-driven ideas effectively in both technical and non-technical formats.

- **SBO 2:** Collaborate effectively in interdisciplinary teams, contributing to sustainable digital solutions.

- **SBO 3:** Engage in life-long learning, adapting to evolving technologies and research advancements in AI and data science.

- **SBO 4:** Apply AI and data science skills in real-world contexts through internships, hackathons, and capstone projects.

- **SBO 5:** Demonstrate problem-solving capabilities using algorithms, models, and visualization tools to address practical challenges.

- **SBO 6:** Exhibit leadership and entrepreneurial acumen in creating AI-based startups and technology ventures.

Program Objectives:

1. To provide students with in-depth understanding of Artificial Intelligence, Machine Learning, and Data Science fundamentals and applications.

2. To develop analytical and problem-solving skills using modern AI algorithms and data analytics techniques.

3. To impart practical experience in AI model development, data handling, and cloud-based deployment platforms.

4. To nurture research and innovation skills to contribute to academic and industry-based advancements in AI.

5. To prepare students for professional roles in AI engineering, data science, software development, and AI-based business analytics.

Program Structure:

The **B.Tech in Artificial Intelligence and Data Science** is a four-year undergraduate degree consisting of eight semesters. The curriculum includes core and elective subjects, project-based learning, and internships to provide comprehensive exposure to theory and practice.

Key Subjects:

1. Introduction to AI and Data Science

2. Programming in Python, Java, R

3. Mathematics for Data Science

4. Probability and Statistics

5. Data Structures and Algorithms

6. Machine Learning

7. Deep Learning

8. Big Data Analytics

9. Computer Vision and NLP

10. Data Mining and Warehousing

11. Cloud Computing and Edge AI

12. AI in Healthcare, Agriculture, and Smart Cities

13. Capstone Project

14. Industry Internship

Admission Requirements:

Candidates must have completed 10+2 (PCM stream) with a minimum of 50% aggregate marks. Admission will primarily be offered through **JoSAA counselling** based on **JEE Main rank**.

*In case of vacant seats after JoSAA rounds, admission may be offered through College Level Counselling as per university norms and eligibility.

Career Opportunities:

Graduates from the B.Tech AI & DS program will be positioned to pursue careers in cutting-edge industries and R&D sectors. Career roles include:

1. **AI Engineer:** Develop AI algorithms and models for intelligent systems across industries.

2. **Data Scientist:** Analyze structured and unstructured data to extract actionable insights.

3. **Machine Learning Engineer:** Design and implement scalable ML solutions for real-world applications.

4. **Business Intelligence Analyst:** Bridge business strategy with data science by building dashboards and analytical models.

5. **Computer Vision Specialist:** Work on visual intelligence projects like facial recognition and autonomous driving.

6. **Natural Language Processing Engineer:** Build AI models for speech recognition, text summarization, and chatbots.

7. **Big Data Engineer:** Design and manage large-scale data processing systems using platforms like Hadoop and Spark.

8. **AI Researcher:** Contribute to academic or industrial AI research in domains like ethics, fairness, and explainability.

9. **Software Developer (AI):** Build full-stack AI-driven applications and services for consumers and enterprises.

10. **AI Product Manager:** Lead the strategic development of AI-integrated products across domains.

Annual Fee Structure*

Year	Odd Semester Fee (INR)	Even Semester Fee (INR)	Annual Total (INR)
1st Year	₹54,550	₹54,550	₹1,09,100
2nd Year	₹53,625	₹53,625	₹1,07,250
3rd Year	₹53,625	₹53,625	₹1,07,250
4th Year	₹54,275#	₹54,275	₹1,08,550
Total Fee	-	-	₹4,32,150/-

- The first-semester fee includes a refundable caution money deposit.
  # Degree fee of ₹300/- is included in the 4th-year fee structure.
  # Alumni fee of ₹1,000/- is included in the 4th-year fee structure.

Semester-Wise Fee Structure*

S. No.	Fee Component	1st Sem (INR)	2nd Sem (INR)	3rd Sem (INR)	4th Sem (INR)	5th Sem (INR)	6th Sem (INR)	7th Sem (INR)	8th Sem (INR)
1	Tuition Fee	₹51,000	₹51,000	₹51,000	₹51,000	₹51,000	₹51,000	₹51,000	₹51,000
2	Admission Fee (One-Time, 1st Sem Only)	₹600	—	—	—	—	—	—	—
3	Enrolment Fee (One-Time, 1st Sem Only)	₹200	—	—	—	—	—	—	—
4	Lab/Department Fee	₹1,000	₹1,000	₹1,000	₹1,000	₹1,000	₹1,000	₹1,000	₹1,000
5	Library Fee (Yearly)	₹300	—	₹300	—	₹300	—	₹300	—
6	Sports Fee	₹500	₹500	₹500	₹500	₹500	₹500	₹500	₹500
7	Institute Caution Money (Refundable, 1st Sem Only)	₹1,000	—	—	—	—	—	—	—
8	Examination Fee	₹400	₹400	₹400	₹400	₹400	₹400	₹400	₹400
9	Student Welfare Fund (Yearly)	₹100	—	₹100	—	₹100	—	₹100	—
10	Medical Fee (Yearly)	₹100	—	₹100	—	₹100	—	₹100	—

Department of Information Technology

#	Fee								
11	Magazine Fee (Yearly)	₹100	—	₹100	—	₹100	—	₹100	—
12	Co-curricular/School Fest Fee (Yearly)	₹100	—	₹100	—	₹100	—	₹100	—
13	Identity Card Fee (1st Year Only)	₹50	—	—	—	—	—	—	—
14	Tech Fest Fee (Yearly)	₹500	—	₹500	—	₹500	—	₹500	—
15	Degree Fee (One-Time, 4th Year Only)	—	—	—	—	—	—	₹300	—
16	Yoga Fee (Yearly)	₹250	—	₹250	—	₹250	—	₹250	—
17	Alumni Fee (One-Time, 4th Year Only)	—	—	—	—	—	—	₹1,000	—

Total Payable Per Semester*

Semester	Amount (INR)
1st Semester	₹54,550 (including one-time fees)
2nd Semester	₹51,000
3rd Semester	₹53,625
4th Semester	₹51,000
5th Semester	₹53,625
6th Semester	₹51,000
7th Semester	₹54,275 (including degree & alumni fee)
8th Semester	₹51,000

Total Estimated Cost for Entire B.Tech. Program

Year	Annual Fee (INR)
1st Year	₹1,09,100
2nd Year	₹1,07,250
3rd Year	₹1,07,250
4th Year	₹1,08,550
Total Fee	₹4,32,150/-

*Or as per university norms