DAYANANDA SAGAR UNIVERSITY

7 DECADES LEGACY
IN EDUCATION & HEALTHCARE

A+ GRADE ACCREDITED BY NAAC

Master Data, Lead the Future of the Next Tech Revolution !

B.Sc. in DATA SCIENCE

School of Computer Applications

Index

DSU & its Rich Legacy of Excellence & Innovation

Dayananda Sagar Institutions founded in the 60's by a visionary, Late Sri. R. Dayananda Sagar (Barrister-at-Law) committed to take knowledge to the people, transforms today's students into responsible citizens and professional leaders of tomorrow. Dayananda Sagar University created by an Act of the Karnataka State in 2014, built on this adorable legacy and inspired by its own milestones, meeting the needs of quality higher education in this part of the world.

Dayananda Sagar University (DSU) is one of the top buoyant centers of transformative education, technological breakthroughs, & multidisciplinary research across engineering, law, management and media. Being a young, proactive, and leading university, DSU is breaking new ground and introducing some of the most advanced and innovative technologies in pedagogy with the goal of fostering the enduring skills and dispositions that the students will need for this new world.

University Accreditation and Rankings

TIMES ENGINEERING
TIMES ALL INDIA ENGINEERING INSTITUTES RANKING SURVEY 2023
NUMBER ONE
- Top Emerging Engineering Institutes
- Emerging Engineering Institutes - Placement
- Emerging Engineering Institutes - Research Capability

IIRF -2025
IIRF EDUCATION IMPACT AWARD
Promising Private University for Academic Excellence & Learning

ICARE RATINGS KSURF
Teaching Excellence ★★★★★
Research Excellence ★★★★★

- Emerging engineering institute
- Emerging engineering Institute Placement 2022
- Emerging Engineering Institute Research Capabilities

DSU has Rank No.1 By TIMES OF INDIA 2022

ET THE ECONOMIC TIMES 2023
Excellence in Academic Facilities & Learning Resources

IIRF -2024
NATIONAL RANK– 9
TOP PRIVATE UNIVERSITIES IN INDIA (OVERALL)
STATE RANK 3 SOUTH ZONE RANK 3

IIRF -2026
EDUCATION IMPACT AWARD
Excellence in Employability & Placement Performance

TIMES BUSINESS AWARDS
BEST EMERGING UNIVERSITY 2021

34th elets WORLD EDUCATION SUMMIT 2025 CHENNAI
01st November 2025
OUTSTANDING UNIVERSITY WITH BEST PLACEMENTS

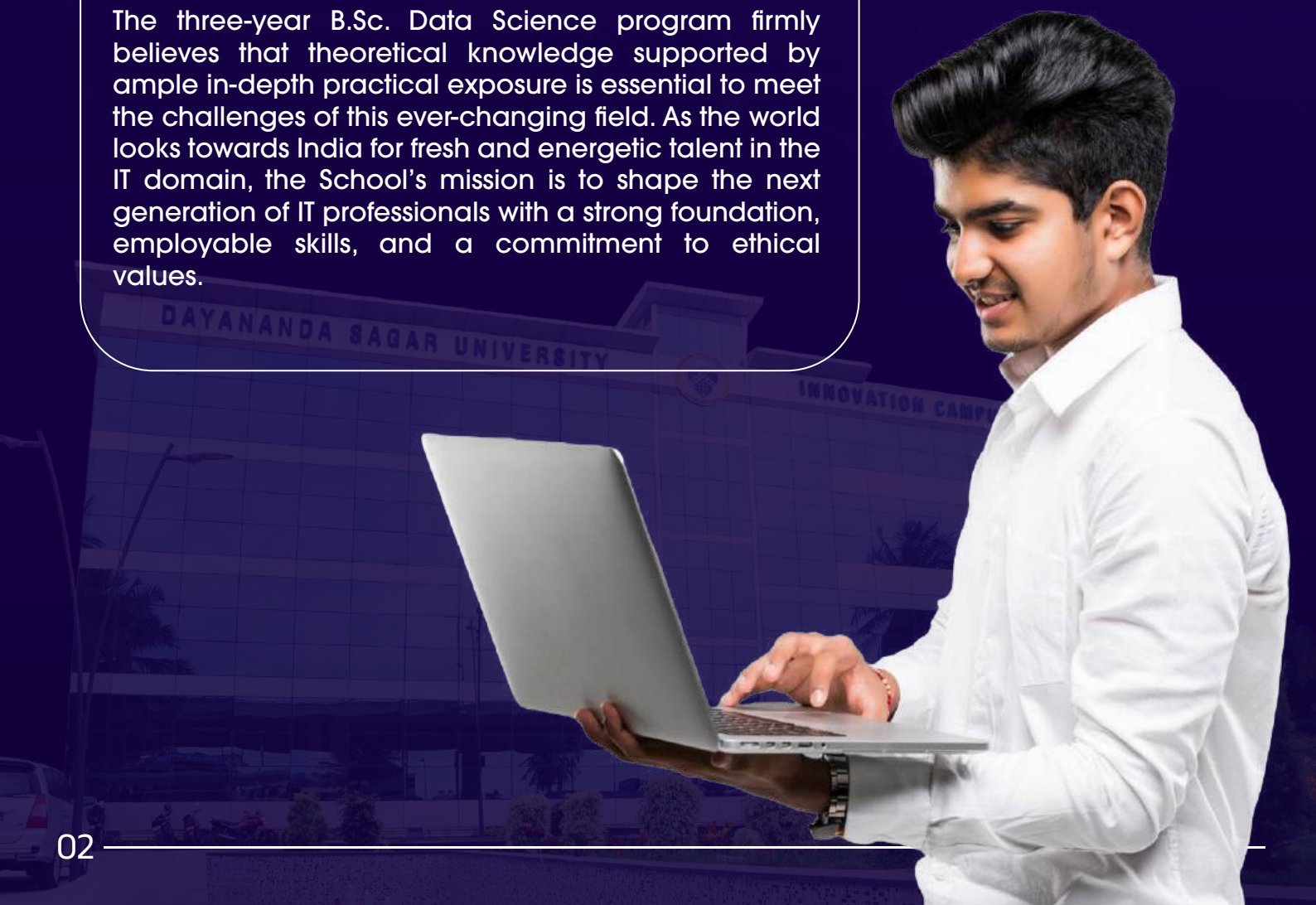
About the School

The School of Computer Applications offers a dynamic ecosystem for study, research, and professional growth for both faculty and students. It strives to groom its students into competent IT professionals, researchers, and entrepreneurs.

The School of Computer Applications was established with the 3-year BCA program, and further expanded with the 2-year MCA program, nurturing fresh talent in the field of Information Technology and equipping them with a plethora of skills to choose an area of interest at an early stage.

In line with emerging global trends and industry demand, the School has further diversified its offerings and has introduced Ph.D (Computer Science) program, B.Sc. (Data Science),B.Sc (Cybersecurity),M.Sc (Data Science) and M.Sc (Cybersecurity) programs, thereby strengthening its academic and research ecosystem.

The three-year B.Sc. Data Science program firmly believes that theoretical knowledge supported by ample in-depth practical exposure is essential to meet the challenges of this ever-changing field. As the world looks towards India for fresh and energetic talent in the IT domain, the School's mission is to shape the next generation of IT professionals with a strong foundation, employable skills, and a commitment to ethical values.



Highlights of the School of Computer Applications

Industry-Aligned Curriculum: Our courses are regularly updated to reflect industry trends, ensuring that students are prepared to meet current and future demands in the tech world.

Hands-On Learning: Through labs, projects, and internships, students gain practical experience that complements their academic knowledge.

Research and Innovation: The school actively encourages student and faculty involvement in research, fostering innovation and contributing to advancements in computer science and IT.

Global Perspectives: With a focus on sustainable technology, our programs are designed to equip students with a global outlook and the skills needed to make impactful contributions to society.

Ethics and Leadership: Beyond technical skills, we emphasize the importance of ethical practices and leadership, preparing students to navigate their careers with integrity and a sense of responsibility.

By focusing on quality education, skill development, and ethical grounding, the School of Computer Applications is committed to shaping the next generation of IT professionals and thought leaders who will drive technological innovation and societal progress.

VISION

To develop innovative and skilled computer professionals through cutting-edge research, education, and entrepreneurial initiatives, fostering leadership qualities to address the evolving challenges of emerging technologies and contribute to societal advancements nationally and globally.

MISSION

- To deliver cutting-edge education and research opportunities that drive innovation in computer science and applications.
- To maintain state-of-the-art facilities and attract internationally recognized faculty to support advanced learning and research.
- To continuously update our curriculum to reflect the dynamic landscape of emerging technologies and industry needs.
- To foster strong partnerships with industry and the community, enhancing practical experiences and entrepreneurial initiatives.
- To develop graduates who are not only skilled and innovative computer professionals but also ethical leaders, equipped to tackle global and national challenges and contribute to societal advancements.

Dean's Message

"The best way to predict the future is to create it."
– Peter Drucker

At the School of Computer Applications, Dayananda Sagar University, we believe in preparing students not just for today's opportunities but for tomorrow's challenges.

In a world where technology evolves every moment, our mission is to nurture learners who are curious, creative, and ready to lead change.

Our programs — BCA, B.Sc (Data Science), MCA, M.Sc (Data Science), and Ph.D (Computer Science) — are designed as a seamless pathway from foundational learning to advanced research. Students gain exposure to cutting-edge domains such as artificial intelligence, machine learning, data science, cybersecurity, cloud computing, mobile and web technologies, as well as emerging fields like generative AI, Internet of Things (IoT), quantum computing, and blockchain — all supported by a curriculum that blends strong theoretical foundations with hands-on practice.

Beyond classrooms and labs, we place strong emphasis on research, innovation, and industry collaboration. Students actively participate in projects, hackathons, and research groups, present at conferences, and publish their work. Our faculty bring expertise, mentorship, and a global perspective, ensuring that learning goes far beyond textbooks.

We are equally committed to holistic growth. From soft skills and leadership development to internships and placements, every student is guided to become not only an IT professional but also a responsible global citizen. Our alumni, now thriving in leading companies and entrepreneurial ventures, are living examples of what it means to learn, grow, and succeed at DSU.

I warmly welcome you to explore the opportunities at the School of Computer Applications. Together, let us create the future with knowledge, innovation, and purpose.

Dr. S. Senthil
Professor and Dean, School of Computer Applications
Dayananda Sagar University, Bengaluru

About the Programme

The B.Sc (Data Science) program is designed to nurture the next generation of data-driven professionals by equipping them with comprehensive knowledge and hands-on skills in data analysis, programming, statistical modeling, and visualization.

This interdisciplinary program blends mathematics, computer science, and domain-specific knowledge to solve real-world challenges by uncovering meaningful insights from complex datasets.

The curriculum is structured to provide a strong foundation in modern data science tools, algorithms, and techniques, while allowing students to specialize in three focused tracks—Artificial Intelligence & Machine Learning (designing intelligent systems and shaping the future of automation), Business Intelligence (transforming raw data into powerful insights for smarter decisions), and Cloud & Emerging Technologies (leveraging scalable platforms and next-gen tools to drive innovation).

With a strong emphasis on practical learning, students engage in projects, case studies, internships, and industry collaborations. They also benefit from exposure to international experts and globally recognized certifications through our academic and industry partnerships.

Program : B.Sc. in Data Science **Program Duration : 3 Years**

Get Trained in In-Demand Skills

PYTHON **TABLEAU** **POWER BI & SQL**

Tracks

- **Artificial Intelligence & Machine Learning**
- **Business Intelligence**
- **Cloud & Emerging Technologies**

Eligibility Criteria

Pass in PUC/10+2 examination with Mathematics / Statistics / Computer Science / Information Technology / Informatics Practices as compulsory subject along with other subjects and obtained minimum 50% marks (45% in case of candidate belonging to SC/ST category) in the above subjects taken together, of any Board / Council recognized by the respective State Government / Central Government / Union Territories or any other qualification recognized as equivalent thereto.

Programme Outcomes

- **To develop a strong foundation** in mathematical, statistical,and computational principles that underpin data science techniques.
- **To apply critical thinking and problem-solving skills** in analyzing large datasets and deriving meaningful insights using modern data science tools and methodologies.
- **To gain hands-on experience** through real-world projects, internships, and collaborations with industry, enabling practical application of data science concepts.
- **To promote ethical awareness and social responsibility** in the collection, analysis, and use of data, ensuring adherence to data privacy, security, and ethical standards.

Program Unique Features

- The curriculum is dynamic and future-ready, aligned to the latest industry trends and enriched with technical, industry, and global certifications offered every semester to strengthen professional readiness.
- Courses are delivered by industry leaders and international experts, giving students practical exposure, advanced skills, and global perspectives in data science.
- Industrial immersion programs, live projects, internships, and company visits help students connect theory with practice and build real-world competence.
- Learning is project-driven and interest-oriented, encouraging students to explore their passions, work with real-world datasets, and solve domain-specific problems.
- Modern computer labs, cloud-enabled environments, and digital classrooms equipped with advanced data science tools create interactive and personalized learning experiences.
- The program integrates technical knowledge with soft skills, leadership, and communication training, supported by personalized mentoring and a dedicated placement cell.
- Hackathons, collaborative projects, and research initiatives inspire innovation, teamwork, and problem-solving, preparing students for advanced challenges.
- Strong ties with leading tech organizations and a vibrant alumni network ensure mentorship, networking, and global career opportunities.

Exciting and Diverse Career Avenues in the Booming Data Science Field!

- Data Analyst
- Business Intelligence Analyst
- Data Engineer
- Machine Learning Engineer
- Data Consultant
- Statistical Analyst

Where Can Data Science Take You ?

Explore the Leading Industries Seeking Your Expertise!

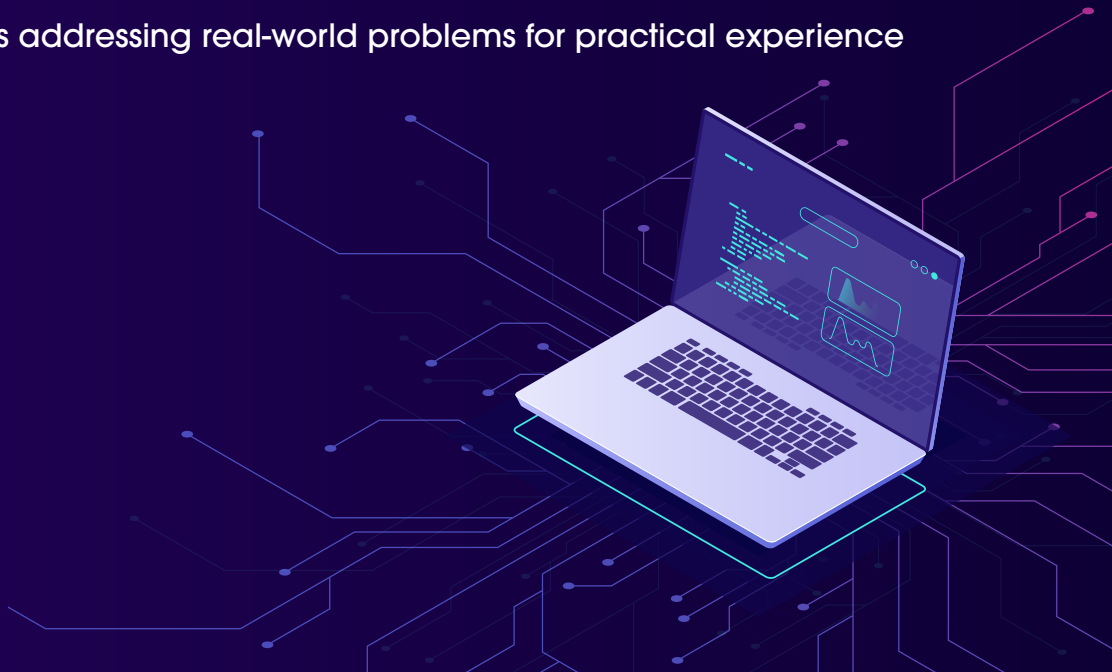
Information Technology (IT) and Software
Finance and Banking
Healthcare and Pharmaceuticals
Retail and E-commerce
Telecommunications
Manufacturing and Logistics
Media and Entertainment
Government and Public Sector

What Sets Our Innovative Program Apart?

- Dynamic curriculum that meets industry expectations.
- Specialized electives allow students to tailor their educational journey across three distinct tracks:

  Track 1: Artificial Intelligence and Machine Learning
  Track 2: Business Intelligence
  Track 3: Cloud and Emerging Technologies

- Expert course delivery by industry professionals for real-world insights.
- Industry immersion programs providing hands-on experiences.
- Global and industry-recognized certifications enhancing employability.
- Specialized workshops and hackathons on the latest technologies and methodologies.
- Innovative research opportunities encouraging engagement in cutting-edge projects.
- Dedicated career support services enhancing placement prospects.
- Collaborative learning environment fostering community through group projects.
- Industry partnerships leveraging collaborations with leading tech companies.
- Holistic student development emphasizing overall growth through soft skills training.
- Capstone projects addressing real-world problems for practical experience



Curriculum

Semester I

- Programming in C and Data Structures
- Computer Organisation and Architecture
- Mathematical foundations for Data Science – I
- Web Technologies
- Communication Skills and Technical Writing
- Data Structures lab
- Web Technologies Lab

Mandatory Courses

- Technical Certification (Programming fundamentals and DS)
- Soft Skills

SEMESTER – II

- Relational Database Management Systems
- Mathematical foundations for Data Science – II
- Operating systems using Linux
- Python for Data Science
- Computer Networks
- Python Lab
- RDBMS lab

Mandatory Courses

- Technical Certification (Python Certification)
- Soft Skills

Semester III

- Foundations of Data Science with Data visualization
- Machine Learning
- Cloud Computing and Big Data
- Artificial Intelligence
- **Elective 1**
  - Natural Language Processing (Track – I)
  - Business Intelligence (Track – II)
  - Distributed Systems (Track – III)
- Machine Learning lab
- Data Visualization lab

Mandatory Courses

- Technical Certification (Machine Learning)
- Soft Skills

SEMESTER – IV

- Big Data Technologies
- Security for Data Science
- Data Engineering for AI and Cloud Applications
- **Elective 2**
  - Deep Learning (Track – I)
  - Predictive Analytics (Track – II)
  - Data Warehousing and NoSQL (Track – III)
- **Elective 3**
  - Computer Vision (Track – I)
  - Social Media Analytics (Track – II)
  - Real Time Data Processing (Track – III)
- Big Data Technologies lab
- Security for Data Science lab

Mandatory Courses

- Technical Certification (Cyber Security)
- Soft Skills

Semester V

- Software Engineering
- Advanced Data Analytics
- Applied Data Science
- **Elective 4**
  - Reinforcement learning (Track – I)
  - Supply chain Analytics (Track – II)
  - Advanced Data storage solutions (Track – III)
- **Elective 5**
  - Gen AI with LLM (Track – I)
  - IoT Data Management and Analytics (Track – II)
  - Blockchain for Cloud and Data management (Track – III)
- Open Elective
- Data Science Capstone project

Mandatory Courses

- Technical Certification (Advanced Analytics)
- Soft Skills

SEMESTER – VI

- **Elective 6**
  - AI Deployment strategies (Track – I)
  - Data Driven Decision making (Track – II)
  - Quantum computing (Track – III)
- Internship / Global Certification
  (Data Science Certification)
- Major Project

Project/Thesis Components

Foundational Project
Begin with small-scale projects in the early semesters to build technical fundamentals, problem-solving skills, and hands-on exposure to emerging technologies aligned with students' interests.

Pre-Industry Readiness Project
Simulate real-world industry scenarios to prepare students for professional environments by applying classroom knowledge to practical challenges, enhancing teamwork and project management skills.

Minor Project
Solve targeted, real-world problems within chosen specializations, experimenting with tools, technologies, and frameworks to develop analytical, coding, and technical skills.

Capstone / Major Project
Engage in real-world projects that solve industry problems, such as developing an AI-based recommendation system, creating a secure cloud infrastructure, or building a cross-platform mobile application.
Mentored by faculty and industry experts, these projects integrate multiple technologies and often culminate in competitions or hackathons to showcase innovation and professional competence.

Internships & Certifications
Each project phase is complemented by industry internships and technical/global certifications, ensuring students gain practical exposure and credentials recognized worldwide.

Program Industry Insights (Market Demand)

- **Artificial Intelligence & Machine Learning**
  AI and ML are revolutionizing industries from healthcare to finance. The global AI market is expected to reach USD 1 trillion by 2030, creating huge demand for AI/ML engineers, data scientists, and research specialists.

- **Business Intelligence**
  Organizations increasingly rely on data for decision-making. The global BI market is projected to grow to USD 33.3 billion by 2028, driving demand for skilled BI analysts and data visualization experts across sectors.

- **Cloud & Emerging Technologies**
  Cloud adoption is accelerating worldwide, with the global cloud computing marketset to exceed USD 1.6 trillion by 2030. Professionals in cloud platforms, DevOps,

Emerging Job Opportunities / Careers for B.Sc (Data Science) Graduates

Program-Wise Careers

- Data Scientist
- Data Analyst
- Machine Learning Engineer
- Business Analyst
- Data Engineer
- Cloud Specialist
- BI Developer
- AI Researcher
- Research Associate

Track-Wise Careers

Artificial Intelligence & Machine Learning

- AI/ML Engineer
- Deep Learning Specialist
- NLP Engineer
- Computer Vision Engineer
- Predictive Analytics Expert
- AI Researcher

Business Intelligence

- Business Intelligence Analyst
- Data Visualization Expert
- Reporting Analyst
- Analytics Consultant
- Decision Support Specialist

Cloud & Emerging Technologies

- Cloud Engineer
- Solution Architect
- DevOps Engineer
- Data Platform Specialist
- IoT Developer
- Edge Computing Specialist

Internships

The B.Sc (Data Science) program emphasizes hands-on learning, real-world projects, and industry immersion, preparing students for the rapidly evolving data and analytics landscape. Students engage in foundational, pre-industry readiness, minor, and major projects, applying classroom knowledge to real datasets and developing strong analytical, technical, and problem-solving skills. Structured internships of 3–6 months provide exposure to professional workflows in top tech firms, startups, and global organizations, with stipends ranging from ₹10,000 to₹30,000 per month, depending on project scope and complexity.

Students work on industry-relevant projects across areas such as Artificial Intelligence Machine Learning, Business Intelligence, Cloud & Emerging Technologies, and Big Data Analytics, often mentored by industry experts. Each project phase integrates technical and industry certifications, ensuring graduates emerge as industry-ready professionals. Interest-driven learning, hackathons, and research initiatives allow students to explore emerging technologies, showcase innovation, and build a strong professional portfolio, positioning them for impactful careers in the data-driven world.

Placements

Pre-Placement Training

The B.Sc (Data Science) program integrates pre-placement training into the curriculum, ensuring students are fully prepared for recruitment and career opportunities in analytics, AI, cloud computing, and related domains.

Training sessions cover quantitative reasoning, logical and analytical thinking, data interpretation, and domain-specific problem-solving, along with essential soft skills such as communication, teamwork, and leadership.

These sessions are conducted by industry-trained professionals who provide expert guidance, real-world insights, and personalized mentorship. By combining technical knowledge, analytical abilities, and professional soft skills, students develop the confidence and competence to excel in competitive placement processes and secure top-tier roles across analytics, AI/ML, business intelligence, cloud technologies, and emerging tech sectors.

Global Exposure

International Collaborations
Partnerships with reputed universities and institutions worldwide

Study Abroad Programs
Exchange programs, summer schools, and dual-degree opportunities.

International Collaborations & Industry Partnerships

Our institution actively fosters global collaborations by partnering with reputed universities and institutions worldwide, creating avenues for knowledge exchange, research, and academic excellence.

In addition, we have established strong industry tie-ups with leading platforms and organizations such as Infosys Springboard, IBM SkillsBuild, AWS Academy, EC-Council, and ISC2, among many others. These partnerships provide our students with industry immersion opportunities, hands-on exposure, and globally recognized certifications, ensuring they are future-ready and aligned with the evolving demands of the digital world.

Further, we regularly invite international experts from prestigious institutions to handle select courses, ensuring our students benefit from global perspectives and advanced learning experiences.

Computer Labs & Innovation Spaces
Our state-of-the-art computer labs feature high-performance systems and the latest software, providing students with a hands-on environment to explore technologies, develop projects, and innovate solutions. These labs support collaborative learning and special interest groups, where students work together on real-world projects across AI, Cybersecurity, Cloud Computing, and Application Development.

Special Interest Groups & Collaborative Projects
Students can join special interest groups to pursue their passions, work on team-based projects, and engage in knowledge-sharing and peer learning. These initiatives foster creativity, problem-solving, and innovation, helping students build strong portfolios and industry-relevant skills.

Smart Classrooms & Lecture Halls
Our classrooms and lecture halls are equipped with LED projectors and high-speed Wi-Fi, providing a modern and technology-enhanced learning environment. Students enjoy immersive lectures, live demonstrations, and access to digital learning resources for enhanced understanding and engagement.

Sports & Wellness Facilities
We encourage holistic development with a variety of indoor and outdoor sports facilities, fitness activities, and wellness programs. These promote teamwork, leadership, and a healthy lifestyle alongside academic growth.

Library & Digital Resources
The school boasts a well-stocked library with textbooks, reference books, and journals across all specializations. Students also access digital resources, e-books, and online databases, supporting learning, research, and project development.

Campus Connectivity
With high-speed Wi-Fi across campus, students enjoy seamless access to online learning platforms, cloud tools, and collaborative resources, enhancing their academic and project-based learning experience.

Campus Life & Student Engagement

Department Clubs & Societies
Main Activities Involved enhancing employability.

Events & Fests
Department-specific cultural, academic, and technical events.

The School of Computer Applications encourages students to learn, innovate, and lead through a vibrant ecosystem of clubs and societies.

- **Technical Clubs**
  Our IoT Club, Cosing Club, and Cybersecurity Club provide hands-on experiences in emerging technologies. Students participate in bootcamps, hackathons, Capture The Flag (CTF) challenges, and workshops, enhancing their technical skills, problem-solving abilities, and industry readiness.

- **Non-Technical & Cultural Clubs**
  Students explore their creative, artistic, and leadership potential through cultural activities, debates, quizzes, literary events, and celebration of national and auspicious days. These clubs help develop soft skills, teamwork, and confidence, essential for personal and professional growth.

By participating in both technical and non-technical clubs, students enjoy a balanced learning experience, build strong portfolios, and become well-rounded professionals ready for global opportunities.

About Government grants

Our School has been awarded a grant of Rs.1 lakh to conduct an AICTE-ATAL Sponsored FDP on “Technology for Sustainable Development: Innovations in Health, Agriculture, and Urban Infrastructure”, featuring 15 expert-led sessions by distinguished academicians and industry leaders.

Why studying B.Sc. (Data Science) in Bangalore sets you up for success?

Bangalore, India's Silicon Valley, is the ideal launchpad for a career in data science. According to a report by NASSCOM, demand for data scientists in India is expected to reach 1.5 million by 2025, with Bangalore as one of the top cities driving this growth. The city provides a rich environment filled with opportunities for growth and innovation, making it perfect for aspiring data science professionals.

Here's why studying B.Sc. (Data Science) in Bangalore sets you up for success:

- Demand for Data Science in Bangalore: In Bangalore, data is the heartbeat of a vibrant tech industry, offering a spectrum of roles from data analysis to AI and machine learning. This city not only fosters career development but also encourages the continuous evolution of skills, keeping professionals at the forefront of the global data science landscape .

- Thriving Data Center Hub: Bangalore is India's second-largest data center hub, with a total area of 3.8 million square feet and a capacity of 190 MW (as of 2023-24). It offers vast resources and connectivity, providing students with access to industry insights and advancements.

- Growing Data Ecosystem: Bangalore is projected to house about 2.5 million square feet of data center space by 2025 (as per industry report), further supporting the growth of the data science job market due to increased data generation and analysis needs.

- High Earning Potential: The estimated total pay for a data scientist in the Bangalore area is around INR17,00,000 per year, with an average annual salary of INR15,00,000 (as per Glassdoor Report)

- Rising Data Startups: Bangalore has seen the growth of over 150 data-centric startups in recent years, indicating a robust entrepreneurial ecosystem that creates job opportunities for data science graduates.

- Access to Industry Events and Conferences: Bangalore hosts numerous tech events, data science conferences, and workshops, giving students access to the latest trends, networking opportunities, and insights directly from industry leaders.

- Collaborative Learning Environment: In a tech hub, students collaborate with peers from diverse tech backgrounds, enriching their approach to data science challenges.

- Global Exposure: With numerous global tech giants in Bangalore, students gain access to internships, projects, and job opportunities with top global companies .

Admissions Helpline Nos:

080 4646 1800 **+91 6366885507** **Visit: www.dsu.edu.in**

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