NGF College of Engineering & Technology

Overview of the Department of Computer Science (DCS)

Welcome to the Department of Computer Science (DCS), where innovation meets education. Our department is dedicated to providing students with a comprehensive understanding of both the theoretical and practical aspects of computing and technology. DCS has programs that have a presence in every field of life and, in the last two decades, has shown immense potential and growth, benefiting individuals and industries alike. Today, we cannot imagine our lives without computers and computing technology.

The Department is headed by Prof. (Dr.) Kuldeep Tomar has been a pioneering force since the establishment of the college. Under his leadership, the department has developed in leaps and bounds, continuously adapting to the rapidly changing landscape of information technology. As we move forward into the new millennium, it is crucial to remain abreast of the latest developments in computer technology, and the department is focused on guiding students in the right direction to meet these challenges.

At DCS, students explore the fundamental principles of computer science, alongside advanced techniques that are essential for the development of practical systems. This includes studying core areas such as algorithms, data structures, programming, artificial intelligence, machine learning, software engineering, and more. As we venture deeper into the digital age, DCS continues to transform various sectors like healthcare, finance, entertainment, education, and more, proving its undeniable impact on modern life.

The department has been committed to ensuring that both its curriculum and its students are in line with the latest industry trends and demands. It has been a consistent endeavour of the department to adapt itself and its students to mirror the evolving requirements of the Information Technology environment, both in India and internationally. By focusing on cutting-edge technologies and industry best practices, we equip our students to become leaders in the field of computer science and engineering.

Our faculty consists of highly qualified and experienced professionals who bring a wealth of knowledge and research expertise into the classroom. With a focus on both foundational knowledge and cutting-edge advancements, our department ensures that students are well-equipped to tackle challenges and shape the future of technology.

We emphasize hands-on learning, providing students with numerous opportunities to engage in real-world projects, internships, and research activities. Our state-of-the-art laboratories and modern teaching methods prepare students for careers in a fast-paced and ever-evolving technological landscape.

The Department fosters a collaborative environment, encouraging students to work together, think critically, and apply their knowledge to solve complex problems. Our diverse and dynamic curriculum is designed to meet the demands of the global tech industry, as well as the growing need for expertise in research and innovation within computer science.

🎓 Programs Offered by Department of Computer Science

☑ Undergraduate Programs

1. **B.Tech in Computer Science and Engineering (CSE)**
   o This program provides a comprehensive understanding of computer science and engineering fundamentals, software development, algorithms, data structures, and modern technologies.
   o **Key Areas:** Programming languages (C, C++, Python), database management, operating systems, computer networks, artificial intelligence, Cyber Law and web development etc.

2. **B.Tech in CSE (Artificial Intelligence and Machine Learning (AI & ML))**
   o This specialized program focuses on the rapidly growing field of AI and ML, equipping students with skills in data modelling, deep learning, and intelligent systems.
   o **Key Areas:** AI & Expert Systems, IOT, Big Data Analysis, Data Structures, COA, Operating Systems, DBMS, CN, Neural networks, natural language processing, data science, predictive analytics, and automation etc.

3. **Bachelor of Computer Applications (BCA)**
   o The BCA program is designed to provide a strong foundation in computer applications and software development.
   o **Key Areas:** Programming languages (C, C++, Java, Python), database management, web development, DE, CN, LOC, Wireless communication and software engineering etc.

4. **BCA in Data Science**
    o This program focuses on data analysis, visualization, and interpretation, preparing students for the data-driven world.
    o **Key Areas:** Programming languages (C, C++, Java, Python, R programming), AI, database management, web development, DS, CN, CO, Wireless Communication, , machine learning, big data processing, and data visualization tools etc.

☑ **Postgraduate Program**

5. **M.Tech in Computer Science and Engineering (CSE)**
    o The M.Tech program offers advanced-level education in computer science, focusing on research, development, and innovation.
    o **Key Areas:** Advanced algorithms, distributed computing, Cloud computing, Cybersecurity, ML, IS, NLP, data analysis, Software Testing, Research Methodology, Advanced wireless & Mobile Networks etc.

Key Highlights of the Department

- **State-of-the-art labs** equipped with the latest hardware and software technologies.
- **Industry collaborations** with tech giants for internships, placements, and projects.
- **Research opportunities** in AI, data science, cloud computing, and cybersecurity.
- **Workshops, hackathons, and seminars** to foster practical skills and innovation.
- **Career support and guidance** through placement drives and training programs.

The **Department of Computer Science** is committed to empowering students with the knowledge and skills necessary to thrive in the ever-evolving tech industry. If you're passionate about developing software solutions, understanding the inner workings of computers, or pushing the boundaries of artificial intelligence, the Computer Science Department provides the foundation, resources, and opportunities for you to thrive.

Join us as We continue to shape the future of technology and play a pivotal role in every aspect of life.

B.C.A Data Science: Program Educational Objectives

PEO	Graduates will be able to:
PEO1	To create knowledge about core areas related to the field of computer science and information technology.
PEO2	To enable students to apply mathematics, science and computer engineering principles to model, design and implement software projects to meet customers' business objectives.
PEO3	To develop the ability to evaluate the computing systems from view point of quality, security, privacy, cost effectiveness, utility and ethics.
PEO4	To inculcate lifelong learning by introducing principles of group dynamics, public policies, environmental and societal context

B.C.A Data Science:Programme Specific outcome

PSO	Graduates will be able to:
PSO1	Familiarity and practical competence with a broad range of programming language and open-source platforms.
PSO2	Create and integrate knowledge base in the area of computer application and information technology, which in turn enables the betterment of society. ..
PSO3	Acquire globally competence through developing their problem solving skills and to instil ethical and social principles that in turn help them to become entrepreneurs and technocrats for society..

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Career Scope of BCA (BCA)

BCA Program at NGFCET: An Overview

The **Bachelor of Computer Applications (BCA)** program at **NGFCET (New Green Field College of Engineering and Technology)** under the **Department of Computer Science** is designed to meet the growing demand for **data-driven professionals**.

The course focuses on **programming, machine learning, data visualization, and cloud computing**, making graduates highly sought-after in the **IT, finance, e-commerce, healthcare, and consulting industries**.

💼 **2. Job Opportunities for BCA Graduates**

💡 **Top Job Roles for BCA Graduates**

- **Software Developer:** Designing, coding, and maintaining software applications.
- **Web Developer:** Creating and managing websites and web applications.
- **System Analyst:** Evaluating IT systems and proposing improvements for efficiency.
- **Database Administrator:** Managing and securing databases for efficient data storage.
- **Cybersecurity Analyst:** Protecting systems and networks from cyber threats.
- **Cloud Computing Specialist:** Managing cloud infrastructure and services (AWS, Azure, GCP).
- **IT Support Specialist:** Troubleshooting and maintaining IT infrastructure.
- **Network Administrator:** Setting up and managing network systems and security.
- **UI/UX Designer:** Designing user-friendly and visually appealing interfaces.
- **Mobile App Developer:** Building applications for Android and iOS platforms.

💰 **3. Average Salary Packages for BCA Graduates**

☑️ **In India IN**

The demand for **IT professionals** is steadily increasing, offering competitive salary packages across various roles.

- Entry-Level (0–2 years): ₹3 – ₹6 LPA

- Mid-Level (3–5 years): ₹7 – ₹15 LPA

- Experienced Professionals (5+ years): ₹15 – ₹30 LPA

✔ **High-Paying Specializations:**

- Software Development & Cloud Computing: ₹10 – ₹25 LPA

- Cybersecurity & Ethical Hacking: ₹12 – ₹28 LPA

- AI, Data Science & Machine Learning: ₹15 – ₹35 LPA

- Full Stack & Mobile App Development: ₹8 – ₹20 LPA

✅ In Delhi-NCR Region

Being located in **NCR** gives NGFCET students an advantage, as the region is home to **numerous MNCs, IT companies, and startups**, which offer better salaries and job opportunities.

- **Entry-Level (0–2 years):** ₹5 – ₹9 LPA

- **Mid-Level (3–5 years):** ₹12 – ₹20 LPA

- **Experienced Professionals (5+ years):** ₹25 – ₹40 LPA

✔ **Top NCR Companies Hiring BCA Graduates:**

- **IT and Tech:** TCS, Infosys, Wipro, HCL, and Tech Mahindra.

- **Fintech and E-commerce:** Paytm, Zomato, Flipkart, and Amazon India.

- **Consulting and MNCs:** Deloitte, KPMG, Accenture, and EY.

- **Startups:** Several data-driven startups in **Noida and Gurgaon** offer competitive salaries and equity options.

🌐 Opportunities Abroad

BCA-DS graduates with **strong technical skills, certifications and experience** are highly employable **worldwide**. Countries like the **USA, Canada, Germany, UK, and Australia** have a massive demand for **IT professionals**.

- **USA:** $70,000 – $130,000 per year (~₹58L – ₹1.0Cr)

- **Canada:** CAD 55,000 – 100,000 per year (~₹32L – ₹60L)

- **Germany:** €45,000 – €85,000 per year (~₹40L – ₹75L)

- **UK:** £38,000 – £85,000 per year (~₹38L – ₹85L)

- **Australia:** AUD 75,000 – 130,000 per year (~₹40L – ₹70L)

✔ **Top Global Companies Hiring Data Science Graduates:**

- **USA:** Google, Meta, Amazon, Microsoft, Tesla.

- **Canada:** Shopify, IBM, Amazon Canada.

- **Germany:** SAP, Siemens, Bosch, Deutsche Bank.

- **UK:** Barclays, Deloitte, HSBC, Accenture.

- **Australia:** Atlassian, Canva, Telstra, Commonwealth Bank.

🚀 4. Career Advancement through Certifications

To **enhance employability**, BCA students at NGFCET should pursue **industry-relevant certifications**:

- **Cloud and Big Data:**
    - AWS Certified Data Analytics
    - Google Cloud Professional Data Engineer

- **Software Development & AI:**
    - IBM Data Science Professional Certificate
    - TensorFlow Developer Certification
    - Microsoft Certified: Azure AI Engineer

- **Programming and Tools:**
    - Python for Data Science (Coursera)
    - SQL and Database Management Certifications
    - Tableau and Power BI (for data visualization)

🌐 5. Remote Work and Freelancing Opportunities

With strong **IT skills**, BCA graduates can also explore **remote and freelance work**, offering flexibility and access to **global clients**.

- **Freelancing Platforms:** Upwork, Fiverr, Freelancer, and Toptal.
- **Remote Companies:**Automattic, GitLab, and Zapier regularly hire remote IT professionals.
- **Freelance Income:** Skilled BCA freelancers can earn **₹50,000 – ₹2,00,000/month** depending on their expertise and client base.
- **Work From Home (WFH)** offers the flexibility to perform job duties remotely, allowing employees to maintain productivity and balance personal responsibilities from the comfort of their own space

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🗄 6. Higher Education Opportunities

BCA graduates aiming for **higher studies** can pursue:

- **MCA:** Specialized master's program to enhance technical expertise.
- **MSc in Data Science:** Offered by reputed universities in India and abroad.
- **MBA (Business Analytics):** Combining IT science skills with business strategy.

🔥7. Opportunities in Civil Services, Government and Public Sectors

- **Government & Public Sector:** Graduates often get career opportunities in civil services and administrative roles through UPSC, IES, and state exams. Graduates can secure PSU jobs in BHEL, ONGC, and ISRO via GATE. Government sectors like NIC, DRDO, and defense recruit for IT roles, ensuring stable and rewarding public sector careers.

🔥8. Key Takeaways: Why BCA at NGFCET is a Great Career Choice

✅**Proximity to NCR Tech Hub:** Access to **Delhi, Gurgaon, and Noida**, which offers extensive job opportunities.

✅**Campus Placement Support:** NGFCET conducts regular placement drives, job fairs, and internship programs with **top tech companies**.

✅**Industry-Aligned Curriculum:** The BCA program includes **hands-on learning, projects, and certifications**.

✅**Internships and Projects:** Collaboration with MNCs and startups ensures practical industry exposure.

✅**Higher Education and Certifications:** Guidance for **MCA, MSc, and certifications** to enhance skills and job prospects.

🎯9. Tips to Maximize Career Prospects During BCA

🔥 To boost employability and salary potential, BCA students should:

✔**Work on real-world projects:** Build a strong GitHub profile with data science projects.

✔**Participate in hackathons:** Compete in Kaggle competitions and data science challenges.

✔**Pursue internships:** Apply for **software development, data analytics, and cybersecurity internships** to gain practical experience.

✔**Get certified:** Industry-recognized certifications in **Python, SQL, and data visualization** add value to your resume.

🌟 Final Verdict: BCA at NGFCET – A Gateway to Lucrative Data Science Careers

✔**NGFCET's BCA program** offers **excellent job prospects** with access to the **booming NCR tech sector**.

✔ With **hands-on learning, certifications, and industry exposure**, graduates can land **high-paying jobs** in India and abroad.

✔ The **demand for IT professionals** ensures continuous growth and attractive salary packages.

✔Pursuing a **BCA at NGFCET** under the expert guidance of **Prof. (Dr.) Kuldeep Tomar** and the **learned faculty members** equips students with **cutting-edge skills in data analytics, machine learning, and artificial intelligence**. With **state-of-the-art infrastructure, industry-aligned curriculum, and practical learning experiences**, students gain a **competitive edge** in the job market.

✔NGFCET's strategic location in the **NCR tech hub** further enhances career prospects, offering **diverse job opportunities** with attractive salary packages in India and abroad. Graduates are well-

prepared for **high-demand roles** in IT, finance, healthcare, and emerging tech sectors, making BCA a **gateway to a successful and rewarding career**.