DBU Desh Bhagat University
Research.
Innovation.
Entrepreneurship.
1972

NAAC GRADE A+
ACCREDITED UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

About us

Computer21st century is completely dependent on Computers as in every field of career opportunities like manufacturing, development, testing, transportation, communications, research, education and management, there is an essential usage of Computer Applications and programs. To satisfy the varying requirements of diverse industries, the BCA (Bachelor in Computer Applications) and MCA (Masters in Computer Applications) courses have been designed immaculately to prepare the aspirants in the professional world of Computer Applications & programming, software development, web analyzing, networking and database management. By providing a base to the students aspiring to work in the sophisticated computing environment, the under-graduate (3 years, BCA Course), post-graduate (2 Years, MCA Course) and PG Diploma (1 Year, PGDCA) programs equip the students with computing principles, computer programming, information technology, programming skills, analysis skills and software design applications along with the standards of developing, testing and maintenance. The courses in Computer Science & Applications sprout proficient professionals who are recruited in the various organizations to meet with the intricacies inculcated during the interface between as per the needs of modern industries. Department has designed the curriculum of BCA, MCA & PGDCA programs as per Nation Education Policy 2020.. The pedagogy has been acutely focused on saturating core fundamentals and in-depth knowledge of computer applications, operating systems, internet, web designing, systems management, quality management, networking, programming languages (java, python,.net, C, C++ etc.). Along with these relevant technical subjects, Languages & Mathematics have been included in all the three programs as the compulsory subjects. The curriculum, being based on semester system, is also periodically as per the increasing requirements of the industry to enhance the immediate employability of the aspirants. Apart from these achievements, DBU has empowered the department of Computer Science with dedicated faculty having national & international exposure, fully equipped Microsoft computer labs, smart classrooms and departmental digital library. The dignitary collaborations of DeshBhagat University with the top MNCs enhance the professional etiquettes in the students and ultimately inculcate a wide gamut of future perspectives for them.

Vision

- To empower the graduates to be technologically adept, innovative, self-motivated and responsible citizens, possessing human values and contribute significantly towards being a center of excellence in providing globally standard education, through a conducive Teaching and Research environment, that responds swiftly to the challenges of the ever-changing world.

Mission

- To achieve academic excellence by imparting in-depth knowledge to the students through effective pedagogies and hands on experience on latest tools and technologies.
- To pursue interdisciplinary research that will serve the needs of the entire global community.
- To prepare students to be continuous learners in a connected world and imbibe professional skills and ethical responsibilities in them.
- To strengthen the industry-Academia interface that will help the graduates to emerge as leaders in academics or an inspiring revolutionary in entrepreneurship.

From HOD's Desk

Mr. Gurjeet Singh Pandher

Welcome to Department of Computer Science & Application, DeshBhagat University, MandiGobindgarh (Punjab).

The Department of Computer Science and Application welcomes you to be a part of the thriving computer science community and become visionaries and change makers of the future. Our distinguished faculty members ensure a wide range of diverse learning experiences ranging from the fundamentals of Computer Science, Core Courses, Programming, Web Designing, Emerging Technologies like Big Data Analytics, Data Mining, IoT, AI, Machine Learning, Cyber Security, Block-chain, Professional Ethics, Research Methodologies and Open-Source Technologies to name just a few.

The Department is proud to have a strong-alumni-network, many of whom hold influential positions in the Information Technology industry and academia, at both, national and international levels. We look forward to having talented students, researchers, academicians, and professionals join us and augment the healthy and competitive learning atmosphere we have on campus! Also CSA department is having MoUs with some of the best organizations and trying to strengthen them further

The placement record of eligible students from last many years is very goodand are working in reputed IT companies. Students along with the teachers constantly involved in exciting and interesting problems/projects to explore and innovate new methods and finding sustainable solutions, published in various national and international journals.

It remains as the most preferred choice of all the students seeking admission in DBIT. We as a team sincerely welcome the young talent who aspire to pursue studies, to educate, or to innovate in the area of Computer Science. So Come and Join us.

E-Mail: hodcs@deshbhagatuniversity.in
Mobile No.9023851929

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

Why study in Computer Science & Applications?

Computer Science is not just the study of computers; it is the systematic studyof processes that handle information. We now take it for granted that music,video, and any other form of information should be represented digitally; the greatinnovations in the last few decades have come about through this transformation ofthe way we process information Program& Course Outcomes

For MCA, BCA & PGDCA Programs

Program Outcomes (Po's)

PO 1: Computational Knowledge: Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.

PO 2: Problem Analysis: Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

PO 3: Design /Development of Solutions: Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex Computing problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern Tool Usage: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

PO 6: Professional Ethics: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.

PO 7: Life-long Learning: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

PO 8: Project management and finance: Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 9: Communication Efficacy: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

PO 10: Societal and Environmental Concern: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices.

PO 11: Individual and Team Work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PO 12: Innovation and Entrepreneurship: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large

Program Educational Objectives (PEO's):

PEO 1: To facilitate in development of strong basic fundamentals of Computer Applications that fit as a perfect foundation towards a beginning a professional career in industry, entrepreneurship and thereby progress in chosen career through habit of continuous learning.

PEO 2: To develop programming skills in learners by using fundamental knowledge of computer science in composing new designs and solutions to complex real life problems using existing and/or novel technologies.

PEO 3: To equip learners with abilities of evaluating problems to formulate in assessment of their designs and solutions thereby.

PEO 4: To inculcate comprehensive communication ability that is useful during professional communication and leading of teams in future.

PEO 5: To play a creative role during professional life through turning problems to opportunities and foster personal and organizational growth together with concrete ethics.

Program Specific Outcomes (PSO's)

PSO 1: Ability to understand and apply knowledge on analysis, design and development of software applications.

PSO 2: Utilize skills and knowledge for computing practice with commitment on social, ethical and legal values.

PSO 3: Ability to work with latest computing technologies and pursue careers in IT industry/ consultancy/ research and development, teaching and allied areas.

Course Outcomes:

On successful completion of the course the students will be able to:

CO1: Understand the basic concepts of QUANTITATIVE ABILITY

C02: Understand the basic concepts of LOGICAL REASONING Skills

CO3: Acquire satisfactory competency in use of VERBAL REASONING

Ph. D in Computer Science & Applications

PSO 1: Ability to understand and apply knowledge on analysis, design and development of software applications.

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PROGRAMMES OFFERED

Ph.D in Computer Science & Applications

Eligibility: As per UGC norms
Duration: As per UGC norms

MCA

Eligibility: BCA or Bachelor's degree in Computer Science/ Engineering or its equivalent degree or B.Sc. /B.A./ B.Com/ BBA with Mathematics at 10+2 or its equivalent level or Graduation level (with an additional bridge course as per norms of University).
Duration: 2 Years

MCA With Specialisation

- **Cyber Security & Forensics**
- **Artificial Intelligence & Data Science**

Eligibility: BCA or Bachelor's degree in Computer Science/ Engineering or its equivalent degree or B.Sc. /B.A./ B.Com/ BBA with Mathematics at 10+2 or its equivalent level or Graduation level (with an additional bridge course as per norms of University).
Duration: 2 Years

BCA

Eligibility: 10+2 or its equivalent from a recognized Board.
Duration: 3 Years

BCA With Specialisation

- **Cyber Security & Forensics**
- **Artificial Intelligence & Data Science**

Eligibility: 10+2 or its equivalent from a recognized Board.
Duration: 3 Years

PGDCA

Eligibility: Bachelor's degree in any stream from a recognised Institute/ University.
Duration: 1 Year

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

Ph. D in Computer Science & Applications

The Doctorate in Computer Science at DBU is a highly research-intensive programme that provides students with excellent facilities and expert guidance to support their research endeavors. The programme is designed to help postgraduate students develop research skills and prepare for careers in academia or research. The programme provides specialised training in research components such as hypothesis creation, research questions, literature review, research ethics, and the use of online tools and resources. The programme has a strong focus on interdisciplinary research and encourages students to pursue innovative and entrepreneurial ideas in their chosen areas of study.

Students are guided in selecting relevant research topics and completing a thorough, systematic study to write their thesis of 80,000-1,00,000 words which is evaluated at regular intervals. The candidates are encouraged to publish papers in reputable journals and provided with guidance from faculty members with extensive experience in research.

The programme includes common courses in the first six months to help students build scientific aptitude and optimise their research output. It supports the building of researcher networks, the successful execution of Ph.D project plans, and aims to provide students with a broad base of knowledge and expertise for their future careers.

The field of Computer Science stands at the forefront of innovation, driving technological progress and pioneering breakthroughs across diverse industries. The growing reliance on advanced technology underscores the critical demand for proficient professionals well-versed in Artificial Intelligence, Machine Learning, Blockchain Technologies, Network Security, and other pivotal computational domains. The Department of Computer Science and Applications offers a three-year full-time Ph.D. programme focused on advanced learning and groundbreaking research across the expansive landscape of computer science domains. The esteemed faculty comprising experts in Artificial Intelligence, Machine Learning, Digital Image Processing, and Blockchain Technologies, among other specialised areas, guides aspiring researchers driven by a passion for pioneering solutions to contemporary challenges encountered in societal and technological domains.

─────────── **Specializations** ───────────

- **Artificial Intelligence**
- **Machine Learning**
- **Deep Learning**
- **Natural Language Processing**

- **Computer Vision**
- **Network Security**
- **Digital Image Processing**
- **Pattern Recognition**

- **Remote Sensing**
- **Blockchain Technologies**
- **Cloud Computing**

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

Master of Computer Applications

M.Sc. Computer Science at MIT-WPU is designed to develop students' knowledge of computer science and train them to design systems and develop real-life software applications in a variety of domains such as Artificial Intelligence, Data Science, and Web Development. The curriculum includes courses such as Advanced Operating System and Network Security to provide students with a thorough understanding of operating systems and security issues in networking. To provide a hands-on learning approach, the programme includes mini projects, hands-on assignments, immersion programmes, and industry visits. Students can also choose from a variety of elective courses that focus on cutting-edge technologies such as Micro services with Java, Next Generation Databases, Deep Learning, Internet of Things, and DevOps, all while keeping the industry's future needs in mind.

Specializations

- **Cyber Security & Forensics**
- **Artificial Intelligence & Data Science**

Career Opportunities

Software Engineers
- Software Developers
- System Analysts
- Software Consultants
- Software Application ArchitectsHardware Engineers
- Web Designers

Data Scientists
- Big Data Analysts
- Big Data Engineers
- Big Data Solution Architects
- Metric and Analytics Specialists
- Power BI/Tableau Developers
- Python Developers
- Machine Learning Engineers
- Machine Learning Architects

Software Developers
- Computer System Analysts
- Software Engineers
- Database Administrators
- Software Publishers
- Software Application Architects
- Software Consultants
- Hardware Engineers
- Web Designers
- Technical Consultants

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

Post Graduate Diploma in Computer Application

The realm of Computer Application (Science) is intricately interwoven with technological advancements, software development, and digital innovations. As industries pivot towards digitalization and technology integration, the demand for adept professionals in this field becomes ever more critical. The Post Graduate Diploma in Computer Application at DBU aims to reinforce students' foundational understanding of Computer Science while gradually introducing them to emerging trends, cultivating a research-oriented mindset throughout their academic journey. This pedagogical approach nurtures a comprehensive learning experience, preparing students to adeptly navigate and excel in the perpetually evolving domain of Computer Science. This One year full-time programme to address the scarcity of skilled human resources with focused curriculum encompassing Computer Science fundamentals, Programming Languages, Advanced Databases, Internet Technologies, Machine Learning, Data Science, Mobile Application Development, this programme aims to equip students with the latest knowledge of applications, technologies, and tools. This programme accentuates industry-centric learning through an industry internship, offering students an opportunity to engage in live projects in collaboration with industries, providing invaluable pre-placement exposure to real-world projects. Upon successful completion of the programme, graduates emerge equipped to conceptualize, design, develop, implement, and deploy software applications effectively. By laying a robust foundation in core Computer Science and application courses while progressively exposing students to emerging trends and fostering a conducive environment for students' continuous growth and exploration.

Career Opportunities

- Software Developer
- Security Analyst
- Mobile App/ Web Developer
- Network Engineer
- Database Administrator

- Cloud Engineer
- Data Scientist
- Software Tester/ QA Analyst
- Business Analyst/ System Analyst

- Associate System Engineer
- Cloud System Administrator
- Full Stack Development
- Database Administrator-DBA
- Civil/Govt job opportunities

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Bachelor of Computer Applications

DeshBhagat University's BCA in Computer Science& Applications is a full-time degree programme that teaches students variousprogramming languages, databases, web development, and other technologies. In addition to thetheoretical knowledge, students gain practical skills in critical thinking, problem solving, and analysisthrough various modules in the programme. They are taught by academic experts and guest lecturers inareas of Web Technologies, AI & ML, IoT, Network Security, Advanced Java Programming, Applied Statistics,and others. Students can choose between the three specializations in their third year namely ComputerScience, Cloud Computing and Cyber Security. The programme also offers a variety of electives such asIntellectual Property Rights, Data Mining, Cyber Security, Data Science, and Block chain Technology.

Specializations

- **Cyber Security & Forensics**
- **Artificial Intelligence & Data Science**

Career Opportunities

Analysts
- Network Support
- System Analysts

Executives
- Technical Support

Developers
- Web Developers
- System Support Managers
- Web Designers
- Network Analysts
- Software Developers
- Database Administrators

Data Scientists
- Data Architects
- Machine Learning Engineers
- Data Engineers
- Machine Learning Scientists
- Application Architects
- Data Analysts
- Business Intelligence Developers

Software Developers
- Software Programmers
- System Support Managers
- Network Analysts
- Technical Support Developers
- Web Designers
- Network Support Executives
- Web Developers
- Database Administrators

INDUSTRY COLLABORATIONS (MOUs) WITH COMPANIES

Department of Computer Science & Applications has strong industry collaborations for studentplacements, research, and seed funding. These collaborationsprovide students with opportunities to gain practical experience,work on real-world projects, and interact with industry professionals.They also help faculty members to stay updated on the latestindustry trends and developments, and provide a platform forresearch collaboration and funding. These collaborations helpstudents to develop the skills and knowledge necessary forsuccessful careers in their chosen fields, and provide a valuable source of support for faculty research and innovation. Industrypartnerships also benefit the university by providing access toindustry expertise, funding, and resources, which can help toenhance the quality of education and industrial trainings etc..

MOU Name	Duration of the Agreement	Date of MOU
All Soft Solutions and Services , Pvt. Ltd. , Mohali, Punjab	5 years	2020
Kadkraft Systems Pvt Limited, Chandigarh	2 years	2020
Cyber Hawkz Intelligence Services LLP., Mordecai Lane, Kolkata, West Bengal	5 years	2021
HiDs Technologies Pvt. Lid. Shivane, Pune	5 years	2021
Webcom Technologies, Ludhiana	5 years	2021
HCL Career Development Centre, Nodia	5 years	2021

BEST FEATURES

- Department has spacious & ICT enable class rooms & labs.
- Wi-FI /Internet facility with 1 Gbps speed.
- CCTV Cameras are placed throughout the department.
- Excellent academic results
- Experienced & Well Qualified Faculty

OBJECTIVES

- Possess practical and theoretical knowledge of computer science sufficient to earn a living and contribute to the economic development of the country.
- Be prepared for advanced education in computer science.
- Understand and respect the professional standards of ethics expected of computer scientists and appreciate the social impact of computing.
- Recognize the importance and possess the problem solving skills that are necessary for life-long learning.

SEMINAR /WORKSHOPS

INDUSTRIAL VISIT & STUDY TOURS

SPORTS ACTIVITIES

EVENTS AND ACTIVITIES
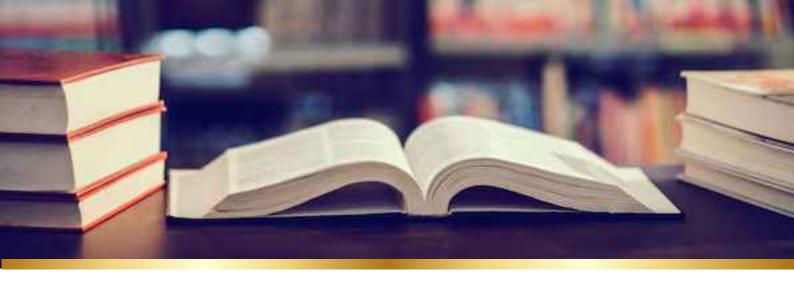
SCHOLARSHIPS

DBU awards scholarships to its meritorious students based on their academic performance in requisite Exam scores and Percentages in the examinations. For the academic year 2024-25. These scholarships are valid for the duration of the programme.

The categories of Merit Scholarships are:

• **SC Scholarship**
• **Single Girl Child Scholarship**
• **Shakti Scholarship**
• **DBEST Scholarship**

TRAINING & PLACEMENTS

Internships:

Experiential learning is an integral component of learning at DBU. A full-time industry Internship is an essential part of every undergraduate and postgraduate programme offered by theDepartment of Computer Science and Applications. This internship aims to provide a platform tointegrate classroom knowledge with related practical applications and skills in a professionalecosystem. The students get a chance to access real-world practical learning that instill criticalperspectives for rewarding future career pathways.

Placements:

The Training and Placement Cell at DBU plays a crucial role in locating job opportunities forstudents who complete their Undergraduate and Postgraduate Degrees at the University by invitingreputed firms and industrial establishments for opportunities. MIT-WPU has been successful inmaintaining high placement statistics over the years. The Placement Cell organises career guidance programmes for all the students. The cell alsoarranges training programmes including Mock Interviews, Group Discussions, Communication Skillsand multiple workshops.