Degrees Offered

Discover Your Path to Success at SNU Chennai: Explore our comprehensive admissions portal, showcasing undergraduate, postgraduate, and Ph.D. programs. Uncover opportunities, admission requirements, and funding options for a rewarding educational journey.

Undergraduate Degree

Embark on Your Academic Journey: Explore our wide range of undergraduate programs that cater to diverse interests and ambitions. Discover the admission criteria, application process, and scholarship opportunities to begin your path to higher education.

School of Engineering:
B.Tech AI & Data Science

The B.Tech. program in Artificial Intelligence and Data Science at SNU Chennai is a four-year undergraduate program. It aims to equip students with a comprehensive understanding of the principles, techniques, and applications of AI and DS. The curriculum is designed to cover a wide range of topics related to AI and DS. Students study foundational subjects such as mathematics, programming, and data structures, along with specialized courses in areas like machine learning, deep learning, natural language processing, computer vision, data mining, big data analytics and data base management.

This program emphasizes practical skills and hands-on learning. Students engage in coding assignments, programming projects, and lab work to develop proficiency in programming languages like Python, C, R and Object oriented programming. They also gain experience with popular frameworks and tools used in AI and DS, such as TensorFlow, Tableau and scikit-learn.

SNU Chennai encourages students to undertake research projects and collaborate with faculty members on ongoing research in the field of AI and DS. This provides students with opportunities to explore advanced topics and gain valuable research experience. The university also fosters industry-academia collaboration by organizing guest lectures, workshops, and seminars featuring industry experts and professionals. Students have the chance to participate in internships and industry projects, allowing them to apply their AI and DS skills in real-world settings.

Total number of seats: 120

Program Objective

- This program aims at creating future data scientists and data analysts by preparing students through a semester-long capstone project where you can apply your knowledge and skills to work on a real-life data analytic assignments
- The program is designed to make you industry ready by in-depth learning in basic as well as advanced Probability and Statistics, rigorous practical skills in multiple programming language environments such as Python and Java, state-of-the-art Machine Learning(ML) and Deep Learning(DL) frameworks, Extensive knowledge in Artificial Intelligence, Image, video, text and speech analysis using ML/DL and Big Data Analytics using distributed technologies.

- This includes a semester-long capstone project where the students can apply their knowledge and skills to work on a real-life data analytic projects.

Career Opportunities

- Apart from the regular job offers for the computer science and engineering graduates, the list of job profiles for a graduate in this program would be,
- Data Engineer / Scientist
- Machine Learning Engineer
- Data Analyst
- Interactive Visualizer / Graphic Designer
- Big Data Engineer / Architect
- Database Developer
- Statistician
- ML Intelligent System Researcher

Curriculum divided in to 4 parts, namely, Math, Core-CSE, Core-AI, and Applications

- Core-CSE courses for placement
- Core-AI and Math courses for research/higher studies
- Application courses to encourage Entrepreneurship

Core-CSE

- Programming: C, Python, OOP, Software engineering
- Hardware: Digital, CO, OS
- Data: Structures, DAA, DBMS
- Networks: Computer Networks, Cyber security, distributed computing, cloud computing, web technologies

Core-AI course

- Foundations
- AI, Machine Learning
- Big Data
- Deep learning

Applications

- Image and video

- Text (NLP, Machine Translation)
- Speech (ASR, TTS, S2S)
- Medical
- Robotics

Math courses

- Linear Algebra and Matrix analysis
- Probability and Random process
- Statistics
- Discrete Mathematics
- Optimization Techniques

Professional Elective buckets

- Advanced AI & DS
- Advanced Networking
- Advanced computing

- Curriculum – Click here
- Regulations – Click here

B.Tech Computer Science and Engineering with Specialisation in IoT

Our B.Tech CSE(IoT) program is a futuristic program that is an amalgamation of several diverse disciplines including core computer science and engineering, sensor technology and cloud computing with a dash of AI ,data science and cybersecurity thrown into the mix, thus embracing the true spirit of the 4th Industrial Revolution- Industry 4.0 that is currently happening. IoT as a subject itself is a manifestation of the awe-inspiring synthesis and symbiosis of the physical and the digital world with predictions being made that by 2025, there will be 50 billion devices connected over the world wide web.

This program emphasizes practical skills and hands-on learning. Students engage in coding assignments, programming projects, and lab work to develop proficiency in programming languages like Python, C, and Java, along with popular frameworks and tools used in IoT, such as Arduino and Raspberry Pi. SNU Chennai encourages students to undertake research projects and collaborate with faculty members on ongoing research in the field of IoT. This provides students with opportunities to explore advanced topics and gain valuable research experience. The university also fosters industry-academia collaboration by organizing guest lectures, workshops, and seminars featuring industry experts and professionals. Students have the chance to participate in internships and industry projects, allowing them to apply their IoT skills in real-world settings.

Program Objectives

- The program equips the students with a strong theoretical foundation, systematic professional knowledge, and powerful practical skills in a range of fields of computing science, internet of things, security, web-technologies, communications protocols, data management and application of intelligent algorithms.
- The program includes development of IoT products and services alongside the devices for sensing, actuating, processing, and intercommunication. This exposure builds a robust foundation for a range of applications in the IoT domain.
- The prime focus of the program is hands-on practice and industry learning on the applications of IoT in various sectors like Energy, Retail, Healthcare, Automation, Robotic things, and Green infrastructure.

Curriculum

Curriculum divided into 4 parts, namely, Core-CSE, Core-IoT, Applications, and Math for the following purposes:

- Core-CSE courses for placement
- Core-IoT and Math courses for research and higher studies
- Application courses to encourage Entrepreneurship

Core-CSE

- Programming: C, Python, OOP, software engineering, Agile, compiler
- Hardware: Digital, MP and MC, CA, OS
- Data: Structures, DAA, DBMS
- Networks: Computer Networks, Cyber security, distributed computing, cloud computing, web technologies

Core-IoT courses

- Foundations
- Sensor tech and Instrumentation
- IoT architecture
- Dynamic Paradigm in IoT

Applications

- Electric vehicle design
- Data Science for IoT
- Real time analytics of sensor data
- IoMT for healthcare

Math courses

- Linear Algebra
- Probability and Random Processes
- Discrete Mathematics
- Cryptography

Professional Elective buckets

- Advanced IoT
- AI and DS
- Advanced Networking
- Advanced computing
- Curriculum – Click here
- Regulations – Click here

Career Opportunities

Apart from the regular job offers for the computer science and engineering graduates, the list of job profiles for a graduate in this program would be,

- IoT Engineer
- IoT Infrastructure Architect
- IoT App Developer.
- IoT Solution Architect
- IoT Devices supervisor
- IoT Scientist

B.Tech Computer Science & Engineering Cyber Security

The Cybersecurity course offered by Shiv Nadar University (SNU) Chennai is designed to provide students with comprehensive knowledge and practical skills in various aspects of cybersecurity. The curriculum is divided into four parts: Math, Core-CSE, Core-Cyber Security, and Applications, each focusing on different areas of study. The course aims to prepare students for both industry placements and further research in cybersecurity.

In the Core-CSE courses, students gain a strong foundation in computer science and programming. They learn languages such as C and Python, as well as Object-Oriented Programming and Android App Development.

Additionally, they study hardware-related subjects like Digital Design, Computer Organization, and Operating Systems. Data-related topics such as Data Structures, Design and Analysis of Algorithms, and Database Management Systems are also covered. Networking aspects are addressed through courses like Computer Networks, Network Security, Cloud Computing & Security, and Web Technologies. Artificial Intelligence and Machine Learning techniques, Deep Learning, and Cognitive Psychology are taught to provide students with a foundation in AI for cybersecurity.

The Core-Cyber Security courses focus specifically on cybersecurity principles and practices. Topics covered include Classical Cryptography, Cyber Security Essentials, Modern Cryptography, System Security Management, Network Penetration Testing, Ethical Hacking, Social Engineering, Cyber Forensics, and Web Application Security. These courses provide students with an in-depth understanding of cybersecurity fundamentals, threat detection and prevention mechanisms, and the skills required to investigate and respond to cyber threats.

Program Objectives

- Comprehensive knowledge in cryptography, cybersecurity principles, cyber forensics, intrusion prevention mechanisms, cybercrime, cyber threats and vulnerabilities, AI for cybersecurity etc.
- Impart practical problem-solving skills, capability to investigate and utilize new technologies, security algorithms, and implementations.
- Introduce students to industry standard certifications, enabling them for placement opportunities as security analysts, architects, cryptanalysts, consultants, and solutions developer.

Curriculum

Curriculum divided into 4 parts, namely, Math, Core-CSE, Core-Cyber Security, and Applications:

- Core-CSE courses for placement
- Core-Cyber Security & Math courses for research & higher studies
- Application courses to encourage Entrepreneurship

Core-CSE

- Programming: C, Python, Object Oriented Programming, Android App Development
- Hardware: Digital Design, Computer Organization, Operating Systems
- Data: Structures, Design and Analysis of Algorithms, Database Management Systems
- Networks: Computer Networks, Network security, cloud computing& Security, Web Technologies
- AI: Artificial Intelligence and Machine Learning Techniques, Deep Learning, Cognitive Psychology

Core – Cyber Security

- Classical Cryptography

- Cyber Security Essentials
- Modern Cryptography
- System Security Management
- Network Penetration Testing, Ethical Hacking and Social Engineering
- Cyber Forensics
- Web Application Security

Applications

- Security in IoT
- Database Security
- Intrusion Detection Systems
- Information Assurance and Security
- Mobile and Wireless Security
- Smart Device security
- Multimedia Security

Math courses

- Linear Algebra
- Discrete mathematics
- Graph Theory
- Probability and Statistics
- Optimization Techniques

Professional Elective buckets

- Quantum Cryptography
- Blockchain Technology
- Security in Industry 4.0
- Curriculum – Click here
- Regulations – Click here

Career Opportunities

Apart from the regular job offers for the computer science and engineering graduates, the list of job profiles for a graduate in this program would be,

- Ethical Hackers
- Network/ Cloud Security Engineer
- Cyber Security analyst
- Security Architect
- Cyber Security Manager
- Information Security Manager
- Cybersecurity and Application Security Engineer

School of Commerce

B.Com (Professional Accounting)

Focused Three-year program, for students who have decided to pursue a career in Accounting and Finance.The program provides the rigorous academic background for students who aim to acquire professional accounting designations such as CA, CMA and work in industry as professional accountants or practice as accountants. The program is benchmarked to the CA syllabus (both intermediate and final examinations) of ICAI while fulfilling the requirements of UGC.
The candidates will be well prepared to appear for the Foundation examination of ICAI after the second semester and for the Intermediate exam of ICAI after the fourth semester. The faculty would include academicians, pro writers essaynow as well as chartered accountants and professional experts in the areas of taxation and law.

Curriculum fully mapped to the CA syllabus, in addition to UGC guidelines

- Students will be prepared to write CA Institute's Foundation Exam after 2nd Semester
- Students will be prepared to write CA Institute's Intermediate level Exam after 4th Semester
- All courses relating to CA final exams will be completed in the 5th and 6th Semesters.
- Practitioners as Adjunct Faculty to augment full time faculty
- CAs, Company Secretaries, Cost Accountants
- Tutorial classes held for most subjects
- Smaller class size for more attention
- Apart from revising topics, practice tests conducted regularly (including past CA papers)
- Indicative Distribution of Credits: 143 credits over 6 semesters
- Curriculum – Click here
- Regulations – Click here

B.Com (General)

The B.Com program aims to provide the skill set and the competency required for candidates to become well rounded in analytical and financial domain and be able to apply and solve real world financial issues and problems. This program provides a solid grounding in accounting, quantitative methods, finance and data analytics and data mining.

Certification

Students of B.Com program who maintain a CGPA of 8.0 and above in Semesters 1-3 are eligible to apply for the Honours Certification.

Obtaining Honours Certification will involve

- Three additional electives in Semesters 4-6
- One Honours paper or project
- Maintaining a CGPA of 8.0 or above for the entire program

Micro Specialization Certificate if courses in specified elective baskets taken

Possible Micro specialization options

- Strategic Management
- Financial Economics

Curriculum

- Broad based Three-year program
- Cutting edge curriculum, based on curriculum of leading global universities
- Curriculum features
-
    - Strong foundation in accounting, finance, laws & taxation
    - Good background in quantitative methods, computing and economics
    - Choice of specialization areas (12 credits) in
-
    - Finance
    - Business Analytics
    - Management
- Additional electives (12 credits) across academic areas
- Select MOOC courses permitted, to increase range of options in electives

- Summer internship after 2nd year for 1 academic credit

- Choice Based Credit System
- Indicative General Electives: Indian Political Systems, Game Theory for Managers, Digital Finance, Advanced Tally, Personal Finance, Contemporary Economic issues, Behavioural Finance and Risk Management.
- Curriculum – Click here
- Regulations – Click here

3 Tracks of Specialisation

The program structure has been modeled on those offered by the best global Universities. The student will be offered three tracks of specialization for in-depth knowledge. The tracks planned are Management Track, Finance Track and Analytics Track.The indicative specialization electives are

Management track:

- Operations Management
- Strategy
- E-Commerce
- Entrepreneurship

Business Analytics track:

- Data Analytic Programming
- Data Analysis & Data Mining
- Data Visualization
- Optimization Methods

Finance track:

- Financial Modeling and Analysis
- Financial Markets
- Investment Management
- Business Valuation

Career Opportunities

Graduates of this program have career opportunities in

- Financial services firms

- Investment banks
- Private equity firms
- Insurance companies
- Commercial banks and industrial firms in the finance
- Planning functions at an Analyst level position

School of Science & Humanities

B.Sc Economics

The program is a full-time 3-year Graduation program that aims at creating a class of economists who will be equipped with skills that are highly sought in the job markets in India and abroad. The program is unique as it combines the triads of Economics, Data Science, and Finance. The rigour of theoretical framework is combined with the solving of real-life problems. Societal issues, such as unemployment, poverty, inequalities, various aspects of human development, etc., are also embedded in the curriculum so as to complement both the qualitative and quantitative aspects of the developmental process.

Program Highlights

- Rigorous domain knowledge in Economics, Finance and Data Analysis
- Mathematical and statistical foundation, exposure to Artificial Intelligence, Data Science and programming skills, such as R, Python, etc.
- Economic and Policy Modelling, Simulations and Forecasting, using econometric tools
- Development of critical faculty to analyse data and policy.

Curriculum – Click here

Regulations – Click here

Postgraduate Degree

Elevate Your Expertise: Dive into our postgraduate offerings designed to advance your knowledge and skills. Learn about the specific requirements, application procedures, and available funding opportunities to take your career to the next level.

M.Tech AI & Data Science

The MTech (Master of Technology) program in Artificial Intelligence and Data Science (AI and DS) at Shiv Nadar University (SNU) Chennai offers specialization verticals, research areas, a comprehensive curriculum, and

diverse career opportunities. The curriculum includes courses such as Data Science, Essentials of AI, Optimization Techniques, Advanced Data Structures and Algorithms, Evolutionary Computing, Reinforcement Learning, Computer Vision, Architectures for AI, and elective courses based on specialization. The program combines theory and practical applications.

Graduates have career opportunities as Data Engineers/Scientists, Machine Learning Engineers, Data Analysts, Interactive Visualizers/Graphic Designers, Big Data Engineers/Architects, Database Developers, Statisticians, and ML Intelligent System Researchers. Opportunities also exist in speech technology, computational biology, radiogenomics, IoT, blockchain technology, graph theory, and more.

Admission Process

- All candidates who have done a four-year undergraduate course in CSE, IT, AI, and associated fields, MSc integrated course, or a BSc Engineering (four-year course) are eligible for applying to the program.
- A minimum of 60% aggregate shall be the cut-off mark setting for screening the applications.
- Those who have appeared for the final examinations may also apply. However, they need to secure 60% marks in aggregate
- The candidates shall go through a two-step selection process, including an Offline entrance examination followed by an interview.
- The PG students can choose to have a residential or non-residential admission to the course.
- Candidates with a valid GATE score and satisfying the necessary conditions stipulated by the University may be eligible for a scholarship as decided by the concerned authority.
- The students who enroll in the program are strongly encouraged to take up industry internships and projects associated with the industry.

Eligibility

- Professionals currently working in the industry, with CSE, IT, AI and associated fields are encouraged to apply.
- Candidates from other branches of Engineering, who have worked in AI based projects in industry, are also encouraged to apply.
- Candidates shall spend the first two semesters in regular mode on campus.
- Candidates can execute their project work in the second year at their place of work. They shall meet the credit requirements for the second year by taking MOOCS courses.
- A minimum of 60% aggregate shall be the cut-off mark setting for screening of applications.
- Candidates shall submit relevant approval documents from the employer for enrolment to the course.

Career Opportunities

Apart from the regular job offers for computer science and engineering graduates, the list of job profiles for a graduate in this program would be,

- Speech technology
- Artificial Intelligence and Machine Learning
- High-Performance Computing
- Computational Biology
- Radiogenomics
- Data Science
- Internet of things and Block Chain Technology
- Graph theory and its applications
- Fibreoptics and Silicon Photonics

curriculum

To check our Curriculum – Click here

Research Areas

- Speech technology
- Artificial Intelligence and Machine Learning
- High-Performance Computing
- Computational Biology
- Radiogenomics
- Data Science
- Internet of things and Block Chain Technology
- Graph theory and its applications
- Fibreoptics and Silicon Photonics
- Machine Learning & Deep Learning Techniques
- Cognitive Neuroscience
- Disorder studies
- Computational Intelligence
- Computer Vision

Specialization Verticals

- Theoretical AI
- Finance, Economics, and Management

- Data Science
- Sensory AI
- Systems AI
- Applications

PhD Degree

Unlock the World of Research: Delve into our Ph.D. programs where you can shape the future through innovative research. Explore the admission prerequisites, application process, and exceptional research prospects that await you on your Ph.D. journey.

PhD Admissions

Shiv Nadar University Chennai aims to attract the most creative and talented minds from a diverse range of backgrounds and experiences, with a keen interest to pursue excellence in interdisciplinary research. The University provides exciting opportunities to obtain a Ph.D. degree in the following modes:

- **Full Time Ph.D. Program**

The candidates in the following categories may apply for the full time residential Ph.D. program based on the eligibility criteria:

- **Those who have cleared the eligibility criteria and directly applying for Ph.D.**
- **Those are in employment, who want to pursue full-time study, should be sponsored by their employer, and should avail leave for the minimum duration of the program as prescribed by the research regulations and should get formally relieved from their duty to join the research program.**
- **Those who are sponsored by AICTE under Quality Improvement program for teachers at other colleges and who satisfy the eligibility conditions, specializations as notified in the AICTE guidelines and is offered by the University.**
- **Those who are selected at national-level fellowship programs or by any recognized bodies.**
- **Foreign-nationals sponsored by the government of India or their respective government on any exchange programs.**
- **Part Time Ph.D. Program**
- Candidates who work as full time teaching faculty of self-financing colleges, Government aided colleges or any other Government recognized educational institutions.
- Candidates who work in Industrial Units/R&D Departments/National Laboratories/ Units of Government/Quasi-Government or any other research laboratories within India, that are recognized by the university to do research with the university and are sponsored by the respective employer.

- **Direct Ph.D. Program**

- School of Engineering is extending a warm invite to candidates who are Bachelor degree holders with a keen sense of scientific enquiry for pursuing advanced research in frontier areas of Computer Science and Engineering and interdisciplinary areas leading to a Direct Ph.D. This shall allow exceptionally talented students to save nearly a year compared to those who go for a two-year Masters degree program followed by a Ph.D. program.
- The program encourages the student to gain more credits in key course works of interest.

Areas of Specializations

School of Engineering

Computer Science & Engineering

- Accelerated Computing for Radiogenomics
- Artificial Intelligence and Machine Learning
- Bias & Privacy in the web
- Clinical database
- Cloud and Distributed systems
- Cloud Computing and Edge Computing
- Cognitive Neuroscience
- Cognitive Reinforcement Models
- Compiler design and natural language processing
- Computational Intelligence
- Computer Vision
- Cyber Physical Systems
- Cyber security
- Data Science
- Design and analysis of algorithms
- Digital System Design
- Disorder studies
- Dynamically Reconfigurable Architectures for Cognitive Computing
- Data analytics
- Fibreoptics and Silicon Photonics
- Graph theory and its applications

- High-Performance Computing
- Image processing
- Internet of Things
- Internet of things and Block Chain Technology
- IP lookup algorithms and packet classifications
- Machine Learning & Deep Learning Techniques
- Medical Image Processing
- Networks
- Network Intrusion Detection Systems (NIDS)
- Optimization Methodologies
- Software Defined Networking
- Sound Computing
- Speech Signal Processing
- Speech technology
- Social network analysis
- Theoretical Computer Science
- Video processing
- Wireless sensor networks

  Civil Engineering
- FRP Concrete composites
- Steel-concrete composites
- Cold-formed Steel
- Monitoring and retrofitting of structure

  Environmental Science & Engineering
- Water & wastewater treatment and management
- Solid Waste Management and Resource Recovery
- Nature based solutions for sustainability
- Sustainability assessment – Life cycle assessment
- Water and Wastewater Engineering

- Resource Recovery
- Environmental Sustainability Assessment

School of Science & Humanities

The key areas of research under the School of Science & Humanities, are listed below:

Economics

- Development Economics
- Open Economy, Macroeconomic Theory and Policy Practice
- Financial Economics
- Public Finance and Fiscal Policy
- International Macroeconomics
- Urban Economics
- Poverty and Inequality
- Labour Economics
- Environmental Economics
- Health Economics
- Rural Finance
- Economics of Education

Download Brochure

Physics

- Crystal Growth
- Wearable Technologies and Intelligent Embedded Systems
- Electronic Materials and Sensors
- Fiber optics and MEMS
- Biosensors
- Acoustic metamaterials
- Silicon Photonics
- Quantum Dots
- Spectroscopy

- Backlight LEDs

  Mathematics
- Graph Theory
- Fuzzy logic and its applications
- Extensions of fuzzy logic with applications
- Fuzzy graphs and extensions with applications
- Graph Theory
- Graph Theory and its applications.
- Stability Analysis of Dynamical Systems
- Chaos Synchronization
- Fuzzy Control Systems
- Computational Fluid Dynamics
- Rheology of Non-Newtonian Fluids
- Discretization techniques

  English
- Language policy, promotion of linguistic diversity, and preservation of endangered languages
- Postcolonial and other literatures
- Teacher education and continuing professional education
- Technology in language education
- Reading literary texts using different criticism techniques
- Materials, Methods and Assessment in Language Education
- Figurative Language, Embodied Cognition, Polysemy, Categorization
- Language and Spatial Cognition
- Perception, Emotion, and Language
- Language and Identity Politics
- Honorification and Politeness-Impoliteness

School of Commerce

The key areas of research under the School of Commerce and Management are listed below:

- Behavioural Finance
- Corporate Governance
- Corporate Social Responsibility
- Embedded Banking
- Environmental Compliances
- Financial data analytics
- Financial Inclusion
- Financial Markets
- Investment Management
- Sustainable and Green Finance