B.Sc. in Computer Science

Kickstart Your Dream Career in Tech!

3 years | Online | Graduate from an IIIT

IIIT Vadodara
Building Skilled Leaders for the Evolving IT Industry

Indian Institute of Information Technology Vadodara (IIIT-V) was established in 2013 by the Ministry of Education, Government of India, as an Institute of National Importance under a Public-Private Partnership (PPP) framework. It aims to advance knowledge in IT and provide globally competitive manpower for the industry. The institute's partners include the Government of India, Government of Gujarat, Gujarat State Fertilizers and Chemicals Ltd, and Tata Consultancy Services.

Currently operating from the Government Engineering College (Gandhinagar), IIIT-V is set to move to its new 62.5-acre Vadodara campus by July 2025. A satellite campus, IIITV-ICD, was established in Diu in 2020 with state-of-the-art facilities.

With 1,231 students enrolled, the institute offers UG and PG programs, including B.Tech. in CSE, IT, ECE, AI, and an early exit B.Sc. in CS. PG programs include M.Tech. in CSE (AI/Data Analytics), MCA, and Ph.D. programs. IIIT-V is expanding its digital presence with online B.Sc. programs in CS, AI/ML, and Data Science.

Over the last five years, an average of 67 companies have visited the campus for recruitment, with 80+ global recruiters offering placements and internships.

Director's Message
Director's **Message**

Prof. Dharmendra Singh
Director, IIIT Vadodara

Dear Students,

Welcome to IIIT Vadodara, where innovation meets excellence.

The nation is progressively heading towards "Viksit Bharat 2047". The objective of e-programs at IIIT Vadodara is to contribute to nation building by imparting quality skill oriented education for knowledge enhancement in the field of Computer Science, Information Technology, Artificial Intelligence, Data Analytics and allied areas.

As an institution, academia has been a cornerstone of inspiration, driving both individual and organizational motivation. It is through quality education that we broaden our horizons for personal growth and contribute significantly to societal advancement in technical innovation and development. Over the years, I have witnessed first-hand the transformative impact that high-quality education has on students, organizations, and society.

At IIIT Vadodara, our vision is clear: to harness the boundless talents of our youth and propel them towards global innovation. We are committed to building a community of motivated individuals and organizations dedicated to national growth and advancement. Through robust outreach programs, we tackle societal challenges head-on, fostering a culture of innovation, leadership, and entrepreneurial spirit. Our personalized educational approach ensures that our students emerge as world leaders and lifelong learners.

As a proponent of people-centric leadership, I firmly believe that diversity, equality, and inclusion are the bedrocks of any successful organization. My leadership approach is rooted in consensus-building and inclusive decision-making, involving all stakeholders at every step. Upholding ethical standards will remain the foundation of our institution, guiding every action and decision we make.

I extend a warm welcome to all who wish to join us. You are about to become part of a vibrant and dynamic community dedicated to excellence. Your journey at IIIT Vadodara will be rich with learning, discovery, and growth. Seize the opportunities, engage deeply with your peers and faculty, and make the most of the resources available to you. This experience will shape not only your career but also your character and vision for the future.

Together, let's elevate IIIT Vadodara to a beacon of excellence, innovation, and societal impact. I am here to support each of you on your academic and professional journeys.

Welcome aboard.

Warm regards,
Prof. Dharmendra Singh
Director, IIIT Vadodara

Program
Overview

Indian Institute of Information Technology, Vadodara (IIIT Vadodara), offers an Online B.Sc. in Computer Science designed to provide students with a comprehensive understanding of the field. The program emphasizes core concepts, including programming, algorithms, and system analysis, alongside advanced computational techniques. With a curriculum tailored to meet industry standards, students will develop problem-solving skills and gain proficiency in applying mathematical, statistical, and computational principles to real-world challenges.

Graduates of this program will be equipped to take on professional roles in software development, networking, and IT solutions, or pursue advanced studies in computer science and related disciplines. A combination of theoretical knowledge, practical lab work, and project-based learning ensures that students are workplace-ready and prepared to address modern technological challenges.

Eligibility Criteria

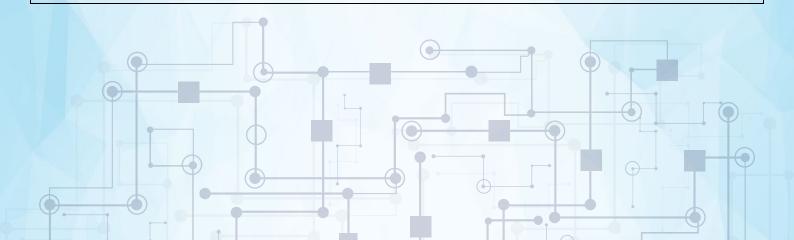| |
|---|
| Class 12 or equivalent (list of equivalents) or Class 10 + 3 Years Diploma |
| The final examination of the 10+2 system, conducted by a Central or State Board recognized by the Association of Indian Universities (AIU). |
| Intermediate or two-year Pre-University examination conducted by a Board or University recognized by the Association of Indian Universities. |
| Final examination of the two-year course of the Joint Services Wing of the National Defence Academy. |
| Senior Secondary School Examination conducted by the National Institute of Open Schooling with a minimum of five subjects. |
| Any Public School, Board or University examination in India or in a foreign country recognised as equivalent to the 10+2 system by the AIU. |
| H.S.C. vocational examination. |
| A Diploma recognized by the All-India Council for Technical Education (AICTE) or a State Board of Technical Education of at least 3 years duration. |
| General Certificate Education (GCE) examination (London, Cambridge or Sri Lanka) at the Advanced (A) level. |
| High School Certificate Examination of the Cambridge University or International Baccalaureate Diploma of the International Baccalaureate Office, Geneva. |
| Candidates who have completed Class XII (or equivalent) examination outside India or from a Board not specified above should produce a certificate from the AIU to the effect that the examination they have passed is equivalent to the Class XII examination. |
| In case the Class XII examination is not a public examination, the candidate must have passed at least one public (Board or Pre-University) examination earlier. |

For International
Applicants

If an applicant has obtained their senior secondary/high school education from an institution located outside of India: they must provide an Equivalence Certificate issued by the Association of Indian Universities - which recognises their senior secondary/high school education as equivalent to Class 12 certificate issued from a recognised central or state board in India.

The process to apply for an equivalence Certificate is detailed here (https://www.aiu.ac.in/evaluation.php)

To apply for Equivalence, students must start by applying here (https://evaluation.aiu.ac.in/Student/login/)

If an applicant's educational documents (mark sheets and certificates) were issued in a language other than English: they must provide copies of such documents translated into English by a sworn translator.

Who is this program for?

» Students with a strong interest in learning the foundational and advanced principles of computer science.

» Individuals who aim to pursue careers in software development, systems analysis, or related technology fields.

» Those looking for a solid academic base for further studies in computer science and its allied disciplines.

» Candidates with a background in science (10+2) and a focus on mathematics who meet the eligibility criteria.

Why Choose **IIIT Vadodara** for Your **B.Sc. Computer Science** Journey?

Recognized Degree:
Earn an esteemed certificate from IIIT Vadodara, recognized for excellence in the field.

Expert-Led Learning:
Gain insights from top professionals across various business fields.

Tailored for Future Innovators:
The B.Sc. in Computer Science at IIIT Vadodara equips you with a strong foundation in computer science, ensuring you can apply key concepts to real-world challenges in software development, systems analysis, and more.
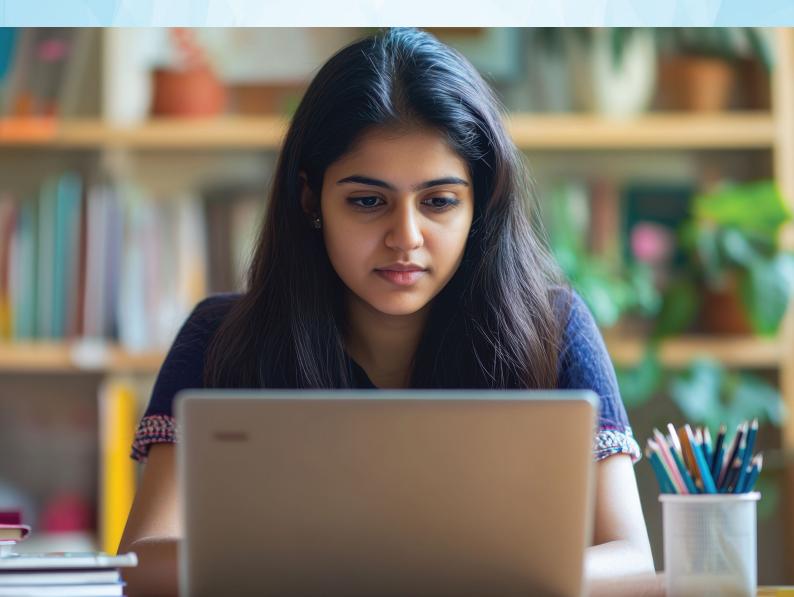
In-Depth Knowledge and Practical Skills:
Gain proficiency in critical areas such as algorithms, programming, networking, and information security through continuous assessments and project-based learning.

Salient Features of the Program

≫ Flexible Learning Schedule (Morning and Evening)

≫ Semester duration ~ 14-15 Weeks

≫ Unique Instructional Module with stress on hands on sessions and problem solving

≫ 40% Hands on and Tutorial

≫ Every Theory session is augmented with Hands on session and interactive problem solving session

≫ On successful completion of the program, guaranteed Internships/ Apprenticeship opportunities for 10% of the enrolled students

≫ Graduates of B.Sc. program will be inducted as IIIT Vadodara alumni

≫ B.Sc. Degree from IIIT Vadodara

≫ Unique Campus Immersion Program

≫ Access to IIIT Vadodara E-Cell (Entrepreneurship cell) for student startup

Program
Objectives

Provide students with a strong foundation in computer science, focusing on key concepts, principles, and practices.

Equip students with skills for professional roles in software development, systems analysis, and technology-related fields.

Develop problem-solving abilities by teaching students to isolate, analyze, and solve complex computer science problems.

Encourage the integration of business knowledge and computer technologies for real-world IT solutions.

Cultivate research proficiency, enabling graduates to contribute innovative solutions to the computer science field.

Promote ethical considerations in computing, ensuring students understand the societal and legal implications of technology.

Provide hands-on experience through labs and projects to apply theoretical knowledge in practical scenarios.

Foster critical thinking and independent learning for continued academic and professional growth in computer science.

Course Structure

Semester I

Course Code	Course Name	L	T/ H	P	C
MA101	Mathematics - I (Discrete Mathematics)	3	1	0	4
SC101	Environment Sustainability and Climate Change	3	0	0	3
IK101	Introduction to Yoga	0	0	2	1
HS101	Spoken and Written Communication	1	1	2	3
CS101	Introduction to Computer Science	3	0	0	3
CS161	Computer System Tools	0	1	2	2
CS103	Computer Programming and Problem Solving (C)	3	0	0	3
CS163	Computer Programming and Problem-Solving Lab	0	1	2	2

Total Credits for Semester I : 21

Semester II

Course Code	Course Name	L	T/ H	P	C
MA102	Mathematics-II (Linear Algebra)	3	1	0	4
IK102	Introduction to Vedic Mathematics	1	0	0	1
CS102	Computer Graphics (Python OpenGL)	1	1	2	3
CS104	Operating Systems	2	0	2	3
CS106	Introduction to Data Structures	3	1	0	4
CS166	Introduction to Data Structures Lab	0	0	2	1
CS108	Object Oriented Programming (Java)	3	1	0	4
CS168	Object Oriented Programming Lab	0	0	2	1

Total Credits for Semester II : 21

Semester III

Course Code	Course Name	L	T/ H	P	C
MA201	Mathematics -III (Probability and Statistics)	3	1	0	4
MG201	Introduction to Entrepreneurship	1	0	0	1
CS201	Design and Analysis of Algorithms	3	1	0	4
CS261	Design and Analysis of Algorithms Lab	0	0	2	1
CS203	Database Management Systems	3	0	0	3
CS263	Database Management Systems Lab	0	1	2	2
CS205	Computer Organization and Architecture	2	0	0	2
CS265	Computer Organization and Architecture Laboratory	0	1	2	2

Total Credits for Semester III : 19

Semester IV

Course Code	Course Name	L	T/ H	P	C
MA202	Mathematics - IV (Numerical Methods)	1	0	2	2
CS202	Computer Networks	3	0	0	3
CS262	Computer Networks Lab	0	1	2	2
CS204	Software Engineering	3	0	0	3
CS264	Software Engineering Lab	0	1	2	1
CS206	Artificial Intelligence	3	0	0	3
CS266	Artificial Intelligence Lab	0	0	2	1
CS266	Statistics in R	0	1	0	1

Total Credits for Semester IV : 20

Semester V

Course Code	Course Name	L	T/ H	P	C
CS301	Machine Learning	3	0	2	4
CS303	Cybersecurity	3	0	0	3
CS305	Big Data Analytics	3	0	2	4
CS307	Cloud Computing	3	0	2	4
CS309	Information Retrieval	3	0	0	3
HS301	Artificial Intelligence and Ethics	1	0	0	1
PI301	Summer Internship/ Training	0	0	6	3

Total Credits for Semester V : 20

Semester VI

Course Code	Course Name	L	T/ H	P	C
CS302	Internet of Things	2	0	2	3
PI302	B.Sc. Project	0	0	24	12

Total Credits for Semester VI: 15

Graduation Requirements

≫ The student must have earned a minimum 120 credits with CPI of 4.50 or above.

Pedagogy and Assessment

Combination of theoretical lectures, practical labs, and real-world projects.

Continuous assessment through quizzes, assignments, and lab work.

Final evaluations through exams, project reports, and presentations.

Program Outcomes

» Develop the ability to apply advanced mathematical, statistical, and computational principles to solve complex computer science problems, ensuring a comprehensive understanding of both theory and practice.

» Prepare graduates for professional roles in software development, systems analysis, and other technology-related fields across various domains, such as algorithms, programming, networking, and information security.

» Enhance problem-solving skills by enabling graduates to identify, isolate, analyze, and solve key components of computer science challenges using appropriate methodologies and tools.

» Equip graduates with the capabilities to integrate cross-functional business knowledge and computer technologies to solve real-world problems, demonstrating effective project and resource management in IT implementations.

» Cultivate research proficiency, enabling graduates to conduct independent research and contribute innovative solutions to the computer science body of knowledge.

» Promote ethical considerations in computer science practices, ensuring graduates understand and address the societal, ethical, and legal implications of computing technologies.

Admission **Process**

STEP 1:
Online Application

STEP 2:
Payment of Application Fees
(Non Refundable)

STEP 3:
Document Verification

STEP 4:
Payment of Admission Fees

STEP 5:
Acknowledgement

Fee Structure

Sr No	Fees Components	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI
1	Caution Deposit (Refundable)	10000	10000	-	-	-	-
2	I Card Fee (One time)	100	-	-	-	-	-
3	Institute Development Contribution (IDC) (One time)	-	-	-	-	-	-
4	Tuition Fee	37500	37500	37500	37500	37500	37500
5	Campus Immersion Fee	3000	-	-	-	-	3000
6	Institute Registration Fees	1000	1000	1000	1000	1000	1000
7	Alumni Fee	1000	1000	1000	1000	1000	1000
8	Convocation Fee	1000	1000	1000	1000	1000	1000
9	Life Insurance*	100		100		100	
10	Medical Insurance*	1400		1400		1400	
	Total	**55100**	**50500**	**42000**	**40500**	**42000**	**43500**

Note

≫ All fees are non-refundable.

≫ Additional fees may be incurred in case of repetition of courses.

≫ You have the option to learn at your own pace and can also register for fewer courses than prescribed in a given semester.

≫ There is no minimum credit requirement each semester, however, if you plan to not register for any credit in a semester, you need to maintain your active enrollment by paying a Program Continuation Fee of Rs. 3,000 per semester

≫ Medical insurance (group insurance) fees may change depending on the cohort size.

Apply Now