Department of Computer Science and Engineering
Indian Institute of Technology Delhi

B. Tech. Program

Program

The Department of Computer Science and Engineering at IIT Delhi is renowned for imparting state of the art undergraduate education and preparing its students for real world challenges. We attract the brightest students from the country who score very high ranks in the IIT-JEE, arguably the toughest entrance exam for any academic institution. Our alumni have done extremely well and the list of their achievements is too big to list here, which include managing top companies, designing revolutionary products, and contributing to fundamental research.

Some reasons why you should consider joining us :

Strong Undergraduate Program

· The undergraduate curriculum provides a strong foundation in all areas of computer science.

· The recently revised curriculum has reduced course load and greater emphasis on design and project work. It emphasizes the need for independent thinking and encourages students to get involved in interesting and novel projects. Further, a significant increase in the open category credits enables students to have a broad base and pursue interests and develop expertise in other areas like Mathematics, Communications, Signal Processing, Bio-informatics, Robotics, Management etc. in addition to core Computer Science.

· In addition to the course projects, a typical undergraduate student does four projects during his/her stay.

· The department has state of the art facilities for carrying out projects in computer graphics, vision, networks, distributed systems, hardware design and artificial intelligence.

· Students are encouraged to come up with ideas on their own and the department provides all the facilities required to materialize those ideas into actual projects. Many of our student projects have won awards in various competitions. Check out some recent student projects . Our students also publish regularly in reputed journals and conferences (link).

· The undergraduate curriculum gives the students sufficient freedom to choose courses with emphasis on a particular area of computer science. The department has expertise in all the core areas of computer science and its faculty are well-known for their research activities.

Our students are highly sought after by industry and end up with lucrative jobs. Those who choose graduate studies get admission in the top ranked universities in the world. Many of our students have chosen to join or even create their own start-up companies (Kritikal Solutions).

Faculty Student Interaction

· The department has a strong faculty , all Ph. D.'s from leading universities and active in research. The department also attracts a regular stream of visiting faculty members. Our faculty are diligently involved in training students and preparing them for the future ahead.

· The students interact freely with faculty on all matters related to studies. The curriculum gives them ample opportunity to work in close cooperation with any faculty member. Students are free to approach faculty for short term (a summer or a semester) project or long term projects.

The class sizes for core department courses are kept reasonably small and there are interaction sessions where problems of each student get addressed.

Cultural Activities

· Students are actively involved in organizing various cultural activities (Tryst, Rendezvous).

· The IIT campus provides a green and pollution free environment. It provides facilities for various sports activities and hobbies .

IIT is located in the heart of the vibrant and lively city of Delhi. It is conveniently located and well connected to all the attractions of the city including historical monuments, theatres, markets, parks. Many popular tourist locations like Shimla, Agra, Jaipur, Nainital are only a few hour drive from here.

Curriculum

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Curriculum

The overall credit structure

Undergraduate Core (UC)		Undergraduate Elective (UE)	
Category	*Credits*	*Category*	*Credits*
Departmental Core (DC)	66	Departmental Electives (DE)	24
Basic Sciences (BS)	24	Humanities & Soc. Sciences (HM)	14
Engg. Arts & Sciences (EAS)	20	Open Category Electives (OC)	31
Humanities & Social Sciences	1		
TOTAL	111	TOTAL	69

UNDERGRADUATE CORE (UC)

Course no.	*Title*	*L*	*T*	*P*	*Credits*	*Equivalent old course*
	Basic Sciences (BS)					
CYL110	Physical Chemistry: Concepts and Applications	3	1	0	4	CY110N
CYP100	Chemistry Laboratory	0	0	4	2	CY130P
MAL111	Introduction to Analysis and Differential Equations	3	1	0	4	MA111N
MAL124	Introduction to Algebra and Matrix Analysis	3	1	0	4	MA120N
PHL110	Fields and Waves	3	1	0	4	PH110N
PHL120	Physics of Materials	3	1	0	4	PH120N
PHP100	Physics Laboratory	0	0	4	2	PH130P
	TOTAL BS	**15**	**5**	**8**	**24**	
	Engineering Arts & Sciences (EAS)					
AML110	Engineering Mechanics	3	0	2	4	AM110N
CSL101 or CSL102	Introduction to Computers & Programming or Introduction to Computer Science	3	0	2	4	CS110N or CS120N
EEL101	Fundamentals of Electrical Engineering	3	0	2	4	
MEL110	Graphic Science	2	0	4	4	ME110N
MEL120	Manufacturing Practices	2	0	4	4	ME120N
	TOTAL EAS	**13**	**0**	**14**	**20**	
	Humanities & Social Sciences					
HUN100	Introduction to Humanities & Social Sciences	1	0	0	1	

	Departmental Core (DC)					
CSC410	Colloquium	0	3	0	3	CS401S
CSD411	Major Project Part 1	0	0	8	4	CS491S
CSD412	Major Project Part 2	0	0	16	8	CS492S
CSL105	Discrete Mathematical Structures	3	1	0	4	CS251N
CSL201	Data Structures	3	0	4	5	CS130N CS391M
CSL211	Computer Architecture	3	1	2	5	CS211N
CSL302	Programming Languages	3	0	4	5	CS232F
CSL356	Analysis and Design of Algorithms	3	1	0	4	CS356N
CSL373	Operating Systems	3	0	4	5	CS333N
CSL374	Computer Networks	3	0	3	4.5	CS372F
CSN110	Introduction to Computer Science and Engineering §	0	0	4	2	CS100S
CSP301	Design Practices in Computer Science	0	1	4	3	
CST410	Practical Training				NC	CS400P
EEL201	Digital Electronic Circuits	3	1	0	4	
EEL205	Signals and Systems	3	1	0	4	
EEP201	Electronics Laboratory - I	0	0	3	1.5	
MAL250	Introduction to Probability Theory and Stochastic Processes	3	1	0	4	
	TOTAL DC	**30**	**10**	**52**	**66**	
	TOTAL UC	**59**	**15**	**74**	**111**	

§ Common to both B.Tech. and Dual Degree programmes in CSE

DEPARTMENTAL ELECTIVES (DE)

Course no.	*Title*	*L*	*T*	*P*	*Credits*	
CSD310	Mini Project	0	0	6	3	CS320S
CSL303	Logic for Computer Science	3	0	2	4	CS253F
CSL316	Digital Hardware Design	3	0	4	5	CS214N and CS214P
CSL332	Introduction to Data Base Systems	3	0	3	4.5	CS332N
CSL361	Numerical and Scientific Computing	3	1	2	5	CS210N
CSL362	Simulation and Modelling	3	0	2	4	CS477N
CSL433 CSL333	Artificial Intelligence	3	0	2	4	CS371N
CSL705	Theory of Computation	3	1	0	4	CS355N
CSL719	Synthesis of Digital Systems	3	0	2	4	CS719N
CSL728	Compiler Design	3	0	3	4.5	CS432F or CS728
CSL740	Software Engineering	3	0	2	4	CS435N or CS740N
CSL750	Foundations of Automatic Verification	3	0	2	4	
CSL771	Database Implementations	3	0	2	4	
CSL781	Computer Graphics	3	0	3	4.5	CS474F or CS781N
CSL783	Digital Image Analysis	3	0	3	4.5	CS475N or CS783N

CSP315	Embedded System Design Laboratory	0	1	6	4	CS315P
CSR310	Professional Practices	0	1	2	2	CS398S
CSS310	Independent Study	0	3	0	3	CS310S

COURSES FOR ALL STUDENTS UNDER ENGINEERING ARTS & SCIENCE (EAS) CATEGORY.

Course no.	*Title*	*L*	*T*	*P*	*Credits*	*Equivalent old course*
CSL101 or CSL102	Introduction to Computers & Programming * or Introduction to Computer Science §	3	0	2	4	CS110N CS120N
CSL201	Data Structures	3	0	4	5	CS130N

*** Only for students with no prior exposure to computers in their qualifying examination**

§ Only for students with computer science in their qualifying examination

MINOR AREA IN Computer Science & Engineering (20 credits) for non-CS&E students

These courses will also be available under UE/OC category for all students.

Course no.	*Title*	*L*	*T*	*P*	*Credits*	*Equivalent old course*
CSL201	Data Structures §	3	0	4	5	CS130N
CSL211	Computer Architecture §	3	1	2	5	CS211N
CSL356	Analysis and Design of Algorithms	3	1	0	4	CS356N
CSL332	Introduction to Database Systems	3	0	3	4.5	CS332N
CSL333	Artificial Intelligence	3	0	2	4	CS371N
CSL373	Operating Systems	3	0	4	5	CS333N
CSL302	Programming Languages	3	0	4	5	CS232F
CSL374	Computer Networks	3	0	3	4.5	CS372F
	Total Minor Area credit requirements				**20**	

§ Core for Minor area. Not available to B.Tech (Electrical) and M.Tech (Mathematics & Computing)

Semester-wise Schedule of Courses

Semester										Lec. courses	Hours	Credits
I	CSN110 0-0-4-2	CSL101 / CSL102 3-0-2-4	MEL110 2-0-4-4	MAL111 3-1-0-4	PHL110 3-1-0-4	PHP100 0-0-4-2			HUN100 1-0-0-1	4	12-2-14-28	21
II	CSL201 3-0-4-5	EEL101 3-0-2-4	MEL120 2-0-4-4	MAL124 3-1-0-4	CYL110 3-1-0-4	CYP100 0-0-4-2				5	14-2-14-30	23
III	CSL105 3-1-0-4	CSL211 3-1-2-5	CSP301 0-1-4-3	EEL201 3-1-0-4	EEP201 0-0-3-1.5	AML110 3-0-2-4			HUL2xx 3-1-0-4	5	15-5-11-31	25.5
IV	CSL302 3-0-4-5	MAL250 EEL205 3-1-0-4	PHL120 3-1-0-4		DE-1 3-0-4-5				HUL2xx 3-1-0-4	5	15-3-8-26	22
V	CSL356 3-1-0-4	EEL205 MAL250 3-1-0-4			DE-2 or Mini Pr		OC-1 3-0-2-4	OC-2 3-0-0-3	HUL2xx 2-1-0-3	6	17-3-2-22	21
VI	CSL373 3-0-4-5			DE-3 3-0-4-5	DE-4 or Indep study 3-0-0-3		OC-3 3-0-2-4	OC-4 3-0-2-4	HUL2xx 2-1-0-3	6	17-1-12-30	24
Summer	PRACTICAL TRAINING (CST410)											
VII	CSC410 0-3-0-3	CSD411 0-0-8-4	CSL374 3-0-3-4.5		DE-5 3-0-2-4		OC-5 3-0-2-4	OC-6 3-0-2-4		4	12-3-17-32	23.5
VIII		CSD412 0-0-16-8			DE-6 3-0-2-4		OC-7 3-0-2-4	OC-8 3-0-2-4		3	9-0-22-31	20

Reqd OC=31 from 8 courses **Reqd DE=24 from 6 courses**	**Humanities = 15 from (4 courses + HUN100)** **DC=66, BS=24, EAS=20**	**Total=180**