



*An Autonomous Institution Affiliated to Visvesvaraya Technological University (VTU), Belagavi
Approved by All India Council for Technical Education (AICTE), New Delhi. Recognised by Govt. of Karnataka
UG programs Accredited by National Board of Accreditation (NBA): CSE, ECE & ISE, NAAC 'A' Grade.*

Department of CSE (Data Science)

CURRICULUM

Academic Batch 2025-2029 (Autonomous)

Undergraduate Bachelor of Engineering-B.E.

Outcome Based Education (OBE)

III Sem – VIII Sem

2026-27

About the Institute

East Point College of Engineering and Technology (EPCET) was established in the year 1999 by M. G. Charitable Trust, Bangalore. The College is located in the eastern part of Bangalore at Bidarahalli, Virgonagar Post, off old Madras Road. It is at a 5 km distance from K R Puram, Bangalore.

The College is affiliated to Visvesvaraya Technological University (VTU), Belgaum and NAAC accredited with an A grade. All the Undergraduate B.E. and Post Graduate programs M.Tech. offered at EPCET have the approval of AICTE. The College at present offers programs in Artificial Intelligence and Data Science, Computer Science & Engineering, Information Science & Engineering, Electronics & Communication Engineering, Mechanical Engineering, CSE (IOT) and Civil Engineering leading to BE degree of VTU. The college is also offering three M. Tech programs- one each in Mechanical Engineering and Civil Engineering. At EPCET, more than 2500 students are studying in various programs, and there are more than 145 faculty members with about 25% of them having Ph.D. Qualifications. Faculty members, in addition to teaching and routine administrative work, undertake research. A few faculty members work in collaboration with prestigious national laboratories like LRDE- DRDO and publish their research findings in Refereed Peer Reviewed Journals. The programs offered by the college were accredited by NBA during 2008-2011 and 2023-2026.

All the students of the final year undergo internships in reputed industries and more than 80% of the students get placement offer on campus in companies like VMware, Cognizant, Infosys, Accenture, IBM, Covance, and so on. The departments offer various competency and skill development courses to prepare the students for the job market. In addition to this Institute has a unit “Industry Institute Integrated Learning Program (IILP)” with CISCO, AWS, Salesforce, Google Cloud, ARM, UiPath, Microsoft and Texas Instruments. These courses are conducted and students are encouraged and supported to obtain certification. A significant number of Alumni have assumed important positions in industry and government. A few alumni have set up their own start-ups in and around Bangalore and a considerable number have settled down overseas. The Institute has sufficient number of classrooms, Tutorial rooms, seminar halls, well-equipped laboratories, and a library with more than 50000 books. The campus is completely Wi-Fi enabled. In the laboratories, industry-standard software is made available for students to learn and practice

The college encourage faculty members to attend seminars, conferences organized by other Colleges and industries. Also, faculty have been given the freedom to organize seminars, conferences, and faculty development programs annually. Every year at least 5-6 seminars/ conferences/ FDP are conducted. Seminar halls are available within the college for organizing Student Development programmes and conferences. The College has entered into MoU with a number of industries and foreign Universities.

The campus has Medical College, a Superspecialist hospital with 800 beds, Pharmacy college, Two Nursing Institutes, a Higher Education Institute and a PU Institute. Students have opportunities to interact with students of medical, pharmacy nursing, management, commerce, and Science. Students have transport, hostel and sports facilities. There are more than 15 students' clubs for students to participate in various activities and experience. The College has set an ambitious vision and it is working continuously to adapt newer concepts in teaching, learning, and student assessments to realize its vision through working on its mission. The College aims to increase the students' satisfaction level with a holistic approach to education.

Institute Vision and Mission

Vision

The East Point College of Engineering and Technology aspires to be a globally acclaimed institution, recognized for excellence in engineering education, applied research, and nurturing students for holistic development.

Mission

M1: To create Engineering graduates through quality education and to nurture innovation, creativity and excellence in teaching, learning and research.

M2: To serve the technical, scientific, economic and societal developmental needs of our communities.

M3: To induce integrity, teamwork, critical thinking, personality development, and ethics in students and to lay the foundation for lifelong learning.

About the department

The Department of CSE (Data Science) was established in the year 2025 with a vision of exploring the emerging trends in the domain of Data Science and training the students as professionals who can excel in the field and help for the betterment of the society. The Department has a team of well qualified and experienced faculty members who deliver the required skills to the students through a 360° teaching-learning environment. The faculty members are dedicated to impart not only the curriculum-based formal education but also teaching beyond the curriculum to make the students ready for the upcoming challenges in the market. The Department faculty members have a good interest in research and have several publications in reputed journals, conferences and multiple patents to their name.

The students of the Department are continuously mentored and motivated by the faculty members for the continuous improvement and participation in different activities. The students are motivated not

only for academic excellence but also for the research & development. Also, the students are facilitated with the placement training sessions for a better opportunity.

About the program

Year of Establishment	2025-26
Name of the Program offered	BE- CSE (DATA SCIENCE)
Intake	60

Department Vision and Mission

Vision

The department is oriented towards identifying and exploring emerging global trends in Data Science using Artificial Intelligence Applications through academic excellence and quality research, producing proficient professionals for a flourishing society.

Mission

M1: To nurture students with quality education, life-long learning, values and ethics.

M2: To produce competent professionals through comprehensive and holistic methodologies that align with the global industry demands in the field of Data Science.

M3: To induce professionals with technical skills and ethical values to address the societal challenges.

Program Educational Objectives (PEOs)

PEO1: Graduates will possess the ability to apply their knowledge of fundamental engineering, Computer Science and Data Science.

PEO2: Graduates will have sound inter-communication skills, ethical values and responsibilities to work and serve for the development of society.

PEO3: Graduates will be able to understand, interpret, model and implement the Data Science-based solutions for real-world problems.

Program Specific Outcome (PSO)

PSO1: To formulate solutions for the real-world problems with the application of basic engineering principles, intelligent computing and technical skills of Data Science using Artificial Intelligence applications

POS2: To cater and enhance the analytical and technical skills of the graduates in order to be ready for professional development, research and pursue higher education.

Program Outcomes (POs)

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

Total Courses

Sl. No	Category	No. of Courses	No. Of Credits
1	Humanity and Social Science and management Course (HSMC)	2	4
2	Programming Language Courses (PLC)/Emerging Technology Courses (ETC)	2	7
3	Basic Science Courses (BSC)/-Applied Science Course (ASC)	3	20
4	Integrated Professional Core Course (IPCC)	5	20
5	Professional Core Course (PCC)	9	34
6	Professional Elective Course (PEC)	4	15
7	Open Elective Course (OEC)	2	7
8	Professional Core Course laboratory (PCCL)	5	5
9	Engineering Science Course (ESC)	5	15
10	Ability Enhancement Course (AEC)/ Skill Enhancement Course (SEC)/ Skill Development Course (SDC)/Universal Human Value Course (UHV)	6	12
11	Internship (INT)	1	5
12	Project (PROJ)	3	16
13	Skill Lab (SK)	5	5
14	Mandatory Course (Non-credit) - NCMC	3	-
Total		55	165

Sl. No	Category	Credits Per Semester								Total Credits	Credits in %
		I	II	III	IV	V	VI	VII	VIII		
1	HSMC		1			3				4	4%
2	PLC/ETC	7								7	4%
3	BSC/ASC	8	8	4						20	12%
4	IPCC			4	4	4	4	4		20	12%
5	PCC		4	6	9	4	3	8		34	18%
6	PEC					7	4	4		15	9%
7	OEC						3	4		7	4%
8	PCCL			1	1	1	1	1		5	3%
9	ESC	3	6	3	3					15	11%
10	AEC/ SEC/ SDC/ UHV	2	1	2	3	1	3			12	7%
11	INT								5	5	3%
12	PROJ						2	2	12	16	10%
13	SK			1	1	1	1	1		5	3%
Total		20	20	20+1	20+1	20+1	20+1	23+1	17	160+5	100%

III Semester

BE in CSE (Data Science)
Scheme of Teaching III Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2025-2029

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			TW	TH/S	Examination			
					Theory	Tutorial	Practical			CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P						
1	BSC	25CD31	Probability, Distributions and Statistics	TD: Maths PSB: Maths	3	2	0	50	120	50	50	100	4
2	PCC	25CD32	Operating systems	TD:CD PSB:CD	3	0	0	48	90	50	50	100	3
3	PCC	25CD33	Data Structure & Applications	TD:CD PSB:CD	3	0	0	48	90	50	50	100	3
4	IPCC	25CD34	Digital Design & Computer Organization	TD:CD PSB:CD	3	0	2	50	120	50	50	100	4
5	PCCL	25CDL35	Data Structure & Applications lab	TD:CD PSB:CD	0	0	2	02	30	50	50	100	1
6	ESC/ PLC	25CD36X	ESC/ETC/PL C	TD:CD PSB:CD	2	0	2	34	90	50	50	100	3
7	AEC	25CD37X	Ability Enhancement Course - III	TD:CD PSB:CD	0	0	2	02	30	50	50	100	1
8	NCMC	25NS38/ 25PE38/ 25YO38	NSS/ PE/ YOGA	NSS/YO GA/ PE coordinat or	0	0	2	28	28	100	-	100	-
9	SDC	25SC39	Community Project (Project based Learning) / Societal Project	Respectiv e Engg. Dept.	0	0	2	30	30	50	50	100	1
Total										500	400	900	20
10	NCMC	25MDIP3 10	Mathematics course for Lateral Entry Students	Maths	1	0	0	14	28	100	-	100	-
11	SK	25CDSK3 11	Skill Lab-1	CD	0	0	2	02	30	50	50	100	1
Total										650	450	1100	20+1

NOTE: Minimum of 1 subject should have a tutorial component.

TW&SL – Term work

TH/S – Total Hours per semester

Engineering Science Course (ESC/ETC/PLC)

Course Code	Course
25CD36A	Object Oriented Programming with Java
25CD36B	Object Oriented Programming with C++
25CD36C	Python Programming for Data Science

Ability Enhancement Course - III

Course Code	Course
25CD37A	Data Analytics with Excel
25CD37B	Project Management with Git

IV Semester

BE in CSE (Data Science)
Scheme of Teaching IV Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2025-2029

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			TW	TH/S	Examination			
					Theory	Tutorial	Practical			CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P						
1	PCC	25CD41	Analysis and Design of Algorithms	TD:CD PSB:CD	3	0	0	48	90	50	50	100	3
2	PCC	25CD42	Database Management Systems	TD:CD PSB:CD	3	0	0	48	90	50	50	100	3
3	PCC	25CD43	Principles of AI	TD:CD PSB:CD	3	0	0	48	90	50	50	100	3
4	IPCC	25CD44	Data Analytics with R	TD:CD PSB:CD	3	0	2	50	120	50	50	100	4
5	PCCL	25CDL45	Design and Analysis Algorithm Lab	TD:CD PSB:CD	0	0	2	02	30	50	50	100	1
6	BSC /ESC	25CD46X	ESC	TD:CD PSB:CD	2	2	0	34	90	50	50	100	3
7	AEC	25CD47X	Ability Enhancement Course	TD:CD PSB:CD	0	0	2	02	30	50	50	100	1
8	UHV	25UH48	Universal Human Values	Any dept	1	0	0	16	30	50	50	100	1
9	NCMC	25NS49/ 25PE49/ 25YO49	NSS/PE/YO GA	NSS/YO GA/ PE coordinator	0	0	2	28	28	100	-	100	-
10	SDC	25SC410	Environmental Science Project	CD	0	0	2	30	30	50	50	100	1
Total									628	550	450	1000	20
11	NCMC	25MDIP411	Mathematics course for Lateral Entry Students	Maths Dept	1	0	0	14	28	100	-	100	-
12	SK	25CDSK412	Skill Lab-2	CD	0	0	2	02	30	50	50	100	1
Total									686	700	500	1200	20+1

NOTE: Minimum of 1 subject should have a tutorial component.

TW&SL – Term work

TH/S – Total Hours per semester

Engineering Science Course (ESC/ETC/PLC)

Course Code	Course
25CD46A	Algorithmic Game Theory
25CD46B	Discrete Mathematics Structures
25CD46C	Graph Theory
25CD46D	Optimization Technique

Ability Enhancement Course - III

Course Code	Course
25CD47A	Angular JS
25CD47B	DBMS with SQL and Mango DB
25CD47C	MERN

V Semester

BE in CSE (Data Science)
Scheme of Teaching V Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2025-2029

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			TW	TH/S	Examination			
					Theory	Tutorial	Practical			CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P						
1	HSMC	25CD51	Software Engineering & Project Management	TD:CD PSB:CD	3	0	0	48	90	50	50	100	3
2	PCC	25CD52	Theory of Computation	TD:CD PSB:CD	3	2	0	50	120	50	50	100	4
3	IPCC	25CD53	Computer Networks	TD:CD PSB:CD	3	0	2	50	120	50	50	100	4
4	PCCL	25CDL54	Data Visualization using Power BI and Tableau	TD:CD PSB:CD	0	0	2	02	30	50	50	100	1
5	PEC	25CD55X	Program Elective Course-1	TD:CD PSB:CD	3	0	0	48	90	50	50	100	3
6	PEC	25CD56X	Program Elective Course-2	TD:CD PSB:CD	4	0	0	64	120	50	50	100	4
7	NCMC	25ES57	Environmental Studies and E-waste Management	TD:CV PSB CV	1	0	0	14	28	100	-	100	-
8	NCMC	25NS58 / 25PE58 / 25YO58	NSS/PE/ YOGA	NSS/YO GA/ PE coordinat or	0	0	2	28	28	100	-	100	-
9	SDC	25SC59	Hackathon Based Project	CIE: By Departme nt SEE: Evaluatio n by industry experts	0	0	2	30	30	50	50	100	1
10	SK	25CDSK5 10	Skill Lab-3	CD	0	0	2	02	30	50	50	100	1
Total									686	600	400	1000	20+1

NOTE: Minimum of 1 subject should have a tutorial component.

TW&SL – Term work

TH/S – Total Hours per semester

*Environmental Studies and E-waste Management is under the category of NCMC, 1 hour teaching per week has to be allocated in the timetable.

Program Elective Course-1

Course Code	Course
25CD55A	Computational Learning Theory
25CD55B	Data Mining & Data Warehousing
25CD55C	Business Intelligence
25CD55D	Cloud Computing

Program Elective Course-2

Course Code	Course
25CD56A	Computer Vision
25CD56B	Information Retrieval
25CD56C	Exploratory Data Analysis
25CD56D	Digital Image Processing

VI Semester

BE in CSE (Data Science)
Scheme of Teaching VI Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2025-2029

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			TW	TH/S	Examination			
					Theory	Tutorial	Practical			CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P						
1	PCC	25CD61	Machine Learning	TD:CD PSB:CD	3	0	0	48	90	50	50	100	3
2	IPCC	25CD62	Big Data analytics	TD:CD PSB:CD	3	0	2	50	120	50	50	100	4
3	PCCL	25CDL63	Machine Learning lab	TD:CD PSB:CD	0	0	2	02	30	50	50	100	1
4	PEC	25CD64X	Program Elective Course-3	TD:CD PSB:CD	3	2	0	50	120	50	50	100	4
5	AEC	25RM65	Research Methodology and IPR	Any dept	3	0	0	48	90	50	50	100	3
6	OEC	25XX66X	Open Elective -1	Respective Dept	3	0	0	48	90	50	50	100	3
7	PROJ	25CDP67	Mini Project	TD:CD PSB:CD	0	0	4	60	60	100	-	100	2
8	NCMC	25NS68 / 25PE68 / 25YO68	NSS/PE/ YOGA	NSS/YO GA/ PE coordinator	0	0	2	28	28	100	-	100	-
9	NCMC	25IKS69	IKS	CD	1	0	0	14	28	100	-	100	-
10	SK	25CDSK610	Skill Lab-4	CD	0	0	2	02	30	50	50	100	1
Total									686	600	400	1000	20+1

NOTE: Minimum of 1 subject should have a tutorial component.

TW&SL – Term work & Self Learning

TH/S – Total Hours per semester

Program Elective Course-3

Course Code	Course
25CD64A	Human-Centered AI
25CD64B	Natural Language Processing
25CD64C	Blockchain Technology
25CD64D	Time Series Analysis

Open Elective-1

Course Code	Course
25CD66A	Introduction to Data Structures
25CD66B	Fundamentals of Operating Systems
25CD66C	Mobile Application Development
25CD66D	Introduction to Artificial Intelligence

VII Semester

BE in CSE (Data Science)
Scheme of Teaching VI Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2025-2029

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			TW	TH/S	Examination			
					Theory	Tutorial	Practical			CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P						
1	PCC	25CD71	Data Security & Privacy	TD:CD PSB:CD	3	2	0	64	120	50	50	100	4
2	PCC	25CD72	Statistical Machine Learning for Data Science	TD:CD PSB:CD	3	0	2	50	120	50	50	100	4
3	IPCC	25CD73	Deep Learning & Reinforcement Learning	TD:CD PSB:CD	3	0	2	50	120	50	50	100	4
4	PCCL	25CDL74	Generative AI Lab	TD:CD PSB:CD	0	0	2	02	30	50	50	100	1
5	PEC	25CD75X	Program Elective Course-4	TD:CD PSB:CD	4	0	0	64	120	50	50	100	4
6	OEC	25XX76X	Open Elective -2	Respective Dept	4	0	0	64	120	50	50	100	4
7	PROJ	25XXP77	Project Work Phase - 1	CD	0	0	4	60	60	100	-	100	2
8	SK	25CDSK78	Skill Lab-5	CD	0	0	2	02	30	50	50	100	1
Total									720	450	350	800	23+1

NOTE: Minimum of 1 subject should have a tutorial component.

TW&SL – Term work & Self Learning

TH/S – Total Hours per semester

Program Elective Course-4

Course Code	Course
25CD75A	Scalable Data Systems
25CD75B	Data Engineering & MLOps
25CD75C	Business Analytics
25CD75D	Social Network Analysis

Open Elective-1

Course Code	Course
25CD76A	Introduction to DBMS
25CD76B	Data Analytics
25CD76C	Software Engineering
25CD76D	Introduction to Machine Learning

VIII Semester

BE in CSE (Data Science)
Scheme of Teaching VI Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2025-2029

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			TW	TH/S	Examination			
					Theory	Tutorial	Practical			CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P						
1	INT	25INT81	Research / Industrial Internship	CD	0	0	10	150	150	100	100	200	05
2	PROJ	25CDP82	Project Work Phase – II	CD	0	0	24	360	360	100	100	200	12
Total									510	200	200	400	17

TW&SL – Term work & Self Learning

TH/S – Total Hours per semester