EAST POINT COLLEGE OF ENGINEERING & TECHNOLOGY

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

www.epcet.edu.in

CURRICULUM

Academic Batch 2024 – 2028 (Autonomous)

Undergraduate Bachelor of Engineering Program- B.E

Outcome Based Education (OBE)

III SEM TO VIII SEM

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

2025-2026

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 ad NAAC accredited with 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, Cyber Security including Blockchain Technology, Artificial Intelligence and Machine Learning 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 Three programs of CSE, ECE, ISE 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.

About the department

The Department of Computer Science and Engineering at East Point College of Engineering and Technology (EPCET), established in 1999 and the Institute is affiliated with VTU, Belagavi. Department offers a four-year B.E. program with 180 student intake. Its mission is to provide students with a strong foundation in computer science, programming, and emerging technologies. The curriculum covers a wide range of subjects, including programming languages, algorithms, operating systems, and artificial intelligence. The department also boasts a VTU-recognized research center, well-equipped labs, and a dedicated faculty involved in research and teaching. Graduates have secured admissions to prestigious universities and excelled in leading IT companies

About the program

Year of Establishment	1999-2000
Name of the Program offered	BE- Computer Science & Engineering
Intake	180

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.

Department Vision and Mission

Vision

The department aspires to be a centre of excellence in Computer Science & Engineering to develop competent professionals through holistic development

Mission

Program Educational Objectives (PEOs)

PEO-1: To apply knowledge, understanding, and problem-solving skills in computer science to conceptualize, requirement analyze, design, develop, simulate, and test computing systems to carve a successful career in the industry as a computer science engineer.

PEO-2: To strengthen technical and managerial competencies and skills to be able to work in scientific and technological organizations, administrative positions in government, and even take up the entrepreneurial route.

PEO-3: To impart critical thinking, creativity & innovation, collaboration, communication, information literacy, flexibility & adaptability, leadership and responsibility, and social and cross- cultural interaction skills, and an ability to adapt to evolving professional environments.

Program Specific Outcome (PSO)

PSO1: To conceptualize, model, design, simulate, analyze, develop, test, and validate computing systems and solve technical problems arising in the field of computer science & engineering.

PSO2: To specialize in the sub-areas of computer science & engineering systems such as cloud computing, Robotic Process Automation, cyber security, big data analytics, user interface design, and IOT to meet industry requirements.

PSO3: To build innovative solutions to meet the demands of the industry using appropriate tools and techniques

Program Outcomes as defined by NBA (PO) Engineering Graduates will be able to:

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)

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East Point College of Engineering and Technology

Total Courses

Sl. No	Category	No. of Courses	No. of Credits
1	Humanity and Social Science and management Course (HSMC)	4	6
2	Programming Language Courses (PLC)/Emerging Technology Courses (ETC)	2	6
3	Basic Science Courses (BSC)/-Applied Science Course (ASC)	5	20
4	Integrated Professional Core Course(IPCC)	5	20
5	Professional Core Course (PCC)	9	31
6	Professional Elective Course (PEC)	4	16
7	Open Elective Course (OEC)	2	7
8	Professional Core Course laboratory (PCCL)	5	5
9	Engineering Science Course (ESC)	6	18
10	Ability Enhancement Course (AEC)/ Skill Enhancement Course (SEC)/ Skill Development Course (SDC)/Universal Human Value Course (UHV)	7	10
11	Internship (INT)	1	5
12	Project (PROJ)	3	16
13	Mandatory Course (Non-credit)- NCMC	2	-
Total		55	160

Credit Distribution

Sl. No	Category	Credits Per Semester								Total Credits	Credits in %
		I	II	III	IV	V	VI	VII	VIII		
1	HSMC	1	2			3				6	4%
2	PLC/ETC	3	3							6	4%
3	BSC/ASC	8	8	4						20	13%
4	IPCC			4	4	4	4	4		20	13%
5	PCC			7	9	4	3	8		31	19%
6	PEC					4	8	4		16	10%
7	OEC						3	4		7	4%
8	PCCL			1	1	1	1	1		5	3%
9	ESC	6	6	3	3					18	11%
10	AEC/ SEC/ SDC/ TS/UHV	2	1	1	3	3				10	6%
11	INT								5	5	3%
12	PROJ						2	2	12	16	10%
Total		20	20	20	20	19	21	23	17	160	100%

SDA-Skill Development Activities, TD/PSB- Teaching Department / Paper Setting Board, ASC-Applied Science Course, ESC- Engineering Science Courses, ETC- 29052023/V10 scheme for Computer Science and Engineering and allied branches (CSE/ISE and BT all allied branches of CSE) 2 Emerging Technology Course, AEC- Ability Enhancement Course, HSMS-Humanity and Social Science and management Course, SDC- Skill Development Course, CIE–Continuous Internal Evaluation, SEE- Semester End Examination, IC – Integrated Course (Theory Course Integrated with Practical Course)

PCC Value Course, MC: Mandatory Course (Non-credit), AEC: Ability Enhancement Course, SEC: Skill Enhancement Course, L: Lecture, T: Tutorial, P: Practical. ESC: Engineering Science Course, ETC: Emerging Technology Course, PLC: Programming Language Course, MC Mandatory Course, PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human

III Semester

BE in Computer Science & Engineering
Scheme of Teaching III Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2024-2028

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			Examination			Credits
					Theory	Tutorial	Practical	CIE Marks	SEE Marks	Total Marks	
					L	T	P				
1	BSC	24CS31	Engineering Mathematics - III	Math's	3	2	0	50	50	100	04
2	PCC	24CS32	Operating systems	Respective Engg. Dept	4	0	0	50	50	100	04
3	PCC	24CS33	Data Structure & Applications	CSE	3	0	0	50	50	100	03
4	IPCC	24CS34	Digital Design & Computer Organization	CSE	3	0	2	50	50	100	04
5	PCCL	24CSL35	Data Structure & Applications Lab	CSE	0	0	2	50	50	100	01
6	ESC/PLC	24CS36X	ESC / PLC	Respective Engg. Dept	2	0	2	50	50	100	03
7	AEC	24CSL37X	Ability Enhancement Course - III	CSE dept/ IT Industry	0	0	2	50	50	100	01
8	MC	24NS38/ 24PE38/ 24YO38	NSS/ PE/ YOGA	NSS/YOGA/ PE coordinator	0	0	2	100	-	100	-
Total								450	350	800	20

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

Engineering Science Course (ESC/ETC/PLC)

PLC courses

Course code	Course
24CS36A	Object Oriented Programming with Java
24CS36B	C# & .NET programming Language
24CS36C	Python for Data Science

Ability Enhancement Course

Course code	Course
24CSL37A	Data Visualization
24CSL37B	Project Management with Git
24CSL37C	Prompt Engineering

IV Semester

BE in Computer Science & Engineering
Scheme of Teaching IV Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2024-2028

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			Examination			
					Theory	Tutorial	Practical	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P				
1	PCC	24CS41	Analysis and Design Algorithm	CSE	3	0	0	50	50	100	3
2	PCC	24CS42	Database Management system	CSE	3	0	0	50	50	100	3
3	PCC	24CS43	Introduction to AI & Machine Learning	CSE	3	0	0	50	50	100	3
4	IPCC	24CS44	Microcontroller	CSE	3	0	2	50	50	100	4
5	PCCL	24CSL45	Analysis and Design of Algorithm Lab	CSE	0	0	2	50	50	100	1
6	BSC/ESC	24CS46X	BSC / ESC	Respective Engg Dept	2	2	0	50	50	100	3
7	AEC	24CSL47X	Ability Enhancement Course - IV	CSE dept/ IT Industry	0	0	2	50	50	100	1
8	UHV	24UH48	Universal Human Values	Any dept	2	0	0	50	50	100	2
9	MC	24NS49/ 24PE49/ 24YO49	NSS/PE/YOGA	NSS/YOGA/ PE COORDINATOR	0	0	2	100	-	100	-
Total								500	400	900	20

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

Engineering Science Course (ESC/ETC/PLC)

Course Code	Course
24CS46A	Maths 4 – Linear Algebra
24CS46B	Discrete Mathematics Structures
24CS46C	Graph Theory

Ability Enhancement Course

Course Code	Course
24CSL47A	UX/UI Design Tool (Lab)
24CSL47B	DBMS with SQL and Mongo DB (Lab)
24CSL47C	Technical writing using LATEX(Lab)

V Semester

BE in Computer Science & Engineering **Scheme of Teaching V Semester** Outcome Based Education and Choice Based Credit System (CBCS) Effective from the academic year Batch - 2024-2028											
Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			Examination			
					Theory	Tutorial	Practical	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P				
1	HSMC	24CS51	Software Engg. & Project Management	CSE	3	0	0	50	50	100	3
2	PCC	24CS52	Theory of computations	CSE	3	2	0	50	50	100	4
3	IPCC	24CS53	Computer Networks	CSE	3	0	2	50	50	100	4
4	PCCL	24CSL54	Web Development Lab	CSE	0	0	2	50	50	100	1
5	PEC	24CS55X	Program Elective Course-1	CSE	4	0	0	50	50	100	4
6	AEC	24RM56	Research Methodologies & IPR	CSE	3	0	0	50	50	100	3
7	NCMC	24EV57	Environmental Studies and E-waste Management*	Civil Dept	1	0	0	50	50	100	-
8	MC	24NS58/ 24PE58/ 24YO58	NSS/PE/YOGA	NSS/YOGA / PE coordinator	0	0	2	100	-	100	-
Total								450	350	800	19

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

Sl. No	Career Path	PEC1	PEC2	PEC3	PEC4
1	FSD Engineers	Full Stack Development	MERN Stack/ MEAN Stack	Advanced UI/UX	Cloud computing (Open Stack/ Google)
2	Cloud Engineers	Cloud Foundations & Practitioner	AI Cloud Practitioner	Cloud Architect	Cloud Solution Architect
3	AIML Engineers	Deep learning	Natural language processing	AI for Computer Vision	Machine Learning for Web Automation
4	Data Science Engineers	Data Engineering & ML Ops	Statistical Machine Learning for Data Science	Data Security & Privacy	Business Analytics

VI Semester

BE in Computer Science & Engineering
Scheme of Teaching VI Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic year Batch - 2024-2028

Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			Examination			
					Theory	Tutorial	Practical	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P				
1	PCC	24CS61	Gen AI & Cyber Law Ethics	CSE	3	0	0	50	50	100	3
2	IPCC	24CS62	Advanced Machine Learning Algorithms & Applications	CSE	3	0	2	50	50	100	4
3	PCCL	24CSL63	Devops Lab	CSE	0	0	2	50	50	100	1
4	PEC	24CS64X	Program Elective Course-2	CSE	3	2	0	50	50	100	4
5	PEC	24CS65X	Program Elective Course-3	CSE	4	0	0	50	50	100	4
6	OEC	24XX66X	Open Elective -1	CSE	3	0	0	50	50	100	3
7	PROJ	24CS67	Mini Project	CSE	0	0	4	50	50	100	2
8	MC	24NS68/ 24PE68/ 24YO68	NSS/YOGA/PE	NSS/YOGA/ PE COORDINATOR	0	0	2	100	-	100	-
Total								450	350	800	21

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

Sl. No	Career Path	PEC1	PEC2	PEC3	PEC4
1	FSD Engineers	Full Stack Development	MERN Stack/ MEAN Stack	Advanced UI/UX	Cloud computing (Open Stack/ Google)
2	Cloud Engineers	Cloud Foundations & Practitioner	AI Cloud Practitioner	Cloud Architect	Cloud Solution Architect
3	AIML Engineers	Deep learning	Natural language processing	AI for Computer Vision	Machine Learning for Web Automation
4	Data Science Engineers	Data Engineering & ML Ops	Statistical Machine Learning for Data Science	Data Security & Privacy	Business Analytics

VII Semester

BE in Computer Science & Engineering **Scheme of Teaching VII Semester** Outcome Based Education and Choice Based Credit System (CBCS) Effective from the academic year Batch - 2024-2028											
Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			Examination			
					Theory	Tutorial	Practical	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P				
1	PCC	24CS71	Cryptography & Network security	CSE	4	0	0	50	50	100	4
2	PCC	24CS72	Parallel Computing	CSE	4	0	0	50	50	100	4
3	IPCC	24CS73	Big Data Analytics	CSE	3	2	0	50	50	100	4
4	PCCL	24CSL74	Cloud Computing Lab(Open Stack/Google)	CSE	0	0	2	50	50	100	1
5	PEC	24CS75X	Program Elective Course-4	CSE	4	0	0	50	50	100	4
6	OEC	24XX76X	Open Elective -2	CSE	4	0	0	50	50	100	4
7	PROJ	24CSP77	Project Work Pahse-1	CSE	4	0	4	50	50	100	2
Total								350	350	700	23

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

Sl. No	Career Path	Certification	Platform
1	Full Stack Developer	IBM Full Stack Software Developer Professional Certificate	IBM(Coursera)
2	Data Analytics Engineer/AIML Engineer	IBM Data Science Professional Certificate	IBM(Coursera)
3	Cloud Engineer	AWS Certification	AWS
4	Software Developer	IBM IT Scrum Master Professional Certificate	IBM(Coursera)

VIII Semester

BE in Computer Science & Engineering **Scheme of Teaching VIII Semester** Outcome Based Education and Choice Based Credit System (CBCS) Effective from the academic year Batch - 2024-2028											
Sl. No	Course	Course Code	Course Title	Teaching Department (TD)/ Board	Teaching Hours /Week			Examination			
					Theory	Tutorial	Practical	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P				
1	INT	24INT81	Research / Industrial Internship	CSE	2 contact hour/ week for interaction between the faculty & students			100	100	200	5
2	PROJ	24CSP82	Project Work Phase - II	CSE	4	0	4	50	50	100	12
Total								150	150	300	17

Open Elective

Sl. No	Department	Subjects
1	Civil	E & Plastic waste management
2	Civil	Environmental Impact Assessment
3	Civil	Traffic Engineering
4	ECE	Robotics and its Applications
5	ECE	Embedded system & application
6	ECE	Satellite Remote sensing & GIS
7	MECH	Supply Chain Management
8	MECH	Bo-Energy Technology
9	MECH	Renewable Energy system
10	EEE	Electric Vehicle technology

Open Elective from CSE to other Dept. (Academic)

Sl. No	Department	Subjects
1	CSE	Principles of AI
2	CSE	Web Technologies
3	CSE	Introduction to Artificial Intelligence & Machine Learning
4	CSE	Big Data analytics Techniques
5	CSE	Cloud computing & applications
6	CSE	Data Science
7	CSE	Cryptography & Computer Networks
8	CSE	Advance Java programming
9	CSE	Advanced Python programming
10	CSE	Technology for Rural development

Assessment Metrics

IPCC

Continues Internal assessment (CIE): 50		
Assessment Tools	Marks	Course Outcome addressed
Internal Test - 1 (CIE - I)	15	CO1, CO2, CO3
Internal Test - 2 (CIE - II)	15	CO3, CO4, CO5
Average of the two CIE will be taken for 15 marks		
Assignment / Programming Competition / Hackathon / Code Tantra / Quiz/Online Certification	10	CO1, CO2, CO3, CO4, CO5
Integrated practical Lab session (Daily Assessment +Record + 2 Lab Test)	25 (10+5+10)	CO1, CO2, CO3, CO4, CO5
The Final CIE out of 50 Marks = Average of two CIE tests for 15 Marks + Marks scored in Programming Competition / Hackathon / Code Tantra / Quiz/Online Certification for 10 + Lab assessment for 25		
Semester End examinations (SEE)	100	CO1, CO2, CO3, CO4, CO5

PCC

Continues Internal assessment (CIE): 50		
Assessment Tools	Marks	Course Outcome addressed
Internal Test - 1 (CIE - I)	25	CO1, CO2, CO3
Internal Test - 2 (CIE - II)	25	CO3, CO4, CO5
Average of the two CIE will be taken for 30 marks		
Assignment/ Programming Competition / Hackathon / Code Tandra / Quiz/Online Certification	25	CO1, CO2, CO3, CO4, CO5
The Final CIE out of 50 Marks = Adding of two CIE tests for 30 Marks + Marks scored in Programming Competition / Hackathon / Code Tantra / Quiz/ Online Certification for 20		
Semester End examinations (SEE)	100	CO1, CO2, CO3, CO4, CO5