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)

V TO VI SEM

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

2024-28

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. All the undergraduate and postgraduate programs offered at EPCET have the approval of AICTE. The College at present offers programs in Artificial Intelligence and Data Science, Computer Science and Engineering, Information Science and Engineering, Electronics and Communication Engineering, Mechanical Engineering, and Civil Engineering leading to BE degree of VTU. The college is also offering three M. Tech programs- one each in Electronics and Communication, Mechanical Engineering, and Civil Engineering. At EPCET, more than 2000 students studying various programs, and there are more than 110 faculty members with about 25% of them having Ph.D. Qualification. 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 well-known journals. The programs offered by the college were accredited by NBA during 2008-2011, once again the departments
have applied for accreditation of their programs with the NBA. Various NEWS Papers including Times of India have ranked EPCET very high.
All the students of the final year undergo internships in reputed industries and more than 70% of the students get one or the other job placement 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 industry integrated learning programs (IILP) with CISCO, AWS, Salesforce, Google Cloud, ARM, UiPath, Microsoft, Texas Instrument. 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 students actively participate in the intercollegiate sports activities organized by VTU and also in various intercollegiate cultural activities.

The College with a large number of classrooms, seminar halls, well-equipped laboratories, and a library with more than 50000 books is completely Wi-Fi enabled. In the laboratories, industry-standard software is made available for students to learn and practice and the college has subscribed to a large number of technical journals through a consortium approach.

The college encourages 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 is being conducted. A number of seminar halls are available within the college for organizing seminars and conferences. The College has entered into MoU with a number of industries and foreign Universities.

Since the College is located on a multi-college campus, 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's 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 affiliated with VTU, offers a four-year B.E. program with 300 student intakes. 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	300

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 center of excellence in Computer Science & Engineering to develop competent professionals through holistic development

Mission

M1: To create successful Computer Science Engineering graduates through effective pedagogies, the latest tools and technologies, and excellence in teaching and learning.

M2: To augment experiential learning skills to serve technical, scientific, economic, and social developmental needs.

M3: To instil integrity, critical thinking, personality development, and ethics in students for a successful career in Industries, Research, and Entrepreneurship.

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)

EastPoint 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**

Semester wise Credit Breakdown for B.E Degree Curriculum Batch 2024-28

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					8	4	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/ 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	20	20	23	17	160	100%

SDA-Skill Development Activities, **TD/PSB**- Teaching Department / Paper Setting Board, **ASC**-Applied Science Course, **ESC**-Engineering Science Courses, **ETC**-Emerging Technology Course, **AEC**- Ability Enhancement Course, **HSMC**-Human and Social Science and management Course, **SDC**- Skill Development Course, ESC: Engineering Science Course, ETC: Emerging Technology Course, PLC: Programming Language Course, MC Mandatory Course, **MC**: Mandatory Course (Non-credit), **AEC**: Ability Enhancement Course, **SEC**: Skill Enhancement Course, **PCC**: Professional Core Course, **PCCL**: Professional Core Course laboratory, **UHV**: Universal Human Values.

CIE-Continuous Internal Evaluation, **SEE**- Semester End Examination, **IC** – Integrated Course (Theory Course Integrated with Practical Course), **L**: Lecture, **T:** Tutorial**, P**: Practical.

V Semester

BE in CSE 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	03
2	PCC	24CS52	Theory of computations	CSE	3	2	0	50	50	100	04
3	IPCC	24CS53	Computer Networks	CSE	3	0	2	50	50	100	04
4	PCCL	24CSL54	Web Development Lab	CSE	0	0	2	50	50	100	01
5	PEC	24CS55X	Program Elective Course-1	CSE	4	0	0	50	50	100	04
6	PEC	24CS56X	Program Elective Course-2	CSE	3	0	2	50	50	100	04
7	NCMC	24EV57	Environmental Studies and E-waste Management*	Civil Dept	1	0	0	100	-	100	-
8	MC	24NS58/ 24PE58/ 24YO58	NSS/PE/YOGA	NSS/ YOGA / PE coordinator	0	0	2	100	-	100	-
Total								**500**	**300**	**800**	**20**

NOTE: Minimum of 1 subject should have a tutorial

Sl. No	**Career Path**	**PEC1**	**PEC2**	**PEC3**	**PEC4**
1	FSD Engineers	Full Stack Development	Advanced UI/UX	MERN Stack/ MEAN Stack	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 CSE 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	03
2	IPCC	24CS62	Advanced Machine Learning Algorithms & Applications	CSE	3	0	2	50	50	100	04
3	PCCL	24CSL63	Devops Lab	CSE	0	0	2	50	50	100	01
4	PEC	24CS64X	Program Elective Course-3	CSE	3	2	0	50	50	100	04
5	AEC	24RM65	Research Methodologies & IPR	CSE	3	0	0	50	50	100	03
6	OEC	24XX66X	Open Elective -1	CSE	3	0	0	50	50	100	03
7	PROJ	24CS67	Mini Project	CSE	0	0	4	100	-	100	02
8	MC	24NS68/ 24PE68/ 24YO68	NSS/YOGA/PE	NSS/YOGA/ PE COORDINATOR	0	0	2	100	-	100	-
9	MC	24IKS69	Indian Knowledge System	CSE	1	0	0	100	-	100	-
Total								**600**	**300**	**900**	**20**

NOTE: Minimum of 1 subject should have a tutorial

Sl. No	**Career Path**	**PEC1**	**PEC2**	**PEC3**	**PEC4**
1	FSD Engineers	Full Stack Development	Advanced UI/UX	MERN Stack/ MEAN Stack	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