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
Accredited by NAAC with A Grade
UG programs Accredited by National Board of Accreditation (NBA): CSE, ECE & ISE

DEPARTMENT OF CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

CURRICULUM

Academic Batch 2024 – 2028 (Autonomous)

Undergraduate Bachelor of Engineering Program - B.E.

Outcome Based Education (OBE)

III & IV SEMESTER

2024-2028

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), Belagavi.

The college was granted autonomous status in the year 2024 as per the guidelines of the University Grants Commission (UGC). The college was accredited with NAAC A grade in the year 2024, recognizing its commitment to quality education and institutional excellence. 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 Computer Science & Engineering, CSE (Artificial Intelligence and Machine Learning), CSE (Data Science), CSE (IOT&CSBT), Information Science & Engineering, Electronics & Communication Engineering, and Civil Engineering leading to BE degree of VTU. The college is also offering two 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 eligible programs 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 over 1200 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 CSE (Artificial Intelligence & Machine Learning) at East Point College of Engineering and Technology (EPCET), established in 2023 with an intake of 60 students and the Institute is affiliated with VTU, Belagavi. Department offers a four-year B.E. program with 120 students' intake from the current academic year 2025-26. Its mission is to provide students with a strong foundation in artificial intelligence, Machine learning, computer science, programming, and emerging technologies. The curriculum covers a wide range of subjects, including artificial intelligence, programming languages, algorithms, operating systems, machine learning, Natural Language Processing & Generative AI. The department has well-equipped labs, and a dedicated faculty involved in research and teaching.

Year of Establishment	2023 - 2024
Name of the Program offered	BE- CSE (Artificial Intelligence & Machine Learning)
Intake	120

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

To develop competent professionals in the field of Artificial Intelligence and Machine Learning to serve best to the society.

Mission

M1: To achieve academic excellence through innovative teaching-learning practices that will best serve the society.

M2: To nurture successful Computer Science Engineering graduates with a specialization in AI&ML with professional responsibilities and commitment to lifelong learning.

M3: To establish Center of Excellence in areas of Computing, Artificial Intelligence & Machine Learning to inculcate strong ethical values, applied research capabilities.

Program Educational Objectives (PEOs)

PEO 1: To enable students to build Intelligent Machines and applications with a cutting – edge combination of machine learning, analytics and visualization.

PEO 2: To enable technocrats to pursue higher education and research, and have a successful career in industries related to AIML.

PEO 3: To produce graduate professionals with ethics, who will contribute to industrial growth and social transformation as responsible citizens.

Program Specific Outcome (PSO)

PSO 1: Adapt, contribute and innovate new technologies in computing profession by working in teams to design, implement, and maintain in the key domains of Artificial Intelligence & Machine Learning.

PSO 2: Apply the skills in the areas of Health care, Education, Agriculture, Environment, Smart Systems & in the multi-disciplinary area of Artificial Intelligence & Machine Learning.

PSO 3: Develop many successful applications based on Machine Learning methods, AI methods in different fields, including Neural networks, Natural Language Processing, Generative AI and data Analytics.

Program Outcomes (POs)

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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DEPARTMENT OF CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

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					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/ 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%

HSMC - Humanity and Social Science and management Course, PLC - Programming Language Course, ETC - Emerging Technology Course, BSC - Basic Science Course, ASC - Applied Science Course, IPCC – Integrated Course (Theory Course Integrated with Practical Course), PCC - Professional Core Course, PEC - Professional Elective Course, OEC – Open Elective Course, PCCL - Professional Core Course laboratory, ESC - Engineering Science Course, AEC - Ability Enhancement Course, SEC - Skill Enhancement Course, SDC - Skill Development Course, UHV – Universal Human Values, INT – Internship, PROJ – Project, NCMC – Non-credit Mandatory Course

III Semester:

BE in CSE (AIML) Scheme of Teaching and Examination for III Semester Outcome Based Education and Choice Based Credit System (CBCS) Effective from the academic 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	BSC	24CI31	Engineering Mathematics III	Maths	3	2	0	50	50	100	04
2	PCC	24CI32	Operating systems	AIML	4	0	0	50	50	100	04
3	PCC	24CI33	Data Structure & Applications	AIML	3	0	0	50	50	100	03
4	IPCC	24CI34	Digital Design & Computer Organization	AIML	3	0	2	50	50	100	04
5	PCCL	24CIL35	Data Structure & Applications Lab	AIML	0	0	2	50	50	100	01
6	ESC / PLC	24CI36X	ESC / PLC	AIML	2	0	2	50	50	100	03
7	AEC	24CI37X	Ability Enhancement Course - III	AIML	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.

ESC/ PLC:

24CI36A	Object Oriented Programming with Java
24CI36B	Object Oriented Programming with C++
24CI36C	Python Programming for Data Science

Ability Enhancement Course - III

24CI37A	Data Visualization
24CI37B	Project Management with Git
24CI37C	Prompt Engineering
24CI37D	Data Analytics with Excel

IV Semester:

BE in CSE (AIML)
Scheme of Teaching and Examination for IV Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic 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	24CI41	Analysis and Design of Algorithms	AIML	3	0	0	50	50	100	03
2	PCC	24CI42	Database Management system	AIML	3	0	0	50	50	100	03
3	PCC	24CI43	Introduction to Artificial Intelligence and Machine Learning	AIML	3	0	0	50	50	100	03
4	IPCC	24CI44	Data Analytics with R	AIML	3	0	2	50	50	100	04
5	PCCL	24CIL45	Analysis and Design of Algorithms Lab	AIML	0	0	2	50	50	100	01
6	BSC / ESC	24CI46X	BSC / ESC	Respective Dept	2	2	0	50	50	100	03
7	AEC	24CI47X	Ability Enhancement Course - IV	AIML	0	0	2	50	50	100	01
8	UHV	24UH48	Universal Human Values	Any Dept	2	0	0	50	50	100	02
9	MC	24NS49 / 24PE49 / 24YO49	NSS/PE/ YOGA	NSS/PE /YOGA COORDINATOR	0	0	2	100	-	100	-
Total								**500**	**400**	**900**	**20**

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

BSC / ESC:

24CI46A	Linear Algebra
24CI46B	Discrete Mathematical Structures
24CI46C	Graph Theory

Ability Enhancement Course - IV

24CI47A	UX/UI Design
24CI47B	Technical writing using LaTeX
24CI47C	Scala
24CI47D	DBMS with SQL and MongoDB

V Semester:

BE in CSE (AIML) Scheme of Teaching and Examination for V Semester Outcome Based Education and Choice Based Credit System (CBCS) Effective from the academic 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	24CI51	Entrepreneurship and Innovation Management with Artificial Intelligence	AIML	3	0	0	50	50	100	03
2	PCC	24CI52	Theory of Computation	AIML	3	2	0	50	50	100	04
3	IPCC	24CI53	Computer Networks	AIML	3	0	2	50	50	100	04
4	PCCL	24CIL54	Machine Learning Lab	AIML	0	0	2	50	50	100	01
5	PEC	24CI55X	Professional Elective Course – 1	AIML	4	0	0	50	50	100	04
6	AEC	24RM56	Research Methodology and IPR	AIML	3	0	0	50	50	100	03
7	NCMC	24ES57	Environmental Studies and E-waste Management	Civil Dept	1	0	0	100	-	100	-
8	MC	24NS58 / 24PE58 / 24YO58	NSS/PE/ YOGA	NSS/PE /YOGA COORDINATOR	0	0	2	100	-	100	-
Total								**500**	**300**	**800**	**19**

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

Professional Elective Course - 1:

24CI55A	Advanced Machine Learning Algorithm and its Applications
24CI55B	Software Engineering and Project Management
24CI55C	Image and Video Processing
24CI55D	Cloud Computing

VI Semester:

BE in CSE (AIML) Scheme of Teaching and Examination for VI Semester Outcome Based Education and Choice Based Credit System (CBCS) Effective from the academic 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	24CI61	Gen AI & Cyber Law Ethics	AIML	3	0	0	50	50	100	03
2	IPCC	24CI62	Artificial Neural Networks and Deep Learning	AIML	3	0	2	50	50	100	04
3	PCCL	24CIL63	Explainable AI Lab	AIML	0	0	2	50	50	100	01
4	PEC	24CI64X	Professional Elective Course – 2	AIML	3	2	0	50	50	100	04
5	PEC	24CI65X	Professional Elective Course - 3	AIML	4	0	0	50	50	100	04
6	OEC	24XX66X	Open Elective Course - 1	Respective Dept	3	0	0	50	50	100	03
7	PROJ	24CIP67	Mini Project	AIML	0	0	4	100	-	100	02
8	MC	24NS68 / 24PE68 / 24YO68	NSS/PE/ YOGA	NSS/PE /YOGA COORDINATOR	0	0	2	100	-	100	-
Total								**500**	**300**	**800**	**21**

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

Professional Elective Course - 2:

24CI64A	Cryptography and Network Security
24CI64B	Fuzzy Logic and its Applications
24CI64C	Pattern Recognition
24CI64D	Information Retrieval

Professional Elective Course - 3:

24CI65A	Data Engineering and Machine Learning Operations
24CI65B	Quantum Computing
24CI65C	Microcontroller and Embedded Systems
24CI65D	Web Programming

Open Elective Course - 1:

24CI66A	Introduction to Data Structures
24CI66B	Fundamentals of Operating Systems
24CI66C	Mobile Application Development
24CI66D	Introduction to Artificial Intelligence

VII Semester:

BE in CSE (AIML)
Scheme of Teaching and Examination for VII Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic 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	24CI71	Computer Vision	AIML	4	0	0	50	50	100	04
2	PCC	24CI72	Big Data Frameworks	AIML	3	2	0	50	50	100	04
3	IPCC	24CI73	Natural Language Processing	AIML	3	0	2	50	50	100	04
4	PCCL	24CIL74	Computer Vision Lab	AIML	0	0	2	50	50	100	01
5	PEC	24CI75X	Professional Elective Course – 4	AIML	4	0	0	50	50	100	04
6	OEC	24XX76X	Open Elective Course - 2	Respective Dept	4	0	0	50	50	100	04
7	PROJ	24CIP77	Project Work Phase - 1	AIML	0	0	4	100	-	100	02
Total								**400**	**300**	**700**	**23**

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

Professional Elective Course - 4:

24CI75A	Advanced Algorithms
24CI75B	Parallel Computing
24CI75C	Cognitive Robotics
24CI75D	Game Programming

Open Elective Course - 2:

24CI76A	Introduction to DBMS
24CI76B	Introduction to Algorithms
24CI76C	Software Engineering
24CI76D	Introduction to Machine Learning

VIII Semester:

BE in CSE (AIML)
Scheme of Teaching and Examination for VIII Semester
Outcome Based Education and Choice Based Credit System (CBCS)
Effective from the academic 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	AIML	0	0	10	100	100	200	05
2	PROJ	24CIP82	Project Work Phase – II	AIML	0	0	24	100	100	200	12
Total								**200**	**200**	**400**	**17**