



MOHAMED SATHAK A J COLLEGE OF ENGINEERING
Sponsored by Mohamed Sathak Trust
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)
Siruseri IT Park, Egattur, Chennai 603 103

M.E – COMPUTER SCIENCE AND ENGINEERING
ANNA UNIVERSITY – AFFILIATED INSTITUTIONS
REGULATION – 2017
CHOICE BASED CREDIT SYSTEM (CBCS)

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MOHAMED SATHAK A.J.COLLEGE OF ENGINEERING
34, Rajiv Gandhi Road (OMR), Siruseri, IT Park
Chennai-603 103.

ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
M.E. COMPUTER SCIENCE AND ENGINEERING
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PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

1. To enable graduates to pursue research, or have a successful career in academia or industries associated with Computer Science and Engineering, or as entrepreneurs.
2. To provide students with strong foundational concepts and also advanced techniques and tools in order to enable them to build solutions or systems of varying complexity.
3. To prepare students to critically analyze existing literature in an area of specialization and ethically develop innovative and research oriented methodologies to solve the problems identified.

PROGRAM SPECIFIC OBJECTIVES (PSOs):

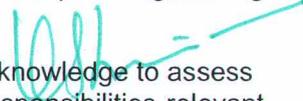
1. To analyze, design and develop computing solutions by applying foundational concepts of computer science and engineering.
2. To apply software engineering principles and practices for developing quality software for scientific and business applications.
3. To adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions to existing/novel problems.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.




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7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

MAPPING OF PROGRAMME EDUCATIONAL OBJECTIVES WITH PROGRAMME OUTCOMES:

A broad relation between the programme objective and the outcomes is given in the following table

Programme Educational Objectives	Programme Outcomes											
	A	B	C	D	E	F	G	H	I	J	K	L
1	3	3	3	3	3	1	3		3	1	2	3
2	3	2	3	3	3		3	1	2	3	3	2
3	1	3	2	3	2	3	3	3				1

Contribution

1: Reasonable

2: Significant

3: Strong



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MAPPING OF PROGRAM SPECIFIC OBJECTIVES WITH PROGRAMME OUTCOMES

A broad relation between the Program Specific Objectives and the outcomes is given in the following table

PROGRAM SPECIFIC OBJECTIVES	PROGRAMME OUTCOMES											
	A	B	C	D	E	F	G	H	I	J	K	L
1	3	1	2	3	3	1			1	1	2	1
2	3	3	3	3	3	2	1		1		3	
3	1	2	3	3	3	2	1	1		2		

Contribution

1: Reasonable

2: Significant

3: Strong

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**M.E. COMPUTER SCIENCE AND ENGINEERING
SEMESTER COURSE WISE PO MAPPING**

		SUBJECTS	Programme Outcomes											
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I Y E A R	SEMESTER I	Applied Probability and Statistics	3	3	2	3	1	1	1	1	1	1	3	1
		Advanced Data Structures and Algorithms	3	3	3	3	1	1	1	1	1	1	1	3
		Advanced Computer Architecture	3	3	3	3	1	1	1	1	1	1	1	2
		Operating System Internals	3	3	3	3	3	1	1	1	1	2	1	1
		Advanced Software Engineering	3	3	3	3	3	1	1	1	1	2	1	2
		Machine Learning Techniques	3	3	3	3	3	1	3	1	1	2	1	2
		Data Structures Laboratory	3	3	3	3	3	1	1	1	3	3	2	1
	SEMESTER II	Network Design and Technologies	3	3	3	3	3	3	2	1	3	1	1	2
		Security Practices	3	3	3	3	3	3	3	3	1	1	1	2
		Internet of Things	3	3	3	3	1	1	1	3	1	1	1	2
		Big Data Analytics	3	3	3	2	3	3	1	1	1	1	1	2
		Professional Elective –I												
		Advanced Data bases	3	3	3	2	3	1	1	1	2	1	1	2
		Principles of Programming Languages	3	3	3	3	3	1	2	1	2	1	1	2
		Image Processing and Analysis	3	3	3	3	3	1	2	2	2	1	1	2
		Web Engineering	3	3	3	3	3	1	2	2	2	1	1	2
		Cloud Computing Technologies	3	3	3	3	3	1	2	2	2	1	1	2
		Professional Elective II												
Real Time Systems		3	3	3	3	3	1	1	1	2	1	1	2	




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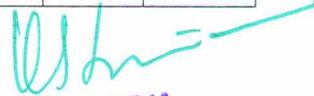
		Mobile and Pervasive Computing	3	3	3	3	3	1	1	1	2	1	1	2
		Parallel Programming Paradigms	3	3	3	3	3	1	1	1	2	1	1	2
		Information Retrieval Techniques	3	3	3	3	3	1	1	1	2	1	1	2
		Software Architectures and Design	3	3	3	3	3	1	1	1	2	1	1	2
		Big Data Computing Laboratory	3	3	3	3	3	1	3	1	2	1	2	2
		Term Paper Writing and Seminar	3	3	3	3	3	3	1	1	2	1	2	2
		Professional Elective –III												
		Performance Analysis of Computer Systems	3	3	3	3	3	1	1	1	1	1	1	2
		Language Technologies	3	3	3	3	3	1	1	1	1	1	1	2
		Computer Vision	3	3	3	3	3	1	1	1	1	1	1	2
		Speech Processing and Synthesis	3	3	3	3	3	3	3	1	1	1	1	2
		Software Quality Assurance and Testing	3	3	3	3	3	1	3	1	1	1	1	2
		Professional Elective –IV												
		Formal Models of Software Systems	3	3	3	3	3	1	1	1	2	1	1	2
		Embedded Software Development	3	3	3	3	3	1	1	1	2	1	1	2
		Social Network Analysis	3	3	3	3	3	1	1	1	2	1	1	2
		Bio-Inspired Computing	3	3	3	3	3	1	1	1	2	1	1	2
		Compiler Optimization Techniques	3	3	3	3	3	1	1	1	2	1	1	2
		Professional Elective v												
		Data Visualization Techniques	3	3	3	3	3	1	1	1	1	1	1	2
		Reconfigurable Computing	3	3	3	3	3	1	1	1	1	1	1	2
		Mobile Application Development	3	3	3	3	3	1	1	1	1	1	1	2
		Bio Informatics	3	3	3	3	3	1	1	1	1	1	1	2
		Information Storage Management	3	3	3	3	3	1	3	1	1	1	1	2
		Project Work Phase – I	3	3	3	3	3	1	1	3	3	3	3	1
		Project Work Phase – II	3	3	3	3	3			3	3	3	3	1

II YEAR

SEMESTER III

SEMESTER IV




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CURRICULA AND SYLLABI

SEMESTER I

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA5160	Applied Probability and Statistics	FC	4	4	0	0	4
2.	CP5151	Advanced Data Structures and Algorithms	PC	4	4	0	0	4
3.	CP5152	Advanced Computer Architecture	PC	3	3	0	0	3
4.	CP5153	Operating System Internals	PC	3	3	0	0	3
5.	CP5154	Advanced Software Engineering	PC	3	3	0	0	3
6.	CP5191	Machine Learning Techniques	PC	3	3	0	0	3
PRACTICALS								
7.	CP5161	Data Structures Laboratory	PC	4	0	0	4	2
TOTAL				24	20	0	4	22

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CP5201	Network Design and Technologies	PC	3	3	0	0	3
2.	CP5291	Security Practices	PC	3	3	0	0	3
3.	CP5292	Internet of Things	PC	3	3	0	0	3
4.	CP5293	Big Data Analytics	PC	3	3	0	0	3
5.		Professional Elective –I	PE	3	3	0	0	3
6.		Professional Elective –II	PE	3	3	0	0	3
PRACTICALS								
7.	CP5261	Data Analytics Laboratory	PC	4	0	0	4	2
8.	CP5281	Term Paper Writing and Seminar	EEC	2	0	0	2	1
TOTAL				24	18	0	6	21



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SEMESTER III

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.		Professional Elective –III	PE	3	3	0	0	3
2.		Professional Elective –IV	PE	3	3	0	0	3
3.		Professional Elective –V	PE	3	3	0	0	3
PRACTICALS								
4.	CP5311	Project Work Phase – I	EEC	12	0	0	12	6
TOTAL				21	9	0	12	15

SEMESTER IV

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
PRACTICALS								
1.	CP5411	Project Work Phase – II	EEC	24	0	0	24	12
TOTAL				24	0	0	24	12

TOTAL NO. OF CREDITS:70


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FOUNDATION COURSES (FC)

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA5160	Applied Probability and Statistics	FC	4	4	0	0	4

PROFESSIONAL CORE (PC)

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CP5151	Advanced Data Structures and Algorithms	PC	4	4	0	0	4
2.	CP5152	Advanced Computer Architecture	PC	3	3	0	0	3
3.	CP5153	Operating System Internals	PC	3	3	0	0	3
4.	CP5154	Advanced Software Engineering	PC	3	3	0	0	3
5.	CP5191	Machine Learning Techniques	PC	3	3	0	0	3
6.	CP5161	Data Structures Laboratory	PC	4	0	0	4	2
7.	CP5201	Network Design and Technologies	PC	3	3	0	0	3
8.	CP5291	Security Practices	PC	3	3	0	0	3
9.	CP5292	Internet of Things	PC	3	3	0	0	3
10.	CP5293	Big Data Analytics	PC	3	3	0	0	3
11.	CP5261	Data Analytics Laboratory	PC	4	0	0	4	2

EMPLOYABILITY ENHANCEMENT COURSE (EEC)

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CP5281	Term Paper and Seminar	EEC	2	0	0	2	1
2.	CP5311	Project Work Phase – I	EEC	12	0	0	12	6
3.	CP5411	Project Work Phase – II	EEC	24	0	0	24	12




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**LIST OF ELECTIVES
II SEMESTER
ELECTIVE I**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	IF5191	Advanced Databases	PE	3	3	0	0	3
2.	CP5001	Principles of Programming Languages	PE	3	3	0	0	3
3.	CP5071	Image Processing and Analysis	PE	3	3	0	0	3
4.	CP5091	Web Engineering	PE	3	3	0	0	3
5.	CP5092	Cloud Computing Technologies	PE	3	3	0	0	3

**II SEMESTER
ELECTIVE II**

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MP5291	Real Time Systems	PE	3	3	0	0	3
2.	CP5093	Mobile and Pervasive Computing	PE	3	3	0	0	3
3.	CP5002	Parallel Programming Paradigms	PE	3	3	0	0	3
4.	CP5094	Information Retrieval Techniques	PE	3	3	0	0	3
5.	CP5072	Software Architectures and Design	PE	3	3	0	0	3

**SEMESTER III
ELECTIVE III**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CP5003	Performance Analysis of Computer Systems	PE	3	3	0	0	3
2.	CP5004	Language Technologies	PE	3	3	0	0	3
3.	CP5095	Computer Vision	PE	3	3	0	0	3
4.	CP5096	Speech Processing and Synthesis	PE	3	3	0	0	3
5.	CP5005	Software Quality Assurance and Testing	PE	3	3	0	0	3

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**SEMESTER III
ELECTIVE IV**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CP5006	Formal models of software systems	PE	3	3	0	0	3
2.	CP5073	Embedded Software Development	PE	3	3	0	0	3
3.	CP5074	Social Network Analysis	PE	3	3	0	0	3
4.	CP5007	Bio-inspired Computing	PE	3	3	0	0	3
5.	CP5008	Compiler Optimization Techniques	PE	3	3	0	0	3

**SEMESTER III
ELECTIVE V**

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CP5009	Data Visualization Techniques	PE	3	3	0	0	3
2.	CP5010	Reconfigurable Computing	PE	3	3	0	0	3
3.	CP5097	Mobile Application Development	PE	3	3	0	0	3
4.	CP5075	Bio Informatics	PE	3	3	0	0	3
5.	CP5076	Information Storage Management	PE	3	3	0	0	3




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