



# SAVEETHA ENGINEERING COLLEGE

**AUTONOMOUS**


Affiliated to Anna University | Approved by AICTE

**REGULATIONS 2019**  
**FLEXIBLE CHOICE BASED CREDIT SYSTEM**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**B.E. Computer Science and Engineering**  
**CURRICULUM**

S.No.	Category	Course Code	Course Title	Contact Hours per Week			Credits	Prerequisite
				L	T	P		
1	HS	<a href="#">19EN101</a>	Communicative English	3	0	2	4	-
2	HS	<a href="#">19EN102</a>	Technical English	3	0	2	4	-
3	HS	<a href="#">19MS151</a>	Principles of Management (#)	3	0	0	3	-
4	HS	<a href="#">19MS152</a>	Total Quality Management (#)	3	0	0	3	-
5	HS	<a href="#">19MS153</a>	Management and Quality Principles for Engineering (#)	3	0	0	3	-
6	BS	<a href="#">19MA201</a>	Calculus and Matrix Algebra	3	1	0	4	-
7	BS	<a href="#">19MA206</a>	Logic and Combinatorics	3	1	0	4	19MA201
8	BS	<a href="#">19MA212</a>	Algebra and Number Theory	3	1	0	4	19MA201
9	BS	<a href="#">19MA218</a>	Probability and Queueing Theory	3	1	0	4	19MA201
10	BS	<a href="#">19PH205</a>	Computational Physics	3	0	2	4	-
11	BS	<a href="#">19CY205</a>	Principles of Chemistry in Engineering	3	0	2	4	-
12	ES	<a href="#">19ME302</a>	Engineering Drawing	2	0	2	3	-
13	ES	<a href="#">19CS301</a>	Problem Solving and Python Programming	3	0	2	4	-
14	ES	<a href="#">19EE305</a>	Basic Electrical, Electronics and Measurement Engineering	2	0	2	3	-
15	ES	<a href="#">19EC303</a>	Digital Principles and System Design	3	0	2	4	-
16	ES	<a href="#">19EC307</a>	Communication Engineering	3	0	0	3	-
17	ES	<a href="#">19CS302</a>	Programming in C	2	0	4	4	-
18	ES	<a href="#">19CS305</a>	Computer Architecture	3	0	0	3	-
19	ES	<a href="#">19CS308</a>	Software Testing Laboratory	0	0	4	2	19CS410
20	PC	<a href="#">19CS401</a>	Data Structures and Object Oriented Programming using C++	3	0	2	4	19CS302
21	PC	<a href="#">19CS402</a>	Design and Analysis of Algorithms	3	0	0	3	19CS401/ 19IT405
22	PC	<a href="#">19CS403</a>	Programming Paradigms	3	0	2	4	19CS401
23	PC	<a href="#">19CS404</a>	Database Management System and its Applications	3	0	2	4	19AI301/19AI304/19CS301/19CS302/19CS303
24	PC	<a href="#">19CS405</a>	Operating System	3	0	2	4	-
25	PC	<a href="#">19CS406</a>	Computer Networks	3	0	2	4	-
26	PC	<a href="#">19CS407</a>	Theory of Computation	3	0	0	3	19MA220/19MA206
27	PC	<a href="#">19CS408</a>	Software Engineering	3	0	2	4	-
28	PC	<a href="#">19CS409</a>	Compiler Design	3	0	2	4	-
29	PC	<a href="#">19CS410</a>	Web Programming	3	0	2	4	-
30	PC	<a href="#">19CS411</a>	Virtualization and Cloud Computing	3	0	2	4	19CS406
31	PC	<a href="#">19CS412</a>	Cryptography and Network Security	3	0	2	4	19CS406
32	PC	<a href="#">19CS413</a>	Artificial Intelligence	3	0	2	4	-
33	PC	<a href="#">19CS414</a>	Mobile Application Development	1	0	4	3	19CS404/ 19CS410 / 19IT404
34	PC	<a href="#">19EC408</a>	Microprocessor and Microcontroller	3	0	2	4	19EC303
35	PE	<a href="#">19AI407</a>	Parallel Computing Architecture	3	0	2	4	-

36	PE	<a href="#">19AI403</a>	Introduction to Data Science	2	0	2	3	19AI301/19CS301
37	PE	<a href="#">19AI409</a>	Applied Artificial Intelligence	2	0	2	3	19AI301/19MA220/19AI405/19CS301
38	PE	<a href="#">19AI410</a>	Introduction to Machine Learning	2	0	2	3	-
39	PE	<a href="#">19AI411</a>	Neural Networks	2	0	2	3	-
40	PE	<a href="#">19AI412</a>	Web Data Mining	3	0	2	4	-
41	PE	<a href="#">19AI413</a>	Deep Learning and its Applications	2	0	2	3	-
42	PE	<a href="#">19AI501</a>	Applications of AI	2	0	2	3	-
43	PE	<a href="#">19AI526</a>	Database Security and Access Control	2	0	2	3	19AI527
44	PE	<a href="#">19AI527</a>	Security Assessment and Risk Analysis	3	0	2	4	-
45	PE	<a href="#">19AI528</a>	Advanced Graph Theory and Applications	2	0	2	3	19AI404 /19CS402
46	PE	<a href="#">19AI529</a>	Advanced Data Structures	2	0	2	3	19AI408 / 19CS401
47	PE	<a href="#">19AI502</a>	Applied Natural Language Processing	2	0	2	3	-
48	PE	<a href="#">19AI503</a>	Computer Vision	2	0	2	3	19AI406/19AI301/19CS301
49	PE	<a href="#">19AI530</a>	Control of Robotic Systems	2	0	2	3	-
50	PE	<a href="#">19AI531</a>	Cryptography and Security	2	0	2	3	-
51	PE	<a href="#">19AI532</a>	Information Theory for Cyber Security	2	0	2	3	-
52	PE	<a href="#">19AI533</a>	Introduction to Robotics	2	0	2	3	-
53	PE	<a href="#">19AI534</a>	Kinematics and Dynamics of Robots	2	0	2	3	-
54	PE	<a href="#">19AI504</a>	Mobile Robotics	2	0	2	3	-
55	PE	<a href="#">19AI505</a>	Reinforcement Learning	2	0	2	3	19AI301/19MA218/19MA211/19AI410/19CS301
56	PE	<a href="#">19AI535</a>	Robotic Sensors	2	0	2	3	-
57	PE	<a href="#">19AI536</a>	Steganography and Digital Watermarking	2	0	2	3	-
58	PE	<a href="#">19AI506</a>	Speech Processing	2	0	2	3	-
59	PE	<a href="#">19AI507</a>	Special Topics in Artificial Intelligence	2	0	2	3	-
60	PE	<a href="#">19AI508</a>	Soft Computing	2	0	2	3	-
61	PE	<a href="#">19AI537</a>	Computer Graphics for Virtual Reality	2	0	2	3	-
62	PE	<a href="#">19AI538</a>	Mathematical Modelling and Computer Aided Engineering	2	0	2	3	-
63	PE	<a href="#">19AI509</a>	Concepts of Virtual and Augmented Reality	2	0	2	3	-
64	PE	<a href="#">19AI510</a>	Mobile VR and AI in Unity	2	0	2	3	19AI304/19AI410/19AI408/19CS302
65	PE	<a href="#">19AI511</a>	Scientific and Engineering Data Visualization	2	0	2	3	-
66	PE	<a href="#">19AI539</a>	Mobile User Interface Development	2	0	2	3	19AI306/19AI307/19AI308 / 19CS401

67	PE	<a href="#">19AI540</a>	Programming Mobile Devices	2	0	2	3	19AI306/19AI307/19AI308 / 19CS401
68	PE	<a href="#">19AI541</a>	Cloud Computing	3	0	2	4	19AI401/19CS406
69	PE	<a href="#">19AI542</a>	Agile Software Development	3	0	2	4	19AI301/19AI304/ 19CS301
70	PE	<a href="#">19AI512</a>	NoSQL Database Design	2	0	2	3	19AI301 / 19CS301
71	PE	<a href="#">19AI544</a>	Virtualization and Containerization	2	0	2	3	19AI301/19CS405/19CS406
72	PE	<a href="#">19AI513</a>	Game Programming	2	0	4	4	19AI306 / 19CS401
73	PE	<a href="#">19AI545</a>	Modern Web Application Development	2	0	2	3	19AI306/19AI307/19AI308 / 19CS410
74	PE	<a href="#">19AI546</a>	Web Server Programming	2	0	2	3	19AI306/19AI307/19AI308 / 19CS410
75	PE	<a href="#">19AI514</a>	Self Driving Car	2	0	4	4	19AI301/19AI304/19CS301/19AI406/19AI410
76	PE	<a href="#">19AI515</a>	Smart Manufacturing Technology	2	0	2	3	-
77	PE	<a href="#">19AI516</a>	Bigdata Analytics	2	0	2	3	19AI408/ 19CS410
78	PE	<a href="#">19AI517</a>	Business Analytics	2	0	2	3	-
79	PE	<a href="#">19AI518</a>	Cognitive Systems	3	0	0	3	-
80	PE	<a href="#">19AI519</a>	Distributed Database	3	0	0	3	19CS404
81	PE	<a href="#">19AI520</a>	Data Warehousing and Data Mining	2	0	2	3	-
82	PE	<a href="#">19AI521</a>	Expert Systems	3	0	0	3	-
83	PE	<a href="#">19AI522</a>	Knowledge Engineering	3	0	0	3	19AI408/19CS410
84	PE	<a href="#">19AI523</a>	Mobile Database	3	0	0	3	-
85	PE	<a href="#">19AI524</a>	Multimedia Database	3	0	0	3	19AI408 / 19CS410
86	PE	<a href="#">19AI525</a>	Video Processing	2	0	2	3	19AI301 / 19CS301
87	PE	<a href="#">19AI547</a>	Blockchain for Business	2	0	2	3	19AI301/19AI304/ 19CS301
88	PE	<a href="#">19CS501</a>	Machine Learning	3	0	0	3	19MA211/ 19MA212/ 19MA217/ 19MA218/ 19MA207
89	PE	<a href="#">19CS511</a>	Natural Language Processing	3	0	0	3	19MA201
90	PE	<a href="#">19CS519</a>	Data Science	3	0	0	3	19CS301/ 19CS501
91	PE	<a href="#">19CS520</a>	Big Data Analytics	3	0	0	3	19CS411/ 19CS519
92	PE	<a href="#">19CS521</a>	Data Warehousing and Data Mining	3	0	0	3	19CS404
93	PE	<a href="#">19CS522</a>	Advanced Database Management System	3	0	0	3	19CS404
94	PE	<a href="#">19CS523</a>	Information Retrieval	3	0	0	3	19AI410/19AI405/19CS501/19CS413
95	PE	<a href="#">19CS524</a>	Deep Learning	3	0	0	3	19CS501
96	PE	<a href="#">19CS526</a>	R Programming	2	0	2	3	19CS301/ 19CS303

97	PE	<a href="#">19CS512</a>	Soft Computing	3	0	0	3	19CS501 / 19AI410
98	PE	<a href="#">19CS510</a>	Social Network Analysis	3	0	0	3	19CS501/ 19CS413
99	PE	<a href="#">19CS504</a>	Software Project Management	3	0	0	3	19CS408
100	PE	<a href="#">19CS505</a>	Service Oriented Architecture	3	0	0	3	19CS410
101	PE	<a href="#">19CS503</a>	Developing Web Application in .Net	3	0	0	3	19CS404, 19CS410
102	PE	<a href="#">19CS507</a>	Human Computer Interaction	3	0	0	3	19CS502, 19CS408
103	PE	<a href="#">19CS502</a>	Computer Graphics and Multimedia	3	0	0	3	19CS401
104	PE	<a href="#">19CS518</a>	Game Design and Development	3	0	0	3	19CS502
105	PE	<a href="#">19EC416</a>	Principles of Digital Signal Processing	3	0	0	3	19EC307
106	PE	<a href="#">19EC503</a>	Digital Image Processing	3	0	0	3	19EC416/ 19EC409/ 19EI403
107	PE	<a href="#">19CS531</a>	Virtual Reality	3	0	0	3	19CS401/ 19CS301/ 19CS303
108	PE	<a href="#">19CS509</a>	Graph Theory and Applications	3	0	0	3	19MA206
109	PE	<a href="#">19CS517</a>	Mobile Computing	3	0	0	3	19CS406/ 19EC417
110	PE	<a href="#">19EC508</a>	Ad hoc and Wireless Sensor Networks	3	0	0	3	19CS406/ 19EC412
111	PE	<a href="#">19CS508</a>	Parallel and Distributed Systems	3	0	0	3	19CS305, 19CS401
112	PE	<a href="#">19CS530</a>	Cyber Security	3	0	0	3	19CS412/ 19EC506/ 19EC306
113	PE	<a href="#">19CS514</a>	Network Management Systems	3	0	0	3	19CS406
114	PE	<a href="#">19CS515</a>	Block Chain Architecture and its Use Cases	3	0	0	3	19CS412/ 19EC506/ 19EC306
115	PE	<a href="#">19CS513</a>	Green Computing	3	0	0	3	-
116	PE	<a href="#">19CS506</a>	Multicore Architecture	3	0	0	3	19CS305
117	PE	<a href="#">19EC414</a>	Embedded Systems	2	0	2	3	19EC408
118	PE	<a href="#">19CS529</a>	Quantum Computing	3	0	0	3	19CS301/ 19CS303
119	PE	<a href="#">19CS528</a>	Robotics and its Applications	3	0	0	3	19CS302/ 19EC408
120	OE	<a href="#">19AG601</a>	Principles of Crop Production	2	0	2	3	-
121	OE	<a href="#">19AG514</a>	Food Packaging Technology	2	0	2	3	-
122	OE	<a href="#">19AG509</a>	Human Engineering and Safety	2	0	2	3	-
123	OE	<a href="#">19AG424</a>	Remote Sensing and GIS Applications	2	0	2	3	-
124	OE	<a href="#">19AG421</a>	Dairy and Food Engineering	2	0	2	3	-
125	OE	<a href="#">19BM601</a>	Fundamentals of Nutrition	3	0	0	3	-
126	OE	<a href="#">19BM602</a>	Biomedical Waste Management	3	0	0	3	-
127	OE	<a href="#">19BM603</a>	Healthcare Technologies	3	0	0	3	-
128	OE	<a href="#">19BM604</a>	Prosthetic Engineering	3	0	0	3	-
129	OE	<a href="#">19BM605</a>	Medical Devices	3	0	0	3	-
130	OE	<a href="#">19BM606</a>	Biology for Engineers	3	0	0	3	-
131	OE	<a href="#">19CE510</a>	Integrated Water Resources Management	3	0	0	3	-
132	OE	<a href="#">19CE521</a>	Air Pollution Engineering	3	0	0	3	-
133	OE	<a href="#">19CE525</a>	Traffic Engineering	3	0	0	3	-
134	OE	<a href="#">19CE527</a>	Construction Engineering and Occupational Safety	3	0	0	3	-

135	OE	<a href="#">19CE528</a>	Contract Laws and Regulations	3	0	0	3	-
136	OE	<a href="#">19EE601</a>	Embedded Based Product Design and Development	3	0	0	3	-
137	OE	<a href="#">19EE602</a>	Electrical Safety	3	0	0	3	-
138	OE	<a href="#">19EE603</a>	Renewable Energy Sources	3	0	0	3	-
139	OE	<a href="#">19EE604</a>	Fundamentals of Electric Power Utilization	3	0	0	3	-
140	OE	<a href="#">19EE605</a>	Industrial Automation and Robotics	3	0	0	3	-
141	OE	<a href="#">19EE606</a>	Solar Photovoltaic Energy	2	0	2	3	-
142	OE	<a href="#">19EC601</a>	Electronic Packaging	3	0	0	3	-
143	OE	<a href="#">19EC602</a>	Introduction to Micro Electro Mechanical Systems	3	0	0	3	-
144	OE	<a href="#">19EC603</a>	Fuzzy Logic Systems and ANN	3	0	0	3	-
145	OE	<a href="#">19EC604</a>	Consumer Electronics	3	0	0	3	-
146	OE	<a href="#">19EC605</a>	Electronic System Design	3	0	0	3	-
147	OE	<a href="#">19EC606</a>	Drones for Agriculture	3	0	0	3	-
148	OE	<a href="#">19EI601</a>	Electrical and Electronic Measurements	3	0	0	3	-
149	OE	<a href="#">19EI602</a>	Instrumentation and Control Systems	3	0	0	3	-
150	OE	<a href="#">19EI504</a>	Environmental Instrumentation	3	0	0	3	-
151	OE	<a href="#">19EI508</a>	SCADA Systems and Applications	3	0	0	3	-
152	OE	<a href="#">19EI511</a>	Telemetry and Tele Control	3	0	0	3	-
153	OE	<a href="#">19BY201</a>	Introduction to Biology	2	0	0	2	-
154	OE	<a href="#">19ME505</a>	Computer Aided Design	2	0	2	3	-
155	OE	<a href="#">19ME511</a>	Automobile Engineering	2	0	2	3	-
156	OE	<a href="#">19ME524</a>	Sustainable and Green Manufacturing	2	0	2	3	-
157	OE	<a href="#">19ME529</a>	Process Planning and Cost Estimation	2	0	2	3	-
158	OE	<a href="#">19ME531</a>	Intellectual Property Rights	2	0	2	3	-
159	OE	<a href="#">19ME601</a>	Mechatronics and Robotics	2	0	2	3	-
160	OE	<a href="#">19ME602</a>	Hydraulic Drives and Controls	2	0	2	3	-
161	OE	<a href="#">19ME533</a>	3D Printing Processes	3	0	2	4	-
162	OE	<a href="#">19MD501</a>	Tele Health Technology	3	0	0	3	-
163	OE	<a href="#">19MD509</a>	Bio MEMS	3	0	0	3	-
164	OE	<a href="#">19MD512</a>	Medical Wearable Systems	3	0	0	3	-
165	OE	<a href="#">19MD601</a>	Biomedical Sensors and Measurements	3	0	0	3	-
166	OE	<a href="#">19MD602</a>	Biomedical Optics	3	0	0	3	-
167	OE	<a href="#">19CH503</a>	Energy Technology	3	0	0	3	-
168	OE	<a href="#">19CH505</a>	Green Technology	3	0	0	3	-
169	OE	<a href="#">19CH511</a>	Food Technology	3	0	0	3	-
170	OE	<a href="#">19CH512</a>	Drugs and Pharmaceutical Technology	3	0	0	3	-
171	OE	<a href="#">19CH516</a>	Corrosion Technology	3	0	0	3	-
172	OE	<a href="#">19IT517</a>	Data Security	3	0	0	3	-
173	OE	<a href="#">19IT518</a>	Game Theory	3	0	0	3	-
174	OE	<a href="#">19IT519</a>	Data Analysis using R Programming	3	0	0	3	-
175	OE	<a href="#">19IT520</a>	Linux Fundamentals	3	0	0	3	-
176	OE	<a href="#">19IT521</a>	Internet Technologies	3	0	0	3	-
177	OE	<a href="#">19IT522</a>	Fundamentals of Databases	3	0	0	3	-
178	OE	<a href="#">19EN601</a>	Creative Writing	2	0	0	2	-
179	OE	<a href="#">19EN602</a>	English through Media	2	0	0	2	-
180	OE	<a href="#">19EN603</a>	Introduction to Design	0	0	4	2	-
181	OE	<a href="#">19EN604</a>	Design Thinking	2	0	0	2	-
182	OE	<a href="#">19EN605</a>	Modern Trends in Physical Education and Sports Sciences	0	0	4	2	-
183	OE	<a href="#">19EN606</a>	Psychology for Professionals	2	0	0	2	-
184	OE	<a href="#">19EN607</a>	Heritage Studies	0	0	4	2	-
185	OE	<a href="#">19EN608</a>	Mime Theatre Art	0	0	4	2	-
186	OE	<a href="#">19EN609</a>	Gender Sensitization	2	0	0	2	-
187	OE	<a href="#">19EN610</a>	French Basic	0	0	4	2	-
188	OE	<a href="#">19EN611</a>	French Advanced	0	0	4	2	19EN610
189	OE	<a href="#">19EN612</a>	German Basic	0	0	4	2	-
190	OE	<a href="#">19EN613</a>	German Advanced	0	0	4	2	19EN612

191	OE	<a href="#">19EN614</a>	Japanese Basic	0	0	4	2	-
192	OE	<a href="#">19EN615</a>	Japanese Advanced	0	0	4	2	19EN614
193	OE	<a href="#">19EN616</a>	Yoga and Meditation	0	0	2	1	-
194	OE	<a href="#">19EN617</a>	Product Design for Future	0	0	4	2	-
195	OE	<a href="#">19EN618</a>	Indian Astronomy and Mathematics	2	0	0	2	-
196	OE	<a href="#">19EN619</a>	Inventions and Discoveries	2	0	0	2	-
197	OE	<a href="#">19EN620</a>	Mandarin	0	0	4	2	-
198	OE	<a href="#">19EN621</a>	Spanish Basic	0	0	4	2	-
199	OE	<a href="#">19EN622</a>	Spanish Advanced	0	0	4	2	19EN621
200	OE	<a href="#">19EN623</a>	Dream, Draw and Create	0	0	4	2	-
201	OE	<a href="#">19MA601</a>	Resource Management Techniques	3	0	0	3	-
202	OE	<a href="#">19MA602</a>	Statistics for Engineers	3	0	0	3	-
203	OE	19CS604	Data Science for Engineers (NPTEL)	0	0	0	2	-
204	OE	19CS606	Nano at Stanford (Edx (Stanford University))	0	0	0	2	-
205	OE	19CS607	Reinforcement Learning(NPTEL)	0	0	0	2	-
206	OE	19EC608	Programming in JAVA (NPTEL)	0	0	0	2	-
207	OE	19EC616	Data Analytics with Python(NPTEL)	0	0	0	2	-
208	OE	19EC620	Foundations of Cryptography (NPTEL)	0	0	0	2	-
209	OE	19EC621	Introduction to Internet of Things (NPTEL)	0	0	0	2	-
210	OE	19IT603	Ethical Hacking (NPTEL)	0	0	0	2	-
211	OE	19IT602	Social Networks (NPTEL)	0	0	0	2	-
212	EEC	19CS701	Mini Project	0	0	4	2	-
213	EEC	19CS702	Project Work Phase I	0	0	4	2	-
214	EEC	19CS703	Project Work Phase II	0	0	12	6	-
215	EEC	<a href="#">19EY701</a>	Soft Skills	0	0	2	1	-
216	EEC	<a href="#">19EY702</a>	Creative Skills for Communication	0	0	2	1	-
217	EEC	<a href="#">19EY703</a>	System of Numerical and Logical Terminologies	0	0	2	1	-
218	EEC	<a href="#">19EY704</a>	Advanced Quantitative and Logical Reasoning	0	0	2	1	-
219	EEC	<a href="#">19EY705</a>	Employment Enhancement Skills	0	0	2	1	-
220	EEC	<a href="#">19EY706</a>	Company Specific Assessments for Employability	0	0	2	1	-
221	MC	<a href="#">19MC801</a>	Professional Ethics	3	0	0	0	-
222	MC	<a href="#">19MC802</a>	Environmental Science	3	0	0	0	-
223	MC	<a href="#">19MC803</a>	Constitution of India	3	0	0	0	-
224	MC	19MC804	Internship/Entrepreneurship/Consultancy	0	0	0	2	-
225	MC	19MC805	Inplant Training	0	0	0	1	-
226	MC	19MC806	Paper Publication	0	0	0	1	-
227	MC	19MC807	National Service Scheme	0	0	0	0	-
228	MC	19MC808	National Sports Organization	0	0	0	0	-
229	MC	19MC809	Youth Red Cross	0	0	0	0	-

CREDIT SUMMARY				
	REGULAR		LATERAL ENTRY	
CATEGORY	Credits	Credit%	Credits	Credit%
Humanities and Science Courses	11	6.9	3	2.4
Basic Science Courses	24	15	8	6.5
Engineering Science Courses	25	15.6	12	9.8
Professional Core Courses	57	35.6	57	46.3
Professional Elective Courses	15	9.4	15	12.2
Open Elective Courses	12	7.5	12	9.8
Employability Enhancement Courses	16	10	16	13.0
<b>Total</b>	<b>160</b>	<b>100</b>	<b>123</b>	<b>100.0</b>
Mandatory Courses	4		4	

## LEGEND

#	Any one course to be taken
	Courses exempted for Lateral Entry students





























