

**B.E (Computer Science and Engineering) Curriculum – Regulation 2023****Minimum Credits to be earned: 160**

Semester I								
S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
<b>THEORY</b>								
1	23SEN101	Heritage of Tamils	HS	1	1	0	0	1
2	23SEN103	Technical English - I	HS	4	3	1	0	4
3	23SMA101	Matrices and Calculus	BS	4	3	1	0	4
4	23SCH126	Environmental Chemistry	BS	5	3	0	2	4
5	23ECR101	Digital Logic and Circuits	ES	5	3	0	2	4
6	23CSR103	Programming in C	ES	5	3	0	2	4
7	23SEN217	Communicative Skills Laboratory	HS	2	0	0	2	1
<b>TOTAL</b>				<b>26</b>	<b>16</b>	<b>2</b>	<b>8</b>	<b>22</b>

Semester II								
S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
<b>THEORY</b>								
1	23SEN202	Tamils and Technology	HS	1	1	0	0	1
2	23SEN205	Technical English - II	HS	3	3	0	0	3
3	23SMA203	Computational Methods for Engineers	BS	4	3	1	0	4
4	23SPH213	Physics for Computing Engineers	BS	5	3	0	2	4
5	23ITR202	Web Technology	ES	5	3	0	2	4
6	23CSR201	Data Structures	PC	5	3	0	2	4
7	23EXC201	Application Development - I	EEC	2	0	0	2	1
8	23EXC204	Life Skills - I	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>27</b>	<b>16</b>	<b>1</b>	<b>10</b>	<b>22</b>

Semester III								
S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
<b>THEORY</b>								
1	23SMA305	Discrete Mathematics and Stochastic Process	BS	4	3	1	0	4
2	23CSR302	Database Management Systems	PC	5	3	0	2	4
3	23CSR304	Design and Analysis of Algorithms	PC	5	3	0	2	4
4	23CSR305	Computer Architecture	ES	3	3	0	0	3
5	23CSR306	Java Programming	ES	5	3	0	2	4
6	23ITR301	Operating Systems	PC	5	3	0	2	4
7	23EXC201	Application Development - II	EEC	2	0	0	2	1
8	23EXC305	Life Skills - II	EEC	2	0	0	2	1
9	23MXC301	Indian Constitution	MC	1	1	0	0	-
<b>TOTAL</b>				<b>32</b>	<b>19</b>	<b>1</b>	<b>12</b>	<b>25</b>

Semester IV								
S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
<b>THEORY</b>								
1	23SMA409	Probability and Statistics	BS	4	3	1	0	4
2	23CSR405	Advanced Algorithms	PC	5	3	0	2	4
3	23CSR406	Computer Networks	PC	5	3	0	2	4
4	23CSR407	Artificial Intelligence	PC	5	3	0	2	4
5	23ITR403	Web Application Development	PC	5	3	0	2	4
6	23XXPXXX	Professional Elective - I	PE	4	2	0	2	3
7	23EXC403	Application Development - III	EEC	2	0	0	2	1
8	23MXC402	Essence of Indian Traditional Knowledge	MC	1	1	0	0	-
<b>TOTAL</b>				<b>31</b>	<b>18</b>	<b>1</b>	<b>12</b>	<b>24</b>

Semester V						
S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week	C

					<b>L</b>	<b>T</b>	<b>P</b>	
<b>THEORY</b>								
1	23CSR508	Theory of Computation	PC	3	3	0	0	3
2	23CSR609	Machine Learning	PC	5	3	0	2	4
3	23CTR501	Cloud Computing	PC	3	3	0	0	3
4	23XXPXXX	Professional Elective - II	PE	4	2	0	2	3
5	23XXPXXX	Professional Elective - III	PE	4	2	0	2	3
6	23XXOXXX	Open Elective - I	OE	3	3	0	0	3
7	23CSR511	Open Source Software Laboratory		3	0	0	3	2
8	23EXC506	Life Skills - III	EEC	2	0	0	2	1
9	23EXC407 / 23EXC409	Internship - I / Mini Project - I	EEC	2	0	0	2	1
10	23EXC511	Design Thinking	EEC	1	0	0	1	1
<b>TOTAL</b>				<b>30</b>	<b>16</b>	<b>0</b>	<b>14</b>	<b>24</b>

<b>Semester VI</b>								
<b>S. No.</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Category</b>	<b>Contact Hours</b>	<b>Instruction Hours/Week</b>			<b>C</b>
					<b>L</b>	<b>T</b>	<b>P</b>	
<b>THEORY</b>								
1	23CSR609	Compiler Design	PC	5	3	0	2	4
2	23CTR602	Agile Software Development	PC	3	3	0	0	3
3	23ITR606	Cryptography and Network Security	PC	5	3	0	2	4
4	23XXPXXX	Professional Elective - IV	PE	4	2	0	2	3
5	23XXPXXX	Professional Elective - V	PE	4	2	0	2	3
6	23XXOXXX	Open Elective - II	OE	3	3	0	0	3
<b>TOTAL</b>				<b>24</b>	<b>16</b>	<b>0</b>	<b>8</b>	<b>20</b>

Semester VII								
S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
<b>THEORY</b>								
1	23SGE713	Principles of Management and Engineering Ethics	HS	3	3	0	0	3
2	23CSR710	Multicore Architecture and Programming	PC	3	3	0	0	3
3	23XXPXXX	Professional Elective - VI	PE	4	2	0	2	3
4	23XXOXXX	Open Elective - III	OE	3	3	0	0	3
5	23EXC713	Project Work Phase I	EEC	8	0	0	8	4
<b>TOTAL</b>				<b>21</b>	<b>11</b>	<b>0</b>	<b>10</b>	<b>16</b>

Semester VIII								
S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
<b>LABORATORY</b>								
1	23EXC814	Project Work Phase II	EEC	16	0	0	16	8
<b>TOTAL</b>				<b>16</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>8</b>

<b>Total Credits</b>	<b>161</b>
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**GROUPING OF COURSES****1. Humanities and Social Sciences (HS)**

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
1	23SEN101	Heritage of Tamils	HS	1	1	0	0	1
2	23SEN202	Tamils and Technology	HS	1	1	0	0	1
3	23SEN103	Technical English - I	HS	4	3	1	0	4
4	23SEN104	Business English - I	HS	4	4	0	0	4
5	23SEN205	Technical English - II	HS	3	3	0	0	3
6	23SEN206	Business English - II	HS	4	4	0	0	4
7	23SEN307	Basics of French	HS	4	3	1	0	4
8	23SEN408	Functional French	HS	4	3	1	0	4
9	23SEN309	Basics of German	HS	4	3	1	0	4
10	23SEN410	Functional German	HS	4	3	1	0	4
11	23SEN311	Basics of Japanese	HS	4	3	1	0	4
12	23SEN412	Functional Japanese	HS	4	3	1	0	4
13	23SGE713	Principles of Management and Engineering Ethics	HS	3	3	0	0	3
14	23SGE714	Professional Practice, Law and Ethics	HS	3	3	0	0	3
15	23SGE815	Organizational Behavior	HS	3	3	0	0	3
16	23SGE816	Finance and Accounting	HS	3	3	0	0	3
17	23SEN217	Communication Skills Laboratory	HS	2	0	0	2	1

**2. Basic Sciences (BS)**

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
1	23SMA101	Matrices and Calculus	BS	4	3	1	0	4
2	23SMA202	Graph Theory	BS	4	3	1	0	4
3	23SMA203	Computational Methods for Engineers	BS	4	3	1	0	4
4	23SMA204	Transforms and its applications	BS	4	3	1	0	4

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
5	23SMA305	Discrete Mathematics and Stochastic Process	BS	4	3	1	0	4
6	23SMA306	Numerical Linear Algebra	BS	4	3	1	0	4
7	23SMA307	Numerical Methods	BS	4	3	1	0	4
8	23SMA408	Statistics and Optimization Techniques	BS	4	3	1	0	4
9	23SMA409	Probability and Statistics	BS	4	3	1	0	4
10	23SPH110	Engineering Physics	BS	5	3	0	2	4
11	23SPH111	Physics for Civil Engineers	BS	3	3	0	0	3
12	23SPH112	Physics for Mechanical Sciences	BS	3	3	0	0	3
13	23SPH113	Physics for Electrical Sciences	BS	3	3	0	0	3
14	23SPH214	Physics for Computing Sciences	BS	3	3	0	0	3
15	23SCH115	Environmental Science for Engineers	BS	3	3	0	0	3
16	23SCH116	Chemistry for Computing Sciences	BS	3	3	0	0	3
17	23SCH217	Chemistry for Electrical Sciences	BS	3	3	0	0	3
18	23SCH218	Chemistry for Mechanical Sciences	BS	3	3	0	0	3
19	23SCH219	Chemistry for Civil Engineering	BS	3	3	0	0	3
20	23SPH123	Physics for Computing Engineers	BS	5	3	0	2	4
21	23SPH124	Semiconductor Physics	BS	5	3	0	2	4
22	23SPH225	Physics for Mechanical Engineers	BS	3	3	0	0	3
23	23SCH126	Environmental Chemistry	BS	5	3	0	2	4
24	23SCH127	Environmental Studies	BS	3	3	0	0	3
25	23SCH228	Engineering Chemistry	BS	5	3	0	2	4
26	23SPH120	Engineering Physics Laboratory	BS	2	0	0	2	1
27	23SCH121	Chemistry Laboratory	BS	2	0	0	2	1
28	23SPH122	Physical Sciences Laboratory	BS	2	0	0	2	1

**3. Engineering Sciences (ES)**

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
1	23CSR101	Computer Fundamentals and Communication	ES	4	3	1	0	4
2	23CSR102	C Programming	ES	3	3	0	0	3
3	23CSR103	Programming in C	ES	5	3	0	2	4
4	23ECR101	Digital Logic and Circuits	ES	5	3	0	2	4
5	23ITR201	Fundamentals of Web Design	ES	3	3	0	0	3
6	23ITR202	Web Technology	ES	5	3	0	2	4
7	23CSR305	Computer Architecture	ES	3	3	0	0	3
8	23CSR306	Java Programming	ES	5	3	0	2	4
9	23CSR104	C Programming Laboratory	ES	2	0	0	2	1
10	23ITR203	Web Design Laboratory	ES	2	0	0	2	1

**4. Professional Core (PC)**

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
1	23ADR101	Object Oriented Programming using Python	PC	3	3	0	0	3
2	23ADR103	Python Programming	PC	5	3	0	2	4
3	23CSR201	Data Structures	PC	5	3	0	2	4
4	23CSR203	Data Structures and Algorithms	PC	3	3	0	0	3
5	23ADR304	Artificial Intelligence	PC	5	3	0	2	4
6	23CSR302	Database Management Systems	PC	5	3	0	2	4
7	23CSR304	Design and Analysis of Algorithms	PC	5	3	0	2	4
8	23ITR301	Operating Systems	PC	5	3	0	2	4
9	23CSR405	Advanced Algorithms	PC	5	3	0	2	4
10	23CSR406	Computer Networks	PC	5	3	0	2	4
11	23ITR403	Web Application Development	PC	5	3	0	2	4

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
12	23ITR404	Low Code Application Development	PC	5	3	0	2	4
13	23CSR507	Theory of Computation	PC	5	3	0	2	4
14	23CSR508	Machine Learning	PC	5	3	0	2	4
15	23CTR501	Cloud Computing	PC	5	3	0	2	4
16	23CSR609	Compiler Design	PC	5	3	0	2	4
17	23CTR602	Agile Software Development	PC	5	3	0	2	4
18	23ITR606	Cryptography and Network Security	PC	5	3	0	2	4
19	23CSR710	Multicore Architecture and Programming	PC	3	3	0	0	3
20	23ADR104	Object Oriented Programming using Python Laboratory	PC	2	0	0	2	1
21	23CSR205	Data Structures and Algorithms Laboratory	PC	2	0	0	2	1
22	23CSR511	Open Source Software Laboratory		4	0	0	4	2

**5. Professional Electives (PE)**

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
<b>Artificial Intelligence and Data Science</b>								
1	23ADR506	Deep Learning	PE	4	2	0	2	3
2	23CSP101	Cognitive Science	PE	4	2	0	2	3
3	23ADR508	Big Data Analytics	PE	4	2	0	2	3
4	23CSP102	Business Analytics	PE	4	2	0	2	3
5	23CSP103	Text and Speech Analysis	PE	4	2	0	2	3
6	23ADR609	Computer Vision	PE	5	3	0	2	4
<b>Next-Gen Computing</b>								
1	23ITP201	Parallel and Distributed Computing	PE	4	2	0	2	3
2	23ITR707	Internet of Things	PE	4	2	0	2	3
3	23ITP202	Edge Computing	PE	4	2	0	2	3
4	23ITP203	Quantum Computing	PE	4	2	0	2	3
5	23CDR502	Human Computer Interaction	PE	4	2	0	2	3
6	23CDR706	Virtual Reality and Augmented Reality	PE	5	3	0	2	4
<b>Cyber Security</b>								



S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
1	23CYP304	Ethical Hacking	PE	4	2	0	2	3
2	23CYR607	Digital and Mobile Forensics	PE	4	2	0	2	3
3	23CYP305	Malware Analysis	PE	4	2	0	2	3
4	23CYP406	Modern Cryptography	PE	4	2	0	2	3
5	23CYP403	Social Network Security	PE	4	2	0	2	3
6	23CYP306	Engineering Secure Software System	PE	4	2	0	2	3
<b>Cloud Computing</b>								
1	23CTP401	DevOps	PE	4	2	0	2	3
2	23CTP402	Virtualization	PE	4	2	0	2	3
3	23CTP403	Cloud Services Management	PE	4	2	0	2	3
4	23CTP404	Storage Technologies	PE	4	2	0	2	3
5	23CTP405	Software Defined Networks	PE	4	2	0	2	3
6	23CYP402	Security and Privacy in Cloud	PE	4	2	0	2	3
<b>Full Stack Development</b>								
1	23CSP501	Mern Stack Development	PE	4	2	0	2	3
2	23CSP502	Mobile Application Development	PE	4	2	0	2	3
3	23CDR605	UI/UX Design	PE	5	3	0	2	4
4	23CSP503	C# and .Net Programming	PE	4	2	0	2	3
5	23CSP504	Software Testing and Automation	PE	4	2	0	2	3
6	23CYP303	Web Application Security	PE	4	2	0	2	3
<b>Emerging Technologies</b>								
1	23CYP404	Cryptocurrency and Blockchain Technologies	PE	3	3	0	0	3
2	23ADP601	Digital Marketing	PE	4	2	0	2	3
3	23CSP601	Game Theory	PE	5	3	0	2	4
4	23CSP602	3D Printing and Design	PE	4	2	0	2	3
5	23CTP407	Robotic Process Automation	PE	4	2	0	2	3
6	23ADP201	Generative Artificial Intelligence	PE	4	2	0	2	3

**6. Employability Enhancement Courses (EEC)**

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
1	23EXC201	Application Development - I	EEC	2	0	0	2	1
2	23EXC302	Application Development - II	EEC	2	0	0	2	1
3	23EXC403	Application Development - III	EEC	2	0	0	2	1
4	23EXC204	Life Skills - I	EEC	2	0	0	2	1
5	23EXC305	Life Skills - II	EEC	2	0	0	2	1
6	23EXC506	Life Skills - III	EEC	2	0	0	2	1
7	23EXC407	Internship - I	EEC	2	0	0	2	1
8	23EXC508	Internship - II	EEC	2	0	0	2	1
9	23EXC409	Mini Project - I	EEC	2	0	0	2	1
10	23EXC510	Mini Project - II	EEC	2	0	0	2	1
11	23EXC511	Design Thinking	EEC	1	0	0	1	1
12	23EXC712	Comprehension	EEC	-	-	-	-	-
13	23EXC713	Project Work Phase I	EEC	8	0	0	8	4
14	23EXC814	Project Work Phase II	EEC	16	0	0	16	8

**7. Mandatory Courses (MC)**

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
1	23MXC301	Indian Constitution	MC	1	1	0	0	-
2	23MXC402	Essence of Indian Traditional Knowledge	MC	1	1	0	0	-

**8. Open Electives (OE)**

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
1	23CSO101	Introduction to Non-destructive Testing	OE	3	3	0	0	3
2	23CSO102	Introduction to Industrial Engineering	OE	3	3	0	0	3
3	23CSO103	Information Technology in Agricultural System	OE	3	3	0	0	3
4	23CSO104	Fundamentals of Serverless Computing	OE	3	3	0	0	3
5	23CSO105	Fundamentals of Reverse Engineering	OE	3	3	0	0	3
6	23CSO106	Introduction to Healthcare Technologies	OE	3	3	0	0	3

S. No.	Course Code	Course Title	Category	Contact Hours	Instruction Hours/Week			C
					L	T	P	
7	23CSO107	Fundamentals of Smart Devices and its Applications	OE	3	3	0	0	3
8	23CSO108	Fundamentals of Green Computing	OE	3	3	0	0	3