



# **Sri Krishna College of Engineering and Technology**

An Autonomous Institution, Affiliated to Anna University

Coimbatore – 641 008

## **DEPARTMENT OF INFORMATION TECHNOLOGY**



**CURRICULUM AND SYLLABI  
B.TECH. INFORMATION TECHNOLOGY  
REGULATION 2020**

**SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**KUNIAMUTHUR, COIMBATORE-641008**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**Department Vision**

To impart quality education by providing opportunities for shaping and transforming students into eminent and ethical IT professionals, researchers, innovators and entrepreneurs with requisite skill set to excel in the dynamic field of IT.

**Department Mission**

- To provide state of art computer education.
- To equip staff and students with the latest skills in the field
- To keep pace with new invention and technology development, thereby set the trend for the futuristic information technology education and research with ethical and moral values.

**SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY**

**KUNIAMUTHUR, COIMBATORE-641008**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**PROGRAMME OUTCOMES**

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.
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.

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TECHNOLOGY KUNIAMUTHUR, COIMBATORE-641008**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**PROGRAMME EDUCATIONAL OBJECTIVES**

**PEO 1:** Graduates will have a profound knowledge in the various programming languages and possess globally competent skill sets by inculcating continuous up gradation of their technical skills and personality traits.

**PEO 2:** Graduates will be able to analyze and find solutions to various applications and reconcile the dynamic trends in the field of Information Technology.

**PEO 3:** Graduates will contribute to the society by their ethical behaviour and effective teamwork.

**PEO 4:** Graduates will excel with different skills like effective communication, leadership qualities, and provide smart solutions in business environment

**Mapping of PO's to PEO's**

Programme Educational Objectives	Programme Outcomes											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>PEO 1</b>	3	3	3	3	3	3	3	2	1	2	2	3
<b>PEO 2</b>	3	3	3	3	3	2	2	2	2	1	2	2
<b>PEO 3</b>	2	2	2	2	2	2	2	3	3	3	2	1
<b>PEO 4</b>	2	2	3	2	2	2	3	3	3	3	3	3

<b>1</b>	Reasonably agreed	<b>2</b>	Moderately agreed	<b>3</b>	Strongly agreed
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**SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY**

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**DEPARTMENT OF INFORMATION TECHNOLOGY**

**PROGRAMME SPECIFIC OUTCOMES**

**PSO 1:**

Graduates will demonstrate multidisciplinary knowledge for problem solving by creating solutions for product based and application-based software for the advancement of the society.

**PSO 2:**

Graduates attain advance knowledge in Information and Communication Technologies (ICT) thereby creating real time solutions for different projects by using modern tools prevailing in the current trends.

**PSO 3:**

Graduates will exhibit state of the art technologies by applying their knowledge in various programming skills to overcome the demand of sustainable development.

**R2020**

<b>SEMESTER I</b>							
<b>S No.</b>	<b>Course Code</b>	<b>Course</b>	<b>L/T/P</b>	<b>Contact hrs/week</b>	<b>Credit</b>	<b>Ext/Int</b>	<b>Category</b>
<b>THEORY CUM PRACTICAL</b>							
1.	20MA101	Engineering Mathematics I	2/1/2	5	4	40/60	BSC
2.	20CH101	Engineering Chemistry	3/0/3	6	4.5	40/60	BSC
3.	20EN101	Technical Communication Skills	2/0/2	4	3	40/60	HSMC
4.	20IT101	Python Programming	3/0/2	5	4	40/60	PCC
5.	20CS101	Application Development Practices	2/0/2	4	3	40/60	PCC
<b>PRACTICAL</b>							
6.	20ME111	Engineering Graphics	1/0/3	4	2.5	40/60	ESC
<b>MANDATORY COURSE</b>							
7.	20MC101	Mandatory Course – I (Induction Programme)	3 Weeks			0/100	MC
<b>Total</b>				<b>28</b>	<b>21</b>	<b>700</b>	

<b>SEMESTER II</b>							
<b>S No.</b>	<b>Course Code</b>	<b>Course</b>	<b>L/T/P</b>	<b>Contact hrs/week</b>	<b>Credit</b>	<b>Ext/Int</b>	<b>Category</b>
<b>THEORY</b>							
1.	20GE201	Universal Human Values	3/0/0	3	3	50/50	HSMC
2.	20CS201	C and Data Structures	3/0/0	3	3	50/50	PCC
<b>THEORY CUM PRACTICAL</b>							
3.	20MA201	Engineering Mathematics II	2/1/2	5	4	40/60	BSC
4.	20PH104	Physics	3/0/3	6	4.5	40/60	BSC
5.	20EE111	Basics of Electrical and Electronics Engineering	3/0/2	5	4	40/60	ESC
<b>PRACTICAL</b>							
6.	20ME103	Engineering Practices Laboratory	0/0/3	3	1.5	40/60	ESC
7.	20CS202	Data Structures Laboratory	0/0/3	3	1.5	40/60	PCC
<b>MANDATORY COURSE</b>							
8.	20MC102	Mandatory Course II (Environmental Sciences)	2/0/0	2	0	0/100	MC
<b>Total</b>				<b>30</b>	<b>21.5</b>	<b>800</b>	

<b>SEMESTER III</b>							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
<b>THEORY</b>							
1.	20IT301	Computer Architecture	3/0/0	3	3	50/50	PCC
<b>THEORY CUM PRACTICAL</b>							
2.	20MA302	Mathematical Structures	2/1/2	5	4	40/60	BSC
3.	20EC311	Digital Logic and Design	3/0/2	5	4	40/60	ESC
4.	20IT302	Software Engineering and Management	3/0/2	5	4	40/60	HSMC
5.	20CS301	C++ and Advanced Data Structures	3/0/2	5	4	40/60	PCC
6.	20CS302	Operating Systems	3/0/2	5	4	40/60	PCC
<b>MANDATORY COURSE</b>							
7.	20MCXXX	Mandatory Course-III	2/0/0	2	0	0/100	MC
<b>Total</b>				<b>30</b>	<b>23</b>	<b>700</b>	

<b>SEMESTER IV</b>							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
<b>THEORY</b>							
1.	20CS401	Database Management Systems	3/0/0	3	3	50/50	PCC
2.	20IT401	Computational Biology	3/0/0	3	3	50/50	ESC
3.	20IT402	Design and Analysis of Algorithms	3/0/0	3	3	50/50	PCC
<b>THEORY CUM PRACTICAL</b>							
4.	20MA404	Random Variables and Statistics	2/1/2	5	4	40/60	BSC
5.	20EC411	Fundamentals of Data and Mobile Communications	3/0/2	5	4	40/60	ESC
6.	20IT403	Web and Java Programming	3/0/2	5	4	40/60	PCC
<b>PRACTICAL</b>							
7.	20CS405	Database Management Systems Laboratory	0/0/3	3	1.5	40/60	PCC
<b>MANDATORY COURSE</b>							
8.	20MCXXX	Mandatory Course-IV	2/0/0	2	0	0/100	MC
<b>Total</b>				<b>29</b>	<b>22.5</b>	<b>800</b>	

<b>SEMESTER V</b>							
<b>S No.</b>	<b>Course Code</b>	<b>Course</b>	<b>L/T/P</b>	<b>Contact hrs/week</b>	<b>Credit</b>	<b>Ext/Int</b>	<b>Category</b>
<b>THEORY</b>							
1.	20IT501	Formal Languages and Automata Theory	3/0/0	3	3	50/50	PCC
2.	20IT502	Data Communications and Computer Networks	3/0/0	3	3	50/50	ESC
3.	20IT9XX	Professional Elective-I	3/0/0	3	3	50/50	PEC
4.	20IT9XX	Professional Elective-II	3/0/0	3	3	50/50	PEC
5.	20XX0XX	Open Elective – I	3/0/0	3	3	50/50	OEC
<b>THEORY CUM PRACTICAL</b>							
6.	20MA501	Fourier Series and Computational Methods	2/1/2	5	4	40/60	BSC
<b>PRACTICAL</b>							
7.	20IT503	Computer Networks Laboratory	0/0/3	3	1.5	40/60	ESC
<b>PROJECT WORK</b>							
8.	20IT504	Mini Project – I	0/0/2	2	1	40/60	PW
<b>MANDATORY COURSE</b>							
9.	20MCXXX	Mandatory Course - V	2/0/0	2	0	0/100	MC
<b>Total</b>				<b>27</b>	<b>21.5</b>	<b>900</b>	

<b>SEMESTER VI</b>							
<b>S No.</b>	<b>Course Code</b>	<b>Course</b>	<b>L/T/P</b>	<b>Contact hrs/week</b>	<b>Credit</b>	<b>Ext/Int</b>	<b>Category</b>
<b>THEORY</b>							
1.	20IT601	Machine Learning Techniques	3/0/0	3	3	50/50	PCC
2.	20CS601	Principles of Compiler Design	3/0/0	3	3	50/50	PCC
3.	20IT9XX	Professional Elective-III	3/0/0	3	3	50/50	PEC
4.	20IT9XX	Professional Elective-IV	3/0/0	3	3	50/50	PEC
5.	20XX0XX	Emerging Elective-I	3/0/0	3	3	50/50	EEC
<b>THEORY CUM PRACTICAL</b>							
6.	20IT602	Cloud Computing and its Applications	3/0/2	5	4	40/60	PCC
<b>PRACTICAL</b>							
7.	20IT603	Machine Learning Techniques Lab	0/0/3	3	1.5	40/60	PCC
<b>PROJECT WORK</b>							
8.	20IT604	Mini Project – II	0/0/2	2	1	40/60	PW
<b>Total</b>				<b>25</b>	<b>21.5</b>	<b>800</b>	



<b>SEMESTER VII</b>							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
<b>THEORY</b>							
1.	20IT9XX	Professional Elective-V	3/0/0	3	3	50/50	PEC
2.	20IT9XX	Professional Elective-VI	3/0/0	3	3	50/50	PEC
3.	20XX0XX	Open Elective-II	3/0/0	3	3	50/50	OEC
4.	20XX0XX	Emerging Elective-II	3/0/0	3	3	50/50	EEC
<b>THEORY CUM PRACTICAL</b>							
5.	20IT701	Big Data Analytics	3/0/2	5	4	40/60	PCC
6.	20IT702	Embedded Systems and Internet of Things	3/0/2	5	4	40/60	PCC
<b>EMPLOYABILITY ENHANCEMENT SKILLS</b>							
7.	20EES01	Employability Enhancement Skills			2	0/100	EES
<b>Total</b>				<b>22</b>	<b>22</b>	<b>700</b>	

<b>SEMESTER VIII</b>							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
<b>PROJECT WORK</b>							
1	20IT801	Project	0/0/24	24	12	40/60	PW
<b>Total</b>				<b>24</b>	<b>12</b>	<b>100</b>	

#### HUMANITIES AND MANAGEMENT COURSES (10 credits)

S. No	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
1.	20EN101	Technical Communication Skills	2/0/2	4	3	HSMC
2.	20GE201	Universal Human Values	3/0/0	3	3	HSMC
3.	20IT302	Software Engineering and Management	3/0/2	5	4	HSMC

#### BASIC SCIENCE COURSES (29 Credits)

S. No	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
1.	20MA101	Engineering Mathematics I	2/1/2	5	4	BSC
2.	20CH101	Engineering Chemistry	3/0/3	6	4.5	BSC
3.	20MA201	Engineering Mathematics II	2/1/2	5	4	BSC
4.	20PH104	Physics	3/0/3	6	4.5	BSC
5.	20MA302	Mathematical Structures	2/1/2	5	4	BSC
6.	20MA404	Random Variables and Statistics	2/1/2	5	4	BSC
7.	20MA501	Fourier Series and Computational Methods	2/1/2	5	4	BSC

#### ENGINEERING SCIENCE COURSES (23.5 Credits)

S. No	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
1.	20ME111	Engineering Graphics	1/0/3	4	2.5	ESC
2.	20ME103	Engineering Practices Laboratory	0/0/3	3	1.5	ESC
3.	20EE111	Basics of Electrical and Electronics Engineering	3/0/2	5	4	ESC
4.	20EC311	Digital Logic and Design	3/0/2	5	4	ESC
5.	20EC411	Fundamentals of Data and Mobile Communications	3/0/2	5	4	ESC

6.	20IT401	Computational Biology	3/0/0	3	3	ESC
7.	20IT502	Data Communications and Computer Networks	3/0/0	3	3	ESC
8.	20IT503	Computer Networks Laboratory	0/0/3	3	1.5	ESC

#### PROFESSIONAL CORE COURSES (56.5 Credits)

S. No	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
1.	20CS101	Application Development Practices	2/0/2	4	3	PCC
2.	20IT101	Python Programming	3/0/2	5	4	PCC
3.	20CS201	C and Data Structures	3/0/0	3	3	PCC
4.	20CS202	Data Structures Laboratory	0/0/3	3	1.5	PCC
5.	20CS301	C++ and Advanced Data Structures	3/0/2	5	4	PCC
6.	20IT301	Computer Architecture	3/0/0	3	3	PCC
7.	20CS302	Operating Systems	3/0/2	5	4	PCC
8.	20CS401	Database Management Systems	3/0/0	3	3	PCC
9.	20IT402	Design and Analysis of Algorithms	3/0/0	3	3	PCC
10.	20IT403	Web and Java Programming	3/0/2	5	4	PCC
11.	20CS405	Database Management Systems Laboratory	0/0/3	3	1.5	PCC
12.	20IT501	Formal Languages and Automata Theory	3/0/0	3	3	PCC
13.	20CS601	Principles of Compiler Design	3/0/0	3	3	PCC
14.	20IT601	Machine Learning Techniques	3/0/0	3	3	PCC
15.	20IT602	Cloud Computing and its Applications	3/0/2	5	4	PCC
16.	20IT603	Machine Learning Techniques Lab	0/0/3	3	1.5	PCC
17.	20IT701	Big Data Analytics	3/0/2	5	4	PCC
18.	20IT702	Embedded Systems and Internet of Things	3/0/2	5	4	PCC

#### PROFESSIONAL ELECTIVE COURSES

S. No	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
<b>Networking and Communications</b>						
1.	20IT901	Game Theory and its Applications	3/0/0	3	3	PEC
2.	20IT902	Distributed Systems	3/0/0	3	3	PEC
3.	20IT903	Network Programming	3/0/0	3	3	PEC
4.	20IT904	Mobile AdHoc Networks	3/0/0	3	3	PEC
5.	20IT905	Advanced Mobile Communication	3/0/0	3	3	PEC
6.	20CS602	Cryptography and Network Security	3/0/0	3	3	PEC
7.	20CS902	Fault Tolerant Computing	3/0/0	3	3	PEC
8.	20CS907	Cyber Forensics	3/0/0	3	3	PEC
9.	20EC921	Wireless Sensor Networks	3/0/0	3	3	PEC
<b>Data Science and Intelligent Systems</b>						
1.	20IT911	Deep Learning Techniques	3/0/0	3	3	PEC
2.	20IT912	Data Visualization Techniques	3/0/0	3	3	PEC
3.	20IT913	Artificial Intelligence and its Applications	3/0/0	3	3	PEC
4.	20IT914	Blockchain Technology	3/0/0	3	3	PEC
5.	20IT915	Evolutionary Computing	3/0/0	3	3	PEC
6.	20IT916	Cognitive Science and Analytics	3/0/0	3	3	PEC
7.	20IT917	Data Warehousing and Data Mining	3/0/0	3	3	PEC
8.	20CS921	Speech and Natural Language Processing	3/0/0	3	3	PEC
9.	20CS922	Digital Image Processing	3/0/0	3	3	PEC

Software Development						
1.	20IT921	Data Analysis using R	3/0/0	3	3	PEC
2.	20IT922	Web Applications using Java	3/0/0	3	3	PEC
3.	20IT923	Open Source Systems	3/0/0	3	3	PEC
4.	20IT924	Industrial Ethics	3/0/0	3	3	PEC
5.	20IT925	Computer Graphics and Multimedia	3/0/0	3	3	PEC
6.	20IT926	Software Testing	3/0/0	3	3	PEC
7.	20CS911	Mobile Application Development	3/0/0	3	3	PEC
8.	20CS925	Design Patterns and Design Thinking	3/0/0	3	3	PEC
9.	20IT927	Professional Readiness for Innovation, Employability and Entrepreneurship	0/0/6	6	3	PEC

#### OPEN ELECTIVE COURSES

S. No	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
1.	20IT001	Mobile Applications Development using Android	3/0/0	3	3	OEC
2.	20IT002	PHP and MySQL	3/0/0	3	3	OEC
3.	20IT003	Blockchain Essentials	3/0/0	3	3	OEC
4.	20IT004	Cloud and Virtualization	3/0/0	3	3	OEC
5.	20IT005	Internet Programming	3/0/0	3	3	OEC
6.	20IT006	Introduction to Cyber Security	3/0/0	3	3	OEC

#### EMERGING ELECTIVE COURSES

S. No	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
1.	20IT007	Open-Source Deep Learning Frameworks	3/0/0	3	3	EEC
2.	20IT008	Kotlin for Cross-platform Application Development	3/0/0	3	3	EEC
3.	20IT009	Virtual and Augmented Reality	3/0/0	3	3	EEC
4.	20IT010	Computational Methods in Synthetic Biology	3/0/0	3	3	EEC
5.	20IT011	Principles of Industry 4.0	3/0/0	3	3	EEC
6.	20IT012	Autonomous Robotics	3/0/0	3	3	EEC

#### EMPLOYABILITY ENHANCEMENT SKILLS (2 Credits)

S. No	Course Code	Course Title	Credits	Category
1.	20EES01	Employability Enhancement Skills	2	EES

#### MANDATORY COURSES

S.No	Course Code	Course Title	Category
1.	20MC101	Induction Programme	MC
2.	20MC102	Environmental Sciences	MC
3.	20MC103	Soft Skills	MC
4.	20MC105	General Aptitude	MC
5.	20MC106	Life Skills and Ethics	MC
6.	20MC107	Stress Management	MC
7.	20MC108	Constitution of India	MC
8.	20MC109	Essence of Indian Traditional Knowledge	MC

**SCHEME OF CREDIT DISTRIBUTION – SUMMARY**

S. No	Stream	Credits/Semester									Credits	AICTE Norms
		I	II	III	IV	V	VI	VII	VIII			
1.	Humanities (HSMC)	3	3	4							10	12
2.	Basic Sciences (BSC)	8.5	8.5	4	4	4					29	24
3.	Engineering Sciences (ESC)	2.5	5.5	4	7	4.5					23.5	29
4.	Professional Core (PCC)	7	4.5	11	11.5	3	11.5	8			56.5	49
5.	Professional Electives (PEC)					6	6	6			18	18
6.	Open Electives (OEC)					3		3			6	12
7.	Emerging Elective (EEC)						3	3			6	
8.	Project Work (PW)					1	1			12	14	15
9.	Employability Enhancement Skills (EES)							2			2	
10.	Mandatory Course (MC)											Non-Credit
<b>Total</b>		21	21.5	23	22.5	21.5	21.5	22	12		<b>165</b>	
<b>AICTE (CSE)</b>		<b>17.5</b>	<b>20.5</b>	<b>23</b>	<b>22</b>	<b>21</b>	<b>22</b>	<b>18</b>	<b>15</b>			<b>159</b>