



Sri Krishna College of Engineering and Technology

An Autonomous Institution, Affiliated to Anna University

Coimbatore – 641 008



DEPARTMENT OF COMPUTER SCIENCE AND BUSINESS SYSTEMS

CURRICULUM AND SYLLABI

B.Tech. COMPUTER SCIENCE AND BUSINESS SYSTEMS

REGULATION 2020 [2021-2025 Batch]

DEPARTMENT OF COMPUTER SCIENCE AND BUSINESS SYSTEMS

VISION AND MISSION OF THE DEPARTMENT

VISION

To produce industry ready professionals with information technology acquaintance and human values to contribute to the society at large.

MISSION

- To develop and to promote student ability thereby to compete globally through excellence in education.
- To inculcate varied skill sets that meets industry standards and to practice moral values.
- To enrich high integrity to lead and to serve the society.

DEPARTMENT OF COMPUTER SCIENCE AND BUSINESS SYSTEMS

PROGRAMME OUTCOMES OF THE DEPARTMENT

PROGRAMME OUTCOMES

PO1 - Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 - 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.

PO3 - 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.

PO4 - 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.

PO5 - 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.

PO6 - 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.

PO7 - 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.

PO8 - Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 - Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 - 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.

PO11 - 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.

PO12 - 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.

DEPARTMENT OF COMPUTER SCIENCE AND BUSINESS SYSTEMS

PROGRAMME EDUCATIONAL OBJECTIVES & PROGRAMME SPECIFIC OBJECTIVES OF THE DEPARTMENT

PROGRAMME EDUCATIONAL OBJECTIVES

PEO1 Challenges in their profession through the application of theory and principles of computer engineering.

PEO2 Problem solving skills in computer science and business systems by applying mathematical, scientific, engineering and business fundamentals and also to pursue higher studies.

PEO3 Good scientific and engineering breadth so as to comprehend, analysis, design, and create novel products and solutions for the real-life problems.

PEO4 Possess professional and ethical attitude, effective communication skills, team working skills, multi-disciplinary approach, and an ability to relate engineering issues to broader social context with leadership qualities and progress through life-long learning.

PROGRAMME SPECIFIC OUTCOMES

At the end of the programme, Graduate shall have

PSO 1 Enriched knowledge in aiding academic excellence in order to adopt to changing demands in the cutting-edge technology.

PSO 2 Design varied solutions for real time problems with critical thinking and implement them by using modern software tools with reasoning in lieu of deploying them in the society towards beneficial grounds.

PSO 3 Knowledge of mathematics, science, business systems fundamentals, and an engineering specialization to the solution of complex engineering problems.

Mapping of PO's to PEO's

Programme Educational Objectives (PEO)	Programme Outcomes (PO)											
	1	2	3	4	5	6	7	8	9	10	11	12
PEO 1	3	3	3	3	3	2	2	2	2	3	3	3
PEO 2	3	3	3	3	3	2	2	2	3	3	3	3
PEO 3	3	3	3	3	3	3	2	2	2	3	3	3
PEO 4	2	3	3	3	3	3	3	3	3	3	3	3

Mapping of PO's to PSO's

Programme Specific Outcomes (PSO)	Programme Outcomes (PO)											
	1	2	3	4	5	6	7	8	9	10	11	12
PSO 1	3	3	3	3	3	2	2	2	2	2	2	2
PSO 2	3	3	3	3	3	3	2	2	3	2	3	3
PSO 3	3	3	3	3	3	3	2	2	3	2	3	2

Mapping of PSO's to PEO's

Programme Specific Outcomes (PSO)	Programme Educational Objectives (PEO)			
	1	2	3	4
PSO 1	3	3	3	2
PSO 2	3	3	3	3
PSO 3	3	3	3	3

1	Reasonably agreed	2	Moderately agreed	3	Strongly agreed
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B.TECH. COMPUTER SCIENCE AND BUSINESS SYSTEMS**REGULATION 2020 [2021-2025 BATCH]**

SEMESTER I							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credits	Int/Ext	Category
THEORY							
1	21MA102	Discrete Mathematics	3/1/0	4	4	40/60	BSC
2	21MA103	Probability and Statistics	3/1/0	4	4	40/60	BSC
THEORY CUM PRACTICAL							
3	21EE112	Principles of Electrical Engineering	3/0/2	5	4	50/50	ESC
4	21CB101	Computer Programming	3/0/2	5	4	50/50	ESC
5	21PH103	Physics for Computing Science	3/0/2	5	4	50/50	BSC
6	21EN102	Business Communication and Value Science I	2/0/2	4	3	50/50	HSMC
MANDATORY COURSE							
7	21MCXXX	Mandatory Course I	2/0/0	2	0	0/100	MC
Total				29	23	600	

SEMESTER II							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
THEORY							
1	21MA202	Linear Algebra	3/1/0	4	4	40/60	BSC
2	21MG211	Fundamentals of Economics	3/0/0	3	3	40/60	ESC
3	21EN201	Business Communication and Value Science II	2/1/0	3	3	40/60	HSMC
THEORY CUM PRACTICAL							
4	21CB201	Data Structures	3/0/2	5	4	50/50	PCC
5	21EC211	Principles of Electronics Engineering	3/0/2	5	4	50/50	ESC
6	21MA203	Statistical Modelling	3/0/2	5	4	50/50	BSC
MANDATORY COURSE							
7	21MCXXX	Mandatory Course II					MC
Total				25	22	600	

SEMESTER III							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
THEORY							
1	21CB301	Formal Languages and Automata Theory	3/0/0	3	3	40/60	PCC
2	21CB302	Computer Organization and Architecture	3/0/0	3	3	40/60	ESC
3	21CB303	Object Oriented Programming	3/0/0	3	3	40/60	PCC
4	21GE201	Universal Human Values	3/0/0	3	3	40/60	HSMC
THEORY CUM PRACTICAL							
5	21MA308	Computational Statistics	3/0/2	5	4	50/50	BSC
6	21CB304	Software Engineering	3/0/2	5	4	50/50	PCC
PRACTICAL							
7	21CB305	Object Oriented Programming Laboratory	0/0/3	3	1.5	60/40	PCC
MANDATORY COURSE							
8	21MCXXX	Mandatory Course III					MC
Total				25	21.5	700	
SEMESTER IV							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
THEORY							
1	21CB401	Database Management Systems	3/0/0	3	3	40/60	PCC
2	21CB402	Introduction to Innovation, IP Management and Entrepreneurship	3/0/0	3	3	40/60	ESC
3	21EN401	Business Communication and Value Science III	2/0/0	2	2	40/60	HSMC
THEORY CUM PRACTICAL							
4	21MA408	Operations Research	3/0/2	5	4	50/50	BSC
5	21CB403	Software Design with UML	3/0/2	5	4	50/50	PCC
6	21CB404	Operating Systems	3/0/2	5	4	50/50	PCC
PRACTICAL							
7	21CB405	Database Management Systems Laboratory	0/0/3	3	1.5	60/40	PCC
MANDATORY COURSE							
8	21MCXXX	Mandatory Course IV					MC

Total	26	21.5	700	
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SEMESTER V							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
THEORY							
1	21CB501	Fundamentals of Management	3/0/0	3	3	40/60	ESC
2	21CB502	Business Strategy	3/0/0	3	3	40/60	ESC
3	21CB506	Design Thinking	3/0/0	3	3	40/60	PCC
4	21CB9XX	Professional Elective– 1	3/0/0	3	3	40/60	PEC
THEORY CUM PRACTICAL							
5	21CB503	Design and Analysis of Algorithms	3/0/2	5	4	50/50	PCC
6	21CB504	Compiler Design	3/0/2	5	4	50/50	PCC
PROJECT WORK							
7	21CB505	Mini Project	0/0/4	4	2	60/40	PW
Total				26	22	700	

SEMESTER VI							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
THEORY							
1	21XXXXX	Open Elective – 1	3/0/0	3	3	40/60	OEC
2	21CB9XX	Professional Elective – 2	3/0/0	3	3	40/60	PEC
3	21EN603	Business Communication and Value Science IV	2/0/0	2	2	40/60	HSMC
THEORY CUM PRACTICAL							
4	21CB601	Computer Networks	3/0/2	5	4	50/50	PCC
5	21CB602	Information Security	3/0/2	5	4	50/50	PCC
6	21CB603	Artificial Intelligence	3/0/2	5	4	50/50	PCC
EMPLOYABILITY ENHANCEMENT SKILLS							
7	21EES01	Employability Enhancement Skills			2		EES
Total				23	22	600	

SEMESTER VII							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
THEORY							
1	21CB9XX	Professional Elective – 3	3/0/0	3	3	40/60	PEC
2	21CB9XX	Professional Elective – 4	3/0/0	3	3	40/60	PEC
3	21CB9XX	Professional Elective – 5	3/0/0	3	3	40/60	PEC
4	21CB7XX	Emerging Elective – 1	3/0/0	3	3	40/60	EEC
5	21XXXXX	Open Elective - 2	3/0/0	3	3	40/60	OEC
THEORY CUM PRACTICAL							
6	21CB7XX	Emerging Elective – 2	3/0/2	5	4	50/50	EEC
PROJECT WORK							
7	21CB703	Mini Project II	0/0/4	4	2	60/40	PW
Total				24	21	700	

SEMESTER VIII							
S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
THEORY							
PROJECT WORK							
1	21CB801	Project Evaluation II	0/0/30	30	12	60/40	PW
Total				30	12	100	

HUMANITIES SCIENCE AND MANAGEMENT COURSES (13 credits)

S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
1	21EN102	Business Communication and Value Science I	2/0/2	4	3	50/50	HSMC
2	21EN201	Business Communication and Value Science II	2/1/0	3	3	40/60	HSMC
3	21EN401	Business Communication and Value Science III	2/0/0	2	2	40/60	HSMC
4	21GE201	Universal Human Values	3/0/0	3	3	40/60	HSMC
5	21EN603	Business Communication and Value Science IV	2/0/0	2	2	40/60	HSMC

BASIC SCIENCES COURSES (28 credits)

S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
1	21MA102	Discrete Mathematics	3/1/0	4	4	40/60	BSC
2	21MA103	Probability and Statistics	3/1/0	4	4	40/60	BSC
3	21PH103	Physics for Computing Science	3/0/2	5	4	50/50	BSC
4	21MA202	Linear Algebra	3/1/0	4	4	40/60	BSC
5	21MA203	Statistical Modelling	3/0/2	5	4	50/50	BSC
6	21MA308	Computational Statistics	3/0/2	5	4	50/50	BSC
7	21MA408	Operations Research	3/0/2	5	4	50/50	BSC

ENGINEERING SCIENCES COURSES (27 credits)

S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
1	21EE112	Principles of Electrical Engineering	3/0/2	5	4	50/50	ESC
2	21CB101	Computer Programming	3/0/2	5	4	50/50	ESC
3	21MG211	Fundamentals of Economics	3/0/0	3	3	40/60	ESC
4	21EC211	Principles of Electronics Engineering	3/0/2	5	4	50/50	ESC
5	21CB302	Computer Organization and Architecture	3/0/0	3	3	40/60	ESC
6	21CB402	Introduction to Innovation, IP	3/0/0	3	3	40/60	ESC

		Management and Entrepreneurship					
7	21CB501	Fundamentals of Management	3/0/0	3	3	40/60	ESC
8	21CB502	Business Strategy	3/0/0	3	3	40/60	ESC

PROFESSIONAL CORE COURSES (53 credits)

S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
1	21CB201	Data Structures	3/0/2	5	4	50/50	PCC
2	21CB301	Formal Languages and Automata Theory	3/1/0	4	4	40/60	PCC
3	21CB303	Object Oriented Programming	3/0/0	3	3	40/60	PCC
4	21CB304	Software Engineering	3/0/2	5	4	50/50	PCC
5	21CB305	Object Oriented Programming Laboratory	0/0/3	3	1.5	60/40	PCC
6	21CB401	Database Management Systems	3/0/0	3	3	40/60	PCC
7	21CB403	Software Design with UML	3/0/2	5	4	50/50	PCC
8	21CB404	Operating Systems	3/0/2	5	4	50/50	PCC
9	21CB405	Database Management Systems Laboratory	0/0/3	3	1.5	60/40	PCC
10	21CB503	Design and Analysis of Algorithms	3/0/2	5	4	50/50	PCC
11	21CB504	Compiler Design	3/0/2	5	4	50/50	PCC
12	21CB506	Design Thinking	3/0/0	3	3	40/60	PCC
13	21CB601	Computer Networks	3/0/2	5	4	50/50	PCC
14	21CB602	Information Security	3/0/2	5	4	50/50	PCC
15	21CB603	Artificial Intelligence	3/0/2	5	4	50/50	PCC

MANDATORY COURSES

S.No.	Course Code	Course Title	Category
1	21MC101	Induction Program	MC
2	21MC102	Environmental Sciences	MC
3	21MC103	Soft Skills	MC
4	21MC105	General Aptitude	MC
5	21MC106	Life Skills and Ethics	MC
6	21MC107	Stress Management	MC

7	21MC108	Constitution of India	MC
8	21MC109	Essence of Indian Traditional Knowledge	MC

EMPLOYABILITY ENHANCEMENT SKILLS

S. No.	Course Code	Course Title	Duration	Credit	Category
1	21EES01	Employability Enhancement Skills	4 Weeks	2	EES

PROFESSIONAL ELECTIVE COURSES (PEC)

S.No.	Course Code	Course	L	T	P	Credit	Int/Ext
Digital Technology and Data Science							
1	21CB911	Conversational Systems	3	0	0	3	40/60
2	21CB912	Fundamentals of Cloud Application Development	3	0	0	3	40/60
3	21CB913	Machine Learning	3	0	0	3	40/60
4	21CB921	Robotics and its Applications	3	0	0	3	40/60
5	21CB922	Modern Web Applications	3	0	0	3	40/60
6	21CB923	Data Mining and Analytics	3	0	0	3	40/60
7	21CB931	Cognitive Science and Analytics	3	0	0	3	40/60
8	21CB932	Internet of Things	3	0	0	3	40/60
9	21CB933	Cryptology	3	0	0	3	40/60
10	21CB941	Quantum Computation and Quantum Information	3	0	0	3	40/60
11	21CB942	Social Information Network	3	0	0	3	40/60
12	21CB943	Mobile Computing	3	0	0	3	40/60
13	21CB963	Image Processing and Pattern Recognition	3	0	0	3	40/60
14	21CB964	Advanced Java Programming	3	0	0	3	40/60
Business Systems							
1	21CB951	Behavioural Economics	3	0	0	3	40/60
2	21CB952	Computational Finance &Modelling	3	0	0	3	40/60
3	21CB953	Industrial Psychology	3	0	0	3	40/60
4	21CB961	Enterprise Systems	3	0	0	3	40/60
5	21CB962	Advance Finance	3	0	0	3	40/60
6	21CB967	Financial Management	3	0	0	3	40/60
7	21CB968	Financial and Cost Accounting	3	0	0	3	40/60

EMERGING ELECTIVE COURSES

S No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Int/Ext	Category
1	21CB701	Usability Design of Software Applications	3/0/2	4	4	50/50	EEC
2	21CB702	IT Project Management	3/0/2	4	4	50/50	EEC

3	21CB704	Marketing Research and Marketing Management	3/0/0	3	3	40/60	EEC
4	21CB705	Services Science and Service Operations Management	3/0/0	3	3	40/60	EEC

OPEN ELECTIVE COURSES OFFERED TO OTHER DEPARTMENTS

S.No.	Course Code	Course	L	T	P	Credit	Int/Ext
1	21CB001	Java Programming	3	0	0	3	40/60
2	21CB002	Usability Design	3	0	0	3	40/60
3	21CB003	Financial Modelling	3	0	0	3	40/60
4	21CB004	Artificial Intelligence and Expert Systems	3	0	0	3	40/60
5	21CB005	Intellectual Property and Entrepreneurship	3	0	0	3	40/60

VALUE ADDED COURSES

S. No.	Course Code	Course	Credit	Category
1	21VA801	Amazon Web Services	1	VAC
2	21VA802	Industry 4.0	1	VAC
3	21VA803	Mobile Applications and Services	1	VAC
4	21VA804	ReactJS	1	VAC
5	21VA805	Spring Boot	1	VAC

SCHEME OF CREDIT DISTRIBUTION – SUMMARY

S. No	Stream	Credits/Semester								Credits	AICTE NORMS
		I	II	III	IV	V	VI	VII	VIII		
	Humanities Science and Management Courses (HSMC)	3	3	3	2		2			13	12
2.	Basic Sciences Courses (BSC)	12	8	4	4					28	24
3.	Engineering Sciences Courses (ESC)	8	7	3	3	6				27	29
4.	Professional Core Courses (PCC)		4	11.5	12.5	11	12			51	49
5.	Professional Electives Courses (PEC)					3	3	9		15	18
6.	Open Elective Courses (OEC) / Emerging Elective Courses (EEC)						3	10		13	12
7.	Project Work (PW)					2		2	12	16	15
8.	Employability Enhancement Skills (EES)						2			2	
9.	Mandatory Course (MC)									Non credit	
	Total	23	22	21.5	21.5	22	22	21	12	165	159