RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

AN AUTONOMOUS INSTITUTION

B.TECH. COMPUTER SCIENCE AND BUSINESS SYSTEMS

CURRICULUM AND SYLLABI FOR SEMESTERS I TO VIII

(2023 – 2027 BATCH)

REGULATIONS 2023

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Kuthambakkam, Chennai 600124

RAJALAKSHMI INSTITUTE OF TECHNOLOGY, CHENNAI
An Autonomous Institution, Affiliated to Anna University, Chennai

REGULATIONS 2023
CHOICE BASED CREDIT SYSTEM

B.TECH. COMPUTER SCIENCE AND BUSINESS SYSTEMS

I VISION OF THE DEPARTMENT

To produce competent professionals with industry-relevant education, research aptitude, computer science experts who are both technical and creative, and familiarity with management skills, social skills, and moral principles.

II MISSION OF THE DEPARTMENT

- To spread technical information via innovative consultancy, instruction, and research.
- To upgrade the curriculum in order to adapt to the changing needs of the industry.
- To enhance student potential and enable them to compete globally through quality education.

III PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

Graduates can

- Acquire technical knowledge and proficiency required for the employment and higher education in the contemporary areas of computer science or management studies.
- Apply their competency in design and development of innovative solutions for real-world problems.
- Demonstrate leadership qualities with high ethical standards and collaborated with other industries for the socio-economical growth of the country.

IV PROGRAM OUTCOMES (POs)

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 to 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 Teamwork:** 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. **Lifelong Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

V PROGRAM SPECIFIC OUTCOMES (PSOs)

The students will be able to

- Create, select, and apply appropriate techniques, resources, modern engineering and business tools including prediction and data analytics to complex engineering activities and business solutions.
- Evolve computer science in specific methodologies for effective decision making in several critical problems of the real world.
- Apply entrepreneurial skills and management traits for identifying, analyzing and creating business opportunities with smart innovative ideas.

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REGULATIONS 2023
CHOICE BASED CREDIT SYSTEM
B.TECH. COMPUTER SCIENCE AND BUSINESS SYSTEMS

CURRICULUM FOR SEMESTER I TO VIII

SEMESTER I

Sl. No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
	IP23111	Induction Programme	-	-	-	-	-	0
THEORY COURSES								
1	HS23111	Communicative English	HSMC	3	0	0	3	3
2	CY23111	Engineering Chemistry	BSC	3	0	0	3	3
3	MA23111	Matrices and Calculus	BSC	3	1	0	4	4
4	GE23111	Problem Solving and C Programming	ESC	3	0	0	3	3
5	GE23112	தமிழர் மரபு / Heritage of Tamils	HSMC	1	0	0	1	0
LABORATORY ORIENTED THEORY COURSE								
6	GE23131	Engineering Graphics	ESC	2	0	4	6	4
LABORATORY COURSES								
7	CY23121	Chemistry Laboratory	BSC	0	0	2	2	1
8	GE23121	Problem Solving and C Programming Laboratory	ESC	0	0	2	2	1
9	GE23122	Engineering Practices Laboratory	ESC	0	0	2	2	1
TOTAL				**15**	**1**	**10**	**26**	**20**

SEMESTER II

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1	HS23211	Professional English	HSMC	2	0	0	2	2
2	MA23211	Statistics and Numerical Methods	BSC	3	1	0	4	4
3	PH23211	Physics for Information Science	BSC	3	0	0	3	3
4	AD23211	Python for Data science	ESC	3	0	0	3	3
5	GE23211	Basic Electrical and Electronics Engineering	ESC	3	0	0	3	3
6	GE23213	தமிழரும் தொழில் நுட்பமும் / Tamils and Technology	HSMC	1	0	0	1	0
LABORATORY COURSES								
7	PH23221	Physics Laboratory	BSC	0	0	2	2	1
8	AD23221	Python for Data Science Laboratory	ESC	0	0	2	2	1
9	GE23221	Communication Laboratory / Foreign Language	EEC	0	0	2	2	1
		NCC/Service Club Credit Course Level 1#		15	0	0	2	2#
TOTAL								**18**

NCC Credit Course Level 1 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

SEMESTER III

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1	MA23311	Discrete Mathematics	BSC	3	1	0	4	4
2	CB23311	Fundamentals of Economics and Financial Accounting	PCC	3	1	0	4	4
3	CS23312	Object Oriented Programming	PCC	3	0	0	3	3
4	CS23314	Data Structures and Algorithms	PCC	3	0	0	3	3
LABORATORY ORIENTED THEORY COURSE								
5	EC23331	Digital Principles and Computer Organization	ESC	3	0	2	5	4
LABORATORY COURSES								
6	CS23322	Object Oriented Programming Laboratory	PCC	0	0	2	2	1
7	CS23324	Data Structures and Algorithms Laboratory	PCC	0	0	2	2	1
INDUSTRY ORIENTED COURSE								
8	CB23IC1	Design Thinking	EEC	1	-	-	1	1
TOTAL								**21**

SEMESTER IV

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1	GE23411	Environmental Science and Sustainability	BSC	2	0	0	2	2
2	MA23411	Probability and Statistics	BSC	3	1	0	4	4
3	CB23411	Introduction to Business Systems	PCC	3	0	0	3	3
4	CS23411	Database Management Systems	PCC	3	0	0	3	3
5	CS23412	Operating Systems	PCC	3	0	0	3	3
LABORATORY ORIENTED THEORY COURSE								
6	AL23431	Artificial Intelligence and Machine Learning	PCC	3	0	2	5	4
LABORATORY COURSES								
7	CS23421	Database Management Systems Laboratory	PCC	0	0	2	2	1
8	CS23422	Operating Systems Laboratory	PCC	0	0	2	2	1
INDUSTRY ORIENTED COURSE								
9	CB23IC2	Enterprise Resource Planning	EEC	1	-	-	1	1
		NCC /Service Club Credit Course Level 2#	-	3	0	0	3	3#
TOTAL								**22**

NCC Credit Course Level 2 is offered for NCC students and Service Club students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

SEMESTER V

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1	CB23511	Data and Information Security	PCC	3	0	0	3	3
2	CB23512	Fundamentals of Management	PCC	3	0	0	3	3
3		Professional Elective I	PEC	-	-	-	-	3
4		Professional Elective II	PEC	-	-	-	-	3
5		Mandatory Course-I&	MC	3	0	0	3	0
LABORATORY ORIENTED THEORY COURSE								
6	AD23531	Deep Learning Techniques	PCC	3	0	2	5	4
7	CB23531	Business Analytics	PCC	3	0	2	5	4
LABORATORY COURSES								
8	CB23521	Data and Information Security Laboratory	PCC	0	0	2	2	1
9	GE23521	Business Communication Laboratory-I	ESC	0	0	2	2	1
INDUSTRY ORIENTED COURSE								
10	CB23IC3	Visualization Tools using R	EEC	1	-	-	1	1
TOTAL								**23**

&Mandatory Course-I is a Non-credit Course (Student shall select one course from the list givenunder Mandatory Course-I)

SEMESTER VI

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1		Professional Elective III	PEC	-	-	-	-	3
2		Professional Elective IV	PEC	-	-	-	-	3
3		Open Elective – I*	OEC	3	0	0	3	3
4		Open Elective – II*	OEC	3	0	0	3	3
5		Mandatory Course-II[&]	MC	3	0	0	3	0
LABORATORY ORIENTED THEORY COURSES								
6	EC23631	Embedded Systems and IoT	ESC	3	0	2	5	4
7	CS23631	Object Oriented Software Engineering	PCC	3	0	2	5	4
LABORATORY COURSES								
8	CB23621	Mini Project	EEC	0	0	4	4	2
9	GE23621	Business Communication Laboratory-II	ESC	0	0	2	2	1
		NCC /Service Club Credit Course Level 3[#]	-	3	0	0	3	3[#]
TOTAL								**23**

*Open Elective – I and II Shall be chosen from the list of open electives offered by other Programmes.

[&]Mandatory Course-II is a Non-credit Course (Student shall select one course from the list given under Mandatory Course-II)

[#]NCC Credit Course level 3 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

SEMESTER VII

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1	GE23711	Human Values and Ethics	HSMC	2	0	0	2	2
2		Elective – Management [$]	HSMC	3	0	0	3	3
3	CS23513	Cryptography and Cyber Security	PEC	3	0	0	3	3
4		Professional Elective V	PEC	-	-	-	-	3
5		Professional Elective VI	PEC	-	-	-	-	3
LABORATORY ORIENTED THEORY COURSES								
6	CS23731	Cloud Computing	PCC	3	0	2	5	4
LABORATORY COURSE								
7	CB23721	Internship/Certification Course	EEC	-	-	-	-	2
TOTAL								**20**

[$] Elective –Management shall be chosen from the list of elective management courses.

SEMESTER VIII

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSE								
1		Open Elective – III **	OEC	3	0	0	3	3
LABORATORY COURSE								
2	CB23821	Project Work	EEC	0	0	20	20	10
TOTAL				3	0	20	23	**13**

**Open Elective III- Shall be chosen from the list of open electives offered by other programmes.

TOTAL CREDITS: 160

ELECTIVE – MANAGEMENT COURSES

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	GE23713	Human Resource Management	HSMC	3	0	0	3	3
2	GE23714	Knowledge Management	HSMC	3	0	0	3	3
3	GE23716	Software Project Management	HSMC	3	0	0	3	3
4	GE23717	Total Quality Management	HSMC	3	0	0	3	3
5	GE23718	Management Information Systems	HSMC	3	0	0	3	3

MANDATORY COURSES I

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	MX23511	Disaster Risk Reduction and Management	MC	3	0	0	3	0
2	MX23512	Elements of Literature	MC	3	0	0	3	0
3	MX23513	Film Appreciation	MC	3	0	0	3	0
4	MX23514	Introduction to Women and Gender Studies	MC	3	0	0	3	0

MANDATORY COURSES II

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	MX23611	History of Science and Technology in India	MC	3	0	0	3	0
2	MX23612	Industrial Safety	MC	3	0	0	3	0
3	MX23613	State, Nation Building and Politics in India	MC	3	0	0	3	0
4	MX23614	Well Being with Traditional Practices -Yoga, Ayurveda and Siddha	MC	3	0	0	3	0

PROFESSIONAL ELECTIVE COURSES: VERTICALS

Sl. No.	Vertical 1	Vertical 2	Vertical 3	Vertical 4	Vertical 5	Vertical 6	Vertical 7
	Data Science	**Cloud Computing**	**Emerging Technologies**	**Artificial Intelligence**	**Management**	**Supply Chain Management for Industries**	**Marketing**
1	**AD23V12** Big Data Analytics	**CS23V21** Cloud Solution Architecture	**CS23V31** Cryptocurrency and Blockchain Technologies	**AD23V41** Cognitive Science	**CB23V51** Behavioral Economics	**ME23V61** Industry 5.0	**CB23V71** Conversational Systems
2	**AD23V24** Computer Vision	**CS23V22** Cloud Configuration Management	**CS23V32** Augmented Reality/Virtual Reality	**AD23V24** Computer Vision	**CB23V52** Customer Relation Management	**ME23V62** Planning in Logistics	**CB23V72** Digital Marketing
3	**AD23V13** Data Warehouse and Data Mining	**CS23V23** Cloud Virtualization	**CS23V33** Autonomous Mobility Systems	**AD23V26** Game Theory	**CB23V53** Entrepreneurship Development	**ME23V63** Supply ChainAnalytics	**CB23V73** Enterprise Security
4	**AD23V11** Exploratory Data Analysis	**CS23V24** Cloud Container Orchestration	**C23V34** Metarus	**AD23V42** Generative AI	**CB23V54** Financial Management	**ME23V64** Supply Chain Information System	**CB23V74** Financial Analytics
5	**AD23V14** Healthcare Analytics	**CS23V25** Cloud Services Management	**CS23V31** Cryptocurrency and Blockchain Technologies	**AL23V22** Knowledge Engineering	**CB23V55** Business Strategy	**ME23V65** Supply Chain for Manufacturing	**CB23V75** Marketing Research and Marketing Management
6	**AD23V15** Image and Video Analytics	**CS23V26** Security and Privacy in Cloud	**CS23V35** Large Language Model	**AD23V45** Reinforcement Learning	**CB23V56** Introduction to Innovation, IP Management and Entrepreneurship	**ME23V66** Supply Chain Management	**CB23V76** Risk Analytics
7	**AD23V44** Recommender Systems	**CS23V27** Cloud Storage Technologies	**CS23V36** Game Development	**AD23V28** Responsive AI	**CB23V57** IT Project Management	**ME23V67** SustainableInventory Management	**AD23V44** Recommender Systems
8	**AD23V46** Text and Speech Analysis	**CS23V28** SoftwareDefined Networks	**CS23V37** Intelligence process automation	**AD23V46** Text and Speech Analysis	**CB23V58** Human Resource Management for Entrepreneurs	**ME23V68** WarehouseAutomation	**CB23V77** Social Text and Media Analytics

Registration of Professional Elective Courses from Verticals:

Professional Elective Courses will be registered in Semesters V, VI and VII. These courses are listed in groups called verticals that represent a particular area of specialization / diversified group. Students are permitted to choose all the Professional Electives from a particular vertical or from different verticals. Further, only one Professional Elective course shall be chosen in a semester horizontally (row-wise). However, two courses are permitted from the same row, provided one course is enrolled in Semester V and another in semester VI. The registration of courses for B.E./B.Tech (Honours) or Minor degree shall be done from Semester V to VIII. The procedure for registration of courses explained above shall be followed for the courses of B.E/B.Tech (Honours) or Minor degree also.

PROFESSIONAL ELECTIVE COURSES: VERTICALS

VERTICAL 1: DATA SCIENCE

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	AD23V12	Big Data Analytics	PEC	3	0	0	3	3
2	AD23V24	Computer Vision	PEC	3	0	0	3	3
3	AD23V13	Data Warehouse and Data Mining	PEC	3	0	0	3	3
4	AD23V11	Exploratory Data Analysis	PEC	3	0	0	3	3
5	AD23V14	Healthcare Analytics	PEC	3	0	0	3	3
6	AD23V15	Image and Video Analytics	PEC	3	0	0	3	3
7	AD23V44	Recommender Systems	PEC	3	0	0	3	3
8	AD23V46	Text and Speech Analysis	PEC	3	0	0	3	3

VERTICAL 2: CLOUD COMPUTING

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	CS23V21	Cloud Solution Architecture	PEC	3	0	0	3	3
2	CS23V22	Cloud Configuration Management	PEC	3	0	0	3	3
3	CS23V23	Cloud Virtualization	PEC	3	0	0	3	3
4	CS23V24	Cloud Container Orchestration	PEC	3	0	0	3	3
5	CS23V25	Cloud Services Management	PEC	3	0	0	3	3
6	CS23V26	Security and Privacy in Cloud	PEC	3	0	0	3	3
7	CS23V27	Cloud Storage Technologies	PEC	3	0	0	3	3
8	CS23V28	Software Defined Networks	PEC	3	0	0	3	3

VERTICAL 3: EMERGING TECHNOLOGIES

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	CS23V31	Cryptocurrency and Blockchain Technologies	PEC	3	0	0	3	3
2	CS23V32	Augmented Reality/Virtual Reality	PEC	3	0	0	3	3
3	CS23V33	Autonomous Mobility Systems	PEC	3	0	0	3	3
4	CS23V34	Metaverse	PEC	3	0	0	3	3
5	CS23V31	Cryptocurrency and Blockchain Technologies	PEC	3	0	0	3	3
6	ME23V35	Large Language Model	PEC	3	0	0	3	3
7	CS23V36	Game Development	PEC	3	0	0	3	3
8	CS23V37	Intelligence Process Automation	PEC	3	0	0	3	3

VERTICAL 4: ARTIFICIAL INTELLIGENCE

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	AD23V41	Cognitive Science	PEC	3	0	0	3	3
2	AD23V24	Computer Vision	PEC	3	0	0	3	3
3	AD23V26	Game Theory	PEC	3	0	0	3	3
4	AD23V42	Generative AI	PEC	3	0	0	3	3
5	AL23V22	Knowledge Engineering	PEC	3	0	0	3	3
6	AD23V45	Reinforcement Learning	PEC	3	0	0	3	3
7	AD23V28	Responsive AI	PEC	3	0	0	3	3
8	AD23V46	Text and Speech Analysis	PEC	3	0	0	3	3

VERTICAL 5: MANAGEMENT

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	CB23V51	Behavioral Economics	PEC	3	0	0	3	3
2	CB23V52	Customer Relation Management	PEC	3	0	0	3	3
3	CB23V53	Entrepreneurship Development	PEC	3	0	0	3	3
4	CB23V54	Financial Management	PEC	3	0	0	3	3
5	CB23V55	Business Strategy	PEC	3	0	0	3	3
6	CB23V56	Introduction to Innovation, IP Management and Entrepreneurship	PEC	3	0	0	3	3
7	CB23V57	IT Project Management	PEC	3	0	0	3	3
8	CB23V58	Human Resource Management for Entrepreneurs	PEC	3	0	0	3	3

VERTICAL 6: SUPPLY CHAIN MANAGEMENT FOR INDUSTRIES

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	ME23V61	Industry 5.0	PEC	3	0	0	3	3
2	ME23V62	Planning in Logistics	PEC	3	0	0	3	3
3	ME23V63	Supply Chain Analytics	PEC	3	0	0	3	3
4	ME23V64	Supply Chain Information System	PEC	3	0	0	3	3
5	ME23V65	Supply Chain for Manufacturing	PEC	3	0	0	3	3
6	ME23V66	Supply Chain Management	PEC	3	0	0	3	3
7	ME23V67	Sustainable Inventory Management	PEC	3	0	0	3	3
8	ME23V68	Warehouse Automation	PEC	3	0	0	3	3

VERTICAL 7: MARKETING

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	CB23V71	Conversational Systems	PEC	3	0	3	3	3
2	CB23V72	Digital Marketing	PEC	3	0	0	3	3
3	CB23V73	Enterprise Security	PEC	3	0	0	3	3
4	CB23V74	Financial Analytics	PEC	3	0	0	3	3
5	CB23V75	Marketing Research and Marketing Management	PEC	3	0	0	3	3
6	CB23V76	Risk Analytics	PEC	3	0	0	3	3
7	AD23V44	Recommender Systems	PEC	3	0	0	3	3
8	CB23V77	Social Text and Media Analytics	PEC	3	0	0	3	3

OPEN ELECTIVES

(Students shall choose the open elective courses, such that the course contents are not similar to any other course contents/title under other course categories).

OPEN ELECTIVES – I

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	O23AD11	Programming for Data Science	OEC	3	0	0	3	3
2	O23AL11	Fundamentals of AI and ML	OEC	3	0	0	3	3
3	O23BT11	Mushroom Cultivation and Vermicomposting	OEC	3	0	0	3	3
4	O23CB11	Software Testing	OEC	3	0	0	3	3
5	O23CC11	AI for Robotics	OEC	3	0	0	3	3
6	O23CS11	Introduction to Cloud Computing	OEC	3	0	0	3	3
7	O23EC11	Space Engineering	OEC	3	0	0	3	3
8	O23EC12	IT in Agricultural System	OEC	3	0	0	3	3
9	O23EV11	Fundamentals of VLSI	OEC	3	0	0	3	3
10	O23MA11	Probability and Statistics for Data Analytics	OEC	3	0	0	3	3
11	O23ME11	Foundation of Robotics	OEC	3	0	0	3	3

OPEN ELECTIVES – II

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	O23AD21	Data Science Fundamentals	OEC	3	0	0	3	3
2	O23AL21	Fundamentals of Data Analytics	OEC	3	0	0	3	3
3	O23BT21	Biofuels	OEC	3	0	0	3	3
4	O23CB21	Essentials of Digital Marketing						
5	O23CC21	Space Science	OEC	3	0	0	3	3
6	O23CS21	Introduction to Cyber Security	OEC	3	0	0	3	3
7	O23EC21	Wearable Devices and applications	OEC	3	0	0	3	3
8	O23EC22	Introduction to IoT	OEC	3	0	0	3	3
9	O23EV22	Electrical Electronics and Magnetic Materials	OEC	3	0	0	3	3
10	O23MA21	Optimization Techniques	OEC	3	0	0	3	3
11	O23ME21	Foundation of Mechatronics	OEC	3	0	0	3	3

OPEN ELECTIVES – III

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	O23AD31	AI for Industry Applications	OEC	3	0	0	3	3
2	O23AL31	Information Technology Essentials	OEC	3	0	0	3	3
3	O23BT31	Forensic Technology	OEC	3	0	0	3	3
4	O23CB31	Startup and Innovations	OEC	3	0	0	3	3
5	O23CC31	Introduction to R Programming	OEC	3	0	0	3	3
6	O23CS31	Introduction to Block Chain	OEC	3	0	0	3	3
7	O23EC31	Batteries and Management System	OEC	3	0	0	3	3
8	O23EC32	Basics of Bio Medical Instrumentation	OEC	3	0	0	3	3
9	023EV31	HDL Programming						
10	O23MA31	Multivariate Data Analysis	OEC	3	0	0	3	3
11	O23ME32	Introduction to 3D Printing Technologies	OEC	3	0	0	3	3

SUMMARY

Name of the Programme: B.E. Computer Science and Business Systems										
Sl.No.	Subject Area	Credits per Semester								Total Credits
		I	II	III	IV	V	VI	VII	VIII	
1	HSMC	3	2					5		10
2	BSC	8	8	4	6					26
3	ESC	8	8	4		1	5			26
4	PCC			12	15	15	4	7		53
5	PEC					6	6	6		18
6	OEC						6		3	9
7	EEC		1	1	1	1	2	2	10	18
8	Non-Credit/ (Mandatory)					√	√			
Total		19	19	21	22	23	23	20	13	160

ENROLLMENT FOR B.E. / B. TECH. (HONOURS) / MINOR DEGREE (OPTIONAL)

A student can also optionally register for additional courses (18 credits) and become eligible for the award of B.E. / B. Tech. (Honours) or Minor Degree.

For B.E. / B. Tech. (Honours), a student shall register for the additional courses (18 credits) from semester V onwards. These courses shall be from the same vertical or a combination of different verticals of the same programme of study only.

For minor degree, a student shall register for the additional courses (18 credits) from semester V onwards. All these courses have to be in a particular vertical from any one of the other programmes, Moreover, for minor degree the student can register for courses from any one of the following verticals also.

VERTICALS FOR MINOR DEGREE
(In addition to all the verticals of other programmes)

Sl. No.	Vertical 1	Vertical 2	Vertical 3	Vertical 4
	Fintech and Block Chain	**Entrepreneurship**	**Business Data Analytics**	**Internet of Things**
1	Banking, Financial services and Insurance	Creativity and Innovation in Entrepreneurship	Data Mining for Business Intelligence	IoT Architecture
2	Principles of Financial Management	Financing New Business Ventures	Financial Analytics	IoT Device Programming
3	Fintech Analytics Financial Management	Foundations of Entrepreneurship	Human Resource Analytics	IoT Foundations
4	Fundamentalsof Investment	Human Resource Management for Entrepreneurs	Marketing and Social Media Web Analytics	Industrial IoT
5	Introduction to Blockchain and its Applications	Principles of Marketing Management for Business	Operation and Supply Chain Analytics	IoT Protocols
6	Introduction to Fintech	Team Building and Leadership Management for Business	Statistics for Management	Sensor Technologies and IoT

(Choice of courses for Minor degree is to be made from any one vertical ofother programmes or from anyone of the following verticals)

VERTICAL 1: FINTECH AND BLOCK CHAIN

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	CS23M01	Banking, Financial services and Insurance	PEC	3	0	0	3	3
2	CS23M02	Financial Management	PEC	3	0	0	3	3
3	CS23M03	Fintech Personal Finance and Payments	PEC	3	0	0	3	3
4	CS23M04	Fundamentalsof Investment	PEC	3	0	0	3	3
5	CS23M05	Introduction to Blockchain and its Applications	PEC	3	0	0	3	3
6	CS23M06	Introduction to Fintech	PEC	3	0	0	3	3

VERTICAL 2: ENTREPRENEURSHIP

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	ME23M01	Creativity and Innovation in Entrepreneurship	PEC	3	0	0	3	3
2	ME23M02	Financing New Business Ventures	PEC	3	0	0	3	3
3	ME23M03	Foundations of Entrepreneurship	PEC	3	0	0	3	3
4	ME23M04	Human ResourceManagement for Entrepreneurs	PEC	3	0	0	3	3
5	ME23M05	Principles of MarketingManagement for Business	PEC	3	0	0	3	3
6	ME23M06	Team Building andLeadership Management for Business	PEC	3	0	0	3	3

VERTICAL 3: BUSINESS DATA ANALYTICS

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	CB23M01	Data Mining for Business Intelligence	PEC	3	0	0	3	3
2	CB23M02	Financial Analytics	PEC	3	0	0	3	3
3	CB23M03	Human ResourceAnalytics	PEC	3	0	0	3	3
4	CB23M04	Marketing andSocial Media Web Analytics	PEC	3	0	0	3	3
5	CB23M05	Operation andSupply Chain Analytics	PEC	3	0	0	3	3
6	CB23M06	Statistics for Management	PEC	3	0	0	3	3

VERTICAL 4: IoT

Sl.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	EC23M01	IoT Architecture	PEC	3	0	0	3	3
2	EC23M02	IoT Device Programming	PEC	3	0	0	3	3
3	EC23M03	IoT Foundations	PEC	3	0	0	3	3
4	EC23M04	Industrial Internet of Things	PEC	3	0	0	3	3
5	EC23M05	IoT Protocols	PEC	3	0	0	3	3
6	EC23M06	Sensor Technologies and IoT	PEC	3	0	0	3	3