SARALA BIRLA UNIVERSITY

Established under the Sarala Birla University Act 2017 Govt. of Jharkhand as per Section 2(f) of UGC Act. 1956

CURRICULUM
FOR

B.Tech

in
Computer Science & Engineering

(Based on AICTE- CBCS)

Effective from 2020-24

Definition of Credit

1 Hr. Lecture (L) Per Week	1 Credit
1 Hr. Tutorial (T) Per Week	1 Credit
1 Hr. Practical (P) Per Week	0.5 Credit
2 Hr. Practical (P) Per Week	1 Credit

Course Code Definitions

Course code	Definitions
BSC	Basic Science Course
ESC	Engineering Science Course
HSMC	Humanities and Social Sciences including Management Course
MC	Mandatory Course
PCC-CSE	Professional Core Course
PEC-CSE	Professional Electives Course
OEC	Open Electives Course
MOOC'S	Massive Open Online Courses
CSE-P1	Project Stage-I
CSE-P2	Project Stage-II
CSE-P3	Project Stage-III

(Breakup of Credits)		
Sl. No.	**Category**	**Breakup of Credits**
1	Humanities and Social Sciences including Management courses	12
2	Basic Science courses	23
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc	27
4	Professional core courses	58
5	Professional Elective courses relevant to chosen specialization/branch	34
6	Open subjects – Electives from other technical and /or emerging subjects	19
7	Project work, seminar and internship in industry or elsewhere	16
8	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Traditional Knowledge]	2
Total Credits:		**191**

CREDITS DISTRIBUTION (SEMESTER-WISE AND

Semester	HSMC	BSC	ESC	PCC	PEC	OEC	PROJECT	MC	Total Credit Semester-wise
1st	3	9.5	13	0	0	0	0	0	**25.5**
2nd	3	9.5	8	4	0	0	0	2	**27.5**
3rd	2	4	4	10	0	5	0	0	**25**
4th	4	0	0	19	0	0	0	0	**23**
5th	0	0	0	16	4	5	0	0	**25**
6th	0	0	2	9	8	5	2	0	**26**
7th	0	0	0	0	14	0	5	0	**19**
8th	0	0	0	0	8	4	9	0	**21**
Total Credit Course-wise	**12**	**23**	**27**	**58**	**34**	**19**	**16**	**2**	**192**
Total Credit									

HUMANITIES & SOCIAL SCIENCES INCLUDING MANAGEMENT COURSE

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	HSMC-101	English	3	0	0	3	I
2	HSMC-102	Technical Communication	2	0	0	2	II
3	HSMC-103	Technical Communication Lab	0	0	2	1	II
4	HSMC-104	Organisational Behaviour	2	0	0	2	IV
5	HSMC-105	French Through Communicative Approach-I	2	0	0	2	III
6	HSMC-106	French Through Communicative Approach-II	2	0	0	2	IV
Total Credit:						**12**	

BASIC SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	BSC-101	Chemistry	3	1	0	4	I
2	BSC-102	Chemistry Lab	0	0	3	1.5	I
3	BSC-103	Physics	3	1	0	4	II
4	BSC-104	Physics Lab	0	0	3	1.5	II
5	BSC-105	Mathematics-I	3	1	0	4	I
6	BSC-106	Mathematics-II	3	1	0	4	II
7	BSC-107	Mathematics-III	3	1	0	4	III
Total Credit:						**23**	

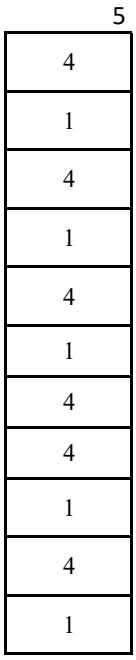
ENGINEERING SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	ESC-101	Basic Electrical	3	1	0	4	I
2	ESC-102	Basic Electrical Lab	0	0	2	1	I
3	ESC-103	Introduction to Unix & C Programming	3	1	0	4	I
4	ESC-104	Introduction to Unix & C Programming Lab	0	0	2	1	I
5	ESC-105	Engineering Graphics & Design	1	0	4	3	I
6	ESC-106	Basic Electronics	3	0	0	4	II
7	ESC-107	Basic Electronics Lab	0	0	2	1	II
8	ESC-110	Workshop & Manufacturing Practices	1	0	4	3	II
9	ESC-111	Engineering Mechanics	3	1	0	4	III
10	ESC-113	Python Programming	1	0	2	2	VI
Total Credit:						**27**	

Professional Core Courses

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-CSE-101	Data Structures	3:01:00	4	II
2	PCC-CSE-102	Data Structures Lab	0:00:02	1	II
Semester-III/IV					
1	PCC-CSE-201	Design & Analysis of Algorithms	3:01:00	4	III
2	PCC-CSE-202	Design & Analysis of Algorithms Lab	0:00:02	1	III
3	PCC-CSE-203	Database Management Systems	3:01:00	4	III
4	PCC-CSE-204	Database Management Systems Lab	0:00:02	1	III
5	PCC-CSE-205	Computer Organization & Architecture	3:01:00	4	IV
6	PCC-CSE-206	Computer Organization & Architecture Lab	0:00:02	1	IV
7	PCC-CSE-207	Discrete Mathematics	3:01:00	4	IV
8	PCC-CSE-208	Operating Systems	3:01:00	4	IV
9	PCC-CSE-209	Operating Systems Lab	0:00:02	1	IV
10	PCC-CSE-210	Object Oriented Programming	3:01:00	4	IV
11	PCC-CSE-211	Object Oriented Programming Lab	0:00:02	1	IV
Semester-V/VI					
1	PCC-CSE-301	Formal Language & Automata Theory	3:01:00	4	V
2	PCC-CSE-302	IT Workshop (MATLAB)	0:00:02	1	V
3	PCC-CSE-303	Computer Networks	3:01:00	4	V
4	PCC-CSE-304	Computer Network Lab	0:00:02	1	V
5	PCC-CSE-305	Software Engineering	3:01:00	4	V
6	PCC-CSE-306	Software Engineering Lab	0:00:02	1	V
7	PCC-CSE-307	Complier Design	3:01:00	4	VI
8	PCC-CSE-308	Computer Graphics & Multimedia	3:01:00	4	VI
9	PCC-CSE-309	Computer Graphics & Multimedia Lab	0:00:02	1	VI
Total Credits:				**58**	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PROFESSIONAL ELECTIVE COURSES (Sem V & VI)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester
1	PEC-CSE-301	Machine Learning for Real world Applications	3:01:00	4	V/VI
2	PEC-CSE-302	Real Time Systems	3:01:00	4	V/VI
3	PEC-CSE-303	Optimization Techniques	3:01:00	4	V/VI
4	PEC-CSE-304	Parallel & Distributed Systems	3:01:00	4	V/VI
5	PEC-CSE-305	Cryptography & Network Security	3:01:00	4	V/VI
6	PEC-CSE-306	Graph Theory	3:01:00	4	V/VI
7	PEC-CSE-307	Introduction to Multimedia	3:01:00	4	V/VI
8	PEC-CSE-308	Multimedia Lab	0:00:02	1	V/VI
9	PEC-CSE-309	Relational Database Management System	3:01:00	4	V/VI
10	PEC-CSE-310	Distributed Computing	3:01:00	4	V/VI
11	PEC-CSE-311	Object Oriented Analysis & Design	3:01:00	4	V/VI
12	PEC-CSE-312	Object Oriented Analysis & Design Lab	0:00:02	1	V/VI

PROFESSIONAL ELECTIVE COURSES (Sem VII & VIII)

Branch: Computer Science & Engineering(B.Tech)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester
1	PEC-CSE-401	Web App Development	3:01:00	4	VI/VIII
2	PEC-CSE-402	Web App Development Lab	0:00:02	1	VII/VIII
3	PEC-CSE-403	Soft Computing	3:01:00	4	VII/VIII
4	PEC-CSE-404	Cyber Security	3:01:00	4	VII/VIII
5	PEC-CSE-405	Bio Inspired Computing	3:01:00	4	VII/VIII
6	PEC-CSE-406	Natural Language Processing	3:01:00	4	VII/VIII
7	PEC-CSE-407	System Programming	3:01:00	4	VII/VIII
8	PEC-CSE-408	System Programming Lab	0:00:02	1	VII/VIII
9	PEC-CSE-409	Bio Informatics	3:01:00	1	VII/VIII
10	PEC-CSE-410	Software Project Management	3:01:00	4	VII/VIII

11	PEC-CSE-411	Big Data Analytics	3:01:00	4	VII/VIII
12	PEC-CSE-412	Digital Image Processing	3:01:00	4	VII/VIII
13	PEC-CSE-413	Digital Image Processing Lab	0:00:02	1	VII/VIII
14	PEC-CSE-414	Pattern Recognition	3:01:00	4	VII/VIII
15	PEC-CSE-415	Pattern Recognition Lab	0:00:02	1	VII/VIII
16	PEC-CSE-416	Mobile & Cellular Communication	3:01:00	4	VII/VIII

Open Elective Course

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	OEC-ECE-201	Digital Electronics	3:01:00	4	III
2	OEC-ECE-202	Digital Electronics Lab	0:00:02	1	III
3	OEC-ECE-303	VLSI Desgin	3:01:00	4	V
4	OEC-ECE-304	VLSI Desgin Lab	0:00:02	1	V
5	OEC-ECE-305	Microprocessors & Microcontroller	3:01:00	4	V
6	OEC-ECE-306	Microprocessors & Microcontroller Lab	0:00:02	1	V
7	OEC-ECE-412	Embedded Systems	3:01:00	4	VIII
			Total	19	

Project Work

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	CSE-P1	Project Stage-I (Mini Project/ Industrial Training)	0:00:04	2	VI
2	CSE-P2	Project Stage-II (Minor Project) (**To be Continued next semester**)	0:00:10	5	VII
3	CSE-P3	Project Stage-III (Major Project Work & Dissertation)	0:00:18	9	VIII
		Total Credit:			**16**

Mandatory Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	MC-101	Induction Program	0	0	0	0	I
2	MC-102	Environmental Science	2	0	0	2	IV
3	MC-103	Values & Ethics	0	0	0	0	IV
4	MC-104	PDP-I	0	0	0	0	I
5	MC-105	PDP-II	0	0	0	0	II
6	MC-106	PDP-III	0	0	0	0	III
7	MC-107	PDP-IV	0	0	0	0	IV
8	MC-108	PDP-V	0	0	0	0	V
9	MC-109	PDP-VI	0	0	0	0	VI
10	MC-110	PT and Games/NSS/NCC-I	0	0	0	0	I
11	MC-111	PT and Games/NSS/NCC-II	0	0	0	0	II
	MC-112	Vedic Mathematics-I	0	0	0	0	II
	MC-113	Vedic Mathematics-II	0	0	0	0	II
Total Credit:						**2**	

Massive Open Online Courses

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits
1	MOOCs -101	Solar Energy Technology and its Applications	3:01:00	4
2	MOOCs -102	Applications of Deep Learning and Neural Networks	3:01:00	4
3	MOOCs -103	Applied Cloud Computing	3:01:00	4
4	MOOCs -104	Information Security - Practitioner's perspective	3:01:00	4
5	MOOCs -105	Innovation and Entrepreneurship	3:01:00	4
6	MOOCs -106	Practical Approach to Data Mining and Analytics	3:01:00	4
7	MOOCs -107	Usability Design of Software Applications	3:01:00	4
8	MOOCs -108	IoT and its Applications	3:01:00	4
9	MOOCs -109	Intelligent Game Design and its Applications	3:01:00	4
10	MOOCs -110	Industrial Mechatronic Systems	3:01:00	4
11	MOOCs -111		3:01:00	4

Note: A student will be eligible to get Under Graduate degree with Honours or additional Minor Engineering, if he/she completes an additional 20 credits. These could be acquired through MOOCs.

COURSE STRUCTURE

SEMESTER I (1st YEAR)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-101	Chemistry	3	1	0	4	30	70	100
2	Basic Science Course	BSC-105	Mathematics-I	3	1	0	4	30	70	100
3	Engineering Science Course	ESC-101	Basic Electrical	3	1	0	4	30	70	100
4	Engineering Science Course	ESC-103	Introduction to Unix & C Programming	3	1	0	4	30	70	100
5	Humanities and Social Sciences including Management Courses	HSMC-101	English	3	0	0	3	30	70	100
						Total(A)	**19**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Engineering Science Course	ESC-105	Engineering Graphics & Design	1	0	4	3	30	20	50
2	Basic Science Course	BSC-102	Chemistry Lab	0	0	3	1.5	30	20	50
3	Engineering Science Course	ESC-102	Basic Electrical Lab	0	0	2	1	30	20	50
4	Engineering Science Course	ESC-104	Introduction to Unix & C Programming Lab	0	0	2	1	30	20	50
						Total(B)	**6.5**	**120**	**80**	**200**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-101	Induction Program	0	0	0	0	0	0	0
2	Mandatory Course	MC-110	PT & Games/NSS/NCC-I	2	0	0	0	0	0	0
3	Mandatory Course	MC-104	PDP-I	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**25.5**	**270**	**430**	**700**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER II (1st YEAR)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-106	Mathematics –II	3	1	0	4	30	70	100
2	Humanities and Social Sciences including Management Courses	HSMC-102	Technical Communication	2	0	0	2	30	70	100
3	Engineering Science Course	ESC-106	Basic Electronics	3	0	0	4	30	70	100
4	Basic Science Course	BSC-103	Physics	3	1	0	4	30	70	100
5	Professional Core Courses	PCC-CSE-101	Data Structure	3	1	0	4	30	70	100
						Total(A)	**18**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Engineering Science Course	ESC-110	Workshop & Manufacturing Practices	1	0	4	3	30	20	50
2	Engineering Science Course	ESC-107	Basic Electronics Lab	0	0	2	1	30	20	50
3	Basic Science Course	BSC-104	Physics Lab	0	0	3	1.5	30	20	50
4	Humanities and Social Sciences including Management Courses	HSMC-103	Technical Communication Lab	0	0	2	1	30	20	50
5	Professional Core Courses	PCC-CSE-102	Data Structure Lab	0	0	2	1	30	20	50
			Total(B)	**1**	**0**	**13**	**7.5**	**150**	**100**	**250**
Mandatory Courses/MOOC'S										
1	Mandatory Courses	MC-102	Environmental Science	2	0	0	2	30	70	100
2	Mandatory Courses	MC-110	PT & Games/NSS/NCC-I	2	0	0	0	0	0	0
3	Mandatory Courses	MC-105	PDP-II	2	0	0	0	0	0	0
						Total(C)	**2**	**30**	**70**	**100**
Grand Total (A+B+C)							**27.5**	**330**	**520**	**850**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER III (2nd YEAR)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-107	Mathematics-III	3	1	0	4	30	70	100
2	Engineering Science Course	ESC-111	Engineering Mechanics	3	1	0	4	30	70	100
3	Open Elective Course-I	OEC-ECE-201	Digital Electronics	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-CSE-201	Design & Analysis of Algorithms	3	1	0	4	30	70	100
5	Professional Core Courses	PCC-CSE-203	Database Management Systems	3	1	0	4	30	70	100
6	Humanities and Social Sciences including Management Courses	HSMC-105	French Through Communicative Approach-I	2	0	0	2	30	70	100
						Total(A)	**22**	**180**	**420**	**600**
Practical/Drawing/Design										
1	Open Elective Course	OEC-ECE-202	Digital Electronics Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-CSE-202	Design & Analysis of Algorithms Lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-CSE-204	Database Management Systems Lab	0	0	2	1	30	20	50
						Total(B)	**3**	**90**	**60**	**150**
Mandatory Courses/MOOC'S										
1	Mandatory Courses	MC-103	Values & Ethics	2	0	0	0	0	0	0
2	Mandatory Courses	MC-106	PDP-III	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**25**	**270**	**480**	**750**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER IV (2nd YEAR)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Course	PCC-CSE-205	Computer Organization & Architecture	3	1	0	4	30	70	100
2	Professional Core Course	PCC-CSE-207	Discrete Mathematics	3	1	0	4	30	70	100
3	Professional Core Course	PCC-CSE-208	Operating Systems	3	1	0	4	30	70	100
4	Professional Core Course	PCC-CSE-210	Object Oriented Programming	3	1	0	4	30	70	100
5	Humanities and Social Sciences including Management Courses	HSMC-104	Organisational Behaviour	2	0	0	2	30	70	100
6	Humanities and Social Sciences including Management Courses	HSMC-106	French Through Communicative Approach-II	2	0	0	2	30	70	100
						Total(A)	**20**	**180**	**420**	**600**
Practical/Drawing/Design										
1	Professional Core Courses	PCC-CSE-206	Computer Organization & Architecture Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-CSE-209	Operating Systems Lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-CSE-211	Object Oriented Programming Lab	0	0	2	1	30	20	50
						Total(B)	**3**	**90**	**60**	**150**
Mandatory Courses/MOOC'S										
1	Mandatory Courses	MC-107	PDP-IV	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**23**	**270**	**480**	**750**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER V (3rd YEAR)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Courses	PCC-CSE-301	Formal Language & Automata Theory	3	1	0	4	30	70	100
2	Professional Core Courses	PCC-CSE-303	Computer Networks	3	1	0	4	30	70	100
3	Professional Core Courses	PCC-CSE-305	Software Engineering	3	1	0	4	30	70	100
4	Open Elective Course-II	OEC-ECE-303	Microprocessor & Microcontroller	3	1	0	4	30	70	100
5	Professional Elective Course-I	PEC-CSE-301	Machine Learning for Real world Applications	3	1	0	4	30	70	100
						Total(A)	**20**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Courses	PCC-CSE-302	IT Workshop (MATLAB)	1	0	2	2	30	20	50
2	Professional Core Courses	PCC-CSE-304	Computer Networks Lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-CSE-306	Software Engineering Lab	0	0	2	1	30	20	50
4	Open Elective Course	OEC-ECE-304	Microprocessor & Microcontroller Lab	0	0	2	1	30	20	50
						Total(B)	**5**	**120**	**80**	**200**
Grand Total (A+B)							**25**	**270**	**430**	**700**
Mandatory Courses/MOOC'S										
1	Mandatory Courses	MC-108	PDP-V	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**25**	**270**	**430**	**700**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-VI (3rd YEAR)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Course	PCC-CSE-307	Complier Design	3	1	0	4	30	70	100
2	Professional Core Course	PCC-CSE-308	Computer Graphics & Multimedia	3	1	0	4	30	70	100
3	Open Elective -III	OEC-ECE-307	VLSI Desgin	3	1	0	4	30	70	100
4	Professional Elective Course - II	PEC-CSE-305	Cryptography & Network Security	3	1	0	4	30	70	100
5	Professional Elective Course-III	PEC-CSE-306	Graph Theory	3	1	0	4	30	70	100
						Total(A)	**20**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Course	PCC-CSE-309	Computer Graphics & Multimedia Lab	0	0	2	1	30	20	50
2	Open Elective Course	OEC-ECE-308	VLSI Desgin Lab	0	0	2	1	30	20	50
3	Engineering Science Course	ESC-113	Python Programming	0	0	2	2	30	20	50
4	Project Work	ECE-P1	Project Stage-I (Mini Project/ Industrial Training to be continued in next Semester)	0	0	4	2	75	25	100
						Total(B)	**6**	**165**	**85**	**250**
						Grand Total (A+B)	**26**	**315**	**435**	**750**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-109	PDP-VI	2	0	0	0	0	0	0
2	Mandatory Course	MC-112	Vedic Mathematics-I	0	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
						Grand Total (A+B+C)	**26**	**315**	**435**	**750**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

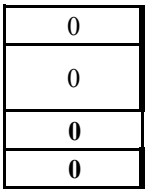
COURSE STRUCTURE

SEMESTER VII (4th YEAR)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Course -IV	PEC-CSE-414	Pattern Recognition	3	1	0	4	30	70	100
2	Professional Elective Course- V	PEC-CSE-405	Bio Inspired Computing	3	1	0	4	30	70	100
3	Professional Elective Course- VI	PEC-CSE-412	Digital Image Processing	3	1	0	4	30	70	100
						Total(A)	**12**	**90**	**210**	**300**
Practical/Drawing/Design										
1	Project Work	CSE-P2	Project Stage-II (Major Project)	0	0	10	5	75	25	100
2	Professional Elective Course- VI	PEC-CSE-415	Pattern Recognition Lab	0	0	2	1	30	20	50
3	Professional Elective Course- VII	PEC-CSE-413	Digital Image Processing Lab	0	0	2	1	30	20	50
						Total(B)	**7**	**135**	**65**	**200**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-109	PDP-VII	2	0	0	0	0	0	0
2	Mandatory Course	MC-113	Vedic Mathematics-II	2	0	0	0	0	0	**0**
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**19**	**225**	**235**	**500**

IA- Internal Assessment, ESE-End Semester Examination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COURSE STRUCTURE

SEMESTER VIII (4th YEAR)

Branch: Computer Science & Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Course-VIII	PEC-CSE-404	Cyber Security	3	1	0	4	30	70	100
2	Professional Elective Course - IX	PEC-CSE-416	Mobile & Cellular Communication	3	1	0	4	30	70	100
3	Open Elective Course- IV	OEC-ECE-412	Embedded Systems	3	1	0	4	30	70	100
						Total(A)	**12**	**30**	**70**	**300**
Practical/Drawing/Design										
1	Project Work	CSE-P3	Project Stage-III (Major Project Work & Dissertation)	0	0	18	9	75	25	100
						Total(B)	**9**	**75**	**25**	**100**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-109	PDP-VIII	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**21**	**105**	**95**	**400**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination