

DETAILS OF CHANGES CARRIED OUT IN CURRICULUM & SYLLABUS

CBCS PATTERN

UNDERGRADUATE PROGRAMMES

B.E. COMPUTER SCIENCE AND ENGINEERING (UG)

REGULATION-2019

For the students admitted during the academic year 2020-2021 and onwards

SEMESTER I – 20 Credits

S.No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
THEORY										
1	19HE1101	Technical English	HS	2	1	0	3	25	75	100
2	19MA1101	Calculus	BS	3	1	0	4	25	75	100
THEORY & LAB COMPONENT										
3	19PH1151	Applied Physics	BS	2	0	2	3	50	50	100
4	19CY1151	Chemistry for Engineers	BS	2	0	2	3	50	50	100
5	19CS1151	Python Programming and Practices	ES	2	0	2	3	50	50	100
6	19EC1154	Basics of Electron devices and Electric Circuits	ES	2	0	2	3	50	50	100
PRACTICAL										
7	19HE1071	Language Competency Enhancement Course - I	HS	0	0	2	1	100	0	100
MANDATORY										
8	19MC1191	Induction Program	MC	0	0	0	0	0	0	0
9	19HE1073	Entrepreneurship & Innovation	EEC	1	0	0	0	100	0	100
10	19HE1072	Career Guidance – Level I	EEC	2	0	0	0	100	0	100
Total Credits				16	2	10	20	550	350	900

SEMESTER II – 22 Credits

S.No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
THEORY										
1	19HE2101	Business English for Engineers	HS	2	1	0	3	25	75	100
2	19MA2104	Differential Equations And Linear Algebra	BS	3	1	0	4	25	75	100
THEORY & LAB COMPONENT										
3	19PH2151	Material Science	BS	2	0	2	3	50	50	100
4	19CY2151	Environmental Studies	BS	2	0	2	3	50	50	100
5	19CS2152	Essentials of C and C++ Programming	ES	2	0	2	3	50	50	100
6	19ME2154	Engineering Graphics	ES	1	0	4	3	50	50	100
PRACTICAL										
7	19ME2001	Engineering Practices Laboratory	ES	0	0	4	2	50	50	100
8	19HE2071	Language Competency Enhancement Course - II	HS	0	0	2	1	100	0	100
9	19HE2072	Career Guidance – Level II	EEC	2	0	0	0	100	0	100
Total Credits				14	2	16	22	500	400	900

SEMESTER III – 20 Credits

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
THEORY										
1	19MA3104	Discrete Mathematics and Graph Theory	BS	3	1	0	4	25	75	100
2	19CS3201	Data Structures	PC	3	0	0	3	25	75	100
3	19CS3202	Database Management Systems	PC	3	0	0	3	25	75	100
4	19CS3203	Computer Architecture	PC	3	0	0	3	25	75	100
THEORY & LAB COMPONENT										
5	19CS3251	Digital Principles and System Design / ICC-3	PC	3	0	2	4	50	50	100
PRACTICAL										
6	19CS3001R	Data Structures Laboratory	PC	0	0	3	1.5	50	50	100
7	19CS3002R	Database Management Systems Laboratory	PC	0	0	3	1.5	50	50	100
MANDATORY										
8	19MC3191	Indian Constitution	MC	2	0	0	0	0	0	0
9	19HE3072	Career Guidance Level – III	EEC	2	0	0	0	100	0	100
10	19HE3073	Leadership Management Skills	EEC	1	0	0	0	100	0	100
Total Credits				20	1	8	20	450	450	900

SEMESTER IV – 21 Credits

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
THEORY										
1	19CS4201	Java Programming / ICC4	PC	3	0	0	3	25	75	100
2	19CS4202	Software Engineering	PC	3	1	0	4	25	75	100
3	19CS4203	Operating Systems	PC	3	0	0	3	25	75	100
THEORY & LAB COMPONENT										
4	19MA4151	Probability, Statistics and Queuing Theory	BS	3	0	2	4	50	50	100
5	19CS4251R	Design and Analysis of Algorithms	PC	3	0	2	4	50	50	100
PRACTICAL										
6	19CS4001R	Java Programming Laboratory / ICC5	PC	0	0	3	1.5	50	50	100
7	19CS4002R	Operating Systems Laboratory	PC	0	0	3	1.5	50	50	100
MANDATORY										
8	19MC4191	Essence of Indian Traditional Knowledge	MC	2	0	0	0	0	0	0
9	19HE4072	Career Guidance Level – IV	EEC	2	0	0	0	100	0	100
10	19HE4073	Ideation Skills	EEC	1	0	0	0	100	0	100
Total Credits				19	1	10	21	375	425	800

SEMESTER V – 24 Credits

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
THEORY										
1	19CS5201	Theory of Computing	PC	3	1	0	4	25	75	100
2	19CS5202	Computer Networks	PC	3	0	0	3	25	75	100
3	19CS5203	Data mining	PC	3	0	0	3	25	75	100
4	19EC5231	Principles of Microprocessors and Micro Controllers	PC	3	0	0	3	25	75	100
THEORY & LAB COMPONENT										
5	19CS5252	Object Oriented Analysis and Design / ICC6	PC	2	0	2	3	50	50	100
6	19CS53**	Professional Elective I	PE	2	0	2	3	50	50	100
PRACTICAL										
7	19CS5001	Engineering Clinic	PC	0	0	3	1.5	50	50	100
8	19EC5031	Principles of Microprocessors and Micro-controllers Laboratory	PC	0	0	3	1.5	50	50	100
9	19HE5071	Soft Skills - I	EEC	1	0	0	1	100	0	100
10	19HE5072	Design Thinking	EEC	1	0	0	1	100	0	100
Total Credits				18	1	10	24	500	500	1000

SEMESTER VI – 24 Credits

S.No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
THEORY										
1	19CS6181	Principles of Management	HS	3	0	0	3	25	75	100
2	19CS6201	Artificial Intelligence / ICC7	PC	3	1	0	4	25	75	100
3	19**6401	Open Elective I	OE	3	0	0	3	25	75	100
4	19CS63**	Professional Elective II	PE	3	0	0	3	25	75	100
THEORY & LAB COMPONENT										
5	19CS6251R	Compiler Design	PC	2	0	3	3.5	50	50	100
6	19CS6252	Mobile Computing and Application Development	PC	2	0	2	3	50	50	100
PRACTICAL										
7	19IT6003	Project Based Learning	PC	0	0	3	1.5	50	50	100
8	19HE6071	Soft Skill-II	EEC	1	0	0	1	100	0	100
9	19HE6072	Intellectual Property Rights (IPR)	EEC	1	0	0	1	100	0	100
10	19CS6701	Internship / Industrial Training	EEC	0	0	0	1	0	100	100
Total Credits				19	1	6	24	425	575	1000

SEMESTER VII – 20 Credits

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
THEORY										
1	19CS7201	Cryptography and Network Security	PC	3	0	0	3	25	75	100
2	19CS7202	Cloud Computing	PC	3	0	0	3	25	75	100
3	19**7401	Open Elective II	OE	3	0	0	3	25	75	100

4	19CS73**	Professional Elective III / ICC9	PE	3	0	0	3	25	75	100
THEORY & LAB COMPONENT										
5	19CS7251	Machine Learning Techniques	PC	2	0	2	3	50	50	100
PRACTICAL										
6	19CS7001	Cloud Computing Laboratory	PC	0	0	3	1.5	50	50	100
7	19CS7002	Security Laboratory	PC	0	0	3	1.5	50	50	100
8	19CS7901	Project Phase I	EEC	0	0	4	2	50	50	100
Total Credits				14	0	12	20	300	500	800

SEMESTER VIII – 14 Credits

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TO TA L
THEORY										
1	19CS83**	Professional Elective IV	PE	3	0	0	3	25	75	100
2	19CS83**	Professional Elective V	PE	3	0	0	3	25	75	100
PRACTICAL										
3	19CS8901	Project Phase II	EEC	0	0	16	8	100	100	200
Total Credits				6	0	16	14	150	250	400

LIST OF PROFESSIONAL ELECTIVES

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TO TA L
PROFESSIONAL ELECTIVE I										
1	19CS5351	Internet and Web Technology	PE	2	0	2	3	50	50	100
2	19CS5352	Advanced Java Programming	PE	2	0	2	3	50	50	100
3	19CS5353	Fundamentals of Open Source Software	PE	2	0	2	3	50	50	100
4	19CS5354	R Programming	PE	2	0	2	3	50	50	100
5	19CS5355	Computer Graphics and Multimedia	PE	2	0	2	3	50	50	100

PROFESSIONAL ELECTIVE II

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TO TA L
1	19CS6301	Business Intelligence – Data Warehousing and Analytics	PE	3	0	0	3	25	75	100
2	19CS6302	Embedded Systems	PE	3	0	0	3	25	75	100
3	19CS6304	Big Data Analytics and Tools	PE	3	0	0	3	25	75	100
4	19CS6305	Soft Computing	PE	3	0	0	3	25	75	100
5	19CS6307	Responsive Web Design And Development	PE	3	0	0	3	25	75	100
6	19IT6308	Web Development - I	PE	3	0	0	3	25	75	100

PROFESSIONAL ELECTIVE III

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
1	19CS7301	Multi-core Architecture and Programming	PE	3	0	0	3	25	75	100
2	19CS7302	Cyber Forensics	PE	3	0	0	3	25	75	100
3	19CS7303	Wireless Sensor Networks	PE	3	0	0	3	25	75	100
4	19CS7304	C# and .Net Programming	PE	3	0	0	3	25	75	100
5	19CS7305	Software Testing	PE	3	0	0	3	25	75	100
6	19IT7307	Web Development - II	PE	3	0	0	3	25	75	100

PROFESSIONAL ELECTIVE IV

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
1	19CS8301	Digital Image Processing	PE	3	0	0	3	25	75	100
2	19CS8302	High Speed Networks	PE	3	0	0	3	25	75	100
3	19CS8303	Information Security	PE	3	0	0	3	25	75	100
4	19CS8304	Human Computer Interaction	PE	3	0	0	3	25	75	100
5	19CS8311	Introduction to Internet of Things / NPTEL	PE	3	0	0	3	25	75	100
6	19IT8314	Web Development - III	PE	3	0	0	3	25	75	100

PROFESSIONAL ELECTIVE V

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
1	19CS8306	Information Retrieval Techniques	PE	3	0	0	3	25	75	100
2	19CS8307	User Interface Design	PE	3	0	0	3	25	75	100
3	19CS8308	Visualization Techniques	PE	3	0	0	3	25	75	100
4	19CS8309	Deep Learning	PE	3	0	0	3	25	75	100
5	19CS8310	Block Chain Technology	PE	3	0	0	3	25	75	100

OPEN ELECTIVES

S. No	Course Code	Name of the Course	Course Category	L	T	P	C	CIA	ESE	TOTAL
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OPEN ELECTIVE - I

1	19CS6401	Introduction to Java Programming	OE	3	0	0	3	25	75	100
2	19CS6402	Green Computing	OE	3	0	0	3	25	75	100

OPEN ELECTIVE - II

1	19CS7401	Foundation Skills in Information Technology (NASSCOM)	OE	3	0	0	3	25	75	100
2	19CS7402	Multimedia Systems	OE	3	0	0	3	25	75	100