

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING											
COURSE STRUCTURE - BATCH 2020											
B.Tech Information Technology											
I SEMESTER - CHEMISTRY CYCLE											
Sl. NO.	Course Code	Course Type	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	MA131	BSC	Mathematics - I	3	0	0	100	3	0	0	3
2	CH132P	BSC	Chemistry	3	0	2	100	3	0	1	4
3	EC133P	ESC	Basic Electronics	3	0	2	100	3	0	1	4
4	CS134P	ESC	Computer Programming	3	0	2	100	3	0	1	4
5	ME135	ESC	Basic Mechanical Engineering and Nano science	3	0	0	100	3	0	0	3
6	TE136P	HSM C	Technical English	1	0	2	50	1	0	1	2
7	ME 151	BSC	Workshop Practice Lab	0	0	2	50	0	0	1	1
8	HE171		Holistic Education-I	1	0	0	---	1	0	0	1
Total				17	0	10	600	17	0	5	22
I SEMESTER - PHYSICS CYCLE											
Sl. NO.	Course Code	Course Type	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	MA131	BSC	Mathematics - I	3	0	0	100	3	0	0	3
2	PH132P	BSC	Physics	3	0	2	100	3	0	1	4
3	EE133P	ESC	Basic Electrical Engineering	3	0	2	100	3	0	1	4
4	CE134P	ESC	Basics of Civil Engineering & Engineering Mechanics	3	0	2	100	3	0	1	4
5	EG135P	ESC	Engineering Graphics	2	0	2	100	2	0	1	3
6	BS136	BSC	Bio Science	2	0	0	50	2	0	0	2
7	HE171		Holistic Education-I	1	0	0	---	1	0	0	1

			Total	17	0	8	550	17	0	4	21
--	--	--	--------------	-----------	----------	----------	------------	-----------	----------	----------	-----------

II SEMESTER - CHEMISTRY CYCLE											
Sl.N O.	Course Code	Cours e Type	Course Name	Hours			Total Mark s	Credits			Total Credi ts
				L	T	P		L	T	P	
1	MA231	BSC	Mathematics - II	3	0	0	100	3	0	0	3
2	CH232P	BSC	Chemistry	3	0	2	100	3	0	1	4
3	EC233P	ESC	Basic Electronics	3	0	2	100	3	0	1	4
4	CS234P	ESC	Computer Programming	3	0	2	100	3	0	1	4
5	ME235	ESC	Basic Mechanical Engineering and Nano science	3	0	0	100	3	0	0	3
6	TE236P	HSM C	Technical English	2	0	0	50	2	0	0	2
7	ME 251	BSC	Workshop Practice Lab	0	0	2	50	0	0	1	1
8	HE171		Holistic Education-I	1	0	0	---	1	0	0	1
			Total	18	0	8	600	18	0	4	22

II SEMESTER - PHYSICS CYCLE											
Sl.N O.	Course Code	Cours e Type	Course Name	Hours			Total Mark s	Credits			Total Credi ts
				L	T	P		L	T	P	
1	MA231	BSC	Mathematics - II	3	0	0	100	3	0	0	3
2	PH232P	BSC	Physics	3	0	2	100	3	0	1	4
3	EE233P	ESC	Basic Electrical Engineering	3	0	2	100	3	0	1	4
4	CE234P	ESC	Basics of Civil Engineering & Engineering Mechanics	3	0	2	100	3	0	1	4
5	EG235P	ESC	Engineering Graphics	2	0	2	100	2	0	1	3
6	BS 236	BSC	Bio Science	2	0	0	50	2	0	0	2
7	HE271		Holistic Education-II	1	0	0	---	1	0	0	1
			Total	17	0	8	550	17	0	4	21

III SEMESTER							
Sl.	Course	Cours		Hours	Total	Credits	Total

No	Course Code	e Type	Course Name	Hours			Marks	Credits			Credits
				L	T	P		L	T	P	
1	CS331P	PCC	Database Management Systems	3	0	2	100	3	0	1	4
2	CS332P	PCC	Data Structures and Algorithms	3	0	2	100	3	0	1	4
3	CS333	PCC	Software Engineering	3	0	0	100	3	0	0	3
4	EC337	PCC	Digital Systems	3	0	0	100	3	0	0	3
5	MA334	BSC	Discrete Mathematics	3	0	0	100	3	0	0	3
6	MC321	MC	Cyber Security	2	0	0	50	0	0	0	0
7	HS311	HSM C	Technical Writing	2	0	0	50	2	0	0	2
8	HOL312		Holistic Education-III	1	0	0	---	1	0	0	1
Total				20	0	4	600	18	0	2	20

IV SEMESTER											
Sl. No	Course Code	Course Type	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	CS431	PCC	Probability and Queuing Theory	3	0	0	100	3	0	0	3
2	CS432P	PCC	Operating Systems	3	0	2	100	3	0	1	4
3	CS433P	PCC	Programming Paradigm	3	0	2	100	3	0	1	4
4	CS434	PCC	Formal Language & Automata Theory	3	0	0	100	3	0	0	3
5	CS435P	PCC	Computer Organization & Architecture	3	0	2	100	3	0	1	4
6	BS451	BSC	Bio Science Laboratory	0	0	2	50	0	0	1	1
7	HS436	HSM C	Professional Ethics	3	0	0	100	3	0	0	3
8	MC422	MC	Environmental Science	2	0	0	50	0	0	0	0
9	HOL411		Holistic Education-IV	1	0	0	-	1	0	0	1
Total				22	0	6	700	20	0	3	23

V SEMESTER											
Sl. No	Course Code	Course Type	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	CS531P	PCC	Computer Networks	3	0	2	100	3	0	1	4
2	CS532	PCC	Introduction to Artificial Intelligence	3	0	0	100	3	0	0	3
3	CS533P	PCC	Design and Analysis of Algorithms	3	0	2	100	3	0	1	4
4	CS541	PEC	Program Elective - 1	3	0	0	100	3	0	0	3
5	CS561	OE	Open Elective - 1-(Global)	2	0	0	50	2	0	0	2
6	CS512	HSM C	Project Management & Finance	3	0	0	100	3	0	0	3
7	CS581	PROJ	Internship - 1	0	0	2	50	0	0	1	1
			Total	17	0	6	600	17	0	3	20

VI SEMESTER											
Sl. No	Course Code	Course Type	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	CS631P	PCC	Internet of Things	3	0	2	100	3	0	1	4
2	CS632	PCC	Compiler Design	3	0	0	100	3	0	0	3
3	IT633P	PCC	Data Warehousing and Data Mining	3	0	2	100	3	0	1	4
4	CS662	OE	Open Elective -2(Global Elective)	3	0	0	100	3	0	0	3
6	CS642	PEC	Program Elective - 2	3	0	0	100	3	0	0	3
			Total	18	0	4	500	15	0	2	17

VII SEMESTER											
Sl. No	Course Code	Course Type	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	CS743	PEC	Program Elective - 3	3	0	0	100	3	0	0	3
2	CS744	PEC	Program Elective - 4	3	0	0	100	3	0	0	3

3	CS763	PEC	Open Elective - 3	3	0	0	100	3	0	0	3
5	CS764	OE	Open Elective - 4	3	0	0	100	3	0	0	3
6	CS781	PROJ	Internship - 2	0	0	2	50	0	0	1	1
7	CS782	PROJ	Service Learning	0	0	4	50	0	0	2	2
8	CS783	PROJ	Project Phase-I	0	0	4	100	0	0	2	2
Total				12	0	12	600	12	0	5	17

VIII SEMESTER											
Sl. No	Course Code	Course Type	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	CS845	PEC	Program Elective - 5	3	0	0	100	3	0	0	3
2	CS846	PEC	Program Elective - 6	3	0	0	100	3	0	0	3
3	CS881	PROJ	Project Phase-II	0	0	18	300	0	0	9	9
4	MC823	MC	Constitution of India	2	0	0	100	0	0	0	0
Total				8	0	18	600	6	0	9	15

OPEN ELECTIVE											
CS662-OPEN ELECTIVE – 2 (Global Elective)											
1	CS662E01		Web Programming Concepts	2	0	2	100	2	0	1	3
2	CS662E02		Java Programming	2	0	2	100	2	0	1	3
3	CS662E03		Software Testing Techniques	2	0	2	100	2	0	1	3
4	CS662E04		Introduction to Cloud Computing	2	0	2	100	2	0	1	3
5	CS662E05		Introduction to Data Science	2	0	2	100	2	0	1	3
6	CS662E06		Data Structures	2	0	2	100	2	0	1	3
7	CS662E07		Python for Engineers	2	0	2	100	2	0	1	3
8	CS662E08		Machine learning	2	0	2	100	2	0	1	3

9	CS662E09		Cryptography and Network security	2	0	2	100	2	0	1	3
10	CS662E10		Service Oriented Architecture	2	0	2	100	2	0	1	3
CS763- OPEN ELECTIVE - 3											
1	CS763E01		Software Process and Project Management	3	0	0	100	3	0	0	3
2	CS763E02		Software Quality Management	3	0	0	100	3	0	0	3
3	CS763E03		Web Services and Service Oriented Architecture	3	0	0	100	3	0	0	3
4	CS763E04		Software Requirement Estimation	3	0	0	100	3	0	0	3
CS764-OPEN ELECTIVE - 4											
1	CS764E01		Pattern Recognition	3	0	0	100	3	0	0	3
2	CS764E02		Wireless Networks	3	0	0	100	3	0	0	3
3	CS764E03		Software Project Management	3	0	0	100	3	0	0	3
4	CS764E04		Natural Language Processing	3	0	0	100	3	0	0	3
5	CS764E05		Operational Research	3	0	0	100	3	0	0	3
6	CS764E06		Bio Informatics	3	0	0	100	3	0	0	3
7	CS764E07		Microprocessor and micro controller	2	0	2	100	2	0	1	3
8	CS764E08		Digital Signal Processing	2	0	2	100	2	0	1	3
9	CS764E09		Software Testing	2	0	2	100	2	0	1	3
10	CS764E10		Information Retrieval	2	0	2	100	2	0	1	3
11	CS764E11		Software Coding Practices	2	0	2	100	2	0	1	3

PROGRAM ELECTIVE											
CS541- PROGRAM ELECTIVE – 1											

1	CS541E0 1		Computer Graphics with Open GL	3	0	0	100	3	0	0	3
2	CS541E0 2		Internet and web programming	3	0	0	100	3	0	0	3
3	CS541E0 3		Foundation of web science	3	0	0	100	3	0	0	3
4	CS541C		Group-I	3	0	0	100	3	0	0	3
CS642- PROGRAM ELECTIVE - 2											
1	CS642E0 1		Mobile Application Development	3	0	0	100	3	0	0	3
2	CS642E0 2		Real Time Systems	3	0	0	100	3	0	0	3
3	CS642E0 3		Advanced Databases	3	0	0	100	3	0	0	3
4	CS642E0 4		Computer Oriented Numerical Analysis	3	0	0	100	3	0	0	3
5	CS642E0 5		Object Oriented Analysis and Design	3	0	0	100	3	0	0	3
6	CS642E0 6		System Software	3	0	0	100	3	0	0	3
7	CS642E0 7		Data warehousing and Data mining*	3	0	0	100	3	0	0	3
8	IT642E0 1		Design patterns *	3	0	0	100	3	0	0	3
9	CS642C		Group-II	3	0	0	100	3	0	0	3
CS642E07 - This course is open only for CSE students.											
IT642E01- This course is open only for IT students.											
CS743- PROGRAM ELECTIVE - 3											
1	CS743E0 1		Unix System Programming	3	0	0	100	3	0	0	3
2	CS743E0 2		TCP/IP Design and Implementation	3	0	0	100	3	0	0	3
3	CS743E0 3		Simulation and Modeling	3	0	0	100	3	0	0	3
4	CS743C		Group-III	3	0	0	100	3	0	0	3
CS744- PROGRAM ELECTIVE - 4											
1	CS744E0 1		Information Storage and Management	3	0	0	100	3	0	0	3

2	CS744E0 2	Data Base Administration	3	0	0	100	3	0	0	3
3	CS744E0 3	Network Storage Technologies	3	0	0	100	3	0	0	3
4	CS744E0 4	Network Administration	3	0	0	100	3	0	0	3
5	CS744E0 5	Research Methodology	3	0	0	100	3	0	0	3
CS845- PROGRAM ELECTIVE - 5										
1	CS845E0 1	Quantum Computing	3	0	0	100	3	0	0	3
2	CS845E0 2	Mobile Computing	3	0	0	100	3	0	0	3
3	CS845E0 3	Parallel Computing	3	0	0	100	3	0	0	3
4	CS845E0 4	Grid Computing	3	0	0	100	3	0	0	3
5	CS845E0 5	Introduction to Data mining	3	0	0	100	3	0	0	3
CS846- PROGRAM ELECTIVE - 6										
1	CS846E0 1	Computer Aided Decision Support Systems	3	0	0	100	3	0	0	3
2	CS846E0 2	Soft Computing	3	0	0	100	3	0	0	3
3	CS846E0 3	Introduction to Robotics	3	0	0	100	3	0	0	3
4	CS846E0 4	High Performance Computing	3	0	0	100	3	0	0	3
5	CS846E0 5	Digital Image Processing	3	0	0	100	3	0	0	3
CS782-Service Learning										
1	CS782E0 1	Free and Open Source Software	0	0	4	50	0	0	2	2
2	CS782E0 2	Digital Security and Principles	0	0	4	50	0	0	2	2

EMPLOYABILITY ENHANCEMENT COURSES

CS541C-GROUP-I

1	CS541C 01		Linux Certified Server Administration	0	0	2	-	0	0	1	1
2	CS541C 02		Oracle certified Database Administration	0	0	2	-	0	0	1	1
3	CS541C 03		Solaris Server Administration	0	0	2	-	0	0	1	1
4	CS541C 04		Data Absorption	0	0	2	-	0	0	1	1
5	CS541C 05		Virtualization	0	0	2	-	0	0	1	1
6	CS541C 06		Robotic process and Automation	0	0	2	-	0	0	1	1
7	CS541C 07		List of approved NPTEL / MOOC Courses of minimum 6 weeks duration.	0	0	2	-	0	0	1	1
8	CS541C 08		C I S C O / J A V A Fundamental/ NDG Linux/ Python/IOT	0	0	2	-	0	0	1	1
CS642C-GROUP-II											
1	CS642C 01		Design Thinking	0	0	2	-	0	0	1	1
2	CS642C 02		Scrum & Agile	0	0	2	-	0	0	1	1
3	CS642C 03		Lean Six Sigma	0	0	2	-	0	0	1	1
4	CS642C 04		Project Management Tool	0	0	2	-	0	0	1	1
5	CS642C 05		Fog Computing	0	0	2	-	0	0	1	1
6	CS642C 06		Dew Computing	0	0	2	-	0	0	1	1
7	CS642C 07		Cognitive Computing	0	0	2	-	0	0	1	1
8	CS642C 08		List of approved NPTEL / MOOC Courses of minimum 6 weeks duration.	0	0	2	-	0	0	1	1
CS743C-GROUP-III											
1	CS743C 01		Server Side Programming	0	0	2	-	0	0	1	1

2	CS743C 02		Client Side Programming	0	0	2	-	0	0	1	1
3	CS743C 03		Web Designing	0	0	2	-	0	0	1	1
4	CS743C 04		Shell Programming	0	0	2	-	0	0	1	1
5	CS743C 05		Semantic Web	0	0	2	-	0	0	1	1
6	CS743C 06		List of approved NPTEL / MOOC Courses of minimum 6 weeks duration.	0	0	2	-	0	0	1	1

HONOURSCOURSES

Honours in Artificial Intelligence

1	HOAI54 1		Statistical foundation for Artificial Intelligence	3	0	2	100	3	0	1	4
2	HOAI64 1		Artificial Intelligence and Machine Learning	3	0	2	100	3	0	1	4
3	HOAI64 2		Robotics and Process Automation	3	0	2	100	3	0	1	4
4	HOAI74 1		Computer Vision	3	0	2	100	3	0	1	4
5	HOAI74 2		AI Project / MOOC Courses/ Certificate Courses	3	0	2	100	3	0	1	4
			Total	15	0	10	500	15	0	5	20

Honours in Data Analytics

1	HOAI54 1		Statistical foundation for Data Analytics	3	0	2	100	3	0	1	4
2	HODA6 41		Big Data Analytics	3	0	2	100	3	0	1	4
3	HODA6 42		Big Data Security Analytics	3	0	2	100	3	0	1	4
4	HODA7 41		Web Analytics	3	0	2	100	3	0	1	4
5	HODA7 42		DA Project / MOOC Courses/ Certificate Courses	3	0	2	100	3	0	1	4
			Total	15	0	10	500	15	0	5	20

Honours in Cyber Security											
1	HOCS54 1		Probability and Random Process	3	0	2	100	3	0	1	4
2	HOCS64 1		Mobile and Network based Ethical Hacking	3	0	2	100	3	0	1	4
3	HOCS64 2		Cyber Forensics and Malware Detection	3	0	2	100	3	0	1	4
4	HOCS74 1		Intrusion detection and Incident Response	3	0	2	100	3	0	1	4
5	HOCS74 2		CS Project / MOOC Courses/ Certificate Courses	3	0	2	100	3	0	1	4
			Total	15	0	10	500	15	0	5	20
MINOR COURSES											
Minor in Computer Science and Engineering (offered by department of CSE for non- CSE/IT students)											
1	CS332P		Data Structures and Algorithms	3	0	2	100	3	0	1	4
2	CS433P		Programming Paradigm	3	0	2	100	3	0	1	4
3	MICS43 5P		Basics of Computer Architecture & Operating Systems	3	0	2	100	3	0	1	4
4	CS531P		Computer Networks	3	0	2	100	3	0	1	4
5	MICS53 4P		Database System	3	0	2	100	3	0	1	4
			Total	15	0	10	500	15	0	5	20

LIST OF THE MINOR PROGRAMMES OFFERED BY OTHER DEPARTMENTS				
		S I NO.	TITLE OF THE MINOR PROGRAMME	OFFERING DEPARTMENT
		1	Architecture	School of Architecture
		2	Automation	Department of Mechanical and Automobile
		3	Business Accounting	Department of Commerce
		4	Computer Science	Department of Computer Science
		5	E-Mobility	Department of Electrical and Electronics

		6	Management	Department of Business Studies and Social Sciences
		7	Psychology	Department of Psychology
		8	Internet of Things	Department of Electronics and Communication