

1.3.2 Details of value-added courses for imparting transferable and life skills

Department of Information Technology

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DEPARTMENT OF INFORMATION TECHNOLOGY

CIRCULAR

Date: 10-02-2023

This is to inform you that department of Information Technology is offering an industry driven value-added course for 3rd years titled “**Java - J2EE/Full Stack**” **Phase-1** starting from 13th Feb 2023 onwards. Eligible students have to follow the course schedule properly.

Total No. of Hours: 150 hours

Name(s) of the faculty: Mrs. T. Daniya & Mrs. P. Padmavathi

Venue: Blended Mode


Coordinator

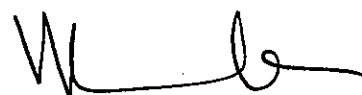

HOD-IT 12.2.23

JAVA - J2EE/FULL STACK MODULES

Java Fundamentals
OOPS / Inheritance
Eclipse Overview
Abstraction /Packages / Exception Handling
Collection Framework
Wrapper Classes, I/O Streams, Annotation
ASSESSMENT MILESTONE - 1
Coding Standards / Best Practices
JUnit
Multithreading I / II
RDBMS / SQL / PL/SQL
JDBC
ASSESSMENT MILESTONE - 2
ANT
HTML
JavaScript / CSS
Servlets and JSP
XML-I and XML-II
AJAX
ASSESSMENT MILESTONE - 3



Coordinator



HOD-IT

DEPARTMENT OF INFORMATION TECHNOLOGY

CIRCULAR

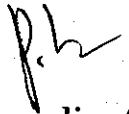
Date: 14-09-2023

This is to inform you that department of Information Technology is offering an industry driven value-added course for 3rd years titled “**Java - J2EE/Full Stack**” **Phase-2** starting from 15th Sep 2023 onwards. Only Phase-1 qualified students are eligible for this phase-2

Total No. of Hours: 50 hours

Name(s) of the faculty: Mrs. T. Daniya & Mrs. P. Padmavathi

Venue: Blended Mode


Coordinator


HOD-IT

JAVA - J2EE/FULL STACK MODULES

Phase-2

Hibernate
Spring Core
Spring Boot
REST Web Service
Angular
ASSESSMENT MILESTONE - 4


Coordinator


HOD-IT

Department of Information Technology

Minimum Credits to be earned: 160 (for Regular Students)

127 (for Lateral Entry Students)

First Semester							
No	Course Code	Course	POs	Contact Hours			
				L	T*	P	C
1	20HSX01	Communicative English	10,12	3	1	-	3
2	20MAX01	Engineering Mathematics I	1,12	3	1	-	3
3	20PYX01 20CYX01	Engineering Physics / Engineering Chemistry	1,12/ 1,12	3	1	-	3
4	20BEX01 20BEX02	Basics of Engineering / Problem Solving and Programming Skills	1,12/ 1,12	3	1	-	3
5	20BEX03 20HSX02	Problem Solving and Programming Skills Laboratory/ Communicative English Laboratory	4/ 10,12	-	-	3	1.5
6	20BEX04 20BEX05	Engineering Drawing / Engineering Workshop	1,5,10/ 1,9,10	-	-	3	1.5
7	20PYX02 20CYX02	Engineering Physics Laboratory / Engineering Chemistry Laboratory	4/ 4	-	-	3	1.5
Total				12	4	9	16.5
Second Semester							
1		Language Elective	10,12	3	1	-	3
2	20MAX02	Engineering Mathematics II	1,12	3	1	-	3
3	20PYX01 20CYX01	Engineering Physics / Engineering Chemistry	1,12/ 1,12	3	1	-	3
4	20BEX01 20BEX02	Basics of Engineering / Problem Solving and Programming Skills	1,12/ 1,12	3	1	-	3
5	20BEX03 20HSX02	Problem Solving and Programming Skills Laboratory/ Communicative English Laboratory	4/ 10,12	-	-	3	1.5
6	20BEX04 20BEX05	Engineering Drawing / Engineering Workshop	1,5,10/ 1,9,10	-	-	3	1.5
7	20PYX02 20CYX02	Engineering Physics Laboratory / Engineering Chemistry Laboratory	4/ 4	-	-	3	1.5
Total				12	4	9	16.5
Third Semester							
1	20CS303	Data Structures	1,2,12	3	1	-	3
2	20CS304	Digital Logic Design	1,3,4	3	-	2	4
3	20CS305	Discrete Mathematical Structures	1,2,12	3	1	-	3
4	20IT304	Database Management Systems	1, 2, 3, 12, PS02	3	1	-	3
5	20IT305	Data Communication Systems	1, 7, 12	3	1	-	3
6	20IT306	Object Oriented Programming through Java	1,2,3,4,5,PS02	3	-	2	4
7	20CS307	Data Structures Laboratory	1,3,4,5	-	-	3	1.5
8	20IT308	Database Management Systems Laboratory	1, 2, 3, 4, 5	-	-	3	1.5
9	20BEA01	Environmental Studies	1, 6, 7, 12	-	-	-	-
10	20ESX01	Employability Skills I	1,2,5,8,10,12	1	1	1	-
11	20HSX11	CC & EC Activities I	6, 7, 9, 10	-	-	1	-
Total				19	5	12	23
Fourth Semester							
1	20MA405	Probability and Statistics	1,2	3	1	-	3
2	20CS403	Computer Organization and Architecture	1,12	3	1	-	3
3	20IT403	Operating Systems	1,2,7,12	3	1	-	3
4	20IT404	Computer Networking	1,2,12	3	1	-	3
5	20IT405	Web Technologies	3, 5, PS01	3	-	2	4
6	20IT406	Python Programming Laboratory	2, 3, 4	-	-	3	1.5
7	20IT407	Operating Systems Laboratory	3, 5, 9	-	-	3	1.5
8	20ESX01	Employability Skills I	1,2,5,8,10,12	1	1	1	3

* Hours suggested for tutorials

9	20HSX11	CC & EC Activities I	6, 7, 9, 10	-	-	1	1
			Total	16	5	10	23
Fifth Semester							
1	20CS404	Design and Analysis of Algorithms	2,3,4,PS01	3	-	2	4
2	20IT502	Artificial Intelligence	1, 12, PS01	3	1	-	3
3	20IT503	Cloud Computing	2, 6, 7, 8	3	1	-	3
4	20IT504	Software Engineering Principles	1,2,3,4,5	3	-	2	4
5		Elective I (Professional Elective)		3	1	-	3
6		Elective II (Open Elective I)		3	1	-	3
7	20IT507	Cloud Computing Lab	4, 5	-	-	3	1.5
8	20TPX01	Term Paper	1, 4, 10, 12	-	-	3	1.5
9	20ESX02	Employability Skills II	1,2,5,8,10,12	1	1	1	-
10	20HSX12	CC & EC Activities II	6, 7, 9, 10	-	-	1	-
11	20SIX01	Summer Internship #I	1, 2, ,8, 10, 12				1.5
			Total	19	5	12	24.5
Sixth Semester							
1	20HSX10	Engineering Economics and Project Management	10,11,12	3	1	-	3
2	20IT602	Automata and Compiler Design	1,2,3	3	1	-	3
3	20IT603	Machine Learning	2, 5	3	1	-	3
4		Elective III (Professional Elective)		3	-	2	4
5		Elective IV (Open Elective II)		3	1	-	3
6	20IT606	Machine Learning Lab using Python	3, 5, 9	-	-	3	1.5
7	20MPX01	Mini Project	All	-	-	3	1.5
8	20ESX02	Employability Skills II	1,2,5,8,10,12	1	1	1	3
9	20HSX12	CC & EC Activities II	6, 7, 9, 10	-	-	1	1
10		Audit Course	PO12	-	-	-	-
			Total	16	5	8	23
Seventh Semester							
1		Elective V (Professional Elective)		3	1	-	3
2		Elective VI (Professional Elective)		3	1	-	3
3		Elective VII (Open Elective III)		3	1	-	3
4	20PWX01	Project	All	-	-	16	8
5	20SIX02	Summer Internship #II	1, 2, 5, 6, 10, 12	-	-	-	1.5
			Total	9	3	16	18.5
Eighth Semester							
1		Elective VIII (Professional Elective)		-	-	-	3
2		Elective IX (Open Elective IV)		-	-	-	3
3	20FIX01	Full Semester Internship (FSI)	1, 2, 5, 8, 9,10, PS01,PS02	-	-	-	9
			Total	-	-	-	15

List of Electives

Language Electives							
No.	Course Code	Course	POs	Contact Hours			
				L	T	P	C
1	20HSX03	Advanced Communicative English	10,12	3	1	-	3
2	20HSX04	Communicative German		3	1	-	3
3	20HSX05	Communicative French		3	1	-	3
4	20HSX06	Communicative Japanese		3	1	-	3
5	20HSX07	Communicative Spanish		3	1	-	3
6	20HSX08	Communicative Korean		3	1	-	3
7	20HSX09	Communicative Hindi		3	1	-	3
Elective I							
Career Path I, II, III and Other Core Electives							
1	20CSC11	Exploratory Data Analytics (AI&ML)	1, 4, 12	3	1	-	3
2	20CSC21	Web Programming Languages (Full Stack Development)	1, 2, 7, 12	3	1	-	3
3	20ITC31	Fundamentals of Security (Cyber Security)	1, 2, 5	3	1	-	3
4	20IT004	Computer Graphics and Multimedia	2, 3, 5	3	1	-	3
5	20IT005	Information Theory and Coding	1,2,3,6,8	3	1	-	3
6	20IT006	Data Warehousing and Data Mining	2, 3, 4, 5, PSO1	3	1	-	3
7		MOOCs		-	-	-	3
Elective II:Open Elective I							
1	20CE001	Disaster Management	2, 7	3	1	-	3
2	20EE001	Electrical Installation, Safety and Auditing	2, 3, 6, 8,	3	1	-	3
3	20ME001	Fundamentals of Optimization Techniques	1, 2	3	1	-	3
4	20EC001	Sensors for Engineering Applications	1,	3	1	-	3
5	20CS001	Fundamentals of Artificial Intelligence	1, 2, 3	3	1	-	3
6	20CH001	Energy Conversion and Storage Devices	1, 3, 6, 7	3	1	-	3
7	20IT001	Fundamentals of Multimedia	1, 5, 7	3	1	-	3
8	20BS001	Nano Materials and Technology	1, 12	3	1	-	3
Elective III							
Career Path I, II, III and Other Core Electives							
1	20CSC12	Deep Learning (AI&ML)	1,2,4,12, PSO1	3	-	2	4
2	20CSC22	Web Application Developments Framework (Full Stack Development)	1, 3, 4	3	-	2	4
3	20ITC32	Cyber Security (Cyber Security)	1, 3,4,12,PSO1	3	-	2	4
4	20IT007	The Internet of Things	1, 2, 3, 5, 10	3	-	2	4
5	20CS008	Cryptogaphy and Network Security	5, 6, 8	3		2	4
6	20IT009	User Interface/ User Experience	1, 2, 3, 5, 10	3	-	2	4
Elective IV : Open Eletive II							
1	20CE002	Air Pollution and Environmental Impact Assessment	6, 7, 12	3	1	-	3
2	20EE002	Renewable Energy Souces	2, 7	3	1	-	3
3	20ME002	Principles of Entrepreneurship	1, 11	3	1	-	3
4	20EC002	Electronics for Agriculture	1, 2	3	1	-	3
5	20CS002	Fundamentals of Machine Learning	2, 5	3	1	-	3
6	20CH002	Industrial Safety and Hazard Management	1, 2, 3, 6, 8	3	1	-	3
7	20IT002	Fundamentals of Cloud Computing	1,7	3	1	-	3
8	20BS002	Advancd Numerical Techniques	1, 2	3	1	-	3
9	20BS003	Functional Materials and Applications	1,7	3	1	-	3
Elective V							
Career Path I, II, III and Other Core Electives							
1	20CSC13	Natural Language Processing (AI & ML)	2,3	3	1	-	3
2	20CSC23	Web Application Databases (Full Stack Development)	3,5	3	1	-	3
3	20ITC33	Cloud Security (Cyber Security)	2,3,5	3	1	-	3
4	20EC602	Digital Signal Processing	1,2, PSO2	3	1	-	3

5	20IT010	Information Retrieval Systems	3,6,8	3	1	-	3
6	20CS005	Mobile Computing	3, 5,8	3	1	-	3
7		MOOCs		-	-	-	3
Elective VI							
1	20IT010	Social Network Analysis	2,4,5,12	3	1	-	3
2	20IT011	Real Time Operating Systems	2,3,12	3	1	-	3
3	20IT012	Digital Image Processing	3,5,6	3	1	-	3
4	20IT014	Distributed Systems	2, 7, 12	3	1	-	3
5	20CS012	Wireless Ad hoc Networks	3, 5, 6, 12	3	1	-	3
6	20CS015	Software Project Management	3, 5, 6, 12	3	1	-	3
7		MOOCs		-	-	-	3
Elective VII: Open Elective III							
1	20CE003	Solid Waste Management	3, 7, 12	3	1	-	3
2	20EE003	Fundamentals of Electrical Vehicle Technology	2, 3, 12	3	1	-	3
3	20ME003	Industrial Engineering and Management	1, 11	3	1	-	3
4	20EC003	Interfacing and Programming with Arduino	1,2	3	1	-	3
5	20CS003	Data Science for Engineering Applications	2, 3, 4	3	1	-	3
6	20CH003	Industrial Ecology for Sustainable Development	2, 6, 7	3	1	-	3
7	20IT003	Fundamentals of Mobile Computing	1,7	3	1	-	3
8	20BS004	Advanced Materials of Renewable Energy	1,7	3	1	-	3
9	20BS005	Applied Linear Algebra for Engineers	1,12	3	1	-	3
Elective VIII: Professional Elective							
1	20CS014	Green Computing	3, 6, 8	-	-	-	3
1	20IT013	Design Patterns	2,3,5	-	-	-	3
3	20IT016	Professional Ethics	6,8	-	-	-	3
4		MOOCs	-	-	-	-	3
Elective IX: Open Elective IV							
1	20CE019	Green Buildings	1, 7, 12	-	-	-	3
2	20EE017	Sustainable Energy	1, 2,12, PS02	-	-	-	3
3	20ME019	Total Quality Management	1, 11	-	-	-	3
4	20EC011	Communication Technologies	1, 2	-	-	-	3
5	20CS020	Applications of Artificial Intelligence	2,3,6,7	-	-	-	3
6	20CH016	Green Technologies	1,6,7	-	-	-	3
7	20IT015	Human Computer Interaction	1,7	-	-	-	3
8	20BS006	Handling of Industrial Waste and Waste Water	1,7	-	-	-	3
Audit Course							
1	20AT001	Communication Etiquette in Workplaces					
2	20AT002	Contemporary India: Economy, Policy and Society					
3	20AT003	Design The Thinking					
4	20AT004	Ethics and Integrity					
5	20AT005	Indian Heritage and Culture					
6	20AT006	Human Values and Professional Ethics					
7	20AT007	Intellectual Property Rights					
8	20AT008	Introduction to Journalism					
9	20AT009	Mass Media Communication					
10	20AT010	Science, Technology and Development					
11	20AT011	Social Responsibility					
12	20AT012	The Art of Photography and Film Making					
13	20AT013	Gender Equality for Sustainability					
14	20AT014	Women in Leadership					
15	20AT015	Introduction to Research Methodology					
16	20AT016	Climatic Change and Circular Economy					
B. Tech. (Honors)							
Domain – I: Modern Computing							
01	20ITH11	Advanced Computer Architecture	2, 3	4	-	-	4
02	20ITH12	Micro Processors and Micro Controllers	2, 3	4	-	-	4
03	20ITH13	Embedded Systems	1, 2, 7,12	4	-	-	4
04	20ITH14	High Performance Computing	2, 3	4	-	-	4
Domain – II: Data Engineering							

01	20CSH11	Advanced Data Structures	2, 3, 4	4	-	-	4
02	20CSH12	Advanced Databases	2, 3, 4	4	-	-	4
03	20CSH13	Programming, Data Structures and Algorithms Using Python	2, 3, 4, 5	4	-	-	4
04	20CSH14	Bio-Informatics	1, 2, 5	4	-	-	4
Domain – III: Modern Software Engineering							
01	20CSH21	DevOps	1, 3, 5, 8, 10	4	-	-	4
02	20CSH22	Design Patterns	2, 3, 5	4	-	-	4
03	20CSH23	Advanced Software Engineering	1, 2, 3, 4, PSO1	4	-	-	4
04	20CSH24	Robotic Process Automation	3, 5, 8, PSO2	4	-	-	4
Domain – IV: Security							
01	20CSH31	Fundamentals of Systems Security	1, 2	4	-	-	4
02	20CSH32	Python Programming for Security	1, 3, 4	4	-	-	4
03	20CSH33	Management of Information Security	3, 6, 7	4	-	-	4
04	20CSH34	Computer Forensics	2, 3, 5	4	-	-	4
B. Tech. (Minors)							
Energy Science & Technology							
1	20CHM11	Foundation of Energy Science and Technology	1, 2, 3, 5, 7, 12	4	-	-	4
2	20CHM12	Energy Generation from Waste	1, 2, 3, 4, 5	4	-	-	4
3	20CHM13	Energy Storage Systems	1, 2, 3, 6, 7	4	-	-	4
4	20CHM14	Hydrogen Energy and Fuel Cells	1, 2, 3, 7	4	-	-	4
Nano Science & Technology							
5	20CHM21	Introduction and Characterization of Nano Materials	1, 2, 3, 7	4	-	-	4
6	20CHM22	Carbon Nanostructures and Applications	1, 3, 4, 5	4	-	-	4
7	20CHM23	Energy, Environment & Biomedical Nanotechnology	1, 2, 3, 7	4	-	-	4
8	20CHM24	Industrial Applications of Nano Technology	2, 3, 5, 7	4	-	-	4
Environmental Engineering							
9	20CEM11	Watershed Management	6,7	4	-	-	4
10	20CEM12	Industrial Pollution Control and Engineering	3,6,7	4	-	-	4
11	20CEM13	Solid and Hazardous Waste Management	1,3,6,7	4	-	-	4
12	20CEM14	Ecology and Environmental Assessment	1,3,6,7	4	-	-	4
Artificial Intelligence & Machine Learning							
13	20CSM11	Fundamentals of AI & Machine Learning	1,12	4	-	-	4
14	20CSM12	Feature Engineering for Machine Learning	1,2,3	4	-	-	4
15	20CSM13	Exploratory Data Analytics	1,4	4	-	-	4
16	20CSM14	Deep Learning	1,2, 4	4	-	-	4
Cyber Security							
17	20CSM21	Fundamentals of Security	1,2	4	-	-	4
18	20CSM22	Management of Information Security	3,6,7	4	-	-	4
19	20CSM23	Cyber Security	1,3,4	4	-	-	4
20	20CSM24	Cloud Security	2,3	4	-	-	4
Data Science & Analytics							
21	20CSM31	Data Cleaning	2,3,4	4	-	-	4
22	20CSM32	Data Engineering	1,2,3,4	4	-	-	4
23	20CSM33	Text Analytics	1,2,4	4	-	-	4
24	20CSM34	Social Network and Semantic Analysis	2, 4	4	-	-	4
Computer Systems Programming							
25	20CSM41	Programming Fundamentals	1,2,3	4	-	-	4
26	20CSM42	Data Structures & Algorithms	1,2,3,4	4	-	-	4
27	20CSM43	Fundamentals of Databases	1,4	4	-	-	4
28	20CSM44	Fundamentals of Computer Networks & Operating Systems	1,2,3	4	-	-	4
Digital IC Design							
29	20ECM11	Fundamentals of VLSI Design	1, 2, 3	4	-	-	4
30	20ECM12	Digital Design using HDL	1, 2, 3	4	-	-	4

Department of Information Technology

Minimum Credits to be earned: 160 (for Regular Students)

127 (for Lateral Entry Students)

First Semester							
No	Course Code	Course	POs	Contact Hours			
				L	T*	P	C
1	21HSX01	Communicative English	10, 12	2	0	-	2
2	21MAX01	Engineering Mathematics I	1	3	0	-	3
3	21PYX01 21CYX01	Engineering Physics / Engineering Chemistry	1 / 1	3/3	0	-	3/3
4	21BEX01 21BEX06	Basics of Engineering / IT Workshop	1,12/1,12	3/-	0	-/3	3/1.5
5	21BEX02	Problem Solving and Programming Skills	1, 12	3	0	-	3
6	21BEX03	Problem Solving and Programming Skills Lab	4	-	-	3	1.5
7	21BEX04/ 21BEX05	Engineering Drawing / Engineering Workshop	1,5,10/1,9,10	-	-	3/3	1.5/ 1.5
8	21PYX02/ 21CYX02	Engineering Physics Lab /Engineering Chemistry Lab	4/4	-	-	3/3	1.5
9	21HSX02/-	Communicative English Lab/-	10,12	-	-	3/-	1.5/-
Total				14/11	0	12/12	20/17
Second Semester							
1		Language Elective	10,12	2	0	-	2
2	21MAX02	Engineering Mathematics II	1	3	0	-	3
3	21CYX01/ 21PYX01	Engineering Chemistry /Engineering Physics	1/1	3/3	0	-	3/3
4	21BEX01/ 21BEX06	Basics of Engineering/ IT Workshop	1,12/1,12	-/3	0	3/-	1.5/3
5	21BEX07	Python Programming	1,12	3	0	-	3
6	21BEX08	Python Programming Lab	4	-	-	3	1.5
7	21BEX05/ 21BEX04	Engineering Workshop / Engineering Drawing	1,9,10/1,5,10	-	-	3/3	1.5/1.5
8	21CYX02/ 21PYX02	Engineering Chemistry Lab/Engineering Physics Lab	4/4	-	-	3/3	1.5/1.5
9	-/21HSX02	-/Communicative English Lab	-/10,12	-	-	-/3	-/1.5
Total				11/14	0	12/12	17/20
Third Semester							
1	21CS303	Data Structures	1,2,12	3	0	-	3
2	21CS304	Digital Logic Design	1,3,4	3	-	2	4
3	21CS305	Discrete Mathematical Structures	1,2,12	3	0	-	3
4	21IT304	Database Management Systems	1, 2, 3, 12, PSO2	3	0	-	3
5	21IT305	Data Communication Systems	1, 7, 12	3	0	-	3
6	21IT306	Object Oriented Programming through Java	1,2,3,4,5,PSO 2	3	-	2	4
7	21CS307	Data Structures Laboratory	1,3,4,5	-	-	3	1.5
8	21IT308	Database Management Systems Laboratory	1, 2, 3, 4, 5	-	-	3	1.5
9	21ESX01	Employability Skills I	1,2,5,8,10,12	-	-	2	-
10	21HSX11	CC & EC Activities I	6, 7, 9, 10	-	-	1	-
Total				19	0	12	23
Fourth Semester							
1	21MA405	Probability and Statistics	1,2	3	0	-	3
2	21CS403	Computer Organization and Architecture	1,12	3	0	-	3

* Hours suggested for tutorials

3	21IT403	Operating Systems	1,2,7,12	3	0	-	3
4	21IT404	Computer Networking	1,2,12	3	0	-	3
5	21IT405	Web Technologies	3, 5, PS01	3	-	2	4
6	21IT406	Computer Network Programming Laboratory	3,5,9	-	-	3	1.5
7	21IT407	Operating Systems Laboratory	3, 5, 9	-	-	3	1.5
8	21ESX01	Employability Skills I	1,2,5,8,10,12	-	-	2	2
9	21HSX11	CC & EC Activities I	6, 7, 9, 10	-	-	1	1
			Total	16	0	10	22
Fifth Semester							
1	21CS404	Design and Analysis of Algorithms	2,3,4,PS01	3	-	2	4
2	21IT502	Artificial Intelligence	1, 12, PS01	3	0	-	3
3	21IT503	Cloud Computing	2, 6, 7, 8	3	0	-	3
4	21IT504	Software Engineering Principles	1,2,3,4,5	3	-	2	4
5		Elective I(Professional Elective)		3	0	-	3
6		Elective II (Open Elective I)		3	0	-	3
7	21IT507	Cloud Computing Lab	4, 5	-	-	3	1.5
8	21TPX01	Term Paper	1, 4, 10, 12	-	-	3	1.5
9	21ESX02	Employability Skills II	1,2,5,8,10,12	-	-	2	-
10	21HSX12	CC & EC Activities II	6, 7, 9, 10	-	-	1	-
11	21SIX01	Summer Internship #I	1, 2, ,8, 10, 12				1
			Total	19	0	12	24
Sixth Semester							
1	21HSX10	Engineering Economics and Project Management	10,11,12	3	0	-	3
2	21IT602	Automata and Compiler Design	1,2,3	3	0	-	3
3	21IT603	Machine Learning	2, 5	3	0	-	3
4		Elective III (Professional Elective)		3	-	2	4
5		Elective IV (Open Elective II)		3	0	-	3
6	21IT606	Machine Learning Lab using Python	3, 5, 9	-	-	3	1.5
7	21MPX01	Mini Project	All	-	-	3	1.5
8	21ESX02	Employability Skills II	1,2,5,8,10,12	-	-	2	2
9	21HSX12	CC & EC Activities II	6, 7, 9, 10	-	-	1	1
10	21ATX01	Environmental Studies	1, 6, 7, 12	-	-	-	-
11	21ATX02	Professional Ethics and Human Values	-----	-	-	-	-
12		Audit Course	----	-	-	-	-
			Total	16	0	8	22
Seventh Semester							
1		Elective V(Professional Elective)		3	0	-	3
2		Elective VI (Professional Elective)		3	0	-	3
3		Elective VII (Open Elective III)		3	0	-	3
4	21PWX01	Project	All	-	-	16	8
5	21SIX02	Summer Internship #II	1, 2, 5, 6, 10, 12	-	-	-	1
			Total	9	0	16	18
Eighth Semester							
1		Elective VIII (Professional Elective)		-	-	-	3
2		Elective IX (Open Elective IV)		-	-	-	3
3	21FIX01	Full Semester Internship (FSI)	1, 2, 5, 8, 9,10, PS01,PS02	-	-	-	8
			Total	-	-	-	14

List of Electives

Language Electives							
No.	Course Code	Course	POs	Contact Hours			
				L	T	P	C
1	21HSX03	Advanced Communicative English	10,12	3	0	-	3
2	21HSX04	Communicative German		3	0	-	3
3	21HSX05	Communicative French		3	0	-	3
4	21HSX06	Communicative Japanese		3	0	-	3
5	21HSX07	Communicative Spanish		3	0	-	3
6	21HSX08	Communicative Korean		3	0	-	3
7	21HSX09	Communicative Hindi		3	0	-	3
Elective I							
Career Path I, II, III and Other Core Electives							
1	21CSC11	Exploratory Data Analytics (AI&ML)	1, 4, 12	3	0	-	3
2	21CSC21	Web Programming Languages (Full Stack Development)	1, 2, 7, 12	3	0	-	3
3	21ITC31	Fundamentals of Security (Cyber Security)	1, 2, 5	3	0	-	3
4	21IT004	Computer Graphics and Multimedia	2, 3, 5	3	0	-	3
5	21IT005	Information Theory and Coding	1,2,3,6,8	3	0	-	3
6	21IT006	Data Warehousing and Data Mining	2, 3, 4, 5, PSO1	3	0	-	3
7		MOOCs		-	-	-	3
Elective II:Open Elective I							
1	21CE001	Disaster Management	2, 7	3	0	-	3
2	21EE001	Electrical Installation, Safety and Auditing	2, 3, 6, 8,	3	0	-	3
3	21ME001	Fundamentals of Optimization Techniques	1, 2	3	0	-	3
4	21EC001	Sensors for Engineering Applications	1,	3	0	-	3
5	21CS001	Fundamentals of Artificial Intelligence	1, 2, 3	3	0	-	3
6	21CH001	Energy Conversion and Storage Devices	1, 3, 6, 7	3	0	-	3
7	21IT001	Fundamentals of Multimedia	1, 5, 7	3	0	-	3
8	21BS001	Nano Materials and Technology	1, 12	3	0	-	3
Elective III							
Career Path I, II, III and Other Core Electives							
1	21CSC12	Deep Learning (AI&ML)	1,2,4,12, PSO1	3	-	2	4
2	21CSC22	Web Application Developments Framework (Full Stack Development)	1, 3, 4	3	-	2	4
3	21ITC32	Cybernet Security (Cyber Security)	1, 3,4,12,PSO1	3	-	2	4
4	21IT007	The Internet of Things	1, 2, 3, 5, 10	3	-	2	4
5	21CS008	Cryptogaphy and Network Security	5, 6, 8	3		2	4
6	21IT009	User Interface/ User Experience	1, 2, 3, 5, 10	3	-	2	4
Elective IV : Open Eletive II							
1	21CE002	Air Pollution and Environmental Impact Assessment	6, 7, 12	3	0	-	3
2	21EE002	Renewable Energy Souces	2, 7	3	0	-	3
3	21ME002	Principles of Entrepreneurship	1, 11	3	0	-	3
4	21EC002	Electronics for Agriculture	1, 2	3	0	-	3
5	21CS002	Fundamentals of Machine Learning	2, 5	3	0	-	3
6	21CH002	Industrial Safety and Hazard Management	1, 2, 3, 6, 8	3	0	-	3
7	21IT002	Fundamentals of Cloud Computing	1,7	3	0	-	3
8	21BS002	Advancd Numerical Techniques	1, 2	3	0	-	3
9	21BS003	Functional Materials and Applications	1,7	3	0	-	3
Elective V							
Career Path I, II, III and Other Core Electives							
1	21CSC13	Natural Language Processing (AI & ML)	2,3	3	0	-	3
2	21CSC23	Web Application Databases (Full Stack Development)	3,5	3	0	-	3
3	21ITC33	Cloud Security (Cyber Security)	2,3,5	3	0	-	3
4	21EC602	Digital Signal Processing	1,2, PSO2	3	0	-	3

5	21IT010	Information Retrieval Systems	3,6,8	3	0	-	3
6	21CS005	Mobile Computing	3, 5,8	3	0	-	3
7		MOOCs		-	-	-	3
Elective VI							
1	21IT010	Social Network Analysis	2,4,5,12	3	0	-	3
2	21IT011	Real Time Operating Systems	2,3,12	3	0	-	3
3	21IT012	Digital Image Processing	3,5,6	3	0	-	3
4	21IT014	Distributed Systems	2, 7, 12	3	0	-	3
5	21CS012	Wireless Ad hoc Networks	3, 5, 6, 12	3	0	-	3
6	21CS015	Software Project Management	3, 5, 6, 12	3	0	-	3
7		MOOCs		-	-	-	3
Elective VII: Open Elective III							
1	21CE003	Solid Waste Management	3, 7, 12	3	0	-	3
2	21EE003	Fundamentals of Electrical Vehicle Technology	2, 3, 12	3	0	-	3
3	21ME003	Industrial Engineering and Management	1, 11	3	0	-	3
4	21EC003	Interfacing and Programming with Arduino	1,2	3	0	-	3
5	21CS003	Data Science for Engineering Applications	2, 3, 4	3	0	-	3
6	21CH003	Industrial Ecology for Sustainable Development	2, 6, 7	3	0	-	3
7	21IT003	Fundamentals of Mobile Computing	1,7	3	0	-	3
8	21BS004	Advanced Materials of Renewable Energy	1,7	3	0	-	3
9	21BS005	Applied Linear Algebra for Engineers	1,12	3	0	-	3
Elective VIII: Professional Elective							
1	21CS014	Green Computing	3, 6, 8	-	-	-	3
1	21IT013	Design Patterns	2,3,5	-	-	-	3
3	21IT016	Professional Ethics	6,8	-	-	-	3
4		MOOCs	-	-	-	-	3
Elective IX: Open Elective IV							
1	21CE019	Green Buildings	1, 7, 12	-	-	-	3
2	21EE017	Sustainable Energy	1, 2,12, PS02	-	-	-	3
3	21ME019	Total Quality Management	1, 11	-	-	-	3
4	21EC011	Communication Technologies	1, 2	-	-	-	3
5	21CS020	Applications of Artificial Intelligence	2,3,6,7	-	-	-	3
6	21CH016	Green Technologies	1,6,7	-	-	-	3
7	21IT015	Human Computer Interaction	1,7	-	-	-	3
8	21BS006	Handling of Industrial Waste and Waste Water	1,7	-	-	-	3
Audit Course							
1	21AT001	Communication Etiquette in Workplaces					
2	21AT002	Contemporary India: Economy, Policy and Society					
3	21AT003	Design The Thinking					
4	21AT004	Ethics and Integrity					
5	21AT005	Indian Heritage and Culture					
6	21AT006	Intellectual Property Rights					
7	21AT007	Introduction to Journalism					
8	21AT008	Mass Media Communication					
9	21AT009	Science, Technology and Development					
10	21AT010	Social Responsibility					
11	21AT011	The Art of Photography and Film Making					
12	21AT012	Gender Equality for Sustainability					
13	21AT013	Women in Leadership					
14	21AT014	Introduction to Research Methodology					
15	21AT015	Climatic Change and Circular Economy					
B. Tech. (Honors)							
Domain – I: Modern Computing							
01	21ITH11	Advanced Computer Architecture	2, 3	4	-	-	4
02	21ITH12	Micro Processors and Micro Controllers	2, 3	4	-	-	4
03	21ITH13	Embedded Systems	1, 2, 7,12	4	-	-	4
04	21ITH14	High Performance Computing	2, 3	4	-	-	4
Domain – II: Data Engineering							
01	21CSH11	Advanced Data Structures	2, 3, 4	4	-	-	4

02	21CSH12	Advanced Databases	2, 3, 4	4	-	-	4
03	21CSH13	Programming, Data Structures and Algorithms Using Python	2, 3, 4, 5	4	-	-	4
04	21CSH14	Bio-Informatics	1, 2, 5	4	-	-	4
Domain – III: Modern Software Engineering							
01	21CSH21	DevOps	1, 3, 5, 8, 10	4	-	-	4
02	21CSH22	Design Patterns	2, 3, 5	4	-	-	4
03	21CSH23	Advanced Software Engineering	1, 2, 3, 4, PSO1	4	-	-	4
04	21CSH24	Robotic Process Automation	3, 5, 8, PSO2	4	-	-	4
Domain – IV: Security							
01	21CSH31	Fundamentals of Systems Security	1, 2	4	-	-	4
02	21CSH32	Python Programming for Security	1, 3, 4	4	-	-	4
03	21CSH33	Management of Information Security	3, 6, 7	4	-	-	4
04	21CSH34	Computer Forensics	2, 3, 5	4	-	-	4
B. Tech. (Minors)							
Energy Science & Technology							
1	21CHM11	Foundation of Energy Science and Technology	1, 2, 3, 5, 7, 12	4	-	-	4
2	21CHM12	Energy Generation from Waste	1, 2, 3, 4, 5	4	-	-	4
3	21CHM13	Energy Storage Systems	1, 2, 3, 6, 7	4	-	-	4
4	21CHM14	Hydrogen Energy and Fuel Cells	1, 2, 3, 7	4	-	-	4
Nano Science & Technology							
5	21CHM21	Introduction and Characterization of Nano Materials	1, 2, 3, 7	4	-	-	4
6	21CHM22	Carbon Nanostructures and Applications	1, 3, 4, 5	4	-	-	4
7	21CHM23	Energy, Environment & Biomedical Nanotechnology	1, 2, 3, 7	4	-	-	4
8	21CHM24	Industrial Applications of Nano Technology	2, 3, 5, 7	4	-	-	4
Environmental Engineering							
9	21CEM11	Watershed Management	6,7	4	-	-	4
10	21CEM12	Industrial Pollution Control and Engineering	3,6,7	4	-	-	4
11	21CEM13	Solid and Hazardous Waste Management	1,3,6,7	4	-	-	4
12	21CEM14	Ecology and Environmental Assessment	1,3,6,7	4	-	-	4
Artificial Intelligence & Machine Learning							
13	21CSM11	Fundamentals of AI & Machine Learning	1,12	4	-	-	4
14	21CSM12	Feature Engineering for Machine Learning	1,2,3	4	-	-	4
15	21CSM13	Exploratory Data Analytics	1,4	4	-	-	4
16	21CSM14	Deep Learning	1,2, 4	4	-	-	4
Cyber Security							
17	21CSM21	Fundamentals of Security	1,2	4	-	-	4
18	21CSM22	Management of Information Security	3,6,7	4	-	-	4
19	21CSM23	Cyber Security	1,3,4	4	-	-	4
20	21CSM24	Cloud Security	2,3	4	-	-	4
Data Science & Analytics							
21	21CSM31	Data Cleaning	2,3,4	4	-	-	4
22	21CSM32	Data Engineering	1,2,3,4	4	-	-	4
23	21CSM33	Text Analytics	1,2,4	4	-	-	4
24	21CSM34	Social Network and Semantic Analysis	2, 4	4	-	-	4
Computer Systems Programming							
25	21CSM41	Programming Fundamentals	1,2,3	4	-	-	4
26	21CSM42	Data Structures & Algorithms	1,2,3,4	4	-	-	4
27	21CSM43	Fundamentals of Databases	1,4	4	-	-	4
28	21CSM44	Fundamentals of Computer Networks & Operating Systems	1,2,3	4	-	-	4
Digital IC Design							
29	21ECM11	Fundamentals of VLSI Design	1, 2, 3	4	-	-	4
30	21ECM12	Digital Design using HDL	1, 2, 3	4	-	-	4
31	21ECM13	FPGA Technology	1, 2	4	-	-	4
32	21ECM14	Analog and Mixed Signal Design	1, 2	4	-	-	4

Industrial Automation							
33	21ECM21	Microcontrollers and Interfacing	1, 2, 3	4	-	-	4
34	21ECM22	Sensors and Data Acquisition System	1, 2	4	-	-	4
35	21ECM23	Fundamentals of Labview	1, 2	4	-	-	4
36	21ECM24	Medical Robotics	1, 2, 3	4	-	-	4
Communications and Networking							
37	21ECM31	Principles of Communications	1, 2	4	-	-	4
38	21ECM32	Coding Theory and Practice	1, 2	4	-	-	4
39	21ECM33	Ad-hoc and Wireless Sensor Networks	1, 2, 3	4	-	-	4
40	21ECM34	Fundamentals of Multimedia Networking	1, 2, 3	4	-	-	4
Avionics							
41	21ECM41	Principles of Aerodynamics	1, 2	4	-	-	4
42	21ECM42	Aircraft Electrical Systems	1, 2	4	-	-	4
43	21ECM43	Aircraft Instrument Systems	1, 2	4	-	-	4
44	21ECM44	Aircraft Communication and Navigational Systems	1, 2	4	-	-	4
Geographic Information System							
45	21ECM51	Sensors and Sensing Technology	1, 2	4	-	-	4
46	21ECM52	Geographic Information Systems	1, 2	4	-	-	4
47	21ECM53	Digital Image Processing	1, 2	4	-	-	4
48	21ECM54	Lidar Systems	1, 2	4	-	-	4
Electric Vehicles Technology							
49	21EEM11	Introduction to Electric Vehicles Technologies	2, 3	4	-	-	4
50	21EEM12	Electrical Drives and Controllers for Electric Vehicles	2, 3	4	-	-	4
51	21EEM13	Charging Technology in Electric Vehicles	2, 3	4	-	-	4
52	21EEM14	Computer Vision in Electric Vehicles	2, 3	4	-	-	4
Smart City Management							
53	21EEM21	Fundamentals of Smart City	2, 3	4	-	-	4
54	21EEM22	Smart City Infrastructure	2, 3, 5, 6, 7, 11	4	-	-	4
55	21EEM23	Computational Methods for Smart City Management	3, 5	4	-	-	4
56	21EEM24	Communication Technologies and Mobility for Smart City	2, 3	4	-	-	4
Industrial Applications and Control							
57	21EEM31	Modelling and Simulations of Industrial Applications	2, 3	4	-	-	4
58	21EEM32	Industrial Sensors and Actuators	2, 3	4	-	-	4
59	21EEM33	Programmable Logic Controllers	2, 3	4	-	-	4
60	21EEM34	Control Design for Industrial Applications	2, 3	4	-	-	4
Robotics and Automation							
61	21MEM11	Introduction to Robotics	1,2,3	4	-	-	4
62	21MEM12	Drives and Sensors	1,2,3,4	4	-	-	4
63	21MEM13	Control Systems for Robotics	1,2,3,4	4	-	-	4
64	21MEM14	Machine Learning for Robotics	2,5	4	-	-	4
Industrial Systems Engineering							
65	21MEM21	Industrial Management	1,10,11,12	4	-	-	4
66	21MEM22	Fundamentals of Operations Research	1,2,3,5	4	-	-	4
67	21MEM23	Enterprise Resource Planning	1,2,3,5,11,12	4	-	-	4
68	21MEM24	Production Planning and Control	1,2,3,5,11,12	4	-	-	4