G H RAISONI COLLEGE OF ENGINEERING & MANAGEMENT

(Approved by AICTE, New Delhi and Recognized by DTE, Maharashtra)
An Autonomous Institute Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Accredited by NAAC with A+ Grade
Shraddha Park, B-37-39/1, MIDC, Hingna-Wadi Link Road, Nagpur-440016 (INDIA)

Department of Electronics and Telecommunication Engineering

Scheme of B. Tech. in Electronics and Telecommunication Engineering

2020-21

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		Total Marks
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	
SEMESTER-I													
UBSL151	Matrices and Differential Calculus	BS	2	1		3	**3**	10	15	50			75
UBSL131	Environmental Chemistry	BS	1			1	**1**	10	15	50			75
UBSP131	Environmental Chemistry	BS			2	2	**1**				25		25
UEEL101	Basic Electrical Engineering	C	2	1		3	**3**	10	15	50			75
UEEP101	Basic Electrical Engineering	C			2	2	**1**				25		25
UITP102	Programming for Problem Solving	C			4	4	**2**				50		50
UECL201	Digital Logic Design	C	3			3	**3**	10	15	50			75
UECP201	Digital Logic Design	C			2	2	**1**				25		25
IMEL112	Engineering Graphics	C	1			1	**1**	10	15	50			75
IMEP112	Engineering Graphics	C			2	2	**1**				25		25
UHUP102	Foreign Language	A			2	2	**1**				25		25
UECP101	Biomedical Engineering	A			2	2	**1**				25		25
TOTAL		**9**	**2**		**16**	**27**	**19**						**575**

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	Total Marks
SEMESTER-II													
UBSL152	Integral Calculus and Differential Equations	BS	2	1		3	3	10	15	50			75
UBSL101	Engineering Physics	BS	1	1		2	2	10	15	50			75
UBSP101	Engineering Physics				2	2	1				25		25
UCSL102	Foundations of Data Analytics	C	1			1	1	10	15	50			75
UCSP102	Foundations of Data Analytics				2	2	1				25		25
UECL202	Electronics Devices and Circuits	C	2	1		3	3	10	15	50			75
UECP202	Electronics Devices and Circuits	C			2	2	1				25		25
UHUL101	Communication Skills	H	2		2	4	3	10	15	50	25		100
UECP101	Introduction to Machine Learning	A			4	4	2				50		50
UECP102	Introduction to Drones	A			2	2	1				25		25
TOTAL			**8**	**3**	**14**	**25**	**18**						**550**

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		Total Marks
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	
SEMESTER-III													
UBSL253	Transforms and Fourier Series	BS	3	1		4	4	10	15	50			75
UECL203	Digital System Design	C	3			3	3	10	15	50			75
UECP203	Digital System Design				2	2	1				25		25
UEEL203	Linear Network Theory	C	2			2	2	10	15	50			75
UECL204	Signals and Systems	C	2	1		3	3	10	15	50			75
UCSL209	Data Structures	C	3			3	3	10	15	50			75
UCSP209	Data Structures	C			2	2	1				25		25
UECL205	Analog Integrated Circuits	C	2			2	2	10	15	50			75
UECP205	Analog Integrated Circuits	C			2	2	1				25		25
TOTAL			**15**	**2**	**6**	**23**	20						**525**

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		Total Marks
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	
SEMESTER-IV													
UBSL254	Numerical Methods and Partial Differential Equations	BS	3	1		4	4	10	15	50			75
UECL206	Analog Communication	C	3			3	3	10	15	50			75
UECP206	Analog Communication				2	2	1				25		25
UECL207	Electromagnetic Fields and Waves	C	3	1		4	4	10	15	50			75
UECL208	Microcontroller and its Applications	C	3			3	3	10	15	50			75
UECP208	Microcontroller and its Applications	C			2	2	1				25		25
	Open Elective-I	OE	2			2	2	10	15	50			75
UECP210	Python Programming	A			4	4	2				50		50
UECL209	Introduction to Robotics	A			2		1				25		25
TOTAL			**14**	**2**	**10**	**24**	21						**500**

Open Elective-I (IV Semester)

Subject Code	Name of Subject
UAIL211	Data Analysis for Business Intelligence
UCSL209	Introduction to Block-chain Technology
UEEL210	Non-Conventional Energy Sources
UECL211	Introduction to Sensors and Transducers
UMEL213	Total Quality Management
UCEL212	Basics of Civil Engineering

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		Total Marks
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	
SEMESTER-V													
UECL301	Digital Communication	C	3			3	3	10	15	50			75
UECP301	Digital Communication				2	2	1				25	25	50
UECL302	Sensors and Instrumentation	C	2			2	2	10	15	50			75
UECL303	Embedded System Design and RTOS	C	3			3	3	10	15	50			75
UECP303	Embedded System Design and RTOS	C			2	2	1				25		25
UEEL303	Control System Engineering	C	2	1		3	3	10	15	50			75
UECL304	Transmission Lines and Antennas	C	3			3	3	10	15	50			75
	Elective - I	EL	3			3	3	10	15	50			75
UHUL303	Engineering Economics and Industrial Management	H	2				2	10	15	50			75
UHUP305	Aptitude	A			2	2	1				25		25
TOTAL			**18**	**1**	**6**	**23**	**22**						**625**

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		Total Marks
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	
SEMESTER-VI													
UECL305	Microwave Engineering	C	2			2	2	10	15	50			75
UECP305	Microwave Engineering				2	2	1				25		25
UECL306	CMOS VLSI Design	C	2			2	2	10	15	50			75
UECP306	CMOS VLSI Design				2	2	1				25		25
UECL307	Digital Signal Processing	C	3			3	3	10	15	50			75
UECP307	Digital Signal Processing				2	2	1				25	25	50
	Open Elective-II	OE	2			2	2	10	15	50			75
UHUL3xx	Humanities Elective	H	2			2	2	10	15	50			75
UHUL304	Understanding Human Values	H	3			3	3	10	15	50			75
UECP308	Electronic Product Design	P			4	4	2				50		50
UECP309	IoT Based System Design	A			4	4	2				50		50
UHUP302	Employability Skills	A			2	2	1				25		25
UHUP301	Campus Recruitment Training	A			2	2	1				25		25
TOTAL			**14**	**0**	**18**	**32**	**23**						**700**

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		Total Marks
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	
SEMESTER-VII													
	Elective-II	EL	3			3	3	10	15	50			75
	Elective-III	EL	3			3	3	10	15	50			75
	Elective-IV	EL	3		2	5	4	10	15	50	25		100
	Elective-V	EL	3		2	5	4	10	15	50	25		100
	Elective-VI	EL	3		2	5	4	10	15	50	25		100
UECP401	Project	P			8	8	4				50	50	100
TOTAL			**15**	**0**	**14**	**29**	22						**550**

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		Total Marks
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	
SEMESTER-VIII													
	MOOCS based open Elective	OE	3			3	3	10	15	50			75
UECP402	Internship	P			24	24	12				200	200	400
TOTAL			**3**	**0**	**24**	**27**	15						**475**

Pool of Track wise Electives

Electives	Course Code	Communication, Signal Processing & RF Engineering	Course Code	Embedded Systems & IoT	Course Code	Bio-Medical Engineering	Course Code	VLSI & Quantum	Course Code	Machine Learning	Course Code	Programming
Track		**Track-I**		**Track-II**		**Track-III**		**Track-IV**		**Track -VI**		**Track-V**
Elective-I (Credits : 3) (Semester-V)	UECL403	Wireless and Mobile Communication	UECL404	Switching Theory and Automata	UISL301	Biomaterials	UECL4006	Integrated Circuits & Fabrication	UAIL301	Soft Computing	UCSL206	Operating System
Elective-II (Credits : 3) (Semester-VII)	UECL408	Radar and Satellite Communication	UECL409	Mechatronics	UISL402	Bio-Informatics: Algorithms and Applications	UISL47	Photonics and Nanotubes	UAIL411	Deep Learning	UECL412	Wireless Sensor Network
Elective-III (Credits : 3) (Semester-VII)	UECL413	Audio & Speech Signal Processing	UEEL418	Industrial Automation	UISL401	Biochemistry and Cell Biology	UECL415	MEMS and Applications	UAIL201	AI: Knowledge Representation and Reasoning	UCSL401	Computer System Security
Electives with Laboratory												
Elective-IV (Credits : 4) (Semester-VII)	UECL416 UECP416	Multimedia Processing	UECL417 UECP417	System on Chip	UECL418 UECP418	Brain Machine Interface	UEEL302, UEEP302	Power Electronics	UAIL211, UAIP211	Pattern Recognition	UITL302, UITP302	Computer Networks
Elective-V (Credits : 4) (Semester-VII)	UECL420 UECP420	Digital Image Processing	UECL421 UECP421	Robotics	UISL408, UISP408	Physics & Instrumentation of Medical Imaging	UECL423, UECP423	Analog VLSI Design	UECL428 UECP428	Generative Adversarial Network	UCSL412, UCSP412	Blockchain Technology
Elective-VI (Credits : 4) (Semester-VII)	UECL424 UECP424	Optical Communication	UECL425 UECP425	Advanced Embedded Systems	UISL405, UISP405	Neuromorphic Computing	UISL409, UISP409	Quantum & Optical Electronics	UAIL302, UAIP302	Natural Language Processing	UITL305, UITP305	Big Data Computing

Skill Category Courses

SEM	DETAILS	NAME	CRDITS
I	A1	Foreign Language	1
I	A2	Biomedical Engineering	1
II	A3&A4	Introduction to Machine Learning	2
II	A5	Introduction to Drone	1
IV	A6&A7	Python Programming	2
IV	A8	Introduction to Robotics	1
V	A9	Aptitude	1
VI	A10&A11	IoT Based System Design	2
VI	A12	Employability Skills	1
VI	A13	Campus Recruitment Training	1
		Total	**13**