Chapter – 2
Semester-Wise Structure of Curriculum

Mandatory Induction Program

3 Weeks Duration
• Physical activity • Creative Arts • Universal Human Values • Literary • Proficiency Modules • Lectures by Eminent people • Visit to local areas • Familiarization of Dept./Branch Innovations

ENGINEERING FIRST YEAR: SEMESTER-1					
SLNO	**CATEGORY**	**COURSE CODE**	**SUBJECT NAME**	**L-T-P**	**Credits**
1	BSC	20MA1101	Differential Equations and Multivariable calculus	3-1-0	4
2	BSC	20PY1101	Engineering Physics	3-1-0	4
3	BSC	20PY1181	Engineering Physics Lab	0-0-3	1.5
4	PCC	20EC1203	Signals and Systems	3-1-0	4
5	ESC	20EE1110	Electrical Technology	3-1-0	4
6	ESC	20EE1180	Electrical Technology Lab	0-0-3	1.5
7	ESC	20EC1102	Introduction to Latest Technical Advancements	1-0-0	1
8	ESC	20CS1108	Programming & Data Structures	3-0-0	3
9	ESC	20CS1188	Programming & Data Structures Lab	0-0-3	1.5
				Total Credits	**24.5**
Total contact hours : 29 hours					

ENGINEERING FIRST YEAR: SEMESTER-2					
SLNO	**CATEGORY**	**COURSE CODE**	**SUBJECT NAME**	**L-T-P**	**Credits**
1	BSC	20MA1201	Mathematical Methods	3-1-0	4
2	ESC	20CS1209	Object Oriented Programming	2-0-0	2
3	ESC	20CS1289	Object Oriented Programming Laboratory	0-0-3	1.5
4	ESC	20EC1285	Computational Lab	0-0-3	1.5
5	HSC	20EG1281	English-Language Communication skills Lab-1	1-0-3	2.5
6	PCC	20EC1201	Electronic Devices and Circuits	3-1-0	4
7	PCC	20EC1281	Electronic Devices and Circuits Lab	0-0-3	1.5
8	PCC	20EE1211	Network Theory	3-1-0	4
9	ESC	20CE1114	Engineering Graphics and Design	1-0-3	2.5
				Total Credits	**23.5**
Total contact hours : 31 hours					

ENGINEERING SECOND YEAR: SEMESTER-1					
SLNO	**CATEGORY**	**COURSE CODE**	**SUBJECT NAME**	**L-T-P**	**Credits**
1	BSC	20MA2101	Probability & Random Variables	2-1-0	3
2	ESC	20EC2185	Internet of Things Lab	0-0-3	1.5
3	PCC	20EC2101	Analog Electronic Circuits	3-1-0	4
4	PCC	20EC2181	Analog Electronic Circuits Lab	0-0-3	1.5
5	PCC	20EC2102	Digital Logic Design	3-1-0	4
6	PCC	20EC2182	Digital Logic Design Lab	0-0-3	1.5
7	PCC	20EC2103	Digital Signal Processing	3-1-0	4
8	PCC	20EC2183	Digital Signal Processing Lab	0-0-3	1.5
9	PCC	20EE21XX	Control Systems	3-0-0	3
Total Credits					**24**
Total contact hours: 30 hours					

ENGINEERING SECOND YEAR: SEMESTER-2					
SLNO	**CATEGORY**	**COURSE CODE**	**SUBJECT NAME**	**L-T-P**	**Credits**
1	ESC	20EC2285	Robotics Laboratory	1-0-3	2.5
2	PCC	20EC2201	Communication Systems-1	3-1-0	4
3	PCC	20EC2281	Communication Systems-1 Lab	0-0-3	1.5
4	PCC	20EC2202	Digital System Design	3-1-0	4
5	PCC	20EC2282	Digital System Design Lab	0-0-3	1.5
6	PCC	20EC2203	Linear Integrated Circuits	3-1-0	4
7	PCC	20EC2283	Linear Integrated Circuits Lab	0-0-3	1.5
8	PCC	20EC2204	Electromagnetic Waves & Guided Media	3-1-0	4
Total Credits					**23**
Total contact hours : 29 hours					

ENGINEERING THIRD YEAR: SEMESTER-1					
SLNO	**CATEGORY**	**COURSE CODE**	**SUBJECT NAME**	**L-T-P**	**Credits**
1	ESC	20EC3102	Computer Networks	3-0-0	3
2	ESC	20EC3103	Computer Organization & Architecture	3-1-0	4
3	HSC	20EG3182	English-Language Communication skills Lab-2	0-0-3	1.5
4	PCC	20EC3101	Communication Systems- 2	3-1-0	4
5	PCC	20EC3181	Communication Systems -2 Lab	0-0-3	1.5
6	PCC	20EC3182	Microprocessors, Microcontrollers & Computer Networks Lab	0-0-3	1.5
7	PCC	20EC3185	Radio Frequency & Microwave Engg. Lab	1-0-3	2.5
8	PROJ	20EC3190	Mini-Project-I (Socially Relevant Project)	0-0-2	1
Total Credits					**19**
MC		20HS3101	Indian Constitution	2-0-0	0
Total contact hours: 25 hours *Mini Project-1 workload not included in above workload calculation					

ENGINEERING THIRD YEAR: SEMESTER-2					
SLNO	**CATEGORY**	**COURSE CODE**	**SUBJECT NAME**	**L-T-P**	**Credits**
1	HSC	20EG3283	English-Language Communication skills Lab-3	0-0-3	1.5
2	HSC	20BMXY01	Product Design & Innovation	1-0-0	1
3	PEC	20EC32XX	Elective-1	3-0-0	3
4	PEC	20EC32XX	Elective-2	3-0-0	3
5	OEC	20XX32XX	Open Elective-1	3-0-0	3
6	OEC	20XX32XX	Open Elective-2	3-0-0	3
7	PROJ	20EC3291	Mini Project-II	0-0-3	1.5
Total Credits					**16**
MC		20MC3201	Career Development Course	2-0-0	0
Total contact hours : 18 hours *Mini Project-2 work load not included in above calculation					

ENGINEERING FOURTH YEAR: SEMESTER-1					
SLNO	**CATEGORY**	**COURSE CODE**	**SUBJECT NAME**	**L-T-P**	**Credits**
1	PEC	20EC41XX	Elective-3	3-0-0	3
2	PEC	20EC41XX	Elective-4	3-0-0	3
3	OEC	20XX41XX	Open Elective-3	3-0-0	3
4	PROJ	20EC4192	Summer Internship Project	0-0-6	3
5	PROJ	20EC4193	Project I	0-0-8	4
Total Credits					**16**
MC		20BE4101	Environmental Science	2-0-0	0
Total contact hours : 11 hours *Project-1 work load not included in above calculation *Summer Internship Project will be after completion of Engineering Third Year Semester-2					

ENGINEERING FOURTH YEAR: SEMESTER -2					
SLNO	**CATEGORY**	**COURSE CODE**	**SUBJECT NAME**	**L-T-P**	**Credits**
1	HSC	20HS4299	Community Service	0-0-4	2
3	PEC	20EC42XX	Elective-5	3-0-0	3
5	OEC	20XX42XX	Open Elective-4	3-0-0	3
6	PROJ	20EC4294	Project-II & Dissertation	0-0-12	6
Total Credits					**14**
Total contact hours : 6 hours *Project-2 and Community Service work load not included in above calculation					

List of Program Electives Courses/ Open Elective Courses

Program Elective Courses
Communication Stream
20ECXY01:Advanced Digital Communications
20ECXY02:Antenna and Radio wave propagation
20ECXY03:Cooperative Communications
20ECXY04:Design of Microwave systems
20ECXY05:Detection and Estimation Theory
20ECXY06:Error Correcting Codes
20ECXY07:Information Theory and Coding
20ECXY08:Millimeter wave Technology
20ECXY09:Optical Communications
20ECXY10:Principles of RADAR
20ECXY11:Radio Frequency and Microwave Engineering
20ECXY12:Satellite Communications
20ECXY13:Wireless Communications
Signal Processing Stream
20ECXY14:Advanced Digital Signal Processing
20ECXY15:Artificial Neural Networks
20ECXY16:Biomedical Signal Processing
20ECXY17:Digital Image Processing
20ECXY18:Digital Voice and Picture Communication

20ECXY19:Estimation of Signals and Systems
20ECXY20:Medical Image Analysis
20ECXY21:Pattern Recognition and applications
20ECXY55: Adapative Signal Processing
20ECXY56: Introduction to Deep Learning
VLSI and Embedded systems Stream
20ECXY22:Analog IC Design
20ECXY23:Digital IC Design
20ECXY24:Digital VLSI System Design
20ECXY25:Electronic System Packaging
20ECXY26:Embedded Systems
20ECXY27:Embedded System Software Testing
20ECXY28:FPGA based System Design
20ECXY29:Low Power Circuits and Systems
20ECXY30:MEMS and Microsystems
20ECXY31:RF IC Design
20ECXY32:Systemverilog
20ECXY33:VLSI DSP
20ECXY34:VLSI Physical Design
20ECXY35:VLSI Testing and Verification
OpenElectiveCourses (Offered to other departments)
20ECXY50:Artificial Intelligence
20ECXY51:Computational science and Engineering using Python

20ECXY52:Linux Programming and Scripting
20ECXY53:Machine Learning
20ECXY54:Robotics Operating System: Drones
20ECXY57: Electronic Measurements and Instrumentation

COURSES BEING OFFERED TO OTHER DEPARTMENTS

COURSE CODE	SUBJECT NAME	L-T-P	CREDITS	BRANCHES
20ECXX10	Digital Logic Design	3-0-0	3	CSE
20ECXX80	Digital Logic Design Laboratory	0-0-3	1.5	CSE

CSE: Department of Computer Science and Engineering

Course outcome

After the completion of this Laboratory course, the student will be able to

CO 1	Understand the implementation of discrete digital components
CO 2	Utilize the ICs of Decoder, Multiplexer, Seven segment display unit in combination circuit design
CO 3	Utilize the ICs of suitable Flipflops in sequential circuit design
CO 4	Utilize the Programmable Logic devices in digital design
CO 5	Understand the concepts of setup time, hold time, propagation delays
CO 6	Design circuits with optimal features of Area, Power and delay
CO 7	Design and implement prototypes of complete digital systems

Assessment Method

Assessment Tool	Experiments	Report/Viva-Voce/ Quiz/MCQ/Lab Project	Total
Weightage (%)	25%	15%	40%
		End Semester Examination weightage (%)	60%

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Rajiv Gandhi University of Knowledge Technologies

COURSE STRUCTURE AND DETAILED SYLLABI FOR THE B.TECH PROGRAM (MINOR DEGREE IN MACHINE LEARNING) IN ELECTRONICS AND COMMUNICATION ENGINEERING

(EFFECTIVE FROM THE BATCHES ADMITTED IN 2019-20)

Index

Introduction & Background

Artificial Intelligence is the simulation of the human process by machines. Artificial intelligence and machine learning are rapidly changing our world and empowering the Fourth Industrial Revolution. ML can solve many real world problems in the fields of Computers, Electronics, communications, signal processing to name a few. Since the last decade it is receiving growing attention globally both from industries and academia. Hence there is a need to introduce and make expertise in this domain to the students to compete with the contemporary world with the help of this trending technology.

Our goal with minor in ML is to:

1. Train the students to get expertise in the relevant areas of MLand make them industry ready.
2. Increase the placements by targeting the ample number of industries working with AI & ML
3. Contribute towards Research through publications in ML, as most of the accepted research works in EC and CS are based on AI and ML.
4. Establishing research labs in collaboration with industries and MoUs with other reputed national and international institutions.
5. Encourage Innovation and entrepreneurship in AI.

The objective of this Request for Proposal is to locate a source that will provide the best overall value to RGUKT RK Valley.

Course Structure

S.No	Title of the course		credits	Prerequisite
E3 Semester-I				
1	20ECM101	Mathematical foundations for ML	4	Probability theory(20MA2101)
E3 Semester-II				
2	20ECM102	Foundations of programming for ML	4	PDS(20CS1109)
3	20ECM103	Machine Learning	4	
E4 Semester-I				
4	20ECM104	Introduction to Deep learning	4	
E4 Semester-II				
5	20ECM1xx	ML Elective-1	4	
		Total credits	20	