RV College of Engineering, Bengaluru-59.

Proceedings of 35th Academic Council Meeting held on 03rd Jan. 2023

Members Present:

1. Dr. K.N. Subramanya – Chairperson	18. Dr. Raviraj Kusanur – HoD, CHY
2. Dr. K.S. Geetha – Vice Principal	19. Dr. G. Jayalatha – I/c. HoD, MAT
3. Dr. R.S. Kulkarni – HoD, ASE	20. Dr. N.S. Narahari – IEM
4. Dr. B. Satish Babu – HoD, AI&ML	21. Dr. KVS Rajeshwara Rao – IEM
5. Dr. Vidya Niranjan – HoD, BT	22. Dr. B. Renuka Prasad – MCA
6. Dr. Vinod Kallur – HoD, CH	23. Dr. G. Shireesha – PHY
7. Dr. P. Ramakanth Kumar – HoD, CSE	24. Dr. M.V. Renukadevi – CV
8. Dr. Radhakrishna – HoD, CV	25. Dr. Rajashree Shettar – CSE
9. Dr. Ravish Aradhya – I/c. HoD, ECE	26. Dr. H.D. Gopalakrishna – ME
10. Dr. M.N. Dinesh – for HoD, EEE	27. Dr. G.S. Nagaraja – CSE
11. Dr. C.H. Renumadhavi – HoD, EIE	28. Dr. G.S. Mamatha – ISE
12. Dr. K. Sreelakshmi – HoD, ETE	29. Dr. A.V. Narayan - BT
13. Dr. B.M. Sagar – HoD, ISE	30. Dr. H.V. Kumaraswamy - ETE
14. Dr. C.K. Nagendra Gupta – HoD, IEM	31. Dr. G. Sadashivappa - CoE
15. Dr. M. Krishna – HoD, ME	32. Dr. B.V. Uma – Dean (SA)
16. Dr. Andhe Dharani – Director, MCA	33. Dr. Ravindra R - CV
17. Dr. M.K. Sudhakamath – HoD, PHY	34. Dr. N. Shanmukha – Member Secretary

External Members:

1) Dr. K.P. Shivananda – Principal, SITP-Tumkur	2) Dr. H.S. Prabhakara- Dean Operations, NCE-Hassan
3) Dr. M. Mathirajan – Professor, IISc.	

Leave of Absence:

1) Dr. Kavi Mahesh, IIIT-Dharwad 2) 4) Dr. Rajshekara Malur, TCE, B'luru.
3) Dr. M.H. Kori – Former Technical Director, Alcatel-Lucent Technologies,

The Chairman welcomed all the members and wished Happy New Year -2023.

Sub. No. 281: To read and record proceedings of the 34th Academic Council Meeting held on 20.8.2022 (Online) & Action Taken Report.

The Chairman briefed the members about the proceedings of 34th Academic Council Meeting held on 20.8.2022 (Online) and Action Taken Report thereon. Since no comments were raised. the proceedings and action taken report were read and recorded.

Sub. No. 282: Information on the activities of RVCE.

The Chairman appraised the members about various activities carried out in the institution Since Aug. 2022-till date, through a presentation.

Dr Mathiarajan suggested that the institution could organize one day workshop on the activities of the established Centres of Excellence / Competence for students. He also suggested to include the NIRF Ranking among Pvt. Colleges, so that Institution Ranking will be more visible.

Sl. No.	Particulars	
1	Research / Consultancy project proposals submitted	22 / 5,18,46,783
2	Project grants received	03 / 18,88,433
3	Training / consultancy activities	35 / 60,75,231

4	Workshops / Seminars / Conference / Events Organized	27
5	Invited talks delivered by faculty	42
6	Expert Lectures organized by the depts.	13
7	No. of workshops / Seminars / Conferences / Online Webinars attended by Faculty/ Staff:	83
8	Journal Publications by Faculty (National / International)	0 / 58
9	Conference Publications by Faculty (National / International)	02 & 21
10	Book published/chapter authored by faculty	13 / 02
11	MoUs / MoA signed	12
12	Patent Filed / Published / Granted	0 / 1 / 2

PROJECT GRANT DETAILS FROM Aug. 2022 – till date

Project Title	Funding Agency	Name of Investigator	Department	Total Sanctioned by the Agency	Released during Aug. 2022- till date
Design and Fabrication of flexible Artificial Basilar Epithelium	SERB	Dr. Uttarakumari M	ECE	29,97,500.00	**15,61,000.00**
AICTE Regional conference for UHV volunteers of Southern, South-Central, South-Western Region conducted during 28th to 30th April 2022	AICTE	Dr.Renukardevi M	Civil	1,27,433.00	**1,27,433.00**
BB84 Quantum key distribution (QKD) scheme demonstration using short LASER pulses and its applications	KSCST	Dr.B Sathish Babu	AI&ML	2,00,000.00	**2,00,000.00**
TOTAL (Rupees)				**32,24,933.00**	**18,88,433.00**

CONSULTANCY GRANTS DETAILS FROM Aug. 2022 – till date

Coordinator	Dept.	Funding Agency	Description of consultancy / training work	Receipt during 2022-2023
Nethravathi K A	ECE	Nokia Technologies Oy	Beneficiary invention reward	2,71,600.00
Minal	CSE	The Director, Centre for Artificial	Assessment of privacy protection in the encrypted DNS protocols (DoH/DoT) and extension of the analysis to high speed	1,95,998.00
Raghavendra T	Civil	Megha Engineering & Infrastructures	"Proof checking / Vetting of the structural design and drawings-pavagada Project RDWS Dept, GoK	20,06,000.00
Mahesh A	ECE	Nanorama Technologies Private	Measurement charge for 1 days Anechoic chamber	15,340.00
Mahesh A	ECE	Huber Suhner Electronics Pvt Limited	Measurement charge for 2 days Anechoic chamber	30,680.00
Rvce	Principal	San Prints Private Limited	COMED-K exam on 19th June 2022	61,643.20

Shushruth K S	ECE	The Director, CSIR-NAL	Measurement charge for 3 days Anechoic chamber	46,020.00
Shushruth K S	ECE	Wavcom Technology Private Limited	Measurement charge for 1 days Anechoic chamber	15,340.00
Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on " Complete Networking Fundamentals"	58,056.00
Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on " Embedded System Design and development"	58,056.00
Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on " Mechanical for Non-Mechanical Engineers"	58,056.00
Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on " Electronics for Non-Electronics Engineers "	58,056.00
Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on " Advance Digital Commnication",	57,348.00
Shushruth K S	ECE	Apparatus Automation Pvt Ltd.	Measurement charge for 1 day Anechoic chamber	18,880.00
Nethravathi	ECE	LRDE	CARS project for "Modelling, Simulation, Comparative performance Evaluation and Firmware implementation of Adaptive Digital Beam forming techniques for optimized irregular sub-array based active Phased Array Radar"	3,09,750.00
Satheesh	IDRC	Uperq Technologies India Private Limited	Deposition & optimization of Niobium and Niobium/Titanium/ MgO thins film using HHV sputter 100 tool	71,095.00
Renukaprasad	MCA	C B K Infotech India Pvt Limited	Dudha Mathia project ICT enabled Lab setup Deployment of ICT tools and software training on creating learning resource for offline usage and remote training and monitoring	2,75,999.64
Hod Ece	ECE	Devic Earth Pvt Ltd	"Simulation studies to inderstand the properties of pure skies Omnidirectional Antenna" 2nd Instalment	56,640.00
Shushruth K S	ECE	Lekha Wireless Solutions Private Limited	Measurement charge for 1 days Anechoic chamber	15,340.00
Renuka Prasad	MCA	Electronic Automation Private Limited	IoT Integration for EAPL Multi function	88,500.00
Badrinath	CSE	Electronic Automation Private Limited	Software developmentfor Time Switch 30% Advance payment	17,700.00
Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on" Fundamentals of Network Security"	41,064.00

Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on " Essentials of FPGA	20,532.00
Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on " RF Fundamentals	39,176.00
Vidya Nirajan	Bio-tech	Reckitt Benckiser India Private Ltd	Determination of effect of RB naturals on human Proteome to estimate its safety"	3,68,750.00
Shushruth K S	ECE	Bharat Electronics Limited	An Orientation programme on " Fundamentals of Security"	39,648.00
Vidya Nirajan	Bio-tech	Reckitt Benckiser India Private Ltd	Determination of effect of RB naturals on human Proteome to estimate its safety"	3,68,750.00
Shushruth K S	ECE	Wavcom Technology Pvt. Ltd.	Measurement charge for 2days_Anechoic chamber	30,680.00
Shushruth K S	ECE	Avgarde Systems Private Limited	Measurement charge for 1day_Anechoic chamber	7,670.00
Renuka Prasad	MCA	St. Joseph Engineering College	Lab setup and maintenance support experiment design for different branches adequate competency on IoT projects	1,97,999.28
Renuka Prasad	MCA	St. Joseph Engineering College	Lab setup and maintenance support experiment design for different branches adequate competency on IoT projects	50,000.14
Dr.Anala M R	ISE	ABB Global Industries and services	ABB Architecture Comparison Tool	3,54,000.00
Dr.Anjaneyappa	CIVIL	Chief Engineer, Water transport dept	Three days Training Program on " Road Safety	2,84,380.00
HoD-CSE	CSE	Dhanya Plastics & Foams Private Ltd	Design & Development of static webpage	2,36,000.00
Civil department	Civil	--	Testing charges	2,50,484.00
TOTAL (Rupees)				**60,75,231.00**

2022 IEEE HAC/SIGHT Projects

1. Project Title: "Awareness Creation and Detection of Vector Borne Disease -Dengue for Public Health" (22-HAC-128)
Coordinator: **Dr. J. Usha, MCA Dept.**
Sanctioned Amount: US$ 4,100 [Rs.3,36,938]
1st Instalment grant received: **Rs. 1,68,469 Dt. 30 Dec 2022.**

2. Project Title: "Design and implementation of an incinerator for a rural high school village community centre"
Coordinator: **Dr. A. Mahesha, E&CE Dept.**
Sanctioned Amount: US$ 4,600 [~Rs.3,68,00]
1st instalment grant received: **Rs. 1,80,000**

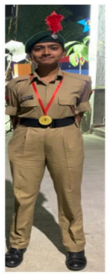
Year	2022
Total Score	40.73
Overall Rank	89
TLR	30
RPC	13
GO	21
OI	17
PR	34
No. of Colleges participated	1249

Sri. K.G. Subbarama Setty, Hon. Treasurer-RSST, conferred with *Karnataka Rajyotsava Award -2022*, by the Govt. of Karnataka, for his contribution in the field of *'Education' & Social Service*, during Nov- 2022

Dr. K.N. Subramanya - Nominated as Member of the Task Force Committee for implementation of NEP-2020 by VTU

RVCE conferred with the *Kreeda Poshaka (Sports Promoters) Award* from the Government of Karnataka in the field of sports for the year 2020-21. The award includes Rs. 5.0 Lakhs cash prize and Certificate.

- RVCE-CSE Students won 1st Prize in Smart India Hackothon-2022, August-2022.
- Prime Minister Sri. Narendra Modi Appreciated the Student's Project.



Cadet Gold Medal of Karnataka and Goa directorate Aparna Kashyap, 2nd sem. Biotechnology dept.

NCC Cadet S. Sanjay Raju selected from Karnataka and Goa directorate joined the delegation as part of Youth Exchange Programme-2022 held at Bangladesh from 12-23 Dec. 2022.

Centres of Excellence

Centre for AI Research and Business Solutions

The COE is created jointly by RV College of Engineering and Boston Ltd. UK to cater to the application of Artificial Intelligence, Machine learning, and Deep learning in the research and development of business solutions

- **Expertise**

Data Science & Analytic Solution
Computer Vision Applications
Graphcore IPU-based Deep Learning Solution
Intel OneAPI Programming Model

- **Facilities**

Graphcore IPU-M2000- POD4 machine

Centre for Visual Computing

The Centre facilitates execution of computationally intensive research works in various state-of-the-art domains including Edge Computing, Parallel Programming, AI&ML.

- **Expertise**

Food, Nutrition, Environment and Agriculture
Medical Imaging and Dentistry
Machining and Novel view synthesis
Remote Sensing and Geo Informatics

- **Facilities**

GPU Cards (Quadro RTX, Titan X Pascal), Development Kits (Jetson Nano, RaspberryPi), Workstations

Centres of Competence

Inauguration of RV-Decibels Lab. Centre on 21st Oct. 2022.
Activity: Training students, predominantly on design of Electric Vehicle Technologies.

Inauguration of 'Automotive Mechatronics Lab' on 8th Dec. 2022
Mr. Go Leslie Goeltinger, Overseas Head, Customer Services, Mercedes Benz - Chief Guest
Sri Shekhar Bhide, VP- Customer Services & Corporate Affairs, MBIL - Guest of Honour
Dr. M P Shyam, President, RSST- Presided

International Conferences organized

RVCE jointly organized three days International Conference on Artificial Intelligence and Machine Learning in Applied Biotechnology (AIMLBIO) in association with Bangalore Bioinnovation Centre (BBC) from 8th to 10th December 2022.

Total Papers received: 104 Accepted: 46
Participants: 150 Participants

RVCE in association with Florida International University (FIU), Miami, USA, & IEEE Bangalore Section organized 6th International Conference on "Computational Systems and Information Technology for Sustainable Solutions [CSITSS – 2022]" from 21st to 23rd Dec. 2022.
Total Papers received: 233 Accepted: 50
Participants: 300 Pre-Conference Tutorials
100 Participants

SIP – Activities (as per AICTE) – 2022-23

Mr. A H Sagar
International Educationalist, Philosopher,
"New Hopes & Prospects for Students in our Changing World"
21 Nov. 2022

Mr. Venkatesh Murthy
Executive Director of 'Youth for Seva
"Leadership through Social Service"
21 Nov. 2022

Mr. Yashodeep D
Founder, Derrick Petroleum Services.
"Indian Epic"
22 Nov. 2022

Mr. Srinivasulu, IFS
"Environmental Sustenance, A Plethora for Engineers"
22 Nov. 2022

Sri Parasuraman T R
Toyota Industries Engine India Private Limited, .
"Motivation to become better Engineer"
23 Nov. 2022

Dr. H.V. Shivaram
Academic Director, Aster CMI Hospital, Bengaluru
"Health, Fitness, Lifestyle Diseases, Weight Management"
23 Nov. 2022

Smt. Rekha Ramachandra
Founder & Secretary, Disha Bharat.
"Introduction - Team Disha"
23 Nov. 2022

Dr. V.B. Arathi
Chairperson, Vibhu Academy
"Indian Knowledge System"
24 Nov. 2022

Mr. Dilip Patil
Entrepreneur & Trainer
"Life Balancing Skills"
25 Nov. 2022

Ms. Nivedha M.
MD, Trashcon
"Entrepreneurship"
24 Nov. 2022

UHV Sessions by RVCE Trained faculty 2022-23

Dr. M.V. Renukadevi
"Self: Self exploration, Right understanding, Right feeling, Self & Body Co-existence etc."
28 Nov. 2022

Dr. K. Badarinath
"Harmony in self: Program for Happiness and Health."
28 Nov. 2022

Dr. Shantha Rangaswamy & Dr. D.N. Avadhani
"Harmony in Family: Evaluating Trust, Right evaluation, Respect, Reverence, Glory, Gratitude, Affection, Love"
29 Nov. 2022

Dr. Usha J
"Harmony in Family - Glory, Gratitude, Love"
29 Nov. 2022

Dr. Mamatha G.S. Dr. Ramaa A & Dr. Sham Aan M.P
"Harmony in Society"
30 Nov. 2022

Dr. Rajashree Shettar, Dr. KVS Rajeswara Rao & Dr. M. Lokeshwari
"Harmony in Nature"
30 Nov. 2022

Glimpses of SIP 2022

New Hopes & Prospects for Students in our Changing World by *Mr. A.H Sagar*

UHV session by Disha Bharath Team

Indian Knowledge System By Dr. Arathi V B

Health and Fitness by Dr. Shivaram H.V

Motivation to become better Engineer by *Sri T.R. Parasuraman*

Indian Ethics by *Mr. Yashodeep D*

Culture Activities: creative Practice session on 29,30 Nov 22

Art of Living Visit on 26 Nov 2022

Goshala at AOL

Session at AOL

Cleaning and Lake rejuvenation on 2nd Dec 22

Campus Tour – Representative Centres

Date & Time	28.11.2022, 2:00PM – 4.30PM
Key points of session	The students were taken to visit various COE centers and technical clubs
RVCE Morris Garage Centre for EV Technology	At this COE students were shown the working model of the MG Electrical Vehicle. All the students were excited and keenly observed the explanations.
RV Mercedes Benz Automation centre	At this COE students were briefed about the mechanical Module: Engine - Modern engines and their functions, Electronics Module: Basic Electrics of the Mercedes Benz car. All the students keenly observed the explanations and interacted with the expert team.
RV-Toyota Kirloskar Motors	At this COE students were briefed about the Kirloskar air cooled and water cooled diesel engines. They also demonstrated the working which students found to be fascinating. All the students interacted with the expert team by asking few questions.
Connected Vehicles: WIRIN	At this COE students were briefed about the autonomous vehicle delevopment. They were briefed about the modules and ongoing project development. They were also told about the upcomming simulation projects where the students can join as part of internship programme and contribute. All the students interacted with the expert team by asking few questions.
Automation & Robotics	At this COE students were demonstrated the working of Industrial robot and its working.

Campus Tour – Representative Centres

RV Mercedes Benz Automation centre

RV Toyota Kirloskar Motor Centre

Students at Connected Vehicles: WIRIN

Sub. No. 283: To approve the scheme & syllabus of I year B.E programs of 2022 scheme.

The Chairman briefed about the revised structure of the scheme, which is prepared based on the VTU guidelines. Various Board of Studies chairperson have appraised the council regarding scheme and syllabus of I year B.E. programs of 2022 scheme. **(Annex. A)**

The Chairman also appraised that, from the academic year 2022-23, the institution is bringing out a Formula Handbook by the departments for first year BE students.

Following discussions / suggestions were made during the deliberations.

1) The Chairman suggested that Lab. Experiments can be made into group cycle.
2) Dr. Mathiarajan suggested to use the word "Fundamental / Applied / Basics" in the unit chapters. He suggested that the respective Boards should ensure 60% of the syllabus to be included from one book. He also suggested that every unit should have a glossary.
3) Dr. H.S. Prabhakara suggested to incorporate the words like 'Principles', 'Elements', 'Fundamentals' or 'Basics' in the syllabus.
4) The Chairman suggested to change ordering of units in Mechanical Engineering syllabus.

Dr. Mathiarajan sought details of No. of students registered for each course. The Member Secretary provided the list of students opted for the course as under:

PROGRAMMING LANGUAGE COURSES IN FIRST SEMESTER B.E. PROGRAMS					
Sl.No	**BoS**	**Course Code**	**COURSE TITLE**	**Credits**	**No. Registered**
1	AI	22PL15A	Introduction to Python programming	3	346
2	CS	22PL15B	Introduction to Web programming	3	37
3	CS	22PL15C	Basics of Java programming	3	113
4	IS	22PL15D	Introduction to C++ Programming	3	198
					694

EMERGING TECHNOLOGY COURSES				
Sl.No	**BoS**	**Course Code**	**EMERGING TECHNOLOGY COURSE**	**No. Registered**
1	AI	22EM101	Introduction to Internet of Things	186
2	AS	22EM102	Introduction to Drone Technology	85
3	CS	22EM105	Elements of Blockchain Technology	77

4	CS	22EM106	Introduction to Cyber Security	**88**
5	CHY	22EM109	Fundamental of Nanoscience & Technology	**31**
6	EC	22EM110	Fundamentals of Semiconductor Devices	**30**
7	EC	22EM111	Introduction to Embedded Systems	**39**
8	EE	22EM112	Renewable Energy Sources	**54**
9	EI	22EM113	Fundamentals of Sensor Technology	**38**
10	ME	22EM117	Elements of Industry 4.0	**49**
				677

ENGINEERING SCIENCE-I COURSES IN FIRST SEM B.E. PROGRAMS					
Sl.No	**BoS**	**Course Code**	**COURSE TITLE**	**Credits**	**Total**
1	CS	22ES14A	Introduction to C Programming	**3**	**577**
2	CV	22ES14B	Elements of Civil Engineering	**3**	**109**
3	EC	22ES14C	Principles of Electronics Engineering	**3**	**357**
4	EE	22ES14D	Basics of Electrical Engineering	**3**	**151**
5	ME	22ES14E	Fundamentals of Mechanical Engineering	**3**	**188**
					1382

Resolution: After a detailed discussion, the Council approved the scheme & syllabus of I year B.E. programs of 2022 scheme and suggested to incorporate the changes before distributing it to the students.

Sub. No. 284: Discussion on the scheme of I & II year M.Tech programs of 2022 scheme.

and

Sub. No. 285: To approve the scheme and syllabus of I year M.Tech programs of 2022 scheme.

The Chairman briefed the members about the scheme structure of I & II year M.Tech programs of 2022 scheme. **(Annex. B)**

The external experts have suggested to change the terminology of Research Methodology to "Research Methodology" OR "Basic Research Methodology" and common to all programs.

The experts also suggested to change the nomenclature of Industry based elective as "Professional Elective / Activity".

Dr. Mathirajan suggested that the institution could make it mandatory for M.Tech students to write one research paper compulsorily.

After a detailed discussion, it was agreed that – CIE & Experiential Learning could be evaluated by respective departments. Common Board for Research Methodology will be IEM Department.

Resolution: The Council approved the scheme and syllabus of I year M.Tech programs of 2022 scheme and suggested to incorporate the changes, before distributing it to the students.

Sub. No. 286: To approve the academic guidelines for 2022 scheme, as per the new VTU regulations.

and

Sub. No. 287: To approve the examination guidelines for 2022 scheme, as per the new VTU regulations.

The Chairman briefed about the academic and examination guidelines for 2022 scheme, as per the new VTU guidelines, through a presentation. **(Annex. C)**.

Resolution: After a detailed discussion, the Council approved the academic and examination guidelines for 2022 scheme.

Sub. No. 288: Result analysis of UG programs

and

Sub. No. 289: Result analysis of M.Tech and MCA programs.

The chairman briefed about the result analysis of UG and PG programs.

UG Program Result Analysis (Academic Year 2021-22)

S. No.	Program Name	Sanctioned Intake	No. of Students (Admitted)	Semester – 2			Semester – 4			Semester - 6		
				No. of Students (Appeared)	No. of Students (Passed)	Pass Percentage	No. of Students (Appeared)	No. of Students (Passed)	Pass Percentage	No. of Students (Appeared)	No. of Students (Passed)	Pass Percentage
1	AI & ML	60	62	62	57	91.94						
2	AS	60	62	62	46	74.19	69	52	75.36	72	70	97.22
3	BT	60	61	62	48	77.42	59	48	81.36	53	51	96.23
4	CH	40	41	41	33	80.49	42	33	78.57	37	32	86.49
5	CS	180	192	192	174	90.63	213	183	85.92	215	195	90.70
6	CV	120	126	126	74	58.73	129	96	74.42	141	116	82.27
7	EC	180	190	190	170	89.47	205	152	74.15	209	189	90.43
8	EE	60	64	64	52	81.25	71	53	74.65	73	64	87.67
9	EI	60	62	62	50	80.65	64	43	67.19	64	58	90.63
10	IM	60	62	62	38	61.29	67	56	83.58	67	63	94.03
11	IS	60	63	63	59	93.65	69	58	84.06	72	69	95.83
12	ME	120	121	121	93	76.86	135	121	89.63	148	118	79.73
13	TE	60	63	63	52	82.54	69	47	68.12	68	61	89.71

PG Program Result Analysis – Semester: 2 (Academic Year 2021-22)

M.Tech Programs

Sl. No.	Program Name	Sanctioned Intake	No. of Students (Admitted)	No. of Students (Appeared)	No. of Students (Passed)	Pass %
1	Product Design and Manufacturing	36	28	28	27	96.43
2	Digital Communication	18	16	16	14	87.50
3	Computer Science and Engineering	18	16	16	16	100.00
4	Computer Integrated Manufacturing	18	10	10	9	90.00
5	VLSI Design and Embedded Systems	36	35	35	33	94.29
6	Computer Network Engineering	18	15	15	15	100.00
7	Machine Design	18	18	18	18	100.00
8	Power Electronics	18	16	16	13	81.25
9	Communication Systems	18	6	6	3	50.00
10	Structural Engineering	18	18	17	16	94.12
11	Software Engineering	18	14	14	13	92.86
12	Information Technology	18	14	14	14	100.00
13	Highway Technology	18	12	12	11	91.67
14	Biotechnology	18	16	16	16	100.00
15	Radio Frequency and Microwave Engineering	18	2	2	2	100.00

MCA

16	Master of Computer Applications	120	120	120	108	90.00

Sub. No. 290: Any other subject/s.

(a) Provision for mentally / physically challenged students to take courses partially in regular and makeup.

The chairman briefed that there are a few cases of mentally / physically challenged students who are not cope up to take all courses in the regular examination. In such cases, the students will be provided an opportunity to take courses partially in regular and makeup examination, after scrutiny of the documents submitted by the candidate to the Examination Committee of the college.

(b) Examination fees not to collect from sports and NCC students represented college for makeup examination.

The Chairman briefed such of the students who represented the College / University and participate in Sports / NCC / NSS and allied activities, are exempted to pay the examination fees during Makeup examination.

(c) Decentralization of SEE evaluation, evaluation through departments only. Need to send only SEE and CIE to CoE to grading the candidates.

The chairman briefed that the institution has decentralised SEE evaluation process of PG programs at the respective department level. It is proposed to extend the same to UG programs also from the Academic Year 2022-23.

(d) Revised MP registrations.

The Chairman also briefed that the VTU has issued modified Malpractice Guidelines. Accordingly, the institution has revised the Malpractice Guidelines.

Resolution: The council unanimously endorsed its approval for Sub. No. 290 (a) to (d).

The meeting concluded with thanks to the chair.

20/01/23

Member Secretary

Member Secretary
Academic Council
RV College of Engineering (Autonomous)
Bangalore-560 059

Annexure – A

2022 SCHEME CREDIT STRUCTURE FOR FIRST YEAR B.E. PROGRAMS (WEF 2022)

CS stream

2022 SCHEME - CREDITS AND COMPONENTS

I SEMESTER: CHEMISTRY CYCLE (CS STREAM) AI, BT, CS, CD, CY & IS

Sl. No.	Course Code	Course Title	BoS	Credit Allocation				Category	CIE Duration (H)	Max Marks CIE		SEE Duration (Hrs)	Max Marks SEE	
				L	T	P	Total			Theory	Lab		Theory	Lab
1	22MA11C	Fundamentals of Linear Algebra, Calculus and Statistics	MA	3	1	0	4	Theory	1.5	100	***	3	100	***
2	22CHY12A	Chemistry Of Smart Materials And Devices	CHY	2	1	1	4	Theory+Lab	1.5	100	***	3	100	***
3	22MECD13	Computer Aided Engineering Graphics	ME	1	0	2	3	Lab	1.5	***	50	3	***	50
4	22ES14X	Engineering Science Course - I	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
5	22PL15X	Programming Languages Course	XX	2	0	1	3	Theory+Lab	1.5	100	***	3	100	***
6	22HSE16	Communicative English-I	HSS	0	0	1	1	Lab	1	***	50	2	***	50
7	22HSI17	Fundamentals of Indian Constitution	HSS	1	0	0	1	Theory	1	50	***	2	50	***
8	22HSYI8	Scientific Foundations of Health-Yoga Practice	HSS	0	0	1	1	Lab	1	***	50	2	***	50
				12	2	6	20							

II SEMESTER: PHYSICS CYCLE (CS STREAM) AI, BT, CS, CD, CY & IS

Sl. No.	Course Code	Course Title	BoS	Credit Allocation				Category	CIE Duration (H)	Max Marks CIE		SEE Duration (Hrs)	Max Marks SEE	
				L	T	P	Total			Theory	Lab		Theory	Lab
1	22MA21C	Number Theory, Vector Calculus and Computational Methods	MA	3	1	0	4	Theory	1.5	100	***	3	100	***
2	22PHY22B	Quantum Physics for Engineers	PHY	2	1	1	4	Theory+Lab	1.5	100	***	3	100	***
3	22CS23	Principles of Programming Using C	CS	2	0	1	3	Theory+Lab	1.5	100	***	3	100	***
4	22ES24X	Engineering Science Course-II	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
5	22EM2XX	Emerging Technology Course	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
6	22HSE26	Communicative English-II	HSS	0	0	1	1	Lab	1	***	50	2	***	50
7	22HSAK27/ 22HSVK27	Adalitha Kannada / Vyavaharika Kannada (Samskrutika Kannada/ Balake Kannada)	HSS	1	0	0	1	Theory	1	50	***	2	50	***
8	22ME28	IDEA LAB (Idea Development, Evaluation & Application)	ME	0	0	1	1	Lab	2	***	50	2	***	50
				14	2	4	20							

CV stream

I SEMESTER: CHEMISTRY CYCLE (CV STREAM) CV

Sl. No.	Course Code	Course Title	BoS	Credit Allocation				Category	CIE Duration (H)	Max Marks CIE		SEE Duration (Hrs)	Max Marks SEE	
				L	T	P	Total			Theory	Lab		Theory	Lab
1	22MA11D	Applied Mathematics – I	MA	3	1	0	4	Theory	1.5	100	***	3	100	***
2	22CHY12B	Engineering And Environmental Chemistry	CHY	2	1	1	4	Theory+Lab	1.5	100	***	3	100	***
3	22MECD13	Computer Aided Engineering Graphics	ME	1	0	2	3	Lab	1.5	***	50	3	***	50
4	22ES14X	Engineering Science Course - I	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
5	22PL15X	Programming Languages Course	XX	2	0	1	3	Theory+Lab	1.5	100	***	3	100	***
6	22HSE16	Communicative English-I	HSS	0	0	1	1	Lab	1	***	50	2	***	50
7	22HSI17	Fundamentals of Indian Constitution	HSS	1	0	0	1	Theory	1	50	***	2	50	***
8	22HSYI8	Scientific Foundations of Health-Yoga Practice	HSS	0	0	1	1	Lab	1	***	50	2	***	50
				12	2	6	20							

II SEMESTER: PHYSICS CYCLE (CV STREAM) CV

Sl. No.	Course Code	Course Title	BoS	Credit Allocation				Category	CIE Duration (H)	Max Marks CIE		SEE Duration (H)	Max Marks SEE	
				L	T	P	Total			Theory	Lab		Theory	Lab
1	22MA21D	Applied Mathematics – II	MA	3	1	0	4	Theory	1.5	100	***	3	100	***
2	22PHY22C	Quantum Physics for Engineers	PHY	2	1	1	4	Theory+Lab	1.5	100	***	3	100	***
3	22CV23	Engineering Mechanics	CV	3	0	0	3	Theory	1.5	100	***	3	100	***
4	22ES24X	Engineering Science Course-II	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
5	22EM2XX	Emerging Technology Course	XX	3	0	0	3	Theory	1	100	***	3	100	***
6	22HSE26	Communicative English-II	HSS	0	0	1	1	Lab	1	***	50	2	***	50
7	22HSAK27/ 22HSVK27	Adalitha Kannada / Vyavaharika Kannada (Samskrutika Kannada/ Balake Kannada)	HSS	1	0	0	1	Theory	1	50	***	2	50	***
8	22ME28	IDEA LAB (Idea Development, Evaluation & Application)	ME	0	0	1	1	Lab	2	***	50	2	***	50
				15	2	3	20							

ME stream:

I SEMESTER: PHYSICS CYCLE (ME STREAM) AS, CH, IM & ME

Sl. No.	Course Code	Course Title	BoS	Credit Allocation				Category	CIE Duration (H)	Max Marks CIE		SEE Duration (H)	Max Marks SEE	
				L	T	P	Total			Theory	Lab		Theory	Lab
1	22MA11B	Fundamentals of Linear Algebra, Calculus and Differential Equations	MA	3	1	0	4	Theory	1.5	100	***	3	100	***
2	22PHY12B	Classical Physics for Engineers	PHY	2	1	1	4	Theory+Lab	1.5	100	***	3	100	***
3	22ME13	Elements of Mechanical Engineering	ME	2	1	0	3	Theory	1.5	100	***	3	100	***
4	22ES14X	Engineering Science Course - I	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
5	22EM1XX	Emerging Technology Course	XX	3	0	0	3	Theory	1	100	***	3	100	***
6	22HSE16	Communicative English-I	HSS	0	0	1	1	Lab	1	***	50	2	***	50
7	22HSAK17/ 22HSVK17	Adalitha Kannada / Vyavaharika Kannada (Samskrutika Kannada/ Balake Kannada)	HSS	1	0	0	1	Theory	1	50	***	2	50	***
8	22ME18	IDEA LAB (Idea Development, Evaluation &	ME	0	0	1	1	Lab	2	***	50	2	***	50
				14	3	3	20							

II SEMESTER: CHEMISTRY CYCLE (ME STREAM) AS, CH, IM & ME

Sl. No.	Course Code	Course Title	BoS	Credit Allocation				Category	CIE Duration (H)	Max Marks CIE		SEE Duration (Hrs)	Max Marks SEE	
				L	T	P	Total			Theory	Lab		Theory	Lab
1	22MA21B	Vector Calculus and Computational Methods	MA	3	1	0	4	Theory	1.5	100	***	3	100	***
2	22CHY22D	Chemistry of Engineering materials	CHY	2	1	1	4	Theory+Lab	1.5	100	***	3	100	***
3	22MECD23	Computer Aided Engineering Graphics	ME	1	0	2	3	Lab	1.5	***	50	3	***	50
4	22ES24X	Engineering Science Course-II	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
5	22PL25X	Programming Languages Course	XX	2	0	1	3	Theory+Lab	1.5	100	***	3	100	***
6	22HSE26	Communicative English-II	HSS	0	0	1	1	Lab	1	***	50	2	***	50
7	22HSI27	Fundamentals of Indian Constitution	HSS	1	0	0	1	Theory	1	50	***	2	50	***
8	22HSY28	Scientific Foundations of Health-Yoga Practice	HSS	0	0	1	1	Lab	1	***	50	2	***	50
				12	2	6	20							

EC Stream:

I SEMESTER: PHYSICS CYCLE (EC STREAM) EC, EE, EI & ET

Sl. No.	Course Code	Course Title	BoS	Credit Allocation				Category	CIE Duration (H)	Max Marks CIE		SEE Duration (Hrs)	Max Marks SEE	
				L	T	P	Total			Theory	Lab		Theory	Lab
1	22MA11A	Fundamentals of Linear Algebra, Calculus and Numerical Methods	MA	3	1	0	4	Theory	1.5	100	***		100	***
2	22PHY12A	Condensed Matter Physics for Engineers	PHY	2	1	1	4	Theory+Lab	1.5	100	***	3	100	***
3	22EC13	Basic Electronics (Common to EC, EI & ET Programs)	EC	2	1	0	3	Theory	1.5	100	***	3	100	***
	22EE13	Elements of Electrical Engineering (Only for EE Program)	EE					Theory	1.5	100	***	3	100	***
4	22ES14X	Engineering Science Course - I	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
5	22EM1XX	Emerging Technology Course	XX	3	0	0	3	Theory	1	100	***	3	100	***
6	22HSE16	Communicative English-I	HSS	0	0	1	1	Lab	1	***	50	2	***	50
7	22HSAK17/ 22HSVK17	Adalitha Kannada / Vyavaharika Kannada (Samskrutika Kannada/ Balake Kannada)	HSS	1	0	0	1	Theory	1	50	***	2	50	***
8	22ME18	IDEA LAB (Idea Development, Evaluation & Application)	ME	0	0	1	1	Lab	2	***	50	2	***	50
				14	3	3	20							

II SEMESTER: CHEMISTRY CYCLE (EC STREAM) EC, EE, EI & ET

Sl. No.	Course Code	Course Title	BoS	Credit Allocation				Category	CIE Duration (H)	Max Marks CIE		SEE Duration (H)	Max Marks SEE	
				L	T	P	Total			Theory	Lab		Theory	Lab
1	22MA21A	Vector Calculus, Laplace Transform and Numerical Methods	MA	3	1	0	4	Theory	1.5	100	***	3	100	***
2	22CHY22C	Chemistry of functional materials	CHY	2	1	1	4	Theory+Lab	1.5	100	***	3	100	***
3	22MECD23	Computer Aided Engineering Graphics	ME	2	0	1	3	Lab	1.5	***	50	3	***	50
4	22ES24X	Engineering Science Course-II	XX	3	0	0	3	Theory	1.5	100	***	3	100	***
5	22PL25X	Programming Languages Course	XX	2	0	1	3	Theory+Lab	1.5	100	***	3	100	***
6	22HSE26	Communicative English-II	HSS	0	0	1	1	Lab	1	***	50	2	***	50
7	22HSI27	Fundamentals of Indian Constitution	HSS	1	0	0	1	Theory	1	50	***	2	50	***
8	22HSY28	Scientific Foundations of Health-Yoga Practice	HSS	0	0	1	1	Lab	1	***	50	2	***	50
				13	2	5	20							

RV College of Engineering, Bengaluru-59.

Proceedings of 35th Academic Council Meeting held on 03rd Jan. 2023

Annexure – B

M.Tech 2022 Scheme Structure

M.Tech in Biotechnology: MBT

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11AT	Computational Mathematics	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MBT12TL	Molecular Biology and Genetic Engineering	3	0	1	**4**	BT	Theory+Lab	1.5	100	3	100
3	22MBT13T	Computational Genomics and Proteomics	3	1	0	**4**	BT	Theory	1.5	100	3	100
4	22MBT14L	Bioanalytical Laboratory	1	0	1	**2**	BT	Lab	1.5	50	3	50
5	22XXX1AXT	Elective A (Professional Elective)	3	0	0	**3**	BT	Theory	1.5	100	3	100
6	22XXX1BXT	Elective B (Professional Elective)	3	0	0	**3**	BT	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MBT1A1T	Stem Cell and Tissue Engineering	22MBT1B1T	Human Diseases and Diagnostics
22MBT1A2T	Enzyme Technology	22MBT1B2T	Principles of Bioprocess Engineering
22MBT1A3T	Insilico drug discovery	22MBT1B3T	Systems Biology
22MBT1A4T	Food Engineering	22MBT1B4T	Industrial Biotechnology

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	BT	Theory	1.5	100	3	100
2	22MBT22TL	Upstream Process Technology	3	0	1	**4**	BT	Theory+Lab	1.5	100	3	100
3	22MBT23T	Pharmaceutical Technology	3	0	0	**3**	BT	Theory	1.5	100	3	100
4	22MBT2CXT	Elective C (Professional Elective)	3	0	0	**3**	BT	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MBT24L	Biopython Lab	1	0	1	**2**	BT	Lab	1.5	50	3	50

7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50
** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*												
						20						

Code	Elective C (Professional Elective)
22MBT2C1T	3D Bioprinting
22MBT2C2T	Fermentation Technology
22MBT2C3T	Parenteral Formulations
22MBT2C4T	Agriculture Biotechnology and Crop Improvement

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MBT31T	Downstream Process Technology	3	1	0	**4**	BT	Theory	1.5	100	3	100
2	22MBT3EXT	Elective E (Professional Elective)	3	1	0	**4**	BT	Theory	1.5	100	3	100
3	22MBT32N	Internship	0	0	6	**6**	BT	Project	1.5	50	3	50
4	22MBT33P	Minor Project	0	0	6	**6**	BT	Project	1.5	50	3	50
						20						

Code	Elective E (Professional Elective)
22MBT3E1T	Immunotechnology
22MBT3E2T	Next Generation Sequencing
22MBT3E3T	Design and drawing of bioreactors
22MBT3E4T	Toxicology in Life Sciences

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MBT41P	Major Project	0	0	18	**18**	BT	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42						**20**						

M.Tech in Computer Science & Engineering: MCE

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11BT	Linear Algebra, Probability and Queuing Theory	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MCE12TL	Advanced Data Structures and Algorithms	3	0	1	**4**	CS	Theory+Lab	1.5	100	3	100
3	22MCE13T	Advances in Data Base Management & Mining	3	1	0	**4**	CS	Theory	1.5	100	3	100
4	22MCE14L	Computing & Analytics Lab	1	0	1	**2**	CS	Lab	1.5	50	3	50
5	22XXX1AXT	Elective A (Professional Elective)	3	0	0	**3**	CS	Theory	1.5	100	3	100
6	22XXX1BXT	Elective B (Professional Elective)	3	0	0	**3**	CS	Theory	1.5	100	3	100
** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*						**20**						

Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MCE1A1T	Artificial Intelligence & Machine Learning	22MCN1B1T	Social Network Analysis
22MCN1A2T	Blockchain Technologies	22MCN1B2T	Distributed & Cloud Computing
22MIT1A3T	Mobile Application Development	22MCN1B3T	Software Defined Networks
22MCE1A4T	Computer Vision	22MCE1B4T	Computer Network Technologies

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE

1	22IM21T	Research Methodology	3	0	0	**3**	CS	Theory	1.5	100	3	100
2	22MCE22TL	Advances in Operating System	3	0	1	**4**	CS	Theory+Lab	1.5	100	3	100
3	22MCE23T	Deep Learning	3	0	0	**3**	CS	Theory	1.5	100	3	100
4	22XXX2CXT	Elective C (Professional Elective)	3	0	0	**3**	CS	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MCE24L	Web Application Development Lab	1	0	1	**2**	CS	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	1	0	1	**2**	HSS	Theory*	1.5	50	2	50

** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*

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Code	Elective C (Professional Elective)
22MSE2C1T	Robotic Process Automation
22MCE2C2T	Embedded Systems
22MCE2C3T	Natural Language Processing
22MCN2C4T	Internet of Things and Edge Computing

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MCE31T	High Performance Computing Architectures	3	1	0	**4**	CS	Theory	1.5	100	3	100
2	22XXX3EXT	Elective E (Professional Elective)	3	1	0	**4**	CS	Theory	1.5	100	3	100
3	22MCE32N	Internship	0	0	6	**6**	CS	Project	1.5	50	3	50
4	22MCE33P	Minor Project	0	0	6	**6**	CS	Project	1.5	50	3	50

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Code	Elective E (Professional Elective)

22MIT3E1T	Augmented Reality and Virtual Reality
22MCE3E2T	Cyber Security
22MCE3E3T	Software Product Development (DevOps)
22MCE3E4T	Intelligent Systems

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MCE41P	Major Project	0	0	18	**18**	CS	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50

Student need to submit the certificate for the evaluation of Course code 22HSS42

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M.Tech in Computer Network Engineering: MCN

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11BT	Linear Algebra, Probability and Queuing Theory	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MCN12TL	Advances in Computer Networks	3	0	1	**4**	CS	Theory+Lab	1.5	100	3	100
3	22MCN13T	Information & Network Security	3	1	0	**4**	CS	Theory	1.5	100	3	100
4	22MCN14L	Software Defined Networks Lab	1	0	1	**2**	CS	Lab	1.5	50	3	50
5	22XXX1AXT	Elective A (Professional Elective)	3	0	0	**3**	CS	Theory	1.5	100	3	100
6	22MCN1BXT	Elective B (Professional Elective)	3	0	0	**3**	CS	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MCE1A1T	Artificial Intelligence and Machine Learning	22MCN1B1T	Social Network Analysis
22MCN1A2T	Blockchain Technologies	22MCN1B2T	Distributed and Cloud Computing
22MIT1A3T	Mobile Application Development	22MCN1B3T	Software Defined Networks
22MCN1A4T	Advances in Network Management	22MCN1B4T	Advances in Storage Area Networks

II SEMESTER M.Tech												
Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	CS	Theory	1.5	100	3	100
2	22MCN22TL	Network Programming	3	0	1	**4**	CS	Theory+Lab	1.5	100	3	100
3	22MCN23T	Advanced Wireless Networks	3	0	0	**3**	CS	Theory	1.5	100	3	100
4	22XXX2CXT	Elective C (Professional Elective)	3	0	0	**3**	CS	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MCN24L	Open Source Simulation Lab	1	0	1	**2**	CS	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50
** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*												

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Code	Elective C (Professional Elective)
22MSE2C1T	Robotic Process Automation
22MCE2C2T	Embedded Systems
22MCN2C3T	Advanced Algorithms
22MCN2C4T	Internet of Things and Edge Computing

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech												
Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE

1	22MCN31T	Network Routing and Protocols	3	1	0	**4**	CS	Theory	1.5	100	3	100
2	22XXX3EXT	Elective E (Professional Elective)	3	1	0	**4**	CS	Theory	1.5	100	3	100
3	22MCN32N	Internship	0	0	6	**6**	CS	Project	1.5	50	3	50
4	22MCN33P	Minor Project	0	0	6	**6**	CS	Project	1.5	50	3	50
						20						

Code	Elective E (Professional Elective)
22MIT3E1T	Augmented Reality and Virtual Reality
22MCE3E2T	Cyber Security
22MCE3E3T	Software Product Development (DevOps)
22MCE3E4T	Intelligent Systems

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MCN41P	Major Project	0	0	18	**18**	CS	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42						**20**						

M.Tech in Communication Systems: MCS

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11DT	Statistical Learning for Communication	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MCS12TL	Advanced Communication Systems-1	3	0	1	**4**	EC	Theory+Lab	1.5	100	3	100
3	22MCS13T	Communication Networks and Protocols	3	1	0	**4**	EC	Theory	1.5	100	3	100
4	22MCS14L	Programming and Network Simulation Lab	1	0	1	**2**	EC	Lab	1.5	50	3	50
5	22XXX1AXT	Elective A (Professional Elective)	3	0	0	**3**	EC	Theory	1.5	100	3	100
6	22MCS1BXT	Elective B (Professional Elective)	3	0	0	**3**	EC	Theory	1.5	100	3	100
Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.												
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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MCS1A1T	Avanced Embedded Computing Devices	22MCS1B1T	Digital System Design Using HDL
22MCS1A2T	Multirate Systems and Filter Banks	22MCS1B2T	Multimedia Communication and Networking
22MVE1A3T	VLSI Digital Signal Processing	22MCS1B3T	Optical Communications and Networks

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	HSS	Theory	1.5	100	3	100
2	22MCS22TL	Advanced Communication Systems-2	3	0	1	**4**	EC	Theory+Lab	1.5	100	3	100
3	22MCS23T	Smart Antennas and Algorithms	3	0	0	**3**	EC	Theory	1.5	100	3	100
4	22XXX2CXT	Elective C (Professional Elective)	3	0	0	**3**	EC	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MCS24L	Simulation and Characterisation of RF Devices	1	0	1	**2**	EC	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50

** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*

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Code	Elective C (Professional Elective)
22MCS2C1T	Development of Modem SoCs for Wireless, Wireline and IOT applications
22MDC2C1T	RF and Microwave Circuit Design for Wireless Communication Systems
22MVE2C3T	Robotics and Industrial Automation

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech												
Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MCS31T	Error Control Coding for Wireless Communication	3	1	0	**4**	EC	Theory	1.5	100	3	100
2	22MCS3EXT	Elective E (Professional Elective)	3	1	0	**4**	EC	Theory	1.5	100	3	100
3	22MCS32N	Internship	0	0	6	**6**	EC	Project	1.5	50	3	50
4	22MCS33P	Minor Project	0	0	6	**6**	EC	Project	1.5	50	3	50
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Code	Elective E (Professional Elective)
22MCS3E1T	WWAN Technologies
22MCS3E2T	Cyber Security
22MCS3E3T	Modern Radar Systems

IV SEMESTER M.Tech												
Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MCS41P	Major Project	0	0	18	**18**	EC	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42												

M.Tech in Digital Communication: MDC												
I SEMESTER M.Tech												
Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11CT	Linear Algebra and Probability Theory	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MDC12TL	Advanced Digital Communication	3	0	1	**4**	ET	Theory+Lab	1.5	100	3	100
3	22MDC13TL	Advanced Signal Processing	3	0	1	**4**	ET	Theory+Lab	1.5	100	3	100
4	22MDC14L	Object Oriented Programming and Machine Learning Laboratory	1	0	1	**2**	ET	Lab	1.5	50	3	50
5	22MDC1AXT	Elective A (Professional Elective)	3	0	0	**3**	ET	Theory	1.5	100	3	100
6	22MDC1BXT	Elective B (Professional Elective)	3	0	0	**3**	ET	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MDC1A1T	Mobile Adhoc Networks	22MDC1B1T	Artificial Intelligence and Deep Learning
22MDC1A2T	Multimedia Communications	22MDC1B2T	Data Structures and Algorithms
22MDC1A3T	Image Processing and Computer Vision	22MDC1B3T	Broadband Networks

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation				BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
			L	T/ SDA	P	Total						
1	22IM21T	Research Methodology	3	0	0	**3**	ET	Theory	1.5	100	3	100
2	22MDC22TL	Optical Fiber Communication and Networks	3	0	1	**4**	ET	Theory+Lab	1.5	100	3	100
3	22MDC23T	Antenna Arrays and Applications	3	0	0	**3**	ET	Theory	1.5	100	3	100
4	22XXX2CXT	Elective C (Professional Elective)	3	0	0	**3**	ET	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MDC24L	Antennas and RF Laboratory	1	0	1	**2**	ET	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50

** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*

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Code	Elective C (Professional Elective)
22MDC2C1T	RF and Microwave Circuit Design for Wireless Communication Systems
22MDC2C2T	Vehicular Communications and Networks
22MDC2C3T	Software Defined Networks in Telecom Industry
22MVE2C3T	Robotics and Industrial Automation

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MDC31T	5G and Beyond	3	1	0	**4**	ET	Theory	1.5	100	3	100
2	22MDC3EXT	Elective E (Professional Elective)	3	1	0	**4**	ET	Theory	1.5	100	3	100
3	22MDC32N	Internship	0	0	6	**6**	ET	Project	1.5	50	3	50
4	22MDC33P	Minor Project	0	0	6	**6**	ET	Project	1.5	50	3	50

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Code	Elective E (Professional Elective)
22MDC3E1T	Adaptive Signal Processing
22MDC3E2T	Channel Coding Techniques
22MDC3E3T	Cryptography and Network Security

IV SEMESTER M.Tech

Sl Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MDC41P	Major Project	0	0	18	**18**	ET	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	SS	NPTEL	--	50	ONLINE	50

Student need to submit the certificate for the evaluation of Course code 22HSS42

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M. Tech in Highway Technology MHT

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11AT	Computational Mathematics	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MHT12TL	Pavement Materials	3	0	1	**4**	CV	Theory+Lab	1.5	100	3	100
3	22MHT13T	Traffic Engineering and Design	3	1	0	**4**	CV	Theory	1.5	100	3	100
4	22MHT14L	Applications of MATLAB and Python in Pavement Engineering	1	0	1	**2**	CV	Lab	1.5	50	3	50
5	22MHT1AXT	Elective A (Professional Elective)	3	0	0	**3**	CV	Theory	1.5	100	3	100
6	22MHT1BXT	Elective B (Professional Elective)	3	0	0	**3**	CV	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MHT1A1T	Remote Sensing & GIS	22MHT1B1T	Highway Geometric Design
22MHT1A2T	Ground Improvement Techniques	22MHT1B2T	Road Safety Engineering
22MHT1A3T	Reinforced Earth Panel Walls	22MHT1B3T	Enviromental Impact Assessment for Road Projects

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	CV	Theory	1.5	100	3	100
2	22MHT22TL	Pavement Analysis and Design	3	0	1	**4**	CV	Theory+Lab	1.5	100	3	100

3	22MHT23T	Transportation Systems and Planning	3	0	0	**3**	CV	Theory	1.5	100	3	100
4	22MHT2CXT	Elective C (Professional Elective)	3	0	0	**3**	CV	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MHT24L	Differential Global Positioning Systems and AutoCAD for Highways	1	0	1	**2**	CV	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50

** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*

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Code	Elective C (Professional Elective)
22MST2C1T	Design of Concrete Bridges
22MHT2C2T	Pavement Detoriation and Evaluation
22MHT2C3T	Road Construction Equipments

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MHT31T	Highway Construction and Maintenance	3	1	0	**4**	CV	Theory	1.5	100	3	100
2	22MHT3EXT	Elective E (Professional Elective)	3	1	0	**4**	CV	Theory	1.5	100	3	100
3	22MHT32N	Internship	0	0	6	**6**	CV	Project	1.5	50	3	50
4	22MHT33P	Minor Project	0	0	6	**6**	CV	Project	1.5	50	3	50

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Code	Elective E (Professional Elective)
22MHT3E1T	Pavement Management Systems
22MHT3E2T	Highway Economics
22MHT3E3T	Road Project Reports

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MHT41P	Major Project	0	0	18	**18**	CV	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50

Student need to submit the certificate for the evaluation of Course code 22HSS42

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M.Tech in Information Technology: MIT

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11CT	Linear Algebra and Probability Theory	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MIT12TL	Advanced Algorithms and Applications	3	0	1	**4**	IS	Theory+Lab	1.5	100	3	100
3	22MIT13T	Enterprise Application Development	3	1	0	**4**	IS	Theory	1.5	100	3	100
4	22MIT14L	Full Stack Development Lab	1	0	1	**2**	IS	Lab	1.5	50	3	50
5	22MIT1AXT	Elective A (Professional Elective)	3	0	0	**3**	IS/CS	Theory	1.5	100	3	100
6	22MIT1BXT	Elective B (Professional Elective)	3	0	0	**3**	IS/CS	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MCE1A1T	Artificial Intelligence & Machine Learning	22MCN1B1T	Social Network Analysis
22MCN1A2T	Block Chain Technologies	22MIT1B2T	Networks and Cryptography
22MIT1A3T	Mobile Application Development	22MIT1B3T	IOT and Applications
22MIT1A4T	Multicore Architecture	22MIT1B4T	Computer Systems Performance Analysis

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	IM	Theory	1.5	100	3	100
2	22MSE22TL	Cloud Native Devops	3	0	1	**4**	IS	Theory+Lab	1.5	100	3	100

3	22MIT23T	Cyber Security & Digital Forensics	3	0	0	**3**	IS	Theory	1.5	100	3	100
4	22XXX2CXT	Elective C (Professional Elective)	3	0	0	**3**	IS	Theory	1.5	100	3	100
5	22XXX2DXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MIT24L	API Development and Integration Lab	1	0	1	**2**	IS	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50
** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*												
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Code	Elective C (Professional Elective)
22MSE2C1T	Robotic Process Automation
22MSE2C2T	Software Project Management
22MIT2C3T	Cloud Computing
22MIT2C4T	Data Engineering

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MIT31T	Big Data Analytics	3	1	0	**4**	IS	Theory	1.5	100	3	100
2	22XXX3EXT	Elective E (Professional Elective)	3	1	0	**4**	IS	Theory	1.5	100	3	100
3	22MIT32N	Internship	0	0	6	**6**	IS	Project	1.5	50	3	50
4	22MIT33P	Minor Project	0	0	6	**6**	IS	Project	1.5	50	3	50
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Code	Elective E (Professional Elective)
22MIT3E1T	Augmented Reality & Virtual Reality
22MIT3E2T	Natural Language Processing

22MIT3E3T	Information Retrieval
22MIT3E4T	Fintech Applications

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MIT41P	Major Project	0	0	18	**18**	IS	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42						**20**						

M.Tech in Machine Design: MMD

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11AT	Computational Mathematics	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MMD12TL	Advanced Mechanisms Design	3	0	1	**4**	ME	Theory+Lab	1.5	100	3	100
3	22MMD13TL	Composite Materials	3	0	1	**4**	ME	Theory+Lab	1.5	100	3	100
4	22MMD14L	Machine Learning Lab	1	0	1	**2**	ME	Lab	1.5	50	3	50
5	22XXX1AXT	Elective A (Professional Elective)	3	0	0	**3**	ME	Theory	1.5	100	3	100
6	22XXX1BXT	Elective B (Professional Elective)	3	0	0	**3**	IM	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MPD1A1T	Machine Learning for Mechanical Engineers	22MMD1B1T	Finite Element Modeling and Analysis
22MMD1A2T	Advanced Solid Mechanics	22IM1B2T	Financial Management
22MMD1A3T	Sustainable and Smart Design	22MPD1B3T	Robotics and Automation

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	ME	Theory	1.5	100	3	100
2	22MMD22TL	Vibrations and Acoustics	3	0	1	**4**	ME	Theory+Lab	1.5	100	3	100
3	22MMD23T	Advanced Machine Design	3	0	0	**3**	ME	Theory	1.5	100	3	100
4	22MMD2CXT	Elective C (Professional Elective)	3	0	0	**3**	ME	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MMD24L	Skill Lab - COEs Lab	1	0	1	**2**	ME	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50

** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*

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Code	Elective C (Professional Elective)
22MMD2C1T	Design for Tribology
22MMD2C2T	Theory of Plates and Shells
22MMD2C3T	Design of Pressure Vessels

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MPD31TL	Industrial IoT	3	0	1	**4**	ME	Theory+Lab	1.5	100	3	100
2	22XXX3EXT	Elective E (Professional Elective)	3	1	0	**4**	ME	Theory	1.5	100	3	100
3	22MMD32N	Internship	0	0	6	**6**	ME	Project	1.5	50	3	50

4	22MMD33P	Minor Project	0	0	6	**6**	ME	Project	1.5	50	3	50
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Code	Elective E (Professional Elective)
22MMD3E1T	Fracture Mechanics
22MPD3E2T	Reliability Engineering
22MMD3E3T	Advanced Finite Element Analysis

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MMD41P	Major Project	0	0	18	**18**	ME	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42						**20**						

M.Tech in Product Design & Manufacturing: MPD

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11AT	Computational Mathematics	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MPD12TL	Product Design	3	0	1	**4**	ME	Theory+Lab	1.5	100	3	100
3	22MPD13TL	Digital Manufacturing	3	0	1	**4**	ME	Theory+Lab	1.5	100	3	100
4	22MMD14L	Machine learning Lab	1	0	1	**2**	ME	Lab	1.5	50	3	50
5	22MPD1AXT	Elective A (Professional Elective)	3	0	0	**3**	ME	Theory	1.5	100	3	100
6	22XXX1BXT	Elective B (Professional Elective)	3	0	0	**3**	ME/IM	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MPD1A1T	Machine Learning For Mechanical Engineers	22MMD1B1T	Finite Element Modeling and Analysis
22MPD1A2T	Design For Sustainability and Safety	22IM1B2T	Financial Management
22MPD1A3T	Advanced Manufacturing Practices	22MPD1B3T	Robotics and Automation.
22MPD1A4T	Product Life Cycle Management	22MPD1B4T	Sheet Metal Forming and Plastic Design

22MPD1A5T	Product Data Management	22MPD1B5T	Surface Engineering

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	ME	Theory	1.5	100	3	100
2	22MPD22TL	Industrial Ergonomics and Biomechanics	3	0	1	**4**	ME	Theory+Lab	1.5	100	3	100
3	22MPD23T	Product and Cost Analysis	3	0	0	**3**	ME	Theory	1.5	100	3	100
4	22XXX2CXT	Elective C (Professional Elective)	3	0	0	**3**	ME	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MPD24L	Skill Lab- Advanced Product Design Lab	1	0	1	**2**	ME	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills develeopment I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50
** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*						**20**						

Code	Elective C (Professional Elective)
22MMD2C1T	Design for Tribology
22MPD2C2T	Additive Manufacturing Technology
22MPD2C3T	GD&T and Digital Metrology
22MPD2C4T	Design for Manufacture and Assembly
22MPD2C5T	Electric Vehicle Technology

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MPD31TL	Industrial IoT	3	0	1	**4**	ME	Theory+Lab	1.5	100	3	100
2	22MPD3EXT	Elective E (Professional Elective)	3	1	0	**4**	ME	Theory	1.5	100	3	100
3	22MPD32N	Internship	0	0	6	**6**	ME	Project	1.5	50	3	50
4	22MPD33P	Minor Project	0	0	6	**6**	ME	Project	1.5	50	3	50
						20						

Code	Elective E (Professional Elective)
22MPD3E1T	Product Planning and Marketing
22MPD3E2T	Reliability Engineering
22MPD3E3T	Mechatronics in Manufacturing System
22MPD3E4T	Lean Manufacturing
22MPD3E5T	Creative Engineering

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MPD41P	Major Project	0	0	18	**18**	ME	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42						**20**						

M.Tech in Power Electronics: MPE

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11AT	Computational Mathematics	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MPE12TL	Power Converters	3	0	1	**4**	EE	Theory+Lab	1.5	100	3	100
3	22MPE13T	Analysis and Control of AC and DC Drives	3	1	0	**4**	EE	Theory	1.5	100	3	100
4	22MPE14L	Software Programming for Power Electronics	1	0	1	**2**	EE	Lab	1.5	50	3	50

5	22MPE1AXT	Elective A (Professional Elective)	3	0	0	**3**	EE	Theory	1.5	100	3	100
6	22MPE1BXT	Elective B (Professional Elective)	3	0	0	**3**	EE	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MPE1A1T	Generalized Theory of Electrical Machines	22MPE1B1T	application in Power Electronics
22MPE1A2T	EV and HEV - Architecture and Design	22MPE1B2T	VLSI and Applications in Power Electronics
22MPE1A3T	Power Quality Problems and Mitigation	22MPE1B3T	Advanced Control System
22MPE1A4T	Smart Grid and Challanges	22MPE1B4T	Swithing techniques in Power Converters

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	EC	Theory	1.5	100	3	100
2	22MPE22TL	Advanced Power Converters and Applications	3	0	1	**4**	EE	Theory+Lab	1.5	100	3	100
3	22MPE23T	PLC and SCADA Systems	3	0	0	**3**	EE	Theory	1.5	100	3	100
4	22MPE2CXT	Elective C (Professional Elective)	3	0	0	**3**	EE	Theory	1.5	100	3	100
5	22MPE2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MPE24L	Embedded Systems Lab	1	0	1	**2**	EE	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50

** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*

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Code	Elective C (Professional Elective)
22MPE2C1T	EMI and EMC in Power Electronics System Design
22MPE2C2T	FACTS and Custom Power Devices
22MPE2C3T	Intelligent control techniques in drives
22MPE2C4T	IoT applications in smart grid

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems

22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MPE31T	Modeling of Power Electronic Circuits	3	1	0	**4**	EE	Theory	1.5	100	3	100
2	22MPE3EXT	Elective E (Professional Elective)	3	1	0	**4**	EE	Theory	1.5	100	3	100
3	22MPE32N	Internship	0	0	6	**6**	EE	Project	1.5	50	3	50
4	22MPE33P	Minor Project	0	0	6	**6**	EE	Project	1.5	50	3	50
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Code	Elective E (Professional Elective)
22MPE3E1T	Embedded Systems for EV applications
22MPE3E2T	Communication Systems and Networking
22MPE3E3T	HVDC power transmission Systems
22MPE3E4T	Power Electronics for Renewable Energy Systems

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MPE41P	Major Project	0	0	18	**18**	EE	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50

Student need to submit the certificate for the evaluation of Course code 22HSS42 **20**

M.Tech in Software Engineering: MSE

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11CT	Linear Algebra and Probability Theory	3	1	0	**4**	MA	Theory	1.5	100	3	100

2	22MSE12TL	Data Structures and Algorithms	3	0	1	**4**	IS	Theory+Lab	1.5	100	3	100
3	22MSE13T	Agile Methodology	3	1	0	**4**	IS	Theory	1.5	100	3	100
4	22MSE14L	Software Application Development Lab	1	0	1	**2**	IS	Lab	1.5	50	3	50
5	22XXX1AXT	Elective A (Professional Elective)	3	0	0	**3**	IS/CS	Theory	1.5	100	3	100
6	22XXX1BXT	Elective B (Professional Elective)	3	0	0	**3**	IS/CS	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MCE1A1T	Artificial Intelligence & Machine Learning	22MCN1B1T	Social Network Analysis
22MCN1A2T	Block Chain Technologies	22MSE1B2T	Human Computer Interaction
22MIT1A3T	Mobile Application Development	22MIT1B3T	IoT and Applications
22MSE1A4T	Reliability Models	22MSE1B4T	Microservices Development

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	IM	Theory	1.5	100	3	100
2	22MSE22TL	Cloud Native Devops	3	0	1	**4**	IS	Theory+Lab	1.5	100	3	100
3	22MSE23T	Software Architecture Patterns	3	0	0	**3**	IS	Theory	1.5	100	3	100
4	22XXX2CXT	Elective C (Professional Elective)	3	0	0	**3**	IS	Theory	1.5	100	3	100
5	22XXX2DXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MIT24L	API Development and Integration Lab	1	0	1	**2**	IS	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50

** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*

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Code	Elective C (Professional Elective)
22MSE2C1T	Robotic Process Automation
22MSE2C2T	Software Project Management
22MSE2C3T	User Interface & User Experience
22MSE2C4T	Requirements Engineering

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MSE31T	Software Quality Testing and Automation	3	1	0	**4**	IS	Theory	1.5	100	3	100
2	22XXX3EXT	Elective E (Professional Elective)	3	1	0	**4**	IS	Theory	1.5	100	3	100
3	22MSE32N	Internship	0	0	6	**6**	IS	Project	1.5	50	3	50
4	22MSE33P	Minor Project	0	0	6	**6**	IS	Project	1.5	50	3	50
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Code	Elective E (Professional Elective)
22MIT3E1T	Augmented Reality & Virtual Reality
22MSE3E2T	Decision Support Systems
22MSE3E3T	Web Intelligence
22MSE3E4T	Mobile Commerce

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MSE41P	Major Project	0	0	18	**18**	IS	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42						**20**						

M.Tech in Structural Engineering: MST

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MAT11AT	Computational Mathematics	3	1	0	**4**	MA	Theory	1.5	100	3	100
2	22MST12TL	Computational Structural Mechanics	3	0	1	**4**	CV	Theory+Lab	1.5	100	3	100
3	22MST13T	Advanced Design of Reinforced Concrete Structures	3	1	0	**4**	CV	Theory	1.5	100	3	100
4	22MST14L	Analysis and Design of Structures using STAADPRO	1	0	1	**2**	CV	Lab	1.5	50	3	50
5	22MST1AXT	Elective A (Professional Elective)	3	0	0	**3**	CV	Theory	1.5	100	3	100
6	22MST1BXT	Elective B (Professional Elective)	3	0	0	**3**	CV	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MST1A1T	Finite Element Method of Analysis	22MST1B1T	Advanced Structural Analysis
22MST1A2T	Forensic Engineering and Rehabilitation of Structures	22MST1B2T	Mechanics of Deformable Bodies
22MST1A3T	High Rise Structures	22MST1B3T	Design of Masonary Structures

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	CV	Theory	1.5	100	3	100
2	22MST22TL	Structural Dynamics	3	0	1	**4**	CV	Theory+Lab	1.5	100	3	100
3	22MST23T	Advanced Design of Steel Structures	3	0	0	**3**	CV	Theory	1.5	100	3	100
4	22MST2CXT	Elective C (Professional Elective)	3	0	0	**3**	CV	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MST24L	Analysis and Design of Structures using ETabs	1	0	1	**2**	CV	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50

** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*

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Code	Elective C (Professional Elective)
22MST2C1T	Design of Concrete Bridges
22MST2C2T	Design for Safety
22MST2C3T	Precast Concrete structures
22MST2C4T	Sustainable Construction Practices

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MST31T	Advanced Construction Materials	3	1	0	**4**	CV	Theory	1.5	100	3	100
2	22MST3EXT	Elective E (Professional Elective)	3	1	0	**4**	CV	Theory	1.5	100	3	100
3	22MST32N	Internship	0	0	6	**6**	CV	Project	1.5	50	3	50
4	22MST33P	Minor Project	0	0	6	**6**	CV	Project	1.5	50	3	50

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Code	Elective E (Professional Elective)
22MST3E1T	Structural Reliability
22MST3E2T	Earthquake Resistant Structures
22MST3E3T	Stability of Structures

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	To 20 S	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MST41P	Major Project	0	0	18	**18**	CV	Project	1.5	100	3	10
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42												

M.Tech in VLSI Design & Embedded Systems: MVE

I SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MVE11T	Digital System Design with FPGA	3	1	0	**4**	EC	Theory	1.5	100	3	100
2	22MVE12TL	Digital IC Design	3	0	1	**4**	EC	Theory+Lab	1.5	100	3	100
3	22MVE13T	Advanced Embedded System Design	3	1	0	**4**	EC	Theory	1.5	100	3	100
4	22MVE14L	ARM CPUs Programming Lab	1	0	1	**2**	EC	Lab	1.5	50	3	50
5	22MVE1AXT	Elective A (Professional Elective)	3	0	0	**3**	EC	Theory	1.5	100	3	100
6	22MVE1BXT	Elective B (Professional Elective)	3	0	0	**3**	EC	Theory	1.5	100	3	100

Note: For the course code 22HSS42, Students need to select one ONLINE MOOC course as recommended by HSS BoS. This course can be selected anytime between I to III semester and it will be evaluated during IV semester.

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Code	Elective A (Professional Elective)	Code	Elective B (Professional Elective)
22MVE1A1T	Low Power VLSI Design	22MVE1B1T	Static Timing Analysis
22MVE1A2T	ASIC Design	22MVE1B2T	System On Chip Design
22MVE1A3T	VLSI Digital Signal Processing	22MVE1B3T	IC Technology
22MVE1A4T	Real Time Embedded Systems	22MVE1B4T	IOT System Design & Architecture
22MVE1A5T	Semiconductor Device Modelling	22MVE1B5T	VLSI for Data Conversion Circuits

II SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22IM21T	Research Methodology	3	0	0	**3**	EC	Theory	1.5	100	3	100
2	22MVE22TL	Analog IC Design	3	0	1	**4**	EC	Theory+Lab	1.5	100	3	100
3	22MVE23T	System Verilog for Design & Verification	3	0	0	**3**	EC	Theory	1.5	100	3	100
4	22XXX2CXT	Elective C (Professional Elective)	3	0	0	**3**	EC	Theory	1.5	100	3	100
5	22XXX2DXXT	Elective D (Global Elective)	3	0	0	**3**	Res. BoS	Theory	1.5	100	3	100
6	22MVE24L	Analog Layout Design Lab	1	0	1	**2**	EC	Lab	1.5	50	3	50
7	22HSS25T	Professional Skills Development-I	0	0	2	**2**	HSS	Theory*	1.5	50	2	50
** External Agency will be conducting the classes and both CIE and SEE will be evaluated by the Agency.*						**20**						

Code	Elective C (Professional Elective)
22MCS2C1T	Development of Modem SoCs for Wireless, Wireline and IOT applications
22MVE2C2T	VLSI Memory Chip Design
22MVE2C3T	Robotics and Industrial Automation
22MVE2C4T	Automotive Electronics
22MVE2C5T	High Performance Computing

Elective D (Global Elective)			
22BT2D01T	Bioinspired Engineering	22ET2D08T	Tracking and Navigation Systems
22BT2D02T	Health Informatics	22IM2D09T	Project Management
22CS2D03T	Business Analytics	22IS2D10T	Database and Information Systems
22CV2D04T	Industrial and Occupational Health and Safety	22IS2D11T	Management Information Systems
22CV2D05T	Intelligent Transportation Systems	22MAT2D12T	Statistical and Optimization Methods
22EC2D06T	Electronic System Design	22ME2D13T	Industry 4.0
22EC2D07T	Evolution of Wireless Technologies		

III SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MVE31T	Algorithms for VLSI Design Automation	3	1	0	**4**	EC	Theory	1.5	100	3	100

2	22MVE3EXT	Elective E (Professional Elective)	3	1	0	**4**	EC	Theory	1.5	100	3	100
3	22MVE32N	Internship	0	0	6	**6**	EC	Project	1.5	50	3	50
4	22MVE33P	Minor Project	0	0	6	**6**	EC	Project	1.5	50	3	50
						20						

Code	Elective E (Professional Elective)
22MVE3E1T	VLSI Testing
22MVE3E2T	High Speed Digital Design
22MVE3E3T	RFIC Design
22MVE3E4T	Signal Processing & ML on Microcontrollers
22MVE3E5T	MEMS and Smart Systems

IV SEMESTER M.Tech

Sl. No.	Course Code	Course Title	Credit Allocation L	T/ SDA	P	Total	BoS	Category	CIE Duration (H)	Max Marks CIE	SEE Duration (H)	Max Marks SEE
1	22MVE41P	Major Project	0	0	18	**18**	EC	Project	1.5	100	3	100
2	22HSS42	Professional Skills Development-II	0	0	2	**2**	HSS	NPTEL	--	50	ONLINE	50
Student need to submit the certificate for the evaluation of Course code 22HSS42												
						20						

Annexure – C

RV College of Engineering

Go, change the world

2022 Scheme ACADEMIC & EXAMINATION GUIDELINES

Ref: VTU Circular:
VTU/BGM/ACA/BOS/2022-23/5305 Dated 21 DEC 2022
Updated syllabus of 1st and 2nd Semester (2022 Scheme) after feedback...
Ref: BoS Proceedings dated 04-11-2022. Approved in 169th Executive Council Proceeding dated 03-12-2022.

CREDITS DISTRIBUTION FOR 2022 SCHEME

Go, change the world

Program	Normal Duration Years (semesters)	Total No. of credits to be Earned (Average/Semester = 22)
UG Degree B.E.	4 Years or 08 Semesters	160 Credits
UG Degree B.E. (Lateral Entry, Students with Diploma)	3 Years or 06 Semesters	120 Credits*

40 Credits for the First Year B.E Programs common to all B.E. Programs

Credit Comparison between Schemes

Sl. No.	Scheme	Duration	Total Credits
1.	2007, 2010, 2012 & 2016	04 Years	200
2.	2018	04 Years	175
3.	2021	04 years	160
4.	2022	04 Years	160

First Year Cycles in 2022 Scheme

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New Streams in 2022 Scheme

Stream-1	Stream-2	Stream-3	Stream-4
CIVIL	COMP. SCI.	MECH	ELECTRONICS
CV	CS	ME	EC
	IS	IM	EE
	AI	AS	EI
	CD	CH	ET
	CY		
	BT		
07 Programs		08 Programs	

Total 15 B.E. Programs

FIRST SEMESTER Chemistry Cycle		
1	CV	129
2	CS	239
3	IS	81
4	AI	63
5	CD	63
6	CY	63
7	BT	64
Total		702

FIRST SEMESTER Physics Cycle		
1	ME	128
2	IM	64
3	AS	65
4	CH	43
5	EC	191
6	EE	65
7	EI	63
8	ET	63
Total		682

Total Intake of B.E. 1384 students

FIRST SEM MAIN COURSES

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PHYSICS CYCLE		CREDITS	CHEMISTRY CYCLE	
ME	EE		CV	CS
1. MATHS-I		4	MATHS-I	
2. PHYSICS		4	CHEMISTY	
3. PROFESSIONAL CORE COURSES (I SEM) / CAED (II SEM)		3	CAED (I SEM)/ PROFESSIONAL CORE COURSES (II SEM)	
4. ENGINEERING SCIENCE		3	ENGINEERING SCIENCE	
5. EMERGING TECHNOLOGY COURSE		3	PROGRAMMING LANGUAGE COURSE	
6. COMMUNICATIVE ENGLISH-1		1	COMMUNICATIVE ENGLISH-1	
7. SAMSKRUTIKA KANNADA / BALAKE KANNADA		1	INDIAN CONSTITUTION	
8. IDEA LAB		1	YOGA PRACTICE	
EIGHT COURSES		20	EIGHT COURSES	

ENGINEERING SCIENCE COURSE

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Sl.No	BoS	Course Code	ENGINEERING SCIENCE COURSE	CREDITS
1	CS	22ES14A/24A	Fundamentals of Programming Using C	03
2	CV	22ES14B/24B	Elements of Civil Engineering	03
3	EC	22ES14C/24C	Principles of Electronics Engineering	03
4	EE	22ES14D/24D	Basics of Electrical Engineering	03
5	ME	22ES14E/24E	Fundamentals of Mechanical Engineering	03

PROGRAMMING LANGUAGE COURSE

Sl.No	BoS	Course Code	PROGRAMMING LANGUAGE COURSE	CREDITS
1	AI	22PL15A/25A	Introduction to Python programming	03
2	CS	22PL15B/25B	Introduction to Web programming	03
3	CS	22PL15C/25C	Basics of Java programming	03
4	IS	22PL15D/25D	Introduction to C++ Programming	03

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Sl.No	BoS	Course Code	EMERGING TECHNOLOGY COURSE	CREDITS
1	AI	22EM101/201	Introduction to Internet of Things	03
2	AS	22EM102/202	Introduction to Drone Technology	03
3	BT	22EM103/203	Bioinspired Engineering	03
4	CH	22EM104/204	Global Climate Change	03
5	CS	22EM105/205	Elements of Blockchain Technology	03
6	CS	22EM106/206	Introduction to Cyber Security	03
7	CV	22EM107/207	Green Buildings	03
8	CV	22EM108/208	Infrastructure for Smart Cities	03
9	CHY	22EM109/209	Fundamentals of Nanoscience & Technology	03
10	EC	22EM110/210	Fundamentals of Semiconductor Devices	03
11	EC	22EM111/211	Introduction to Embedded Systems	03
12	EE	22EM112/212	Renewable Energy Sources	03
13	EI	22EM113/213	Fundamentals of Sensor Technology	03
14	IM	22EM114/214	Human factors in Engineering	03
15	IS	22EM115/215	Digital Humanities	03
16	ME	22EM116/216	Smart materials and Systems	03
17	ME	22EM117/217	Elements of Industry 4.0	03

2021 Scheme CIE & SEE Rubric

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RUBRIC FOR CIE THEORY			RUBRIC FOR SEE THEORY		
Sl.No.	Content	Marks	Q.No.	Contents	Marks
1	Quizzes	20	Part - A		
2	Tests	40	1	Objective type/MCQ questions covering entire syllabus	20
3	Experiential Learning	40	Part - B		
			(Questions to be framed with maximum 3 subdivisions)		
			2	Unit 1 : (Compulsory)	16
			3 & 4	Unit 2 : Question 3 or 4	16
			5 & 6	Unit 3 : Question 5 or 6	16
			7 & 8	Unit 4 : Question 7 or 8	16
			9 & 10	Unit 5: Question 9 or 10	16
Total		100	Total :		100

2021 Scheme CIE Rubric Just for a Glance...

INTEGRATED THEORY & LAB (3 & 4 Credit course)					
Sl. No.	Components				Total Marks
1	Quizzes	Q1	Q2		20 (Sum of Two Quizzes)
		10	10		
2	Tests	T1	T2		40 (100 reduced to 40)
		50	50		
3	Experiential Learning	P1	P2		40 (Sum of Two stages)
		15	25		
Maximum Marks for CIE Theory					100 Marks
4	Lab Component	30	10	10	50
				Total	150

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2022 SCHEME: CIE & SEE WEIGHTAGE & MIN & MAX CREDITS IN A SEMESTER

1. Assessment & Testing is done in two Components: **CIE & SEE**
2. CIE and SEE will have **EQUAL WEIGHTAGE (50:50)**
3. Student's performance in a course is judged by considering the performance in both CIE and SEE.
4. An average course load of 22 credits per semester with its **minimum and maximum limits being fixed at 16 and 28 credits** respectively will be followed as per the recommendation of BoS and Academic Council.

2022 Scheme

Rubrics for CIE & SEE

1. **Integrated Courses with lab;**
2. **Courses with 100 Marks & without Lab ;**
3. **Courses with 50 Marks & without Lab ;**
4. **Lab only courses;**

SEE for Theory & Lab Courses in 2022 scheme

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AS PER NEW GUIDELINES, NO SEE EXAMS for LABS;

Sl. No.	Category of the Course	New VTU Guideline for LAB	SEE Theory	SEE Lab
1.	**Integrated Course with Lab** (3 & 4 Credit Courses)	**NO SEE Exam for the Lab Component**	One component of Lab will be given in SEE Theory Exam	NO SEE LAB EXAM
2.	**Course with 100 Marks** (Without Lab) (3 & 4 Credit Courses)	**NO LAB COMPONENT**	**SEE TO BE CONDUCTED** (Same as 2021 Scheme)	NO LAB COMPONENT
3.	**Course with 50 Marks** (Without Lab) (2 Credit Courses)	**NO LAB COMPONENT**	**SEE TO BE CONDUCTED** (Same as 2021 Scheme)	NO LAB COMPONENT
4.	**Lab only Course** (1 Credit Courses)	**SEE TO BE CONDUCTED**	**NO SEE THEORY EXAM**	SEE TO BE CONDUCTED

CIE & SEE Rubric in 2022 Scheme

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Rubric for CIE & SEE for the 1. Integrated Theory courses with Lab (3 & 4 Credits)

RUBRIC FOR CIE			RUBRIC FOR SEE		
Sl.No.	Content	Marks	Q.No.	Contents	Marks
1	Quizzes	10	Part - A		
2	Tests	30	1	Objective type/MCQ questions covering the entire syllabus	10
3	Experiential Learning	30	Part - B		
4	Lab	30	Questions are to be framed with maximum of **TWO** sub-divisions only		
Total		100 Marks			
			2	Unit 1 : (Compulsory)	14
			3 & 4	Unit 2 : Question 3 or 4	14
			5 & 6	Unit 3 : Question 5 or 6	14
			7 & 8	Unit 4 : Question 7 or 8	14
			9 & 10	Unit 5: Question 9 or 10	14
			11	Lab Component (Compulsory)	20
			Total :		100

Rubric for CIE & SEE for the Integrated Theory courses with Lab (3 & 4 Credits)

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CIE ASSESSMENT AND EVALUATION PATTERN. (THE WEIGHTAGE FOR CIE & SEE IS 50%)		
#	COMPONENTS	MARKS
1.	**QUIZZES:** Quizzes will be conducted in online/offline mode. **TWO QUIZZES** will be conducted & **Each Quiz will be evaluated for 10 Marks.** The **AVERAGE OF TWO QUIZZES** will be the **Final Quiz marks.**	10
2.	**TESTS:** Students will be evaluated in test, descriptive questions with different complexity levels (Revised Bloom's Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating). **THREE tests will be conducted.** Each test will be evaluated for **50 Marks,** adding upto 150 Marks. **Final test marks will be reduced to 30 Marks.**	30
3.	**EXPERIENTIAL LEARNING:** Students will be evaluated for their creativity and practical implementation of the problem. Case study based teaching learning (10), Program specific requirements (10), Video based seminar/presentation/demonstration (10) adding upto **30 marks.**	30
4.	**LAB:** Conduction of laboratory exercises, lab report & observation & analysis **(30 Marks)**, lab test **(10 Marks)** & Innovative Experiment/Concept Design & Implementation **(10 Marks)** adding up to 50 Marks. The final marks will be reduced	30

2. Rubric for Theory courses with 100 Marks (Without Lab)

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RUBRIC FOR CIE THEORY			RUBRIC FOR SEE THEORY		
Sl.No.	Content	Marks	Q.No.	Contents	Marks
1	Quizzes	20	Part - A		
2	Tests	40	1	Objective type/MCQ questions covering entire syllabus	20
3	Experiential Learning	40	Part - B		
			(Questions to be framed with maximum 3 subdivisions)		
			2	Unit 1 : (Compulsory)	16
			3 & 4	Unit 2 : Question 3 or 4	16
			5 & 6	Unit 3 : Question 5 or 6	16
			7 & 8	Unit 4 : Question 7 or 8	16
			9 & 10	Unit 5: Question 9 or 10	16
Total		100	Total :		100

2. Rubric for Theory courses with 100 Marks (Without Lab)

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CIE ASSESSMENT AND EVALUATION PATTERN. (THE WEIGHTAGE FOR CIE & SEE IS 50%)		
#	COMPONENTS	MARKS
1.	**QUIZZES:** Quizzes will be conducted in online/offline mode. **TWO QUIZZES** will be conducted & **Each Quiz will be evaluated for 10 Marks. THE SUM OF TWO QUIZZES** will be the **Final Quiz marks.**	20
2.	**TESTS:** Students will be evaluated in test, descriptive questions with different complexity levels (Revised Bloom's Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating). **THREE tests will be conducted**. Each test will be evaluated for **50 Marks,** adding upto 150 Marks. **Final test marks will be reduced to 40 Marks.**	40
3.	**EXPERIENTIAL LEARNING:** Students will be evaluated for their creativity and practical implementation of the problem. Case study based teaching learning **(10)**, Program specific requirements **(10),**, Video based seminar/presentation/demonstration **(20)** adding upto **40 marks.**	40
	MAXIMUM MARKS FOR THE CIE THEORY	100

Rubric for CIE & SEE in 2022 Scheme

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3. Rubric for Theory courses with 50 marks

RUBRIC FOR CIE			RUBRIC FOR SEE THEORY		
SL.NO	CONTENT	MARKS	Q. No.	CONTENTS	MARKS
1	Quiz	10	Part - A		
2	Test	20	1	Objective type/MCQ questions covering entire syllabus	10
3	Experiential Learning	20	Part - B		
Total :		50	(Questions to be framed with maximum **TWO** subdivisions)		
			2	Unit 1 : Question 2 (Compulsory)	10
			3 & 4	Unit 2 : Question 3 or 4	15
			5 & 6	Unit 3 : Question 5 or 6	15
			Total :		50

3. Rubric for Theory courses with 50 marks

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CIE ASSESSMENT AND EVALUATION PATTERN. (THE WEIGHTAGE FOR CIE & SEE IS 50%)		
#	COMPONENTS	MARKS
1.	**QUIZZES:** Quizzes will be conducted in online/offline mode. **TWO QUIZZES** will be conducted & **Each Quiz will be evaluated for 10 Marks.** The **AVERAGE OF TWO QUIZZES** will be the **Final Quiz marks.**	10
2.	**TESTS:** Students will be evaluated in test, descriptive questions with different complexity levels (Revised Bloom's Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating). **TWO tests will be conducted**. Each test will be evaluated for **50 Marks,** adding upto 100 Marks. **Final test marks will be reduced to 20 Marks.**	20
3.	**EXPERIENTIAL LEARNING:** Students will be evaluated for their creativity and practical implementation of the problem. Case study based teaching learning **(10)**, Program specific requirements **(10)**, Video based seminar/presentation/demonstration **(20)** adding upto **40 marks. THE FINAL EL MARKS IS REDUCED TO 20 MARKS**	20
	MAXIMUM MARKS FOR THE CIE THEORY	50

Rubrics for CIE & SEE in 2022 Scheme

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4. ONLY LAB COURSES WITH 50 MARKS

Rubric for LAB CIE			Rubric for LAB SEE		
Sl.No.	Content	Marks	Sl. No.	Content	Marks
1	1. Write Up, Setup, Conduction 2. Results, Analysis & Discussions	30	1	1. Write Up, Setup, Conduction 2. Results, Analysis & Discussions	40
2	Lab Internal	10	2	Viva	10
3	Innovative Experiment/Concept Design & Implementation	10	***	**********	***
Total		50	Total :		50

In first year Only Labs: CAED, IDEA, Yoga & English

Minimum Marks to Clear NSSR

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RUBRIC FOR CIE Integrated Theory courses with Lab

Sl. No.	Content	Marks	Minimum % to Clear NSSR	Minimum Marks to Clear NSSR
1.	Quiz	10	40% of 70	28 Marks
2.	Test	30		
3.	Experiential Learning	30		
4.	Lab	30	40% of 30	12 Marks
Total		100	40%	Greater than or Equal to 40 Marks

RUBRIC FOR CIE Theory courses without Lab

Sl. No.	Content	Marks	Minimum % to Clear NSSR	Minimum Marks to Clear NSSR
1.	Quiz	20	40% of 100	40 Marks
2.	Test	40		
3.	Experiential Learning	40		
Total		100	40%	Greater than or Equal to 40 Marks

RUBRIC FOR SEE

40% of 100 = 40 Marks

Minimum Marks to Clear NSSR

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RUBRIC FOR CIE Only Theory Courses with 50 Marks

Sl. No.	Content	Marks	Minimum % to Clear NSSR	Minimum Marks to Clear NSSR
1.	Quiz	10	40% of 50	20 Marks
2.	Test	20		
3.	Experiential Learning	20		
Total		50	40%	Greater than or Equal to 20 Marks

RUBRIC FOR CIE Only Lab Courses with 50 Marks

Sl. No.	Content	Marks	Minimum % to Clear NSSR	Minimum Marks to Clear NSSR
1.	i. Write Up, Setup, Conduction ii. Results, Analysis & Discussions	30	40% of 50	20 Marks
2.	Lab Internal	10		
3.	Innovative Experiment/Concept Design & Implementation	10		
Total		50	40%	Greater than or Equal to 20 Marks

RUBRIC FOR SEE

40% of 100 = 40 Marks

PASSING STANDARDS

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➢ **The Standard of passing in each course is given in the following Table**

Passing Standard for Theory Course	CIE > = 40% and SEE > = 35%. Aggregate 40%
Passing Standard for Laboratory/ Project work	CIE > = 40% and SEE > = 35%. Aggregate 40%
Passing Standard for courses having both Theory and laboratory components	CIE: Theory > = 40%, Lab > = 40 % SEE: Theory >= 35%, Lab >= 35% and aggregate of >= 40% (Theory and Lab together)

SUCCESSIVE FAILURES:

If a student fails to pass a course even after FOUR ATTEMPTS, that course is deemed to be exempted for him/her. The respective BoS may suggest an alternative course with same credits and complexity

SCHEDULE OF EXAMINATIONS

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• The Controller of Examinations will announce the Time Table for

1. Semester End Examinations (SEE),
2. Paper Viewing Process (PVP).
3. Makeup Examination.
4. Supplementary Exams.
5. Fast Track Exams.

GRADING SYSTEM

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Absolute Grading system on 10-point scale is followed in the evaluation of student's performance in a course.

- **LETTER GRADES:** Letter grade is basically a qualitative measure (an alphabet/letter) giving the performance of a student, such as, **Outstanding (O), Excellent (A+), Very Good (A), Good (B+), Above Average (B), Average (C), Pass (P)** and **Fail (F)**, based on the score. This is arrived at after the student's performance in a course, which includes **both CIE and SEE**.

LEVEL	OUT STANDING	EXCELL ENT	VERY GOOD	GOOD	ABOVE AVERAGE	AVERAGE	PASS	FAIL
Score (Marks) Range %	90-100	80-89	70-79	60-69	55-59	50-54	40-49	0-39
Grade	O	A+	A	B+	B	C	P	F
Grade Points	10	9	8	7	6	5	4	0

- **GRADE POINTS:** Depending on the letter grades assigned, a student earns certain grade points. In the 10-point grading system, that is followed, the grade points earned for different letter grades are mentioned above.
- **Note: Institution is examining the introduction of Relative Grading System in due course**

GRADE POINT AVERAGES SGPA AND CGPA

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The grade points earned for each course are used further for calculating **semester grade point average (SGPA)** and the **cumulative grade point average (CGPA),** both of which being important performance indices of the student.

❖ **SGPA** (Semester Grade Point Average) is the performance index of a student in a semester and is calculated as follows:

$$SGPA = \frac{\left[\sum \text{(Course Credits) x (Grade Point/s)] for all the course registered by the student, excluding transitio nal grades, in that semester.}\right]}{\left[\sum \text{(Course Credits) for all the courses registered by the student excluding transitio nal grades, in that semester.}\right]}$$

❖ **CGPA** (Cumulative Grade Point Average) is the performance index of a student of all the previous semesters and is calculated as follows:

$$CGPA = \frac{\left[\sum \text{(Course Credits)x(Grade Point/s) for all the courses registered by the students excluding F grades until that semester.}\right]}{\left[\sum \text{(Course Credits) for all the courses registered by the student excluding F grades, in that semester.}\right]}$$

ELIGIBILITY FOR MAKE UP EXAMS

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➢**GRADE 'I':** Awarded to a student having satisfactory attendance at classes and meeting the passing standard at CIE in a course, but remained absent from SEE for valid and convincing reasons as given in the Rule Book.

➢**GRADE 'X':** Awarded to a student having attendance (> = 85%) and CIE rating (> = 90%) in a course, but SEE performance observed to be 'F', which could result in an overall F grade in the course.

EARNING CREDIT: A Student would be considered to have completed a course successfully and earned the credits, if he/she secures a letter grade other than NE, MP, I, W, X or F in that course.

GRADE F IN ANY COURSE IMPLIES FAILURE IN THAT COURSE.

MAKE UP EXAMS

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- Make-up examination facility is available to those students who have missed SEE in one or more course in a semester and has been declared with a sufficient justification as' **I**' grade.
- Students having '**X**' grade shall also be eligible to take advantage of this facility. The make-up examination would be held as per dates notified by the Controller of Examinations normally immediately 10 days after the announcement of the results.
- **THERE SHALL BE NO MAKE-UP EXAMINATION FOR SUPPLEMENTARY/ FAST TRACK SEMESTER.**
- In case where the student fails to take make-up examination, the actual grade obtained in the regular examination will be considered as the final grade in the course

  ('**F**' grade in case of '**X**' grade and '**Ab**' in case of '**I**' grade)
- **NO MAKE-UP EXAMINATION WILL BE APPLICABLE FOR ONLINE MOOC COURSES.**

SUPPLIMENTARY SEMESTER

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SCHEDULE OF SUPPLEMENTARY SEMESTER:

- **A student of UG program will have opportunity to register for supplementary semester which is offered after**
  - **IV semester for courses from I to IV semester and**
  - **after VIII semester for courses from III to VIII semester.**
- For registering to supplementary semester, the student should complete the Internship/s as notified in the university Regulations/ directions.

CONDITIONS FOR VERTICAL PROGRESSION

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- The students who have satisfied CIE and Attendance requirements for the course/s and obtained F grade in SEE are permitted to appear directly in SEE examination/s as backlog paper/s.
- **The students need not re-register for such course/s in the supplementary/ fast track semester.**
- The candidate who obtains required attendance and CIE in supplementary semester, but obtains 'F' grade in SEE, is permitted appear for SEE subsequently as backlog course/s. **The student need not repeat course for Attendance and CIE.**

VERTICAL PROGRESSION

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VERTICAL PROGRESSION (PROMOTION TO NEXT ACADEMIC YEAR)

All the below clauses are subject to a maximum duration of **EIGHT YEARS** (for Regular Students) / **SIX YEARS** (for Lateral Entry Students) as applicable.

1. **In case of students admitted to the FIRST YEAR:**
   a) Students must fulfill the attendance and CIE requirement to appear for SEE of course/s of I year.
   b) Students having more than **FOUR F GRADES** in the I and II semesters of the first year of the program **SHALL NOT BE ELIGIBLE TO MOVE TO THE III SEMESTER** (II year) of the program. **These courses also include courses marked as NE and MP.**
   c) The students who are under NE and MP should repeat the courses whenever offered next and become eligible for the II year.

CONDITIONS FOR VERTICAL PROGRESSION

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1. **OBTAINING CIE**: From the (III semester) second year onwards the student who obtains the required attendance for the course, but not the required CIE marks is allowed to move forward to the next semester. However, the candidate has to register for such courses in the supplementary semester and earn both attendance and CIE before taking SEE.
2. In case, if the candidate declares NE due to shortage of attendance in **MORE THAN 4 COURSES**, then the candidate is not allowed to move forward from **EVEN TO ODD SEMESTER**.
3. **CARRYOVER OF BACKLOG COURSES**: From III semester onwards the student/s who obtains required attendance, CIE, and appears for university examinations but fails (F Grade) to pass a course/s is allowed to move forward to the next semester (odd /even) **IRRESPECTIVE OF NUMBER OF F GRADES.**

The registration of these additional credits includes the courses having a shortage of attendance and the courses whose CIE requirements are not fulfilled. **A student has to pay the prescribed fee as notified by the University from time to time.**

SUMMARY OF VERTICAL PROGRESSION

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FIRST YEAR:

1. More than 4 F Grades (including NE and MP) not permitted to move to III Sem; (F and NE/MP merged)

SECOND YEAR:

1. From II year onwards **F and NE separated**; **(NE-Attn) & (NE-CIE);**
2. At the end of even Sem **(IV & VI)** In case, if the candidate declares **NE-Attn** in **MORE THAN 4 COURSES**, then the candidate is not allowed to move forward from **EVEN TO ODD SEMESTER (V and VII Sem)**;
3. **ANY NUMBER OF F'S ARE PERMITTED TO CARRY TILL THE VIII SEM**;

FOURTH YEAR:

1. Before entering to VII sem, **all the I year courses should be completed**;
2. Maintain > = **5.00** CGPA before the award of B.E. degree;
3. **Degree should be completed by 8 years (regular) or 6 years (for diploma);**

Summary for Change in Course

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- If a student fails to pass a course even after **FOUR ATTEMPTS**, can change the course in the next attempt. The respective BoS may suggest an alternative course with same credits and complexity.
- The candidate is permitted to change the **PROFESSION ELECTIVE COURSE** in his **SECOND ATTEMPT.**
- The candidate is permitted to change the **MOOC course** in his **SECOND ATTEMPT.**

Assessment for MOOC courses

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ONLINE MOOC COURSES:

- **The candidate obtaining "F" grade in MOOC course have to re-register for the course in NPTEL/SWAYAM platform only. The failed course has to be cleared / passed in ONLINE mode only.**
- The candidate is permitted to change the MOOC course in his **SECOND ATTEMPT.** The respective BoS may propose an alternative course with same credits and complexity out of bunch of courses with the approval from the Office of Dean Academics.
- The candidate has to register and complete the course in **ONLINE MODE ONLY.**

➢ **NO MAKE-UP EXAMINATION WILL BE APPLICABLE FOR ONLINE MOOC COURSES.**

➢ **NO WITHDRAWL AND DROPPING OPTION FOR MOOC COURSES.**

ACTIVITY POINTS for 2022 scheme

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AICTE has created a unique mechanism of awarding Activity points over and above the academic grades.

Activity Point Requirement

- Duration of the program: anytime during the semester weekends and holidays, as per the interest and convenience of the student from the year of entry to the program. However, minimum hours specified must be satisfied;
- Activity Points (non-credit) have no effect on SGPA/CGPA and shall not be considered for vertical progression;

Sl. No.	Student category	Activity points prescribed by AICTE
1	Day college regular student admitted to the 4 years Degree program	**100 Points**
2	Student entering 4 years degree program through lateral entry	**75 Points**
3	Students transferred from other Universities to fifth semester	**50 Points**

List of programs as per AICTE: Activity Points

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Following suggestive activities are being carried out by students in teams as per their choice

Sl. No.	Activity Head	Minimum duration		Performance appraisal/ Maximum points/activity
		Weeks	Hours	
01	Helping local schools to achieve good results and enhance their enrolment in Higher/technical/ vocational education.	2	80-90	20
02	Preparing an actionable business proposal for enhancing the village income.	2	80-90	20
03	Developing Sustainable Water management system.	2	80-90	20
04	Tourism promotion through innovative approaches.	2	80-90	20
05	Promotion of appropriate technologies.	2	80-90	20
06	Reduction in energy consumption.	2	80-90	20
07	To skill the rural population.	2	80-90	20
08	Facilitating 100% digitized money transactions.	2	80-90	20
09	Setting of the information imparting club for women leading to contribution in social and economic issues.	2	80-90	20
10	Developing and managing an efficient garbage disposal system.	2	80-90	20
11	To assist the marketing of rural produce.	2	80-90	20
12	Food preservation/ packaging.	2	80-90	20
13	Automation of local activities.	2	80-90	20
14	Spreading public awareness under rural outreach programs.	2	80-90	20
15	Contribution to any national level initiative of Government of India. For eg. Digital India, Skill India, Swachh Bharat Internship etc.	2	80-90	20

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