SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE (An Autonomous Institution)



(Approved by AICTE, New Delhi & Affiliated to Pandicherry University)
(Accredited by NBA-AICTE, New Delhi, ISO 9001:2000 Certified Institution & Accredited by NAAC with "A" Grade)

Madagadipet, Puducherry - 605 107



Minutes of Board of Studies Meeting

The 6th Board of Studies meeting of Department of Mechanical Engineering was held on 22nd July 2023 at 10:30 A.M in the R&D Lab, Department of Mechanical Engineering, Sri Manakula Vinayagar Engineering College with the Head of the Department in the Chair.

The following members were present for the BoS meeting:

SI.No	Name of the Member with Designation and official Address	Responsibility in the BoS
1	Dr. K.Velmurugan Professor and Head Department of MECH, SMVEC	Chairman
External	Members	
2	Dr. N. Alagumurthi, Ph.D, Professor & Head(Former) Department of Mechanical Engineering, Pondicherry Engineering College, Puducherry-605014. Email id: alagumurthi@pec.edu Mobile No.: 9486143090	University Nominee
3	Dr. M. Leenus Jesu Martin, Ph.D, Director - Campus Professor & Head, Department of Automobile Engineering, SRM Institute of Science and Technology, Tamil Nadu – 603203 Email id: hod.auto@ktr.srmuniv.ac.in Mobile No.: 9940036021	Member
4	Dr. A.T. Ravichandran, Ph.D, Dean - Academics Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology, Avadi, Chennai – 600062 Email id: hodmech@veltech.edu.in Mobile No.: 9942940600	Member

nternal I	Members	56 50
5	Dr.G.G.Sozhamannan, Professor, Specialization: Manufacturing Engineering	Member
6	Dr.R.Ravisankar, Associate Professor, Specialization: <i>Thermal Engineering</i>	Member
7	Dr.K.Hemalatha, Associate Professor, Specialization: Engineering Design	Member
8	Dr.A.Thiagarajan, Associate Professor, Specialization: <i>Product Design & Manufacturing</i>	Member
9	Dr.T.Poovaragavan, Assistant Professor, Department of Mathematics	Member
10	Dr.T.Jayavarthanan Associate Professor, Department of <i>Physics</i>	Member
11	Dr.K.Karthikeyan Associate Professor, Department of Chemistry,	Member
12	Dr.D.Jaichithra, Professor and Head, Department of <i>English</i>	Member
o-opted	Members	s .,
13	Dr. Anand Gurupatham Deputy General Manager, CAE- Department Head at Renault Nissan, Technology & Business Center, Chennai, Tamil Nadu, India	Industrial Member
Alumni		
14	Mr.P.Madavan, Research Scholar MIT, Anna university, Chennai.	Alumni

AGENDA OF THE MEETING

	Consideration of the confirmation of minutes of the previous meeting held or October 8, 2022
Item No	.: BOS / 2023/MECH/UG /6.2
	Consideration of Regulations 2023 for the students admitted furthe academic year 2023 - 24
Item No	: BOS / 2023/MECH/UG /6.3
	Consideration of the review of feedback received from various stakeholders like Academic Expert, industry Experts, Alumni, and NGO, etc,
Item No	.: BOS / 2023/MECH/UG /6.4
11 11	Consideration of the revision of curriculum and syllabus of B.Tech. Mechanical to be offered under Regulations 2023 to the students admitted the academic year 2023 - 24 and Approval syllabus for Semester I and II under Regulations 2023.
Item No	.": BOS / 2023/MECH/UG /6.5
	Consideration of the offering of Professional and Open electives for the curriculum and syllabus of B.Tech. Mechanical to be offered under Regulations 2023
Item No	: BOS / 2023/MECH/UG /6.6
	Consideration of revision of the list of panel of question paper setters and Examiners for the examinations of UG and PG programs for the academic year 2023 - 24
Item No.	: BOS / 2023/MECH/UG /6.7
, FSU	Consideration of the assessment of quality of question papers of the U.G. Program drawn and result analysis in the previous examinations
tem No.	: BOS / 2023/MECH/UG /6.8
	To consider the various professional bodies, club activities, Ability Enhancement Courses (AEC) and department committees to monitor the Academic Activities
tem No.	: BOS / 2023/MECH/UG /6.9
	Any other item with the permission of the chair

M.Tech & Ph.D Program

Item No.	: BOS / 2023/MECH/PG /6.1
	Consideration of the confirmation of minutes of the previous meeting held on October 8, 2022
Item No.	: BOS / 2023/MECH/PG /6.2
	Consideration of Regulations 2023 for the students admitted with academic year 2023–24
Item No. :	: BOS / 2023/MECH/PG /6.3
	Consideration of the revision of curriculum and syllabus of M.Tech. Manufacturing Engineering to be offered under Regulations 2023 to the students admitted from the academic year 2023–24

	Consideration and approval of the students admitted in the Academic Year 2023–24
Item No	.: BOS / 2023/MECH/PHD /6.5
***************************************	Consideration of admission and course work in the research program (Ph.D., Mechanical Engineering) in the Academic Year 2023–24
Item No	.: BOS / 2023/MECH/PHD /6.6
	Any other item with the permission of the chair

UG Minutes of the Meeting

Dr. K. Velmurugan, Chairman, BoS, opened the meeting by welcoming and introducing the external members to the internal and co-opted members and thanked them for accepting the invitation to attend the Board of Studies meeting. The meeting thereafter deliberated on agenda items that had been approved.

The following points were discussed in the meeting:

Item No.: BOS / 2023/MECH/UG /6.1

Consideration of the confirmation of minutes of the previous meeting held on October 8, 2022

• The committee endorsed the previous meeting's discussions after reviewing them.

Item No.: BOS / 2023/MECH/UG /6.2

Consideration of Regulations 2023 for the students admitted to the academic year 2023 – 2024

 The members of the BoS committee reviewed the Regulations 2023 and gave their approval.

Item No.: BOS / 2023/MECH/UG /6.3

Consideration of the review of feedback received from various stakeholders like Academic Expert, industry Experts, Alumni, and NGO, etc..

The committee reviewed the feedback and approved.
 Enclosed in Annexure - I

Item No.: BOS / 2023/MECH/UG /6.4

Consideration of the revision of curriculum and syllabus of B.Tech. Mechanical to be offered under Regulations 2023 to the students admitted from the academic year 2023 - 24 and Approval syllabus for Semester I and II under Regulations 2023.

- The committee suggested that Overall credit distribution is high and can be reduced to 160 as per AICTE norms.
- Subject code must clearly define the foundation, Core elective, Professional elective courses clearly.
- Enclosed in Annexure II

Item No.: BOS / 2023/MECH/UG /6.5

Consideration of the offering of Professional and Open electives for the curriculum and syllabus of B.Tech. Mechanical to be offered under Regulations 2023

- The distribution of domain papers in professional electives has to be evenly distributed.
- Computer-related courses like Python, Java, and data structure can be offered to students as open electives.
- Elective selection should be a little flexible, and a pre-request can be added to certain elective papers so that the order of selection of elective papers can be clearly defined.
- Research methodology need to be reviewed for the mandatory course for UG students.
 Professional Elective and Open Electives is enclosed in Annexure -III

Item No.: BOS / 2023/MECH/UG /6.6

Consideration of revision of the list of panel of question paper setters and Examiners for the examinations of UG and PG programs for the academic year 2023–24

The committee suggested that

- The evaluation scheme for internal marks must be uniform for theory, practical, and theory plus practical papers.
- A clear statement about the pass details for theory cum practical papers must be given to students.

The committee recommended

- The question paper setter must have a minimum of five years of experience.
- End-semester question papers must be audited by the external examiner, either from NIT or PU.

The question papers and their Blooms taxonomy levels were discussed, and the members expressed their satisfaction.

Enclosed in Annexure -IV

Item No.: BOS / 2023/MECH/UG /6.7

Consideration of the assessment of quality of question papers of the U.G. Program drawn and result analysis in the previous examinations

The feedbacks were reviewed by the members

Item No.: BOS / 2023/MECH/UG /6.8

To consider the various professional bodies, club activities, Ability Enhancement Courses (AEC) and department committees to monitor the Academic Activities

The committee reviewed the professional bodies, club activity and approved
 Enclosed in Annexure -V

Item No.: BOS / 2023/MECH/UG /6.9

Any other item with the permission of the chair

- The committee members approved the honours degree and suggested that the six theory papers and Credit point of each paper be 3; they also recommended allowing the students to opt for any NPTEL course.
- Electrical machine, Sensor and control system papers may be added to the curriculum as per industrial needs.
- Students can be offered with minors like Artificial Intelligence in manufacturing, e-Vehicle, Computer science engineering, Thermal and Design
- The theory courses in the VIII semester may be avoided, instead students can be sent for internships and projects.
- Paper like Environmental sustainability can be added in the curriculum to PO.
- NPTEL course completion by the students must be credited by credit score.
- Micro projects can be community oriented and titles can be floated by the department.
 Micro project requires no mathematical analysis or calculation.
- Internship duration must be minimum of 3 months.

M.Tech & Ph.D Program

Item No.: BOS / 2023/MECH/PG /6.1

Consideration of the confirmation of minutes of the previous meeting held on October 8, 2022

The committee endorsed the previous meeting's discussions after reviewing them.

Item No.: BOS / 2023/MECH/PG /6.2

Consideration of Regulations 2023 for the students admitted fronthe academic year 2023 – 24

The committee approved the PG Regulation 2023

Item No.: BOS / 2023/MECH/PG /6.3

Consideration of the revision of curriculum and syllabus of M.Tech. Manufacturing Engineering to be offered under Regulations 2023 to the students admitted the academic year 2023–24

• The committee suggested that the PG Programme credit distribution follow the AICTE norms.

Enclosed in Annexure - VI

Item No.: BOS / 2023/MECH/PG /6.4

Consideration and approval of the students admitted in the Academic Year 2023-24

 The Committee members recommended following the PG admission process as per university norms.

Item No.: BOS / 2023/MECH/PHD /6.5

Consideration of admission and course work in the research program (Ph.D., Mechanical Engineering) in the Academic Year 2023–24

The Committee members approval the course work in the research programme.
 Enclosed in Annexure - VII

Item No.: BOS / 2023/MECH/PHD /6.6

Any other item with the permission of the chair

 The Committee members suggest that the research scholars do their course work along with PG students.

> BoS Chairman (Dr.K.Velmurugan)

The meeting was concluded at 01:30PM with vote of thanks by Dr. K. Velmurugan, Dean R&D ,Head of Department, Mechanical Engineering

SI.No	Name of the Member with Designation and official Address	Responsibili ty in the BoS	Signature
1	Dr. K.Velmurugan Professor and Head Department of MECH, SMVEC	Chairman	Liefe
Externa	al Members		
2	Dr. N. Alagumurthi, Ph.D, Professor & Head (frow) Department of Mechanical Engineering, Pondicherry Engineering College, Puducherry-605014. Email id: alagumurthi@pec.edu Mobile No.: 9486143090	University Nominee	"yri
3	Dr. M. Leenus Jesu Martin, Ph.D, Director -Campus Professor & Head, Department of Automobile Engineering, SRM Institute of Science and Technology, Tamil Nadu – 603203 Email id: hod.auto@ktr.srmuniv.ac.in Mobile No.: 9940036021	Member .	Meaning
4	Dr. A.T. Ravichandran, Ph.D, Dean -Academics Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology, Avadi, Chennai – 600062 Email id: hodmech@veltech.edu.in Mobile No.: 9942940600	Member	22/3/23

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Interna	al Members		
5	Dr.G.G.Sozhamannan, Professor, Specialization: Manufacturing Engineering	Member	d. d. Solor .
6	Dr.R.Ravisankar, Associate Professor, Specialization: Thermal Engineering	Member	lyter
7	Dr.K.Hemalatha, Associate Professor, Specialization: Engineering Design	Member	Hendily
8	Dr.A.Thiagarajan, Associate Professor, Specialization: Product Design & Manufacturing	Member	S. JP
9	Dr.T.Poovaragavan, Assistant Professor, Department of <i>Mathematics</i>	Member	7. 1.23.
10	Dr Jeyavardhanan Associate Professor, Department of <i>Physics</i>	Member	1. Sel
11	Dr.K.Karthikeyan Associate Professor, Department of Chemistry	Member	e es en of
12	Dr.D.Jaichithra, Professor and Head, Department of <i>English</i>	Member	Daichithra
Co-opt	ed Members		
13	Dr. Anand Gurupatham Deputy General Manager, CAE-Department Head at Renault Nissan, Technology & Business Center, Chennai, Tamil Nadu, India		Online
Alumni			
14	Mr.P.Madavan, Research Scholar MIT, Anna university, Chennai.	Alumni	: Madro

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SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE (An Autonomous Institution)

Puducherry

B.TECH. - MECHANICAL ENGINEERING

ACADEMIC REGULATIONS 2023 (R-2023)

CURRICULUM AND SYLLABI Volume – I



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COLLEGE VISION AND MISSION (**

VISION

To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society.

Mission

M1: Quality Education:

To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.

M2: Research and Innovation:

To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.

M3: Employability and Entrepreneurship:

To inculcate the employability and entrepreneurial skills through value and skill based training.

M4: Ethical Values:

To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society.

DEPARTMENT VISION AND MISSION

VISION

The Mechanical Engineering department strives to be recognized as an excellent academic and research center for creating outstanding Engineers, Entrepreneurs and Leaders

Mission

M1: Professional Skills:

To provide quality education to enhance students inter-personal and intra-personal skills

M2: State-of-art facilities:

To render excellent infrastructure facilities and laboratories to excel as skilled professionals

M3: Research Exposure:

To Strengthen Research and Development within the department through industrial associations

M4: Employability:

To put enthusiastic exertions to enhance employability and entrepreneurship skills of students

M5: Human Values:

To empower students with professional ethics and human values to serve the society

PROGRAMME OUTCOMES (POs)

PO1: Engineering knowledge:

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:

Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage:

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society:

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability:

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.

PO8: Ethics:

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication:

Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance:

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning:

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Technical knowledge

To foster our young graduates with cogent technical knowledge so as to make them employable

PEO2: Real-Time Applications

To apply the acquired knowledge in the field of Mathematics, Science and Engineering in developing real-time projects

PEO 3: Design Ability

To design a system, component or process to meet the desired needs within realistic constraints such as manufacturing, economy, environmental sustainability, social, health and safety

PEO 4: Ethics

To prepare the students to become entrepreneurs with professional attitude in the broader ethical perspective

PEO 5: Life - Long Learning

To craft curiosity among students for life-long learning through self-study

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1: Solving real time problems

To develop capability to identify, analyze and solve engineering problems in concern to mechanical engineering along with associated engineering streams.

PSO 2: Pursue Professional career

To bestow quality learning environment to pursue professional career in mechanical engineering with integrated knowledge

PSO 3: Concentrating on skill development

To enflame the student's technical capabilities in engineering design process, intra and inter personnel, linguistic and higher level professional skills required in engineering.

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STRUCTURE FOR UNDER'GRADUATE ENGINEERING PROGRAM

S.No	Course Category	Breakdown of Credits
1	Humanities and Social Science and Management courses (HS)	15
2	Basic Sciences (BS)	20
3	Engineering Sciences (ES)	29
4	Professional Core (PC)	66
5	Professional Electives (PE)	18
6	Open Electives (OE)	09
7	Professional Activities (PA)	13
8	Ability Enhancement Courses (AEC*)	-
9	Mandatory courses (MC*)	-
	Total	170

SCHEME OF CREDIT DISTRIBUTION - SUMMARY

SI.	Course Category	Credits per Semester								Total
No	Course Category		П	Ш	IV	V	VI	VII	VIII	Credits
1	Humanities and Social Sciences and Management courses (HS)	3	5	1	1	2	-	-	3	15
2	Basic Sciences(BS)	7	4	5	4	-	-	-	-	20
3	Engineering Sciences (ES)	9	8	. 4	4	4	-	-	-	29
4	Professional Core (PC)	3	4	14	11	8	15	11	-	66
5	Professional Electives (PE)	-	-	-	3	3	3	3	6	18
6	Open Electives (OE)	-	-	-	-	3	3	3	-	09
7	Professional Activities (PA)	-	-	-	-	1	1	3	8	13
8	Ability Enhancement Courses (AEC*)	-	-,	-	-	-	-	*	-	-
9	9 Mandatory courses (MC*)		-	-	-	-	-	-	-	-
	Total	22	21	24	23	21	22	20	17	170

^{*} AEC and MC are not included for CGPA calculation

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SI.	Course			F	erio	ds		Max. Marks		
No.	Code	Course Title	Category	H	T		Credits	CAM	ESM	Total
The	ory				•	•		OAW	LOW	Total
1	U23MATC01	Engineering Mathematics - I	BS	3	1	0	4	25	75	100
2	U23BSTC01	Physical Science for Engineers	BS	.3	0	0	3	25	75	100
3	U23ESTC02	Engineering Mechanics	ES	2	1	0	3	25	75	100
4	U23ESTC03	Basics of Electrical and Electronics Engineering	ES	3	0	0	3	25	75	100
5	U23MET101	Concept of Engineering Design	PC	3	0	0	3	25	75	100
Thec	ory cum Practio	al								
6	U23ENBC01	Communicative English - I	HS	2	0	2	3	. 20	80	100
Prac	tical									
7	U23ESPC01	Basics of Electrical and Electronics Engineering Laboratory	ES	0	0	2	1	50	50	100
8	U23ESPC02	Design Thinking and IDEA Lab	ES	0	0	2	1	50	50	100
9	U23ESP101	Engineering Mechanics Laboratory	ES	0	0	2	1	50	50	100
Abili	ty Enhanceme	nt Course								
10	U23MEC1XX	Certification Course - I **	AEC	0	0	4	-	100	- '	100
Man	datory Course									
11	U23MEM101	Induction Programme	MC	2 V	Veel	KS *		-	-	
		TOTAL					22	395	605	1000

SI.	Course	Course Title	Category	Periods			Credits	Max. Marks		
No.	Code	Godise Title	Category	L	T	Р	Credits	CAM	ESM	Total
The	ory				, 1			7	2 × 10	
1	U23MATC02	Engineering Mathematics - I	I BS	3	1	0	4	25	75	100
2	U23CSTC01	Programming in C	ES	3	0	0	3	25	75	100
3	U23ESTC01	Basics of Civil and Mechanical Engineering	ES	3	0	0	3	25	75	100
4	U23MET202	Engineering Metallurgy	PC	3	0	0	3	25	75	100
5	U23HSTC01	Universal Human Values-II	HS	2	0	0	2	25	75	100
Thec	ory cum Practic	al		1						
6	U23ENBC02	Communicative English - II	HS	2	0	2	3	20	80	100
Prac	tical					35				
7	U23CSPC01	Programming in C Laboratory	ES	0	0	2	1	50	50	100
8	U23ESPC03	Engineering Graphics using AutoCAD Laboratory	ES	0	0	2	1	50	50	100
9	U23MEP201	Manufacturing and Metallurgy Laboratory	PC	0	0	2	1	50	50	100
Abili	ty Enhancemen	t Course							17.77	30 13
10	U23MEC2XX	Certification Course – II **	AEC	0	0	4	- 14 (%)	100	4.5	100
Mand	datory Course		1		- 1		111,			
11	U23MEM202	Sports, Yoga and NSS	MC	0	0	2	1-01	100	j 1	. 100
		TOTAL					21	495	605	1100

[#] Professional Electives are to be selected from the list given in Annexure I

^{\$} Open electives are to be selected from the list Annexure III

** Certification courses are to be selected from the list given in Annexure II

		SEMES	STER - III							
SI.	Course	Course Title	Catamani	Periods			0 111	Max. Marks		
No.	Code	Course Title	Category	L	Т	Р	Credits	CAM	ESM	Total
Thec	ory									
1	U23MATC03	Probability and Statistics	BS	3	1	0	4	25	75	100
2	U23ADTC01	Programming in Python	ES	3	0	0	3	25	75	100
3	U23MET303	Applied Thermodynamics	PC	2	1	0,	3	25	75	100
4	U23MET304	Fluid Mechanics and Hydraulid Machines	PC	2	1	0	3	25	75	100
5	U23MET305	Manufacturing Processes	PC	3	0	0	3	25	75	100
Thec	ry cum Practic	al						_		
6	U23MEB301	Strength of Materials	PC	2	0	2	3	20	80	100
Prac	tical	*								
7	U23ENPC01	General Proficiency - I	HS	0	0	2	1	50	50	100
8	U23MAPC01	Engineering Mathematics Laboratory	BS	0	0	2	1	50	50	100
9	U23ADTP01	Programming in Python Laboratory	ES	0	0	2	1	50	50	100
10	U23MEP302	Manufacturing Processes Laboratory	PC	0	0	2	1	50	50	100
11	U23MEP303	Fluid Mechanics and Hydraulic Machines Laboratory	PC	0	0	2	1	50	50	100
Abili	ty Enhancemer	nt Course	10000-05-0000-0							
12	U23MEC3XX	Certification Course – III	AEC	0	0	4		100		100
13	U23MES301	Skill Development Course - I*	SEC	0	0	2.	·	100	-	100
Man	datory Course									
14	U23MEM303	Climate Change	MC	2	0	0	-	100	-	100
		TOTAL					24	695	705	1400

		SEMES	STER - IV							
SI. Course		Course Title	Catagoni	P	erio	ds	Credits		ax. Mai	ks
No.	Code	Course Title	Category	L	Т	Р	Credits	CAM	ESM	Total
The	ory .									
1	U23MATC04	Numerical Methods and Optimization	BS	3	1	0	4	25	75	100
2	U23ITTC03	Programming in Java	ES	3	. 0	0	3	25	75	100
3	U23MET407	Heat and Mass Transfer	PC	2	1	0	3	25	75	100
4	U23MET408	Computer Aided Design	PC	3	0	0	3	25	75	100
5	U23MEE4XX	Professional Elective – I #	PE	3	0	0	3	25	75	100
The	ory cum Practic	al	1.0							
6	U23MEB402	Kinematics of Machinery	PC	2	0	2	3	20	80	100
Prac	tical									
7	U23ENPCO2	General Proficiency - II	HS	0	0	2	. 1	50	50	100
8	U23ITPC03	Programming in Java Laboratory	ES	0	0	2	1	50	50	100
9	U23MEP404	CAD/CAM Laboratory	PC	0	Ó	2	.1	50	50	100
10	U23MEP405	Heat Transfer Laboratory	PC	0	0	2	1 1	50	50	100
Abili	ity Enhancemer	nt Course		" II x	==			5-		17.11
11	U23MEC4XX	Certification Course – IV	AEC	0	0	4	-	100		100
12	U23MES402	Skill Development Course - II*	SEC	0	0	2		100	- 7	100
Man	datory Course									
13	U23MEM404	Right to Information and Good Governance	МС	2	0	0		100	1	100
		TOTAL					23	645	655	1300

^{*} Skill Enhancement Courses (I and II) are to be selected from the list given in Annexure III

		SEME	STER - V							(j.
SI.	Course	Course Title	Category	Р	erio	ds	Credits	IV	lax. Ma	rks
No.	Code	. Course Title	Category	L	Т	Р	Orearts	CAM	ESM	Total
Theo	ory									1.
. 1 .	U23HSTC02	Research Methodology	HS	2	0	0	2	25	75	100
2	U23CSTC03	Data Structures	ES	3	0	0	3	25	75	100
3	U23MET510	Dynamics of Machinery	PC	2	1	0	3	25	75	100
4	U23MET511	Design of Machine Elements	PC	2	1	0	3	25	75	100
5	U23MEE5XX	Professional Elective – II #	PE	3	0	0.	3	25	75	100
6	U23MEO5XX	Open Elective - I	OE	3	0	0	3	25	75	100
Prac	tical									
7	U23CSPC02	Data Structures Laboratory	ES	0	0	2	1	50	50	100
8	U23MEP506	Analysis and Simulation Laboratory	PC	0	0	2	1	50	50	100
9	U23MEP507	Dynamics of Machinery Laboratory	PC	0	0	2	1	50	50	100
Proj	ect Work	1								
10	U23MEW501	Micro Project	PA	0	0	2	1	100	-	100
Abili	ty Enhanceme	nt Course								1 No.
11	U23MEC5XX	Certification Course – V	AEC	0	0	4	-	100	-	100
12	U23MES503	Skill Development Course -III	SEC	0	0	2	-	100	/-	100
Mandatory Course										
13	U23MEM505	Essence of Indian Traditional Knowledge	МС	2	0	0	-	100	-	100
	200	TOTAL					21	700	600	1300

16		SEME	STER - VI							
SI.	Course	Course Title	Category	P	erio	sk	Credits	Max. Marks		
No.	Code	Course Title	Category	L	Т	Р	Credits	CAM	ESM	Total
Thec	ory								11	Ţ.
1	U23MET612	Metrology and Measurement	PC	3	0	0	3	25	75	100
2	U23MET613	Thermal Engineering	PC	2	1	0	3	25	75	100
3	U23MET614	Manufacturing Technology and Automation	PC	3	0	0	3	25	75	100
4	U23MEE6XX	Professional Elective – III #	PE	3	. 0	0	3	25	75	100
5	U23MEO6XX	Open Elective - II	OE	3	0	0	3	25	75	100
Theory cum Practical										
6	U23MEB603	Automobile Engineering	PC	2	0	2	3	20	80	100
Practical										
7	U23MEP608	Thermal Engineering Laboratory	PC	0	0	2.	. 1	50	50	100
8	U23MEP609	Metrology and Measurements Laboratory	PC	0	0	2	1	50	50	100
9	U23MEP610	Advanced Manufacturing Laboratory	PC	0	0	2	1	50	50	100
Proj	ect Work	1								
10	U23MEW602	Mini Project	PA	0	0	2	1	100	-	100
Ability Enhancement Course										
11	U23MEC6XX	Certification Course – VI	AEC	0	0	4		100	-	100
Man	datory Course									
12	U23MEM606	Gender Equality	MC	2	0	0	(-):	100		- 100
		TOTAL	l ye				22	595	605	1200

	SEMESTER - VII									
SI.	Course	Course Title	Category	F	erio	ds	Credits	IVI	ax. Mai	ks
No.	Code	. L T		Т	Р		CAM	ESM	Total	
The	ory									
1 .	U23MET715	Production Planning and Cost Estimation	PC	3	0	0	3	25	75	100
2	U23MET716	Industrial Automation and Robotics	PC	3	0	0	3	25	75	100
3	U23MET717	Design of Transmission System	PC	2	1	0,	3	25	75	100
4	U23MEE7XX	Professional Elective - IV #	PE	3	0	0	3	25	75	100
5	U23MEO7XX	Open Elective - III	OE	3	0	0	3	25	75	100
Prac	tical	1		-						
6	U23MEP711	Industrial Automation and Robotics Laboratory	PC	0	0	2	. 1	50	50	100
7	U23MEP712	Seminar	PC	0	Ò	2	1	100	-	100
Proje	Project Work									
8	U23MEW703	Project Phase – I	PA	0	0	4	2	50	50	100
9	U23MEW704	Internship / Inplant Training	PA	-	-	2	1	100	U # 1	100
		TOTAL					20	610	390	900

		SEME	STER - VI	11						
SI. Course		Course Title	Category	F	Perio	ds	Credits	M	ax. Mar	ks
No.	Code	+	- augur,	L	L T P		Ground	CAM	ESM	Total
The	ory									
1 .	U23HSTC03	Entrepreneurship and Business Management HS 3 0 0 3		3	25	75	100			
2	U23MEE8XX	Professional Elective – V#	PE	3	0	0	3	25	75	100
3	U23MEE8XX	Professional Elective – V I #	PE	3	Ó	0	3	25	75	100
Project Work										
4	U23MEW805	Project Phase – II	PA	0	0	16	. 8	50	100	150
	Total							125	325	450



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DEPARTMENT OF MECHANICAL ENGINEERING

ANNEXURE - III

PROFESSIONAL ELECTIVE COURSES

Profes	sional Elective – I	(Offered in Semester IV)			
SI. No.	Course Code	Course Title			
1	U23MEE401	Gas Dynamics and Jet propulsion			
2	U23MEE402	Geometric Tolerance and Dimensioning			
3	U23MEE403	Product design and Development			
4	U23MEE404	Industrial Casting Technology			
5	U23MEE405	Non-Conventional Energy Sources			
Profes	sional Elective – I	I (Offered in Semester V)			
SI. No.	. Course Code	Course Title			
1	U23MEE506	Turbo Machinery			
2	U23MEĖ507	Powder Metallurgy and Surface Coating			
3	U23MEE508	Green Manufacturing			
4	U23MEE509	Fluid Power Automation			
5	U23MEE510	IoT and Smart Manufacturing			
Profess	sional Elective – II	I (Offered in Semester VI)			
SI. No.	Course Code	Course Title			
1	U23MEE611	Finite Element Analysis			
2	U23MEE612	Computational Fluid Dynamics			
3	U23MEE613	Fuzzy Logic And Neural Networks			
4	U23MEE614	Additive Manufacturing			
5	U23MEE615	Energy And Climate Change			
Profess	ional Elective – I\	/ (Offered in Semester VII)			
SI. No.	Course Code	Course Title			
1	U23MEE716	Industrial Tribology			
2	U23MEE717	Advanced Welding Technology			
3	U23MEE718	Artificial Intelligence and Machine Learning			
4	U23MEE719	Nano Technology			
5	U23MEE720	Modelling and Simulation of Manufacturing Systems			
Professional Elective – V (Offered in Semester VIII)					
SI. No.	SI. No. Course Code Course Title				
1	U23MEE821	Lean Manufacturing			
2	U23MEE822	Cryogenic Engineering			
3	U23MEE823	Autotronics			
4	U23MEE824	Optimization Techniques in Engineering Design			
5	U23MEE825	Total Quality Management			

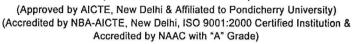
Profess	Professional Elective – VI (Offered in Semester VIII)							
SI. No.	Course Code	Course Title						
1	U23MEE826	Composites Material						
2	U23MEE827	Alternative Fuels						
3	U23MEE828 Electric and Hybrid Vehicles							
4	4 U23MEE829 Maintenance and Safety Engineering							
5 .	U23MEE830							

OPEN ELECTIVE COURSES

SI. No.	Course Code	Course Title
1	U23MEOC01	Rapid Prototyping
2	U23MEOC02	Material Handling System
3	U23MEOC03	Industrial Engineering for Textile
4	U23MEOC04	Heating, ventilation and air conditioning system (HVAC)
5	U23MEOC05	Creativity Innovation and New Product Development
6	U23MEOC06	Principles of Hydraulic and Pneumatic System
7	U23MEOC07	Supply Chain Management









Madagadipet, Puducherry - 605 107 %

DEPARTMENT OF MECHANICAL ENGINEERING

List of Honour Degree Courses

S.No.	Honour Degree Courses	Semester	Credit
1	Additive Manufacturing	IV	4
2	Sensors and Controls of Mechanical System	V	4
3	Industrial Internet of Things	VI	4
4	Quality Inspections and Product Validation	VII	4
5	Machine Learning Techniques for Smart Manufacturing	VIII	4

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DEPARTMENT OF MECHANICAL ENGINEERING

ANNEXURE - IV

EXAMINERS PANEL LIST

_		Name of the			
	SI.No		Specialization	Designation, Department and Institution in which currently working	Contact number and mail id
				External Examiners	
		Dr.V.Gnanamoorthy	*Thermal Engineering	Assistant Professor Department of Mechanical Engineering University college of Engineering Villupuram-605103	9942005782 cvgnana@gmail.com
l_	0	Dr. A.Sathiamourtty	Energy Technology	Associate Professor Dept. of Mechanical Engg. Pondicherry Engineering College	8300460801 asm@pec.edu
	m	Dr.Nadanakumar	Thermal Engineering	Assistant Professor (S.G) School of Mechanical Science Hindustan Institute of Science Chennai	9443693363 vin.nadanakumar@gmail.com
	4	Dr.U.Mohammed.Iqbal	Manufacturing Engineering	Associate Professor Department of Mechanical Engineering S.R.M Institute of Science and Technology Kattankulathur-603203.	9600429006 mohammeu@srmist.edu.in
	ις.	Dr.S.Sivakumar	Manufacturing Engineering	Associate Professor Department of Mechanical Engineering Hindustan Institute of technology Padur, Chennai	9894523361 Sivakumar71078@gmail:com

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Dr.A.Thiyagarajan	Dr.K.Hemalatha	Dr.T.Coumaressin	Dr.G.G.Sozhamannan	a makanina a 🏯 a sa aya da 🔻 yakanin 20 menangan s	Dr.CSenthilkumar	Dr.S.Arunkumar	Dr.V.K.Krishnan	Dr.R.Srinivasan
Manufacturing Engineering	Engineering Design	Energy Engineering	Manufacturing Engineering	modal department for the control of the second section of the	Manufacturing Engineering	Manufacturing Engineering	Thermal Engineering	Thermal Engineering
Associate Professor Department of Mechanical Engineering Sri Manakula Vinayagar Engineering college, Madagadipet-605107	Associate Professor Department of Mechanical Engineering Sri Manakula Vinayagar Engineering college, Madagadipet-605107	Associate Professor Department of Mechanical Engineering Sri Manakula Vinayagar Engineering college Madagadipet-605107	Professor Department of Mechanical Engineering Sri Manakula Vinayagar Engineering college Madagadipet-605107	Internal Examiners	Assistant Professor Department of Mechanical Engineering University college of Engineering Panruti-607106	Associate Professor Department of Mechanical Engineering Vinayaka Mission's kirupananda Variyar Engineering College,Salem	Associate Professor Department of Mechanical Engineering Vinayaka Mission's kirupananda Variyar Engineering College, Salem	Professor & Head Salem college of Engineering and Technology Salem.
6379367126 thiagusmvec@gmail.com	9443536684 hemalatharohit@gmail.com	9994138268 coumaressinmech09@gmail.com	9677858206 cholaking3007@gmail.com	 Market regularity of the last control of the last con	9894856176 csmfgau@gmail.com	9952722454 arun_da78@yahoo.co.in	9976881749 vkkrishnaphd@gmail.com	9443708013 sri_eniya@yahoo.com





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DEPARTMENT OF MECHANICAL ENGINEERING

ANNEXURE - V

PROFESSIONAL BODIES, CLUB ACTIVITY

LIST OF PROFESSIONAL BODIES

S. No Name of the Professional Bodies						
1	The American Society of Mechanical Engineers (ASME)					
2	The Robotics Society (TRS)					
3	Society Of Automotive Engineers (SAE)					
4	Society Of Aerospace and Mechanical Professionals (SAMP)					

LIST OF CLUBS

S. No	Name of the Professional Bodies
1	Design and Innovative Club
2	Energy and Environment Club
3	Embedded Integrated and IoT Club
4	Yoga and Health Club

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Department of Mechanical Engineering

M.Tech Manufacturing Engineering

ÄNNEXURE VI

Regulation R23 - Curriculum 2023-24

		SEME	ESTER – I								
SI.	Course			Pe	erio	ds *		Ma	Max. Marks		
No.	Code	Course Title	Category	L	Т	Р	Credits	CAM	ESM	Total	
The	ory			•							
1	P23MAT106	and Otatiotics	BS	2	2	0	3	40	60	100	
2	P23MET101	Mechanical Behavior of Materials	PC	3	0	0	3	40	60	100	
3	P23MET102	Advanced Manufacturing Processes	PC	3	0	0	3	40	60	100	
4	P23MET103	Advanced Tool Engineering	PC	3	. 0	0	3	40	60	100	
5	P23HSTC01	Research Methodology , and IPR	HS	3	0	0	2	40	60	100	
6	P23MEE1XX	Professional Elective- I *	PE	3	0	0	3	40	60	100	
Prac	tical										
7	P23MEP101	Computer Aided Engineering Laboratory	PC	0	0	4	2	50	50	100	
8	P23HSPC01	Technical Report Writing and Seminar	HS	Ò	0	4	2	100	0	100	
Abili	ty Enhanceme	nt Course									
9	P23MEC1XX	Certification Course –I #	AEC	0	4	0	0	100	0	100	
10	FZSACTION .	Audit Course -I **	AEC	0	0	2	0	100	0	100	
		Total	-				21	590	410	1000	

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		ŞEM	ESTER - II					A compa		
SI.	Course	-		Periods		ls		Max. Marks		
No.	Code	Course Title Cotegory Credite		ESM	Total					
Theor	У									
1	P23MET204	Additive Manufacturing Technology	PC	3	0	0	3	40	60	100
2	P23MET205 Micro Electro Mechanical Systems (MEMS) and Nano Technology		PC	3	0	0	3	40	60	100
3	P23MET206	T206 Metal Cutting Theory and Practice		3	Ö	0	3 ,	40	60	100
4	P23MEŢ207	Industry 4.0	PC	3	0	0	3	40	60	100
5	P23MEE2XX	Professional Elective –II *	PE	3	0	0	3	40	60	100
6	P23MEE2XX	Professional Elective- III *	PE	3	0	0	3	40	60	100
Practi	cal	•			- 1	-1				4
7	P23MEP202	Additive Manufacturing Technology Laboratory	PC	0	0	4	2	50	50	100
8	P23HSPC02	Seminar on ICT a hands-on approach	HS	0	0	4	2	100	0	100
Ability	y Enhancement	t Course				1	·			
9	P23MEC2XX	Certification Course –I #	AEC	.0	0	4	0	100	0	100
10	P23ACT20X	Audit Course-II **	AEC	0	0	2	0	100	0	0
21	7.	Total	× ×			79	22	. 590	410	1000

		SEMI	ESTER - III				. af 19			
SI.	Course			Periods			ر د د د د د د د د د د د د د د د د د د د	Max. Marks		
No.	Code	Course Title	Category	L	Т	Р	Credits	CAM	ESM	Total
The	ory			-	0.7	41				
1	P23MEE3XX	Professional Elective- IV *	PE	3	0	0	3 .	40	60	100
2	P23MEE3XX	Professional Elective- V *	PE	3	0	0	3	40	60	100
3	P23MEE3XX	Professional Elective- VI *	PE	3	0	0	3	40	60	100
Prac	tical						:			
4	P23MEW301	Project Phase - I	PA	0	0	12	6	50	50	100
5	P23MEW302	Internship	PA	0	0	4	2	100	0	100
Abili	ty Enhancemen	t Course			3					
6	P23MEC301	NPTEL/GIAN/MOOC	AEC	0	0	4	0	100	0	100
	-9	Total					17	370	230	600

^{*} Professional Elective Courses are to be selected from the list given in Annexure I

[#] Employability Enhancement Courses are to be selected from the list given in Annexure II

^{**} Audit Courses are to be selected from the list given in Annexure III

	A CHARLES AND CONTRACTOR	ALSO PERSON (PROPERTY)	SEMESTER -	- IV						
SI. No.			Catagory		Perio	ds	0	Max. Marks		rks
		Oourse Title	Category	L T P Credits CAM E		ESM	Total			
Proj	ect Work									
1	P23MEW403	Project Phase - II	PA	0	0	24	12	50	50	100
	/PC Pasis C	Total					12	50	50	100

(BS – Basic Science PC – Professional Core, PE – Professional Elective, PA – Professional Activity CC-Common Course AEC – Ability Enhancement Course HS - Humanities and Social Sciences)

Credit Distribution

Semester-I	Semester -II	Semester -III	Semester -IV	Total
21	22	17	12	72

Total number of credits required to complete M.Tech in Manufacturing Engineering

72 credits

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PROFESSIONAL ELECTIVE COURSES

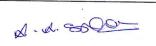
SI. No.	Course Code	Course Title
Profession	onal Elective – I (Offered Se	emester-I)
1	P23MEE101	Green Design and Manufacturing for Sustainability
2	P23MEE102	Precision Engineering
3	P23MEE103	Virtual Manufacturing
4	P23MEE104	Manufacturing of Automotive Components
5	P23MEE105	Cellular Manufacturing Systems
Profess	ional Elective – II (Offered	Semester-II)
1	P23MEE206	Mechatronics and Automation
2	P23MEE207	Manufacturing Information Systems
3	P23MEE208	Artificial Intelligence and Machine Learning
4	P23MEE209	Design of Hydraulic and Pneumatic system
5	P23MEE210	Sensors for Intelligent Manufacturing
Profess	ional Elective – III (Offered	Semester-II)
1	P23MEE311	Mechatronic System Design
2	P23MEE312	Composite Materials and Processing
3	P23MEE313	Product Lifecycle Management
4	P23MEE314	Advanced Finite Element Analysis
5	P23MEE315	Tribology in Design
Profess	ional Elective – IV (Offered	d Semester-III)
1	P23MEE416	Design for manufacturing and Assembly
2	P23MEE417	Design and Analysis of Experiments
3	P23MEE418	Advanced Optimization Techniques and Applications
4	P23MEE419	Modern Machining Processes
. 5	P23MEE420	Manufacturing system simulation
Profess	ional Elective – V (Offered	Semester-III)
1	P23MEE521	Production and Operations Management
2	P23MEE522	Enterprise Resource Planning
3	P23MEE523	Lean Manufacturing and Six Sigma
4	P23MEE524	Manufacturing Management
5	P23MEE525	Human Factors in Engineering
Professi	ional Elective – VI (Offered	3
1	P23MEE626	Advances in Casting and Welding Processes
2 .	P23MEE627	Fluid Power Automation
3	P23MEE628	Advances in Electric and Autonomous Vehicle
4	P23MEE629	Industrial Safety

ABILITY ENHANCEMENT COURSES

The state of the s							
Course Code	Course Title						
P23MECX01	CATIA.						
P23MECX02	CNC Programme						
P23MECX03	Rapid Prototyping						
P23MECX04	3D Printing and Scanning						
P23MECX05	Fusion 360						
P23MECX06	Solidworks						
P23MECX07	Autodesk Inventor						
P23MECX08	CFD						
P23MECX09	Creo (Modeling and Simulation)						
P23MECX10	Ansys -Multiphysics						
P23MECX11	Automation-I (Pneumatics)						
P23MECX12	Automation-II (Hydraulic)						
P23MECX13	CAD/ÇAM						
P23MECX14	Building Information Impelling (BIM)						
P23MECX15	Piping Design						
P23MECX16	Deep Learning						
P23MECX17	NDT Level I&II						
P23MECX18	Safety Course (Boiler)						
P23MECX19	Six Sigma						
P23MECX20	Tool Designing						
	P23MECX01 P23MECX02 P23MECX03 P23MECX04 P23MECX05 P23MECX06 P23MECX07 P23MECX08 P23MECX09 P23MECX10 P23MECX11 P23MECX11 P23MECX12 P23MECX12 P23MECX13 P23MECX14 P23MECX15 P23MECX16 P23MECX17 P23MECX18 P23MECX18 P23MECX19						

AUDIT COURSES

SI. No.	Course Code	Course Title
1	P23ACTX01	English for Research Paper Writing
2	P23ACTX02	Disaster Management
3	P23ACTX03	Sanskrit for Technical Knowledge
4	P23ACTX04	Value Education
5	P23ACTX05	Constitution of India
6	P23ACTX06	Pedagogy Studies
. 7	P23ACTX07	Stress Management by Yoga
8	P23ACTX08	Developing Soft Skills and Personality



P23ACTX09	
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Ph.D Advanced Course work (2021-22)

ANNEXURE VII

Department of Mechanical Engineering

S.NO	NAME	Reg. No	Ph.D Advanced course
1	G.HARISH	21RME001	Course I: Material Characterization Techniques
	G.HARISH .	ZIKWIE001	Course II: Extrusion and 3D Printing
2.	S.PRAKASH	21RME002	Course I: Material Characterization Techniques
۷.	5.1 KAKASII	ZIKWEUUZ	Course II:3D Printing and Sustainable Product
3.	P.SATHIAPRATHAP	21RME003	Course I: Additive Manufacturing
J.	T.O. CHILLIAN TOTAL	ZTRIVIEUUS	Course II: Mechanical Behavior of Material

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DEPARTMENT OF MECHANICAL ENGINEERING

ANNEXURE - I

CURRICULUM ADVISORY COMMITTEE

SL.NO	ADVISORY COMMITTEE	DESIGNATION
1	Dr.K.Velmurugan Dean –RD,	, do.
	Prof. & Head	
,	Department of Mechanical Engineering	Chairman
*	Sri Manakula Vinayagar Engineering College	
	Pondicherry	
	Academic expert	
2	Dr. K. Pajaniradja @ Kichena	
	Professor	
	Department of Mechanical Engineering	, -
	Pondicherry technological university	Member
	Puducherry.	*
	Mobile:9894045673	
	E-mail:palaniradja72@pec.edu	
3	Dr.K.Kamalakkannan	
	Professor	
	Department of Automobile Engineering	
	SRM Institute of Science & Technology	Member
	Chennai	
	Mobile: 9944226170	_
	E-mail: kamalakannan.ka@gmail.com	
4	Dr. S.Muthu	
	Former Professor	§ 1
	Department of Mechanical Engineering	Member
	PSG Tech, Coimbatore	
	E-Mail: smuthu231155@gmail.com	
	Mobile: 9790017157	
1	Industry Expert Mr. A.Dhanasekaran	•
	A SERVICE A CONTRACTOR AND	- 1 _ + - I
	Assistant General Manager styling studio,	
	Ashokleyland Technical centre Chennai.	Member
	Mobile: +91 9444290914	e-
2	E-mail: dhana80@yahoo.com Mr.D.K.Jagdish	green de
4	3	
	General Manager	
	UCAL FUEL SYSTEMS LTD,	Member
	Chennai Phone: +01 0040073030	
	Phone: +91 9940073020	
	E-mail: dkjagdish@yahoo.co.in	

3	Mr.D.Dinesh Kumar Inspire Engineering Consultants Mobile: 9940388804 E-mail: dineshmech016@gmail.com	Member
	Alumni	
1	Mr. Kishan. R PG student , VIT Mobile : 8148189859 E-mail: rkishan04@gmail.com	Member
2	Mr.Pushparaj.S Senior Engineer Whirlpool of India Itd, Pondicherry E-mail: pushparajsd@gmail.com Mobile: 9597751368	Member
3	Mr.R.Stalin PG Student E-mail: stalinmech6.5@gmail.com Mobile: 975000061	Member
4	Mr.D Aravind Analyst CTS, Chennai. E-mail: aravindarun5363@gmail.com Mobile No: 995229929	Member
5	Mr.Vetrivelan Ford software ,Chennai Mobile : 9944845482	Member
	Final Year Students	的对于是1.50mm(1.50mm)。2.50mm(1.50mm)(1.5
1	Mr.Hariraj. C E-mail: harirajcoumar2422@gmail.com Mobile:6382910501	Member
2	Mr.Dhanashree.S E-mail: Dhanashree05060,2@gmail.com Mobile:8680937233	Member
3	Mr.Divya darshine.G E-mail: gdivya2001@gmail.com Mobile:8300218121	Member
4	Mr.Pravesh saaye.N E-mail: btechmech19054@smvec.ac.in Mobile:8754172221	Member
5	Mr.Videsh Narayan.V E-mail: Btechmech190987@smvec.ac.in Mobile:6381215295	Member

CURRICULUM ADVISORY COMMITTEE FEEDBACK

- Include any two computer programming courses.
- Provide advanced courses in order to meet industry 4.0 demands.
- Provide more hands-on training courses and value-added courses related to recent technologies
- To motivate the students to do industry- and society-related projects.
- Allow the students to do more core company internships.

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Department	Mathematics	ę	Progr	amme :	B.Tech.				•••••••••••••••••••••••••••••••••••••••
Semester	I	······································	Cours	e Cate	gory: BS	End	Semeste	er Exam T	vna. T
Course	LICONATOO			riods/V		Credit	:	***************************************	
Code	U23MATC01		L	Т	P	Credit	CAM	imum Ma	:
Course Name	ENGINEERING MATHEMAT	ICS -I	3	1		4	25	ESE 75	TM
	(Comn	non to Al	<u>I</u> Branches	<u> </u>	CSRS)	4	25	75	100
Prerequisite	Basic Mathematics			_xoopt	0000)				
(On completion of the course,	the stud	ents will b	e able t	0			BT Ma	
ľ	CO1 Understand the concept	of Eigen v	values and E	iaen ved	tors Diago	malization o	of a Matrix	(Highes	•••••
Course	CO2 Solve higher order differen				nero, Diago		n a Maurx	K	
Outcome	CO3 Understand the different	••••••		ntial equ	ıatione			K	
								K	3
-								K	2
UNIT – I		Ji vector t	Calculus and	its Appi	ications		<u>F</u>	K	2
	Matrices	Ch					Perio	ods:12	
Eigen vectors of	ix — Systems of Linear Equations — f a real Matrix — Diagonalization of	- Characte - Matrices	eristic equation.	on – Cay	rley Hamilto	on Theorem	n – Eigen v	alues and	CO1
UNIT – II	Differential Equations (Higher	r Order)			•••••••••••••••••••••••••••••••••••••••		Perio	ods:12	<u>.i</u>
Linear Different	tial equations of higher order with co lethod of Variation of parameters.		efficients – E	uler's lir	near equati	on of highe			CO2
UNIT – III	Functions of Several Variable	s		······································			Dorio	do:42	<u>i</u>
	es – Total derivatives – Maxima ar		of two varia	hles – I	adrando's	Mothod of n		ds:12	Ţ
······································			· or are varia			wethod of the		••••••	CO3
	Multiple Integrals						Pario	ds:12	
A . 100 1 1 1 1 1 1		••••••							
Multiple Integral – Volume as a tr	s – Change of order of integration (riple integral (Cartesian form).	Cartesian	n form). Appli	cations:	Area as a d	ouble integ			CO4
– volume as a (s – Change of order of integration (riple integral (Cartesian form). Vector Calculus	Cartesian	n form). Appli	cations:	Area as a d	ouble integ	ral (Cartes	ian form)	CO4
UNIT – V Gradient – Diver	πριε integral (Caπesian form).	atives – Irı	rotational and	d Soleno			ral (Cartes	ian form) ds:12	CO4
UNIT – V Gradient – Diver	Vector Calculus gence and Curl – Directional derivative gence Theorem and Stoke's Ti	atives – Iri heorem (v	rotational and	d Solends).	oidal vector		Perio	ian form) ds:12 tatement	CO5
UNIT – V Gradient – Diver pnly) – Gauss Di ecture Period	Vector Calculus gence and Curl – Directional derivative gence Theorem and Stoke's Ti	atives – Iri heorem (v	rotational and	d Solends).	oidal vector		Perio	ian form) ds:12	CO5
UNIT – V Gradient – Diveronly) – Gauss Di ecture Period ext Books	Vector Calculus rgence and Curl – Directional derivative rgence Theorem and Stoke's Tiles: 45 Tutorial Periods	atives – Iri heorem (v : 15	rotational and without proof	d Solend s). Period	oidal vector	fields – Pro	Perio	ian form) ds:12 tatement	CO5
UNIT – V Gradient – Diveronly) – Gauss Di Lecture Period: ext Books M.K. Venkata	Vector Calculus gence and Curl – Directional derivative gence Theorem and Stoke's Ties: 45 Tutorial Periods araman, "Engineering Mathematics I Manish Goyal, "A Text Book of En	atives – Iri heorem (v : 15 s, The Nat	rotational and without proof Practical cional Publish	d Solends). Period ning Cor	s: -	fields – Produced Francisco (1988) New Figure 1989	Perio perties (S	ds:12 tatement Periods:	CO5
UNIT – V Gradient – Diveronly) – Gauss Di ecture Periodiext Books M.K. Venkata N. P Bali and S. Narayana	Vector Calculus rgence and Curl – Directional derivative rgence Theorem and Stoke's Tiles: 45 Tutorial Periods	atives – Iri heorem (v : 15 s, The Nat	rotational and without proof Practical cional Publish	d Solends). Period ning Cor	s: -	fields – Produced Francisco (1988) New Figure 1989	Perio perties (S	ds:12 tatement Periods:	CO5
UNIT – V Gradient – Diveronly) – Gauss Di ecture Period ext Books M.K. Venkata N. P Bali and S. Narayanai Printers & Pul	Vector Calculus gence and Curl – Directional derivative gence Theorem and Stoke's Ties: 45 Tutorial Periods araman, "Engineering Mathematics I Manish Goyal, "A Text Book of Ennand Manicavachagom T.K. Pill blishers Pvt Ltd, 2009	atives – Iri heorem (v : 15 s, The Nat	rotational and without proof Practical cional Publish	d Solends). Period ning Cor	s: -	fields – Produced Francisco (1988) New Figure 1989	Perio perties (S	ds:12 tatement Periods:	CO5
UNIT – V Gradient – Diveronly) – Gauss Di ecture Periodiext Books M.K. Venkata N. P Bali and S. Narayanai Printers & Pule	Vector Calculus gence and Curl – Directional derivative gence Theorem and Stoke's Tiles: 45 Tutorial Periods araman, "Engineering Mathematics I Manish Goyal, "A Text Book of Ennand Manicavachagom T.K. Pill blishers Pvt Ltd, 2009.	atives – Iri heorem (v : 15 s, The Nat gineering ay," Diffe	Practical Practical ional Publish Mathematic rential Equa	d Solences). Period ning Cores", Lkshittions ar	s: - mpany, Ma mi Publicat id Its Appl	fields – Produced Francisco (1988) dras, 2016. ions, New Ecations", Produced Francisco (1988) francisco (198	Perio pperties (S Total Delhi, 9 th Eapperback,	ds:12 tatement Periods: dition, 201 Viswanati	CO5
UNIT – V Gradient – Diveronly) – Gauss Di ecture Period: ext Books M.K. Venkata N. P Bali and S. Narayanai Printers & Pul eference Book Dr. G.Balaji, *I	Vector Calculus rgence and Curl — Directional derivativergence Theorem and Stoke's Tiles: 45 Tutorial Periods araman, "Engineering Mathematics I Manish Goyal, "A Text Book of Engineering Manicavachagom T.K. Pill blishers Pvt Ltd, 2009. To Matrices and Calculus (Engineering Mathematics — Matrices and Calculus (Engineering Mathematics — Matrices and Calculus (Mathematics — Matrices and Calculus (Mathematics — Matrices and Calculus (Mathematics — Matrices — Mathematics —	atives – Iri heorem (v : 15 s, The Nat gineering ay," Diffe	rotational and without proof Practical cional Publish Mathematics prential Equal	d Solences). Period ning Cons", Lkshirtions ar	s: - mpany, Mami Publication, Palication, Palamil Nadu,	dras, 2016. ions, New Ecations", Pa	Perio pperties (S Total Delhi, 9 th Eapperback,	ds:12 tatement Periods: dition, 201 Viswanati	CO5
UNIT – V Gradient – Diveronly) – Gauss Di ecture Period ext Books M.K. Venkata N. P Bali and S. Narayanal Printers & Pul eference Book Dr. G. Balaji, *I Dr. A. Singara Erwin Kreyszi	Vector Calculus gence and Curl – Directional derivative gence Theorem and Stoke's Tiles: 45 Tutorial Periods araman, "Engineering Mathematics I Manish Goyal, "A Text Book of Ennand Manicavachagom T.K. Pill blishers Pvt Ltd, 2009. IS Matrices and Calculus (Engineering avelu, "Engineering Mathematics – ig, "Advanced Engineering Mathematics – ig, "Advanced Engin	atives – Iri heorem (v : 15 s, The Nat gineering ay," Diffe	Practical Practical ional Publish Mathematic rential Equa	Period ning Cor s", Lkshi tions ar	s: - mpany, Mami Publication, Palamil Nadu, 19.	fields – Prodras, 2016. ions, New Ecations", Properback, Ju	Perio pperties (S Total Delhi, 9 th Eapperback,	ds:12 tatement Periods: dition, 201 Viswanati	CO5
UNIT – V Gradient – Diveronly) – Gauss Di ecture Period ext Books M.K. Venkata N. P Bali and S. Narayanal Printers & Pul eference Book Dr. G.Balaji, " Dr. A. Singara Erwin Kreyszi B.V.Ramana,"	Vector Calculus gence and Curl – Directional derivative gence Theorem and Stoke's Tiles: 45 Tutorial Periods Trutorial Periods	atives – Iri heorem (v : 15 s, The Nat gineering ay," Diffe g Mathen - I", Meena natics ", W	Practical Practical ional Publish Mathematic rential Equa natics-1)" Ba akshi publica Viley, 10th Ed	Period ning Cor s", Lkshi tions ar	ication, Palamil Nadu,	fields – Prodras, 2016. ions, New Ecations", Properback, Jule 2019.	Perio pperties (S Total Delhi, 9 h Eapperback,	ds:12 tatement Periods: dition, 201 Viswanath	CO5
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UNIT – V Gradient – Diveronly) – Gauss Divecture Periodiext Books M.K. Venkata N. P Bali and S. Narayanal Printers & Puleference Book Dr. G.Balaji, *I Dr. A. Singara Erwin Kreyszi B.V.Ramana, *I C W. Evans, *I Eb References	Vector Calculus Igence and Curl — Directional derivativergence Theorem and Stoke's Tiles: 45 Tutorial Periods Igence and Curl — Directional derivativergence Theorem and Stoke's Tiles: 45 Tutorial Periods Igence and Calculus (Engineering Mathematics — Manish Goyal, "A Text Book of Engineering Mathematics — Matrices and Calculus (Engineering Mathematics — Igence and Calculus (Engineering Mathematics — Ingineering Mat	atives – Iri heorem (v : 15 s, The Nat gineering ay," Diffe g Mathen - I", Meena natics ", W	rotational and without proof Practical Practical itional Publish Mathematic rential Equal matics-1)" Batakshi publicational publications itional Publication in atics-1)" Batakshi publications itional Equal	d Solences). Period ning Conses, Lkshirtions are itions, Talition, 20 New De d Editio	mpany, Mami Publication, Palamil Nadu, 19. Ihi, 6th Edin, 2019.	dras, 2016. ions, New Ecations", Paperback, Ju 2019.	Perio pperties (S Total Delhi, 9 h Eapperback,	ian form) ds:12 tatement Periods: dition, 201 Viswanati	CO5
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UNIT – V Gradient – Diveronly) – Gauss Di ecture Period ext Books M.K. Venkata N. P Bali and S. Narayana Printers & Pul eference Book Dr. G.Balaji, " Dr. A. Singara Erwin Kreyszi B.V.Ramana," C W. Evans, " eb References http://www.ma https://nptel.ac	Vector Calculus gence and Curl – Directional derivativergence Theorem and Stoke's Times: 45 Tutorial Periods Trutorial Perio	atives – Iri heorem (v : 15 s, The Nat gineering ay," Diffe g Mathen - I", Meena natics ", W	rotational and without proof Practical Practical itional Publish Mathematic rential Equal matics-1)" Batakshi publicational publications (Graw – Hill, Approach, 30	d Solences). Period ning Conses, Lkshirtions are itions, Talition, 20 New De d Editio	mpany, Mami Publication, Palamil Nadu, 19. Ihi, 6th Edin, 2019.	dras, 2016. ions, New Ecations", Paperback, Ju 2019.	Perio pperties (S Total Delhi, 9 h Eapperback,	ian form) ds:12 tatement Periods: dition, 201 Viswanati	CO5

2. A. 6. 45
B.Tech. Mechanical Engineering

COs		Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
1	3	2	1	-	2	1	1	-	-		-	1	3	-	-	
2	3	2	1	1	-	1	1	-	-	-	-:	1	3	-		
3	3	2	1	1	-	1	1	-	_	-	-	1	3			
4	3	2	1	1	-	1	1	-	-		-	1	3		-	
5	2	2	1	٦.		-	1		-		-	1	3			

Correlation Level: 1 - Low, 2 - Medium, 3 - High

		Conti	nuous Asse	ssment Marks (CA	M)	End Semester	T
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Total Marks
Marks	5	5	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Semester	Phys	cs / Chemistry		Progr	amme :	B.Tech.				
Scilicatei	I			Cours	e Categ	ory: BS	End S	emester E	Exam Type	: TE
Course	U23B	STC01	e	Pe	riods/W	eek	Credit	Max	imum Mar	ks
Code			Š	L	Т	Р	С	CAM	ESE	TM
Course Name	PHYS	SICAL SCIENCE FOR ENG	INEERS	3	-	-	3	25	75	100
			(Common	to <u>All</u> Bra	anches)		<u> </u>			
Prerequisite	Physi	cs of 12th standard or equ	ivalent / C	hemistry (of 12th s	standard	or equivale	ent.	•••••••••••••••••••••••••••••••••••••••	••••••
	On cor	npletion of the course, th	e student	s will be	able to	••••••			BT Ma	pping
									(Highes	
	CO1	Understand the basic of pro							K	2
	CO2	Identify the wave nature of t			•••••			S	K	3
Course	CO3	Understand the basic principulation Understand and familiar wit				ommunic	ation .		K	
Outcome									K	2
	CO5	Understand the electrode uses of various batteries.				••••••			K	2
	CO6	Understand the specific of	operating	condition	under v	which cor	rosion occ	curs and	• к	2
	<u> </u>	suggest a method to control		A - PHY	SICS		1 2 2			
UNIT- I	Magn	etic, Dielectric and Super	conductin	g Materia	als		•••••••••••••••••••••••••••••••••••••••	Peri	ods:08	
Introduction t	to magn	etic materials, Ferromagnetis	m - Domai	n theory-Ty	pes of e	nergy-Hys	steresis-Ha	rd and Sof	t magnetic	Ī
materials-fer	rites-Die	lectric materials-Typesof pola - Ferroelectric materials-Supe	ırization – l	_angevin-[ebye eq	uation-Fre	equency ef	fects on po	larization-	со
UNIT- II	Quant	um Mechanics						Peri	ods:07	.i
Matter Waves	s - de Br	oglie Wavelength - Uncertaint	y Principle -	-Physical S	Significar	nce of way	e functions			
		endent - Time Independent - A								CO
UNIT- III	Laser	and Fiber Optics						Peri	ods:07	i
Laser Action	comp – oflightin	Laser - Spontaneous and Stoonents of laser - Types of loptical fiber - Numerical aper	Lasers - N	dYAG, CO	2 laser, (GaAs Las	er Fiber O	otics - Prir	ciple and	cos
,		C.I	CTION D	CUENA	CTDV		46			
	Motor		ECTION B	- CHEIVII	SIRY					
UNIT-IV		and its treatment	-t D-6	- '1' 1					ods:08	T
alkalinity, TD: boiler - Treatn	S, COD nentofb	npurities, Water quality param and BOD. Desalination of bi oiler feed water: Internal treatr nt–lon exchange demineraliza	rackish wa ment(phos	ter: Revers phate, coll	e osmos pidal, soc	sis-disadv	antages of	using har	d water in	CO4
UNIT- V	Electro	ochemical Cells and Stora	age Devic	es				Perio	ds:08	
		e electrode potential, standa	rd electroc	le potentia	ıl, electro	ochemical	series. EN	//F of a ce	ll and its	
measuremen	t. Nerns fuel cell	t equation. Electrolyte conce s: Types of batteries - alkaline	entration co e battery-le	ell. Refere ad storage	nce elec battery-	ctrodes-hy nickel-cad	drogen, ca	alomel and ery-fuel co	dAg/AgCI. ell H2 -O2	CO5
measuremen Batteries and fuel cell-appli	t. Nerns fuel cell	s: Types of batteries - alkaline	entration contraction contract	ell. Refere ad storage	nce elec battery-	ctrodes-hy nickel-cad	drogen, ca	ery- fuel ce	dAg/AgCI. ell H2 -02 ods:07	CO5
measuremen Batteries and fuel cell-appli UNIT- VI Corrosion –In control – mate current catho	t. Nerns fuel cell cations. Corros troductio erial sele dic met	s: Types of batteries - alkaline	e battery-le	ad storage	rrosion (gection – s	nickel-cad	rdrogen, ca dmium batt differential a anode metl	Perional properties of the Perion Period Perion Period Perion Period Per	ods:07	
measuremen Batteries and fuel cell-appli UNIT- VI Corrosion –In control – mate current catho	t. Nerns fuel cell cations. Corros troductio erial sele dic met of Copp	ion on - factors – types – chemica ection and design aspects – thou the types in the type	al, electroche electroche etallic coat nickel	ad storage	rrosion (gection — s	galvanic, c sacrificial ting, cath	rdrogen, ca dmium batt differential a anode metl	Perional Per	ods:07 corrosion pressed cladding,	CO6
measuremen Batteries and fuel cell-appli UNIT- VI Corrosion –In control – mate current catho Electroplating	t. Nerns fuel cell cations. Corros troductio erial sele dic met of Copp	ion on - factors – types – chemica ection and design aspects – thod. Uses of inhibitors, me per and electroless plating of r	al, electroche electroche etallic coat nickel	nemical comical proteing — and	rrosion (gection — s	galvanic, c sacrificial ting, cath	rdrogen, ca dmium batt differential a anode metl	Perional Per	ods:07	CO6
measuremen Batteries and fuel cell-appli UNIT- VI Corrosion –In control – mate current catho Electroplating Lecture Perio ext Books V Rajendra	t. Nerns fuel cell cations. Corros troductic erial seldic met of Coppods: 45	ion on - factors – types – chemica ection and design aspects – thod. Uses of inhibitors, me per and electroless plating of r	e battery-le al, electroche electroche etallic coat nickel.	nemical comical proteing – and	rrosion (gection – sedic coal	galvanic, osacrificial ting, catho	drogen, cadmium batt	Perional Per	ods:07 corrosion pressed cladding,	CO6

Reference Books

- R.Murugeshan, "Modern Physics", S. Chand &Co, New Delhi 2006.
- 2. William D Callister Jr., "Material Science and Engineering", 6th Edition, John Wiley and sons, 2009.
- 3. Jain & Jain "Engineering chemistry", 23rd Edition. DhanpatRai Publishing Company, 2022
- 4. Mars Fontana "Corrosion Engineering", July 2017
- 5. JinaRedlin, "Handbook of Electrochemistry", March 28, 2005

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- 1. https://www.sciencedaily.com/terms/materials_science.htm.
- 2. https://www.acs.org/content/acs/en/careers/college-to-career/chemistry-careers/materials science.html
- 3. https://study.com/academy/lesson/semiconductors-superconductors-definition-properties.html
- 4. https://mechanicalc.com/reference/engineering-materials
- http://ndl.ethernet.edu.et/bitstream/123456789/89589/1/%5BPerez_N.%5D_Electrochemistry_and_corrosion%28BookZZ.org%2 9.pdf

COs/POs/PSOs Mapping

COs					Prog	gram O	m Outcomes (POs)				, e., 8.,			Program Specific Outcomes (PSOs)		
	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
1	3	2	2	2		-		-		-	-	-		i e	-	
2	3	2	3	2	-		-	-	-	x=2	-	-	-	-	_	
3	3	2	3	2	-	-	-	_	_	-	_	-	1 1-1	_	_	
4	3	1	-	-	-	-	-		-		-	-	-	- 1	-	
5	3	1	-	-	-	-	1-	-	-	-	-	-	-	-		

Correlation Level: 1 - Low, 2 - Medium, 3 - High

		Conti	End Semester	T			
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Total Marks
Marks	5	5	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

		anical Engineering	Progr	amme :	B.Tech.					
Semester	l		Cours	e Categ	ory: ES	End	Semeste	er Exam Ty	pe: T	
Course	1133	STC02	Pe	riods/W	eek	Credit	Max	kimum [*] Mar	ks	
Code	UZJL	31002	L	Т	Р	С	CAM	ESE	TM	
Course Name	ENGI	NEERING MECHANICS	2	1	-	3	25	75	100	
		(Common to EEE, ECE,	MECH, CIVIL	_, Mecha	atronics E	Branches)				
Prerequisite	Engin	eering Physics								
	On co	mpletion of the course, the stu	idents will be	e able to)			BT Ma (Highes		
	CO1	Recognize the basics of equilibrium	um of particles	in 2D an	nd 3D			K	2	
Course	CO2	Review the requirements of equil	ibrium of rigid	bodies ir	2D and	3D.		K2		
Outcome	CO3	Solve problem related to friction to	orce.		_			K	3	
	CO4		K	3						
	CO5	Predict displacement, velocity an	d acceleration	of dynan	nic particl	es.	_	K	3	
UNIT- I	Basic	s and Statics of Particles					Per	iods: 09		
Introduction	- Units a	nd Dimensions - Vectorial represent	ation of forces	and mom	nents – Co	planar Ford	es - Lami	's theorem,		
		iangular Law of forces -Resolution force - Free body diagram	of forces - Eq	uilibrium	of a parti	cle - Principl	e of trans	missibility -	co	
UNIT- II	Eauili	brium of Rigid Bodies			••••••••••	•••••	Per	iods: 09		
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B.Tech. Mechanical Engineering

- 3. https://nptel.ac.in/courses/112/106/112106286/
- 4. https://www.coursera.org/learn/engineering-mechanics-statics
- 5. https://nptel.ac.in/courses/122/104/122104014/

COs		15			Program Specific Outcomes (PSOs)										
	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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Correlation Level: 1 - Low, 2 - Medium, 3 - High

Assessment		Cor	End Semester	Total			
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Marks
Marks	5	5	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department		and ECE	Programme : B.Tech.						
Semester	I	7	Cour	se Cate	gory: ES	End	Semester	Exam T	/pe: Ti
Course	U23F	ESTC03	Р	eriods/V	Veek	Credit	<u>"I</u>	imum Ma	
Code	0201		L	Т	Р	С	CAM	ESE	TM
Course Name	ELE	ICS OF ELECTRICAL AND CTRONICS ENGINEERING	3	-		3	25	75	100
		ommon to CSE, IT, MECH, CIVIL,	MCTR, C	CE, AI&	DS, FT an	d CSBS E	Branches)		
Prerequisite	Mathe	ematics and Physics							
	On co	mpletion of the course, the stude	ents will b	e able t	0				apping
	CO1	Apply the basic concepts and various	s laws in D0	C circuits	×.,			(Highe	<3
	CO2	Analyze the AC circuits and develo				ınsmitter ar	nd receive	r İ	₹3
Course Outcome	соз	Gain the knowledge of power sy measures and real time applications	stem comp	oonents, mer and	importance motor.	e of electr	ical safety	, , , , , , , , , , , , , , , , , , ,	₹2
	CO4	Understand the operator of semicon				S.		4	······································
	CO5	Explain the characteristics and opera	ation of BJT	and FET					(2
	CO6	Relate and Explain Different Commu	unication Sy	/stems.			••••••••••	ŀ	(2
		SECTION A -	Electrical	Fngine	rina		•••••		•••••••••••••••••••••••••••••••••••••••
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UNIT- VI Communication systems		Periods: 08	
Need for Modulation — Block diagram of analog comm Comparison of digital and analog communication s Electromagnetic Spectrum. Wired and wireless Chan communication — Cellular Mobile Communication — Fibre	system - Block diagram of digital c nnel – Block diagram of communic	ommunication system -	CO6
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A. d. 800

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- Dr. R. Saravanakumar, Dr.V. Jegathesan, Dr. K. Vinoth Kumar, Dr. K. Kowsalya, "Basic Electrical and Electronics Engineering" Wiley Publisher, 2nd Edition, 2022.
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- 1. A. Sudhakar and S. P. Shyam Mohan, "Circuits and Networks: Analysis and Synthesis", Tata McGraw Hill Publishing Company Ltd., New Delhi, 4th Edition, 2017.
- 2. D.P.Kothari and I.J. Nagrath, "Electric Machines", Tata McGraw Hill, New Delhi, 5th Edition, 2017.
- 3. B. L. Theraja, A. K. Theraja, "A Textbook of Electrical Technology Volume II", S Chand & Co. Ltd., New Delhi, 23rd Edition, 2009.
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- 5. Wayne Tomasi, "Electronic Communication Systems-Fundamentals Theory Advanced", Sixth Edition, Pearson Education, 2018.

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- 4. https://onlinecourses.nptel.ac.in/noc21_ee55/
- 5. https://nptel.ac.in/courses/117/102/117102059

COs/POs/PSOs Mapping

COs		Program Outcomes (POs)												ram Spe omes (P	cific SOs)
	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3		2	1 - 1	1-	-	-		- <u>-</u> !	1	3	2	
2	3	3	3	-	2	_	1-	-	-	-,	-	1	3	2	-
3	3	3	3	-	2	1	1-		=	-	-	1	3	2	
4	3	3	3		2	-	-	-	-	-	-	1	3	2	<u>2</u> ,
5	3	3	3	-	2		-	Les .		-	-	1	3	2	-

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Methods

Assessment		Cor	ntinuous Assess)	End Semester	Total	
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Marks
Marks	5	5	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

2,A.6.52

	iviec	hanical	Progr	amme :	B.Tech.				
Semester	1		Cours	e Categ	ory: PC	End S	emester	Exam Typ	e: TE
Course	U231	MET101	Pe	riods/W	eek	Credit	Max	kimum Ma	rks
Code			L	Т	Р	С	CAM	ESE	TM
Course Name	CON	CEPT OF ENGINEERING DESIGN	3	-	-	3	25	75	100
Prerequisite	Mater	ial Science							
	L	ovide a board overview of generic concer			symbols a	nd standard	ds.		
Course		able students to attain knowledge on des		ples.					
Objectives	***************************************	fine various engineering materials and p pand in depth knowledge on stress, strair							
	·	ow about the applications of green design			ing conditi	ons.			
								BT Ma	apping
	On cor	mpletion of the course, the students wil	be able	to				(Highes	
	CO1	Understand the concepts of work, energ	y, torque,	power a	nd free bo	dy diagram	IS.	۲	(2
Course	CO2	Understand various design principles.						И	(2
Outcome	CO3	Explain different classes of material and	their pro	perties.	4			K	(3
-	CO4	Illustrate the various loading and failure	s theory m	ethods.				K	(3
A = =	CO5	Exposed to light engineering product an	d green d	esign pr	ocess.			K	(3
UNIT- I		n Consideration					Per	iods: 9	
force flow con	sics of v icept. lo	vork, energy, torque, power, load analysis cating critical sections, practical considera	, equilibri itions - Fits	um equa	ations, free erances, si	-body diag	rams, inte	rnal loads, sic of wold	.
symbols.		P.	10110, 1110	ana toto	71411000, 00	mace roug	illiess, ba	sic or weig	CO
UNIT- II	Desia	n Terminology					······································		<u>i</u>
							Dow	ada. O	
Definition-vari	ious me		product o	lesign-st	atic and dy	namic pro	Peri	i ods: 9 ous desian	
projects-morp	hology	thods and forms of design-importance of of design-requirements of a good design-	product o	lesign-st nt engine	atic and dy	namic prod puter aided	ducts-vari	ous design	
orojects-morp	hology	thods and forms of design-importance of	product d concurrer	lesign-st nt engine	atic and dy	rnamic prod puter aided	ducts-vari	ous design	
projects-morp	hology c s-produc	thods and forms of design-importance of of design-requirements of a good design-	product d	lesign-st nt engine	atic and dy	namic prod puter aided	ducts-varion ducts-varion de la conginee	ous design	
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orojects-morp and standards UNIT- III Creativity and orainstorming	Creati problem , synect	thods and forms of design-importance of fidesign-requirements of a good design- trand process cycles-bench marking vity in Design	concurrer	nt engine	eering-com	puter aideo	ducts-varion denginee Peri -Creativity	ous design ring-codes ods: 9	coa
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- 3. https://ocw.mit.edu/courses/aeronautics-and-astronautics/16-842
- 4. https://www.ifeu.de/en/methods/life-cycle-assessment-and-material-flow-analyses
- 5. https://www.webdesignerdepot.com/2011/02/the-8020-rule-applied-to-web-design

COs/POs/PSOs Mapping

COs		Program Outcomes (POs)												Program Speci Outcomes (PSC		
	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
1	3	2	1	1	-	2	1	1	1	1	1	2	2	1	1	
2	3	1	1	1	-	1	1	1	2	1	1	2	2	2	2	
3	3	2	1	1	-	2	2	1	2	1.	1	2	2	2	3	
4	3	1	1	1	-	1	_e 1	1	2	1	1	2	2	2	2	
5	3	1	1	1	=	2	2	2	1	1	2	2	3	3	3	

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Assessment		Cor	itinuous Assessi	ment Marks (CAM)	End Semester	Total
ASSESSMEN	.CAT 1	CAT 2	Examination (ESE) Marks	Marks			
Marks	5	5	5	5	5	.75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Semester	English		Progr	amme :	B.Tech.				
	I	<u>, , , , , , , , , , , , , , , , , , , </u>	Cours	e Cate	jory: HS	End	Semest	er Exam T	ype: TE
Course	U23ENBC01		Pe	riods/W	eek	Credit	Max	kimum Ma	rks
Code			L	Т	Р	C ·	CAM	ESE	TM
Course Name	COMMUNICATIVE E	NGLISH - I	2	-	2	3	20	80	100
	7	(Common to AL	L Branches	except	CSBS)				
Prerequisite	Basics of English Lang	uage						4 .	
	On completion of the	course, the stude	ents will be	able to)			BT Ma (Highes	
	CO1 Understand the	communication flow	in organiza	tion and	its objectiv	es	1 2	K	2
Course	CO2 Write the techni	cal contents with gran	nmatically p	recise se	entences			K	2
Outcome	CO3 Articulate with c	correct pronunciation a	and overcon	ne verna	cular impa	ct in speaki	ng	К	3
	CO4 Express opinior	ns confidently in form	al and inforr	nal com	municative	contexts	•••••••	К	2
	CO5 Attend interview	with assertiveness						K	3
UNIT- I	Workstead Commun	ication					Per	iods: 10	
Communication Communication References	on, Definition, Process, Con - Listening, Types, I	Channels, Barriers, Si Barriers, Enhancing	trategies for Listening S	Effectiv Skills - E	e Commu Bibliograph	nication, Ve ny: Book, J	erbal and ournal ar	Nonverbal nd Internet	CO1
UNIT- II	Common Errors In V	Vriting And Compre	ehension \$	Strategi	es		Per	iods: 10	<u>i</u>
Sentence Fra	Agreement, Misplaced M gment - Reading Com ding, Prediction, and Cor	lodifiers, Squinting M prehension: Technic	odifiers, Da	ngling M	lodifier, Fu	ised Senter ming, Scan	ice, Comi	na Splice.	CO2
UNIT- III	Phonetics						Por	ods: 10	
Pronunciation	Guidelines to consonan	its and vowels, Soun	ıds Mispron	ounced,	Silent and	d Non-silen	t Letters,	Intonation,	T
Spelling Rules Tongue	and Words often misspe	lled, Mother Tongue In	nfluence (MT	l), Vario	us Techniq	ues for Neu	tralization	of Mother	CO3
UNIT- IV List of Exerci	Communication Prac	ctice - I					Peri	ods: 15	.i
Listening: Sel Speaking: Sel Reading: Non	f Introduction videos f-Introduction, Extempore -Technical Comprehension fron Errors in Writing			ē	9 min 300 g				CO4
UNIT- V	Interpersonal Comm	unication - I	••••••••••••••••••				Pori	ods: 15	<u>.i</u>
List of Exercis							Fen	ous. 15	
Speaking: Del	eech Sounds, Interview Voate, Structured Group Di monly Confused Words scription		rsation			a			CO5
Writing: Trans									<u>i</u>
	ods: 30 Tutor	ial Periods: -	Practica	al Perio	ds: 30		Total	Periods:	60
Writing: Trans Lecture Perio Fext Books			<u>2</u>				<u>i</u>		
Lecture Period Fext Books 1. Richa Mish Revised Ed	ra , RatnaRao, "A textboo ition 2021.	ok of English Langua	age Commu	ınication	Skills", M		ublishers	India Privat	te Ltd.,
Lecture Periodext Books 1. Richa Mish Revised Ed 2. Rizvi M. Asi 2010.	ra , RatnaRao, "A textboo ition 2021. nraf, "Effective Technical	ok of English Langua	age Commu ew Delhi: Ta	inication ta-McGr	Skills", M aw-Hill Pu	blishing Co	ublishers mpany Lii	India Privat	te Ltd.,
Lecture Period ra , RatnaRao, "A textboo ition 2021. nraf, "Effective Technical nanian T, "English Phone	ok of English Langua	age Commu ew Delhi: Ta	inication ta-McGr	Skills", M aw-Hill Pu	blishing Co	ublishers mpany Lii	India Privat	te Ltd.,	
Lecture Periodext Books 1. Richa Mish Revised Ed 2. Rizvi M. Asi 2010. 3. Balasubran Reference Bo	ra , RatnaRao, "A textboo ition 2021. nraf, "Effective Technical nanian T, "English Phone oks	ok of English Langua Communication", Net	age Commu ew Delhi: Ta s workbook'	inication ta-McGr	Skills", M aw-Hill Pu ition, Trinit	blishing Con	ublishers mpany Lii	India Privat	te Ltd.,
Lecture Periodext Books 1. Richa Mish Revised Ed 2. Rizvi M. Asi 2010. 3. Balasubram Reference Books B	ra , RatnaRao, "A textboo ition 2021. hraf, "Effective Technical manian T, "English Phone oks shana, C. Savitha," Englisenakshi, and Sharma, Sar	ok of English Langua Communication", Ne tics for Indian student sh for Engineers", Ca	age Commu ew Delhi: Ta s workbook' mbridge Un	inication ta-McGr , 2nd Ed	Skills", M aw-Hill Pu ition, Trinit	blishing Col by Press, 20	ublishers mpany Lii 16.	India Prival	e Ltd.,
Lecture Periofext Books 1. Richa Mish Revised Ed 2. Rizvi M. Asi 2010. 3. Balasubram Reference Bo 1. N.P.Sudhar 2. Raman, Mer Press, 2017 3. Comfort, Je	ra , RatnaRao, "A textboo ition 2021. hraf, "Effective Technical manian T, "English Phone roks shana, C. Savitha," English enakshi, and Sharma, Sar remy,etal., "Speaking Eff	Ok of English Langua Communication", Ne tics for Indian student sh for Engineers", Ca ngeetha, "Technical C	age Commu ew Delhi: Ta s workbook' mbridge Un ommunicati	inication ta-McGr , 2nd Ed iversity F on - Prin	Skills", M aw-Hill Pu ition, Trinit Press, 2018 ciples and	blishing Col y Press, 20 3. Practice", 3	ublishers mpany Lii 16	India Prival mited, 4th E	e Ltd.,
Lecture Periodext Books 1. Richa Mish Revised Ed 2. Rizvi M. Asi 2010. 3. Balasubram Reference Boll. N.P.Sudhar 2. Raman, Merence Press, 2017 3. Comfort, Je Cambridge,	ra , RatnaRao, "A textboo ition 2021. hraf, "Effective Technical nanian T, "English Phone oks shana, C. Savitha," Englis enakshi, and Sharma, Sar	Ok of English Langua Communication", Ne tics for Indian student sh for Engineers", Can ngeetha, "Technical C ectively: Developing S	age Commu ew Delhi: Ta s workbook' mbridge Un ommunicati Speaking Sk	inication ta-McGr , 2nd Ed iversity F on - Prin	Skills", M aw-Hill Pu ition, Trinit 2. Press, 2018 ciples and usiness Er	blishing Contry Press, 20 3. Practice", 3	ublishers mpany Lii 16	India Prival mited, 4th E	e Ltd.,

Web References

- https://lemongrad.com/subject-verb-agreement-rules/
- https://opentextbc.ca/advancedenglish/chapter/misplaced-and-dangling-modifiers/
- 3. https://www.hitbullseye.com/Reading-Comprehension-Tricks.php
- 4. https://www.softwaretestinghelp.com/how-to-crack-the-gd/
- 5. https://worldscholarshipvault.com/neutralize-mother-tongue-interference/

COs/POs/PSOs Mapping

COs					Program Spe ci Outcomes (PSC										
	P01	PO2	PO3	P04	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	1	-	-	-	-	ļ-	-	-	3	-	1		_	
2	1	-	-	-	-	=	-	-	-	3	_	1	-		
3	1		-	-	Ε.	-	-	_		3		1			
4	1	-	-	_	_	-		_		2		'	-	-	€ 1
5	1				1	-	-	-							
	1	-	-		•	-		-	1	3	-	1	-		<u>.</u>

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Methods

			The	eory		
	Cont	inuous Ass	sessment Marks	(CAM)	End Semester	
Assessment	CAT 1	CAT 2	Model Exam	Attendance	Examination (ESE) Marks	Total Marks
Marks _	5	5	5	5	75	
Warks	20	(to be we	ighted for 10 mar	ks)	(to be weighted for 50 marks)	60

		Practical		
Continuous Assessmer		End Semester Ir	nternal Evaluation	Total Marks
	ed for 10 marks)	30 m	narks	
Listening (L)*	10	Listening (L)*	10	
Speaking(S)	5	Speaking(S)	5	40
Reading(R)*	10	Reading(R)*	10	40
Writing(W)*	5	Writing(W)*	5	4

LRW components of Practical can be evaluated through Language Lab Software

2, A, b, 56

K2

	7									
Department	EEE/	ECE	Progi	ramme :	B.Tech.					
Semester	1	1	Cours	se Cateo	jory: ES	End	Semes	ster Exam Type: L		
Course			Pe	eriods/W	leek	Credit	Maximum Marks			
Code	U23E	EPC01	L	Т	Р	С	CAM	ESE	TM	
Course Name	ELEC	CS OF ELECTRICAL AND TRONICS ENGINEERING DRATORY	<u>-</u>	-	2	1 .	50	50	100	
	_	(Common to CSE, IT, MECH, CIVI	L, CCE, A	I&DS, F	T, MCTR	, CSBS Br	anches)	+		
Prerequisite	Basic	: Knowledge of Science						•••••••••••		
	On co	mpletion of the course, the stude	nts will be	e able to)				Mapping est Leve	
	CO1	Build the different wiring for domestic	and comm	nercial ap	oplications	3.	•••••••••••••••••••••••••••••••••••••••	K3		
	CO2	Design and analyze the domestic pov	wer distribu	tion.				K3		
Course	CO3	Estimate the performance of transfor	mer and m	otors by	conducting	g load test.			K3	
Outcome	C O4	Describe characteristics of semicond	Describe characteristics of semiconductor diode and utilize it for different applications							
	CO5	Relate the characteristics of various tr	ansistor	***************************************	j., etc. js.	••••••	•••••••••••••••••••••••••••••••••••••••	K5 K2		
	h	•		*********************					112	

List of Experiments

Section - A Electrical Experiments

Demonstration on Power Sources, Ammeter, Voltmeter, Wattmeter and Energy meter are Pre-requisite for conducting this Electrical Engineering Lab.

- 1. Electrical safety precautions and study of tools, accessories, electrical joints and electrical symbols.
- 2. Domestic Wiring Practice
 - Staircase wiring

CO6

- Doctor's room wiring
- Godown wiring
- Wiring of Ceiling fan, LED lamps and Iron Box.

Understand Rectifiers and Regulators

- 3. Design of Domestic power distribution.
- 4. Measurement of 3-phase power using two wattmeter method
- 5. Load test on DC shunt motor.
- Load test on single phase transformer.
- 7. Load test on single phase Induction Motor.

Section - B Electronics Experiments

- 1. Study of Electronic components and equipment: Resistor, Capacitor
- 2. Measurement of AC signal parameter (Peak-Peak, rms period, frequency) using CRO.
- 3. VI Characteristics of PN junction diode, Zener diode
- 4. Input and output characteristics of Common Emitter configuration of BJT
- 5. Characteristics of JFET
- 6. Measurement of Ripple factor of HWR, FWR
- 7. Voltage Regulator using Zener Diode

Lecture Periods: -	Tutorial Periods: -	Practical	Periods: 30	Total Periods: 30	
Reference Books	4				
 S. Gowri, T. Jeyapoovan N Edition, 2014. 	adar, "Engineering Practices	Lab Manual",	Vikas Publishin	g House Private Limited, New Delhi, 5t	h
 A.Sudhakar and Shyam M Ltd., New Delhi, 4th edition, 		orks Analysis	and Synthesis",	Tata McGraw Hill Publishing Compan	y

- D.P.Kothari and I.J. Nagrath, "Electric Machines", Tata McGraw Hill, New Delhi, 5th Edition, 2017.
- 4. Edward Hughes, John Hiley, Keith Brown, Ian McKenzie Smith, Electrical and Electronics Technology, Pearson Education Limited, New Delhi, 12th edition 2016.
- 5. S.K. Sahdev, "Fundamentals of Electrical Engineering and Electronics", DhanpatRai and Co, 2017.

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- 1. http://eie.sliet.ac.in/laboratories/basic-electrical-engineering-lab/
- 2. https://www.electronics-tutorials.ws/accircuits/series-circuit.html
- 3. https://www.allaboutcircuits.com/textbook/experiments/
- 4. https://www.electronicshub.org/measurements-of-ac-current/
- 5. http://www.electronics-tutorials.ws

Dr. dr. 8500

COs		Program Outcomes (POs)											Program Specific Outcomes (PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	3	-	×-	1	7-	-	3	-	-	1	3	2	-
2	3	2	3	-	-	1	-	0-	3	-	. .	1	3	2	_
3	3	2	3		-	1	-	-	3	,	-	1	3	2	-
4	3	2	3	-	=	1	-	-	3	-	-	1	3	2	~
5	3	2	3	-	-	1	<u> </u>	-	3	-	-	1	3	2	-

Correlation Level: 1 - Low, 2 - Medium, 3 - High

	С	ontinuous	Assess	ment Marks (CAM)				
Assessment	Performanc clas	e in Practic sses	al	Model Practical		End Semester Examination (ESE)	Total	
	Conduction of Practical	Record work	viva	Examination	Attendance	Marks	Marks	
Marks	15	5	5	15	10	50	100	

Department	Mech	anical Engineering	Progr	amme :	B.Tech.						
Semester	ı		Cours	e Categ	ory: ES	End	Semeste	Exam •	Type: LE		
Course		0000	Pe	riods/W	eek	Credit	Maxi	mum Ma	arks		
Code	U23E	SPC02	L	Т	Р	С	CAM	ESE	TM		
Course Name	DESI	GN THINKING AND IDEA LAB	-	-	2	1	50	50	100		
		(Common	to ALL Br	anches)							
Prerequisite	Basic	Knowledge of Science									
	On ço	On completion of the course, the students will be able to									
	CO1	Demonstrate a comprehensive understanding of the tools and inventory associated with the IDEA Lab.									
	CO2	Develop proficiency in ideation techniques to generate creative and innovative solutions for various design challenges and problems									
Course Outcome	CO3	Acquire practical knowledge of mechar hands-on experience with machinery, t assembly of physical components.							КЗ		
	CO4	Cultivate the skills necessary for developing innovative and desirable products, including the ability to integrate user needs, market trends, and technological advancements into the design process.									
**************************************	CO5	Apply iterative design methodologies to refine and improve solutions based on feedback, user testing, and evaluation of functional, aesthetic, and usability aspects									

Design process: Traditional design, Design thinking, Existing sample design projects, Study on designs around us, Compositions/structure of a design, Innovative design: Breaking of patterns, Reframe existing design problems, Principles of creativity Empathy: Customer Needs, Insight-leaving from the lives of others/standing on the shoes of others, Observation

Design team-Team formation, Conceptualization: Visual thinking, Drawing/sketching, New concept thinking, Patents and Intellectual Property, Concept Generation Methodologies, Concept Selection, Concept Testing, Opportunity identification Prototyping: Principles of prototyping, Prototyping technologies, Prototype using simple things, Wooden model, Clay model, 3D printing; Experimenting/testing.

Sustainable product design, Ergonomics, Semantics, Entrepreneurship/business ideas, Product Data Specification, Establishing target specifications, Setting the final specifications. Design projects for teams.

List of Lab Activities and Experiments

- 1. Schematic and PCB layout design of a suitable circuit, fabrication and testing of the circuit.
- 2. Machining of 3D geometry on soft material such as softwood or modelling wax.
- 3. 3D scanning of computer mouse geometry surface. 3D printing of scanned geometry using FDM or SLA printer.
- 2D profile cutting of press fit box/casing in acrylic (3 or 6 mm thickness)/cardboard, MDF (2 mm) board using laser cutter & engraver.
- 5. 2D profile cutting on plywood /MDF (6-12 mm) for press fit designs.
- Familiarity and use of welding equipment.
- 7. Familiarity and use of normal and wood lathe.
- 8. Embedded programming using Arduino and/or Raspberry Pi.
- Design and implementation of a capstone project involving embedded hardware, software and machined or 3D printed enclosure.
- 10. Discussion and implementation of a mini project.
- 11. Documentation of the mini project (Report and video).

Lecture Periods: -	Tutorial Periods: -	Practical Periods: 30	Total Periods: 30
Text Books			-
1. Tim Brown, Change by	Design: How Design Thinkin	g Transforms Organizations and In-	spires Innovation, HarperCollins
Publishers Ltd			
2. Workshop / Manufacturi	ng Practices (with Lab Manual),	Khanna Book Publishing. 👙	

2, A, 6, 59

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Reference Books

- 1. Ulrich and Eppinger, Product Design and Development, 3rd Edition, McGraw Hill, 2004
- 2. The Big Book of Maker Skills: Tools & Techniques for Building Great Tech Projects. Chris Hackett. Weldon Owen; 2018.
- 3. The Total Inventors Manual (Popular Science): Transform Your Idea into a Top-Selling Product. Sean Michael Ragan, Weldon
- The Art of Electronics. 3rd edition. Paul Horowitz and Winfield Hill. Cambridge University Press.
- 5. Practical Electronics for Inventors. 4th edition. Paul Sherz and Simon Monk. McGraw Hill.
- Make Your Own PCBs with EAGLE: From Schematic Designs to Finished Boards. Simon Monk and Duncan Amos. McGraw Hill
- Programming Arduino: Getting Started with Sketches. 2nd edition. Simon Monk. McGraw Hill. 7.
- Venuvinod, PK., MA. W., Rapid Prototyping Laser Based and Other Technologies, Kluwer
- Chapman W.A.J, "Workshop Technology", Volume I, II, III, CBS Publishers and Distributors, 5th Edition, 2002.

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https://onlinecourses.nptel.ac.in/noc23_mg72

COs/POs/PSOs Mapping

COs		Program Outcomes (POs)											Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	DO40				
1	3	2	2	2	2			. 00	1 03	1010	POTT	PO12	PSO1	PSO2	PSO3	
-						2	· P		2	-	3	2	_			
2	3	3	3	2	2	2	- 1	- 2	2		3					
3	3	3	3	2	2	_					3	2	-	-	-	
-		-			3	2		-	2	-	3	2				
4	3	3	3	2	3	2	ē-		2							
5	3	3	. 3	2			-		2	-	3	2	~	-	-	
3	<u> </u>	3	3	2	3	2	-	-	2	-	3	2				

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Methods

	С	ontinuous	Assess	ment Marks (CAM)		
Assessment	Performanc clas	e in Practic sses	al	Model Duration		End Semester	Total
	Conduction of Practical	Record work	viva	Model Practical Examination	Attendance	Examination (ESE) Marks	Marks
Marks	15	5	5	15	10		
all Colores			0	. 13	10	50	100

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Department	Mechanical	Prog	ramme :	B.Tech.				
Semester	1	Course Category: ES End Semester Exam						Type: LE
Course	U23ESP101	Periods/Week C				Credit Maximum Marks		
Code	023E3F 101	L	Т	Р	С	CAM	ESE	TM
Course Name	ENGINEERING MECHANICS LABORATORY	-	-	2	1	50	50	100
Prerequisite	Basic Knowledge of Science				-			
	On completion of the course, the st	udents will b	e able to	o .			BT N	lapping

Prerequisite	Basic	Knowledge of Science	
	On co	mpletion of the course, the students will be able to	BT Mapping
	011 00	implement of the course, the statems will be able to	(Highest Level)
	CO1	Applies the concept of law of forces, principle of moments and equilibrium of forces	K2
Course	CO2	Computes the axial forces acting in the truss members and centroid of a lamina.	K3
Outcome	CO3	Applies the coefficient of friction and Newton's law of motion.	. K2
	CO4	Infers about the concept of moment of inertia of a flywheel.	K2
	CO5	Demonstrates the concept of conservation of energy.	K2

List of Experiments

- 1. Verification of triangle law & parallelogram law of forces
- 2. Verification of polygon law of forces
- 3. Verification of the Principle of Moments using the Bell Crank Lever apparatus
- 4. Verification of support reactions of a simply supported beam
- 5. Verification of condition of equilibrium of a system of forces
- 6. Verification of equilibrium of three-dimensional forces.
- 7. Verification of axial forces in the members of a truss
- 8. Verification of centroid of different lamina
- 9. Determination of coefficient of friction between two surfaces
- 10. Verification of newton's laws of motion
- 11. Determination of moment of inertia of a flywheel
- 12. Verification of motion parameters using conservation of energy.

	·		
Lecture Periods: -	Tutorial Periods: -	Practical Periods: 30	Total Periods: 30

Reference Books

- A.K.Gupta, Mohit Bhoot, Engineering Mechanics laboratory manual, Scientific Publishers, 2015.
- 2. A.K.Sharma, Engineering mechanics practicals, University Science Press, 2009.
- 3. U.C. Jindal, Basics of Engineering Mechanics, Galgotia Publications, 2002.
- 4. S.Rajasekaran, G.Sankarasubramanian, Fundamentals of Engineering Mechanics, Vikas Publishing House Pvt., Ltd., 2012.
- 5. S.S.Bhavikatti and K.G. Rajashekarappa, Engineering Mechanics, New Age International(p) Ltd, New Delhi, 7th Edition, 2019.

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- 1. http://nptel.iitm.ac.in/video.php?subjectld=112103108
- 2. http://www.nptel.iitm.ac.in/courses/Webcourse-contents/IIT-KANPUR / Engineering mechanics / Table of Contents.html
- 3. https://nptel.ac.in/courses/112/106/112106286/
- 4. https://www.coursera.org/learn/engineering-mechanics-statics
- 5. https://nptel.ac.in/courses/122/104/122104014/

COs/POs/PSOs Mapping

COs					Prog	gram O	utcome	s (POs)					ram Spe omes (P	
	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PS03
1	3	2	2	1	1	1	-	9	-	-	-	1	2	2	1
2	3	2	2	1	1	*	-	-	Ħ	=	-	1	2	2	1
3	3	2	2	1	1	-	. A. A	1	7	-	(=)	1	2	2	1
4	3	2	2	1	1		-	- 7	1	×	-	1	2	2	1
5	3	2	. 2	1	1	= "	-	-		-	- -	1	2	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 - High

B.Tech. Mechanical Engineering

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Evaluation Methods

	С	ontinuous	Assess	ment Marks (CAM)	,		Total
Assessment	Performanc clas	e in Practic sses	al	Model Practical		End Semester Examination (ESE)	
	Conduction of Practical	Record work	viva	Examination	Attendance	Marks	Marks
Marks	. 15	5	5	15	10	50	100

2. A. b. b2

Department			ŕ	Progran	nme: B.	Tech.					
Semester	First			Course	Catego	ry: MC	En	d Semest	er Exam Ty	pe: -	
Course Code				Perio	ds / W	eek	Credit	Ma	aximum Ma	rks	
Course Code	U23N	IEMC01		L	Т	Р	С	CAM	ESE	TM	
Course Name	INDU	CTION PROGRAMME		-	-	-	Non-Credi	-	-	-	
Prerequisite	-		<u>v</u>	E	S				.4		
Course	The c	ourse will enable the s	tudent to						(Hi	lapping ghest evel)	
Outcome	CO1	Develop holistic attitud	le and harmo	ony in the inc	dividual,	family	, and Society			K2	
	CO2	Acquire grammar skill	s and capable	e to write an	d speak	Englis	h confidently	<u></u>	~	K2	
	CO3			K2							
	CO3 Understand the basic concepts in Mathematics and Programming CO4 Know about the art and culture, language and literature of this vast secular nation										
	CO5 Identify the inherent talent and develop it professionally										
UNIT- I	CO5 Identify the inherent talent and develop it professionally Universal Human Values Periods:										
Management, A lifestyle, Hostel I Competition and	Anger, S ife, Rela d Coope	Peers, Society, Nation, F Stress Personality Deve tionships - Home sickne ration, Peer Pressure, So ation, Need for a Holistic	lopment, Sel ss, Gratitude ciety - Partici	f-improvem towards Par pation in So	ent, Hea ents, Tea ciety, Na	alth - H achers tural E	lealth issues, and others Ra nvironment - F	Healthy d gging and articipatio	iet, Healthy interaction, n in Nature,	CO1	
UNIT- II	Profic	ciency in English	1			••••••••••		Periods:	12		
Communication	skills -	Prognostic test on Grar ostitution, Homophones						mpletion, I	dioms and	CO2	
Agreement - W	riting - P	aragraph writing, Letter	writing, Essay	y writing, Sto	ory Deve	lopme	nt.				
UNIT- III	Bridg	e Course in Mathema	itics and C	Programm	ning	э		Periods:	12		
Continuity of a definition of substitution of functions contiparts) - Definite	function ementa Differen taining li e integr	ential and integral calcu - Concept of differentia ry functions from first printiation of parametric func- near functions -Method of the calculus of the calculus of the calculus of a solice of a sol	tion - Conce aciple - Deriva tions -Differe of integration egrals - Prop	pt of derivantives of inventiation of in (Decompos	tive - Slo erse func aplicit fu sition me	pe of a tions - nctions thod, n	a curve -Differe Logarithmic d s - Higher orde nethod of subs	entiation T fferentiation derivative stitution, in	echniques - on - Method es. Integrals tegration by	CO3	
	nd its ba	sic Structure - Keywords d Looping statement - Ar		ons - Strings	- writing	g simpl	e C programs		t and output		
UNIT- IV	Litera	my activities						Periods:	12		
		- Quiz - Oral Exercises - ம் தமிழர் தொழில்நுட்	Group discus ட்பம்	sion, Debat	e, Extem	pore, F	Role play, 鈩ற	ப்பு சொ	ற்பொழிவு	CO4	
UNIT- V	Creat	ive arts						Periods:	12		
Introduction to p		and renowned artwor						ļnstrumen	tal - Dance	CO5	
Lecture Period	ls: 60	Tutorial Per	iods: -	Practica	al Perio	ds: -	Т	otal Peri	ods: 60		
Reference Boo		ina, G.P. Bagaria," A Fou	ndation Cour	rse in Huma	n Value:	s and F	Professional Et	hics", Exce	el Books, Ne		

- தமிழக வரலாறு மக்களும் பண்பாடும், பிள்ளை, கே. கே. , சென்னை ் உலகத் தமிழாராய்ச்சி நிறுவனம் , 2002.
- 10. கணினித்தமிழ் முனைவர் இல.சுந்தரம், விகடன் பிரசுரம்.

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- 4. http://www.math.cum.edu/~wn0g/2ch6a.pdf
- 5. https://education.nsw.gov.au/teaching-and-learning/curriculum/creative-arts

SEMESTER II

2, 4, 6, 65

D-2.85h

2, A.b.66

Department	Mathematic	S			B.Tech.				
Semester			:		gory: BS	End	Semes	ter Exam	Туре: Т
Course	U23MATC02	2	Pe	eriods/V	Veek	Credit	Ma	aximum N	1arks
Code Course Name	ENCINEED	NG MATHEMATICS - II	L	T	Р	С	CAM	ESE	TM
Course Name	ENGINEERI		3	1		4	25	75	100
Prerequisite	Basic Mathe	(Common to AL)	L Branches I	=xcept	CSBS, FI)			
1								ВТІ	Mapping
	On completion	on of the course, the stu	dents will b	e able t	to				est Leve
	CO1. Conv	ert a periodic function into s	eries form.				••••••		K2
Course	CO2 Com	pute Fourier transforms of v	arious functio	ns.	e de la companya de l	:			K3
Outcome	CO3 Solve	e Differential Equations usin	g Laplace trai	nsforms.					K3
	CO4 Apply	y inverse Laplace transform	of simple fun	ctions.					K3
	CO5 Solve	difference equations using	Z – transform	S.					K3
UNIT - I	Fourier Seri							riods:12	
Dirichlet's con Change of inte	ditions – Gener ervals – Parseva	ral Fourier series – Odd⊬an I's Identity.	d Even functi	ons – H	alf-Range	sine series	and cosi	ne series	- co1
UNIT - II	Fourier Tran	nsforms					Pei	riods:12	<u>l</u>
		erse – Properties of Fourier	Transform (w	ithout pr	oof) – Fou	rier sine and			s cc-
	erties (excluding				, ev				CO2
UNIT - III	Laplace Trai	nsforms					L	iods:12	
					P = = / = 1				٥.
Laplace transfo of derivatives a	orms of elementa and integrals — Ir	ary functions and Periodic fun nitial and final value theoren	nctions – Basi ns.	cproper	ties (exclud	ling proof) –	Laplace	transform	CO3
Laplace transfo of derivatives a UNIT - IV	and integrals – Ir	ary functions and Periodic functions and final value theorem ace Transforms	nctions – Basi ns.	c proper	ties (exclud	ling proof) –	······	transform	CO3
of derivatives a UNIT - IV Definition of inv	Inverse Lapl verse Laplace Tr	nitial and final value theoren ace Transforms ansforms – Convolution theo	ns.	×			Per	iods:12	CO3
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COs	3				Prog	ram O	utcom	es (PC	s)					ram Spe	
	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	. 2	-		1	i-	-	-	-	,— 	1	1	=	-
2	3	2	1	1	-	1	-	-	-	-	-	1	3	-	-
3	3	2	1	1	-	1			-	-	-	1	3	-	-
4	3	2	1	1	-	1	-	-	E	-	-	1	3	-	-
5	3	2	1	1	-	1	-	-	-	-	-	1	3	-	

Correlation Level: 1 - Low, 2 - Medium, 3 - High

	_	Conti	nuous Asse	ssment Marks (CA	.M)	End Semester	T-4-1
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Total Marks
Marks	5	5	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

	Te Guinculum N-2023						
Department	Computer Science and Engineering	Programme	B.Tech.			*	
Semester	•	Course Cate	gory: ES	End S	emester E	xam Type	e: TE
Course	U23CSTC01	Periods/V	Veek	Credit	Maxi	mum Mar	ks
Code	020001001	L T	Р	С	CAM	ESE	TM
Course Name	PROGRAMMING IN C	3 -	-	3	25	75	100
	(Commor	to <u>ALL</u> Branche	3)				
Prerequisite	Nil						
	On completion of the course, the stude	nts will be able	to			BT Ma (Highes	
	CO1 Comprehend the basics of Compute	ers.			,	K	2
Course	CO2 Illustrate the concepts of control structure	ctures and looping.				K	2
Outcome	CO3 Implement programs using arrays ar	nd functions.				K	3
	CO.4 Demonstrate programs using Structu	ure and Pointers.				K	3
	CO5 Build the programs using Union and	File management	Operations	3.		K	3
UNIT - I	Introduction				Perio	ods: 09	
	nd Classification of Computers - Block Diagram em – Binary – Decimal – Conversion – Al [®] gorith				– Network S	Structure -	CO ²
UNIT - II	C Programming Basics				Perio	ods: 09	L
••••••	o ' C' Programming – Basic structure of a '0	C' program - com					1
Variables - D	Pata Types – Expressions using operators in '6g – Looping statements	C' – Managing Inpu	at and Outp	out operation	ns – Decisio	on Making	co
UNIT - III	Arrays and Functions				Perio	ods: 09	L
Arrays. Simple Pass by value	alization – Declaration – One dimensional are programs-sorting-searching – matrix operation – Pass by reference – Recursion	ons-Function—def	arrays. S inition of fu	nction – Dec	claration of	function –	CO3
UNIT - IV	Structure and Pointers				L	ds: 09	·
	duction – Structure definition – Structure decla finition – Initialization – Pointers arithmetic – P ams.						CO4
UNIT - V	Unions and Files			•••••	Perio	ds: 09	.L
Union Introdu	ction - Programs Using Structures and Unions	s – Introduction to I	File - File C	perations - I	File Input a	nd Output	
Functions - Ra	andom Access to Files - File System Functions ramic Memory Functions.						COS
Lecture Perio	ods: 45 Tutorial Periods:	Practical Perio	ds: -		Total	Periods:	45
ext Books			. *** '*				
l. Balagurusa	my. E, "Programming in ANSI C", Tata McGraw	v Hill, 8 th Edition, 20)19.				
2. Yashvant Ka	anetkar, "Let us C", BPB Publications, 16th Edit	tion, 2017					
	ildt," C: The Complete Reference", McGraw Hil	II, FourthEdition, 20)14				
Reference Bo							
•••••	arwal Jyoti P. Mirani, "Computer Fundamentals						
	mthane, "Computer Programming", Pearson e a, "A Workbook on C ", Cengage Learning, Sec		mpression	,2012.		•••••	
	rinivasan and S.Koteeswaran, "Fundamenta		and Progi	ramming", I	Fourth Edit	ion, Sri K	írishna
. PradipDev,	ManasGhoush, "Programming in C", Second E	dition, Oxford Univ	ersity Pres	s, 2011.			
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	programiz.com/c-programming						
	geeksforgeeks.org/c-language-set-1-introducti	ion/					
. https://www.	tutorialspoint.com/cprogramming			M	&- & - C	3000	2

- 4. https://www.assignment2do.wordpress.com/.../solution-programming-in-ansi-c
- 5. https://nptel.ac.in/courses/106/104/106104128/

COs	34 ————————————————————————————————————				Prog	ram O	utcome	es (PO)s)				Prog Outco	ram Spe	ecific
,	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			PSO3
1	2	1		-	3	2	-	-	-	-		-	3	-	3
2	2	1	-	-	3	-	-	-	-	-			3	-	3
3	3	2	1	1	3	-	1-	-		-	-	-	3	-	3
4	3	2	1	1	3	-	-	-	-	*.=	-	-	3		3
5	3	2	1	1	3	-	Ļ	-	-	-	-	-	3		3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

•		Conti	nuous Asse	ssment Marks (CA	M)	End Semester	
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Total Marks
Marks	5	5	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

	CIVII	/ Mechanical	Progra	amme :	B.Tech				4	
Semester	II	į	Cours	e Categ	ory: ES		End S	Semeste	r Exam Typ	e: TE
Course	U23E	ESTC01	Pe	riods / V	··· <u>·</u>	Cred	t	Ma	ximum Ma	rks
Course Nam		CS OF CIVIL AND MECHANICAL NEERING	3	T -	P -	3		25	ESE 75	TM 100
		(Common to ECE, EEE, ICE,	MECH, Civ	il, Mech	natronic	s Branche				i
Prerequisite	Basic	Science					/			
	On cor	mpletion of the course, the students v	vill be able	to				•••••••••••••••••••••••••••••••••••••••	BT Ma (Highes	apping st Leve
	CO1	Understand the types of buildings an	d materials.							2
0	CO2	Summarize on the various compone	nts of buildir	ngs and	surveyi	ng concept	S		к	2
Course	CO3	Identify the various infrastructure faci	lities				36		к	2
Outcome	CO4	Familiarize the working principles of	IC engines a	and auto	omobile	systems			к	2
	CO5	Understand about the power generat						•••••••••••••••••	К	2
	CO6	Acquire knowledge about the various						***************************************	. к	2
		SECTION A -	CIVIL ENG	INEERI	NG	Fp4			• • • •	
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UNIT - III Roads and E Sources of W	Basic II Bridges Vater - Q	nfrastructure – types, components advantage and uality of Water- Domestic sewage Treat	disadvantag	es. Rai	lways -	Permanen	way	Perio	ods: 07	CO3
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- 5. https://nptel.ac.in/courses/105104101/

COs/POs/PSOs Mapping

COs					Prog	gram O	utcome	s (POs)		F		Prog Outc	ram Spe omes (P	cific SOs)
	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	.PSO1	PSO2	PSO3
1	3	1	1	-	1	-	-	-	•	-	-	1	-	-	-
2	3	1.	1	-	1	-	-	ş-	-	-	-	1	-	-	-
3	3	1	1	-	1		-	į	1.	-	-	1	-	-	-
4	3	1	-		-	_	-	-	-	-	-	1	-		-
5	3	1	=	=	=		-		-	-	-	1	-	-	-

Correlation Level: 1 - Low, 2 - Medium, 3 - High

		Conti	nuous Asse	ssment Marks (CA	M)	End Semester	Total
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	. Attendance	Examination (ESE) Marks	Total Marks
Marks	5	5	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

	Mechanical	Progi	ramme :	B.Tech.				
Semester	II	Cours	se Categ	ory: PC	Enc	Semeste	er Exam Ty	pe: T I
Course	U23MET202	Pe	riods/W	eek	Credit	" <u>F</u>	imum Mar	
Code	025WE1202	L	Т	Р	С	CAM	ESE	TM
Course Name	ENGINEERING METALLURGY	3	-	-	3	25	75	100
Prerequisite	Nil							
,				, 4			BT Ma	pping
	On completion of the course, the stud	lents will b	e able to	0 *-			(Highes	t Leve
	CO1 Understand the fundamentals of so	olidification, i	metal stru	ucture, sol	id solution r	netals.	K	2
Course	CO2 Recognize the phase and equilibrium	um diagram	with reac	tions.			K	2
Outcome	CO3 Apply the principles of heat-treatm	***************************************	•••••			•••••••••••••••••••••••••••••••••••••••	K	3
n .	CO4 Understand the polymers processi		••••••	ngineering	application	S.	K	
-	CO5 Perform mechanical testing and Ar					N.T	K	•••••
UNIT - I	Solidification and Theory of Alloys		••••••	••••••		Peri	iods: 09	
Mechanism of	f crystallization, solidification of metals: p	ure metals	and alloy	ys, conce	ot of super	cooling, N	Nucleation:	T
homogenousr	nucleation and heterogeneous nucleation. So Rule, Lever Rule-Allotropy	lid solutions:	Substitu	tion solid s	solution -Inte	erstitial sol	id solution,	CO1
UNIT - II	Phase Diagram and Iron- Carbon Equ	uilibrium D	iagram.	•••••		Peri	ods: 09	
Construction a	nd interpretation of binary phase diagrams –	Types – Eute	ectic, Eute	ectoid, Per	itectic and f	Peritectoid	systems –	
Iron Carbon ed	quilibrium diagrams – Classification of steel methods of Cast Iron, Alloy cast iron.	making prod	cesses; p	roduction	of primary a	and secon	dary steel-	CO2
LINUT III	Heat Treatment of Steels	•••••••••••••••••••••••••••••••••••••••		, e	••••••••	······································		· -
UNIT - III	rical freatment of oteers			N.,		Peri	ods: 09	
		atment of fe	rritic stee	els: consta	ınt tempera	i		
Introduction to	heat treatment- Classifications, Heat treatolling curves-Important of heat treatment of st	eels- Surface	e Hardeni	ing proces	s: classifica	ture trans tions- Mar	formation- tempering	
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- 3. https://fractory.com/heat-treatment-methods/
- 4. http://www.phase-trans.msm.cam.ac.uk/2005/growth.html
- 5. https://www.vssut.ac.in/lecture_notes/lecture1450443095.pdf

COs					Prog	gram O	utcome	s (POs)				Prog Outc	ram Spe omes (P	cific SOs)
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	2	-	1	1	-	1	-	1		1	1	1	1
2	3	1	2	-		-	-	1	-	1	-	1	2	1	1
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4	3	1	1	1	-	1	1	1	-	1	1	2	1	1	2
5	3	2	1	1	2	1	9_	1	2	2	1	2	1	1	2

Correlation Level: 1 - Low, 2 - Medium, 3 - High

	1	Conti	End Semester	T-4-1			
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Total Marks
Marks	5	5	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Semester Course Code Course Name COMMUNICATIVE ENGLISH - II Common to A Prerequisite Basics of English Language On completion of the course, the stud Course Outcome CO3 Acquire language skills professional various etiquettes in real time situation cost provided in the course of creative writer communication cost provided in the course of creative writer communication cost provided in the course of creative writer communication cost provided in the course of creative writer communication cost provided in the course of creative writer communication cost provided in the course of creative writer communication cost provided in the course of creative writer communication cost provided in the course of creative writer course or communication communication provided in the course of creative writer course course or communication provided in the course of course course or course o	Progra	mme :	B.Tech.				
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Code Course Name COMMUNICATIVE ENGLISH - II (Common to A Prerequisite Basics of English Language On completion of the course, the stud CO1 Draft effective written communicative writen course Outcome CO2 Apply the mechanics of creative writen communicative writen communication writings settleters in real time situative writen communication writing. Circular, Agenda, Memoranda, Notice, Demi Official Letters 'Applying for Educational / Car / Hor Training, Letter to the Editor, Calling for a quotation, Pla Resume', Job Application Letter, Bio-data, CV UNIT- II Functional Writing Skills Four Modes of Writing, Sentence Structure, Art of condens clause in sentence, Principles of paragraph writing, Technical UNIT- III Etiquettes Etiquette: Meaning, Kinds: Corporate Etiquette, Meeting Etiquette, Dining Etiquette, Communication Etiquette UNIT- IV Communication Practice - II List of Exercises Listening: Letter writing tips Speaking: Just a Minute, Impromptu Speech, Contempora Reading: Variety of examples for Modes of Writing Writing: Different types of letters UNIT- V Interpersonal Communication - II List of Exercises Listening: Videos on different types of Etiquettes Speaking: Team Presentation, Negotiation Skills , Reading: Prase and Clause Writing: Free writing on any given topic, Paraphrasing Practical Books 1. PC Das, "Letter Writing including Official and Business Letter Books 1. PC Das, "Letter Writing including Official and Business Letter Books 1. PC Das, "Letter Writing including Official and Business Letter Books 1. Sahukar, Nimeran , Bhalla, Prem, "The book of Etiquette Coercical Books 1. Gerson Sharon J, Steven M. Gerson, "Technical Writing Pase Active Process of Process of	Peri	iods/V	Veek	Credit	Max	imum Ma	rks
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 Grussendorf, Marion, "English for Presentations". Oxford Seely John, "The Oxford Guide to Writing and Speaking", 	es and Manner	s".Pus	takMahal F	ublisher, N	lew Delhi;	1st Edition	2009.
 Seely John, "The Oxford Guide to Writing and Speaking", 		**************	*************************	ducation P	vt. Ltd. 3rd	Edition, 20	09.
n RC Sharma Krichna Mahan "Bucinasa Carrasas					- [] .	. D. 11 1 2 2	
5. R.C. Sharma, Krishna Mohan, "Business Correspondence	e and Report V	vriting"	, rata ivicG	raw Hill &C	o.Ltd., New	Delhi, 20	U1

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2.	https://owlcation.com/humanities/Four-Types-of-Writing
3.	https://targetstudy.com/languages/english/paragraph-writing.html
4.	https://www.businessnewsdaily.com/8262-email-etiquette-tips.html
5.	https://www.youtube.com/watch?v=UOceystelio

COs					Prog	ram O	utcom	es (PO	s)					ram Spo omes (F	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	-	. =	-	-	S= -	-	-	-	3	-	1	-	-	-
2	1	-	-	-	-	-	1.	-	-	3	-	1	-		
3	1	_	-		-	-	-	-	-	3	2	1	-	:=:	-
4	1	-	-	-	-)	-	_	-	-	3	-	1	_	-	-
5	1	-	-,	-	- "	-	-	-	-	.3	-	1	_	-	-

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Methods

			The	eory		
_	Con	tinuous Ass	sessment Marks	(CAM)	End Semester	
Assessment					Examination (ESE) Marks	Total Marks
Marks	5	5	5	5	75	
Walks	2	20(to be wei	ighted for 10 mar	(to be weighted for 50 marks)	60	

		Practical	× .					
Continuous Assessmen	t Internal Evaluation	End Semester	Internal Evaluation	Total Marks				
30(to be weight	ed for 10 marks)	. 30	30 marks					
Listening (L)*	10	Listening (L)*	10					
Speaking(S)	5	Speaking(S)	5	40				
Reading(R)*	10	Reading(R)*	10	- v				
Writing(W)*	5	Writing(W)*	5	- 44				

LRW components of Practical can be evaluated through Language Lab Software

Department	epartment Mechanical		Programme : B.Tech.									
Semester	ester II		e Categ	ory:ES	End Semester Exam Type: LE							
Course	User a page	Pe	Periods/Week		Credit	Max	cimum Ma	rks				
Code	U23ESPC03	L	Т	Р	С	CAM	ESE	TM				
Course Name	ENGINEERING GRAPHICS USING AUTOCAD LABORATORY	-	-	2	1	50	50	100				

(Common to all Branches)

Prerequisite	Nil	•	
	On co	mpletion of the course, the students will be able to	BT Mapping (Highest Level)
	CO1	Familiarize with the fundamentals and standards of engineering graphics.	K3
Course	CO2	Perform drawing of basic geometrical constructions and multiple views of objects.	K2
Outcome	CO3	Visualize the isometric and perspective sections of simple solids.	K3
	CO4	Connect side view associate on front view.	K4
	CO5	Correlate sectional views and lateral surface developments of various solids.	K4

List of Experiments

- 1. Study of capabilities of software for Drafting and Modeling Coordinate systems (absolute, relative, polar, etc.) Creation of simple figures like polygon and general multi-line figures.
- 2. Drawing a Title Block with necessary text and projection symbol.
- 3. Drawing 2D sketch by applying modify tools like fillet, mirror, array, etc.,
- 4. Drawing front view and top view of simple solids like prism, pyramid, cylinder, cone, etc., and Dimensioning.
- 5. Drawing front view, top view and side view of objects from the given pictorial views (eg. Simple stool, V-block, Mixie Base).
- 6. Drawing a plan of residential building (Two bed rooms, kitchen, hall, etc.)
- 7. Drawing sectional views of prism, pyramid, cylinder, cone, etc,
- 8. Drawing lateral surface development of prism, pyramid, cylinder, cone, etc,
- 9. Drawing isometric projection of simple objects.
- 10. Creating 3D model of simple object and obtaining 2D multi-view drawings.
- 11. Note: Plotting of drawings must be made for each exercise and attached to the records written by Students.

4	g en	
Lecture Periods: - Tutorial Periods: -	Practical Periods: 30	Total Periods: 30
Reference Books		
1. James D. Bethune, Engineering Graphics with AutoCo	AD A Spectrum book 1st Edition, Macro	media Press, Pearson, 2020.
NS Parthasarathy and Vela Murali, Engineering Draw	ring, Oxford university press, 2015.	
3. M.B Shah, Engineering Graphics, ITL Education Solu	tions Limited, Pearson Education Public	cation, 2011.
4. Bhatt N.D and Panchal V.M, Engineering Drawing: Pla	ane and Solid Geometry, Charotar Publ	ishing House, 2017.
Jeyapoovan T, Engineering Drawing and Graphics L 2016.	Jsing AutoCAD, Vikas Publishing Hous	e Pvt Ltd., 7th Edition, New Delhi,
6. C M Agrawal, Basant Agrawal, Engineering Graphics,	, McGraw Hill, 2012.	
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8 James Leach AutoCAD 2017 Instructor, SDC Publica	ations 2016	

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- 2. http://www.nptelvideos.in/2012/12/computer-aided-design.html
- 3. https://mech.iitm.ac.in/meiitm/course/cad-in-manufacturing/
- 4. https://autocadtutorials.com
- 5. https://dwgmodels.com

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COs		•			Prog	gram O	utcome	s (POs)				Program Spe cific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	·PSO1	PSO2	PSO3
1	3 —	1	-	-	3	-	-	-	3		-	2	3	3	3
2	3	1	-		3	-	3-	-	3	_	-	3	3	3	3
3	3	1	-		3	-	-		3	-	-	3	3	3	3
4	3	1	-	-	3	-	-	-	3	(=	-	2	3	3	3
5	3	1	-	-	3	-	.0	= 1	3	-	-	3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

	C	ontinuous	Assessi	ment Marks (CAN	/ I)			
Assessment		ce in practi	cal	Model		End Semester Examination	Total Marks	
	Conduction of practical	Record work	viva	Practical Examination	Attendance	(ESE) Marks	Marks	
Marks	15	5	5	15	10	50	100	

Department	Mechanical Engineering	Programme: B.Tech.									
Semester	II	Course Category: CC End Semester Exam Type: LI									
Course	U23CSPC01	Periods/Week			Credit .	Max	imum Ma	rks			
Code	023037 001	L	Т	Р	С	CAM	ESE	TM			
Course Name PROGRAMMING IN C LABORATORY		-	-	2	1	50	50	100			

(Common to All Branches)

Prerequisite	Nil						
	On co	mpletion of the course, the students will be able to	BT Mapping (Highest Level)				
	CO1 Implement logical formulations to solve simple problems leading to specific applications.						
Course	CO2	K3					
Outcome	CO3	Experiment C programs involving functions, recursion, pointers, and structures.	K3				
	CO4	Demonstrate applications using sequential and random access file processing.	K3				
	CO5	Build solutions for online coding challenges.	K3				

List of Experiments

- 1. Write a C program to find the Area of the triangle.
- 2. Develop a C program to read a three digit number and produce output like

1 hundreds

7 tens

2 units

For an input of 172.

- 3. Write a C program to check whether a given character is vowel or not using Switch Case statement.
- 4. Write a C program to Print the numbers from 1 to 10 along with their squares.
- Demonstrate do—While loop in C to find the sum of 'n' numbers.
- 6. Find the factorial of a given number using Functions in C
- 7. Write a C program to check whether a given string is palindrome or not?
- 8. Write a C program to check whether a value is prime or not?
- 9. Develop a C program to swap two numbers using call by value and call by reference.
- 10. Construct a C program to find the smallest and largest element in an array.
- 11. Implement matrix multiplication using C program.
- 12. Write a C program to perform various string handling functions like strlen, strcpy, strcat, strcmp.
- 13. Develop a C program to remove all characters in a string except alphabets.
- 14. Write a C program to find the sum of an integer array using pointers.
- 15. Write a C program to find the Maximum element in an integer array using pointers.
- 16. Construct a C. program to display Employee details using Structures
- 17. Write a C program to display the contents of a file on the monitor screen.
- 18. Write a File by getting the input from the keyboard and retrieve the contents of the file using file operation commands.
- 19. Write a C program to create two files with a set of values. Merge the two file contents to form a single file
- 20. Write a C program to pass the parameter using command line arguments.

Lecture Periods: -	Tutorial Periods: -	Practical Periods: 30	Total Periods: 30
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Reference Books

- Zed A Shaw," Learn C the Hard Way: Practical Exercises on the Computational Subjects You Keep Avoiding (Like C)", Addison Wesley, 2016.
- 2. Anita Goel and Ajay Mittal," Computer Fundamentals and programming in C", Pearson Education, First edition, 2011.
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- 4. https://www.tenouk.com/clabworksheet/clabworksheet.html
- 5. https://fresh2refresh.com/c-programming/

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COs		Program Outcomes (POs)												ram Spo Omes (F	ecific PSOs)
	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	1	-	-	3	-	1-	-1		-	_	_	3		2
2	2	1.	-	-	3	-	-	-	_	_	_		2		3
3	3	2	1	1	3							-	3	-	3
4	3	2	1	-				-	-	-	-		. 3	-	3
4			1	1	3	-	-	-	-	=	-	-	3	-	3
5	3	2	1	1	3	-	-	-	-	-	_	-	3		3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Assessment		ontinuous					
	Performan	ce in practi	cal	Model	, e. S.	End Semester Examination	Total
	Conduction of practical	Record work	viva	Practical Examination	Attendance	(ESE) Marks	Marks
Marks	15	5	5	15	10	50	100

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П	i			······································	End Semester Exam Typ			
U23MEP201	Pe	riods/W	/eek	Credit		•••••		
MANUFACTURING	L	Т	Р	C ·	CAM	ESE	TM	
LABORATORY	-	-	2	1	50	50	100	
	II U23MEP201 MANUFACTURING AND METALLURGY	II Cours U23MEP201 Pe MANUFACTURING AND METALLURGY	II	I	I	II	II	

Prerequisite	Nil	-	
	ļ	ompletion of the course, the students will be able to	BT Mapping (Highest Level)
	CO1	Be conversant with the basic manufacturing processes.	K3
Course	CO2	Identify and apply suitable tools and instruments for machining, assembly and fitting	K3
Outcome	CO3	Use different moulding tools, patterns and prepare sand moulds	KO
	CO4	Select suitable welding for the given material and perform various operations.	N3
	CO5	Evaluate the effect of heat treatment on properties of steel and measure the hardness	K3 K3

List of Experiments

Lathe

- 1. Study of Lathe machines and its operations
- 2. Plain Turning and Facing
- 3. Step Turning
- 4. Taper turning
- Thread cutting
- Drilling and boring

Foundry

7. Preparation of a sand mold using solid pattern

Welding

8. Preparation of butt joints and lap joints by using manual metal arc welding

Metallurgy Laboratory

- Study of metallurgical microscope and sample preparation.
- 10. Preparation and study of the microstructure of copper and its alloys
- 11. Preparation and study of microstructure of aluminum and its alloys
- 12. Jominy End Quenching Test

<u> </u>			
Lecture Periods: -	Tutorial Periods: -	Practical Periods: 30	Total Periods: 30
Reference Books	2		10011003.30

- Hajra Choudhury S.K., Hajra Choudhury A.K., Nirjhar Roy, "Elements of Workshop Technology Vol. I", 14th Edition, Media Promoters & Publishers Private Limited, Mumbai, 2008.
- Hajra Choudhury S.K., Nirjhar Roy, "Elements of Workshop Technology-Volume-2", 15th Edition, Media Promoters & Publishers Pvt Ltd, Mumbai, 2010.
- R.C. Sharma, Principles of Heat Treatment of Steel 1 Edition, New Age International Publishers, 2018.
- Vijendra Singh, heat treatment of metals. Standard Publishers, 2020.
- K. Rajput, Manufacturing Processes, Lakshmi Publications, 2020.

Web References

- 1. http://www.nptelvideos.in/2012/12/manufacturing-processes-ii.html
- 2. http://ecoursesonline.iasri.res.in/mod/page/view.ph,p?id=3804
- 3. https://www.tpctraining.com/collections/machine-shop-practices-training
- 4. https://www.rubig.com/en/heat-treatment/rubig-heat-treatment/
- 5. https://nptel.ac.in/courses/112/107/112107219/

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2, A, 6, 8)

COs	Program Outcomes (POs)												Prog Outce	ram Spo	ecific PSOs)
	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
1	3	2	- "	1	-	-	-	-:	2	1	-	-	2	2	3
2	2	1 ·	-	1	-	-		-	1	1	-	-	2	1	2
3	2	1	-	1	-	-		-	1	1	-	-	2	2	1
4	2	1	-	1	_	=	-	-	1	1	-	-	1	2	2
5	2	1	-	1	-	-	-	-	1	1	-	_	2	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Assessment	C	ontinuous					
	Performan cla	ce in practions	cal	Model	5.00 S.,	End Semester Examination	Total
	Conduction of practical	Record work	viva	Practical Examination	Attendance	(ESE) Marks	Marks
Marks	15	5	5	15	10	50	100