

**KONGU ENGINEERING COLLEGE, PERUNDURAI - 638 060**

**MINUTES OF THE MEETING OF BOARD OF STUDIES IN MECHANICAL ENGINEERING**

**MEETING No. 23**

**DATE** : 12-02-2022

**TIME** : 10.00 AM (Online/ Offline)

**Google Meet Id:** <https://meet.google.com/pcy-xash-ggw>

**The following members were present for the meeting:**

1.	Dr. R. Rajasekar Professor and Head Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Chairman / BOS
2.	Dr. P. Sathyabalan Professor Department of Mechanical Engineering Kumaraguru College of Technology Athipalayam Road, Chinnavedampatti, Coimbatore - 641049.	University Nominee
3.	Dr. Thundil Karuppa Raj Professor Department of Mechanical Engineering Vellore Institute of Technology, Vellore – 632014.	Academic Council Nominee
4.	Dr. N. Rajini Professor Department of Mechanical Engineering Kalasalingam Academy of Research and Education (Deemed to be University), Krishnankoil-626126.	Academic Council Nominee
5.	Mr. K. Aravindhan, Leader - Direct Material TPI Composites India Private Limited Kanchipuram 631604.	Alumni Representative
6.	Mr. D. Gobu General Manager Supplier Development & Integration Brakes India (P) Ltd, Padi, Chennai – 600 050.	Industry Representative
7.	Dr.P.Senthilvel Murugan Professor Department of Mechanical Engineering Kongu Engineering College Perundurai - 638 060.	Internal Member
8.	Dr.P.Navaneethakrishnan Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
9.	Dr.V.Hariharan Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
10.	Dr.P.Sathiamurthi Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
11.	Mr.A.Somasundaram Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
12.	Dr.K.Dineshkumar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member

13.	Dr.S.Selvakumar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
14.	Dr.A.Sivakumar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
15.	Dr.P.Thangavel Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
16.	Dr.K.S.K.Sasikumar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
17.	Dr.P.Selvakumar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
18.	Dr.T.P.Sathishkumar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
19.	Dr.C.Baskar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
20.	Dr.A.Mohankumar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
21.	Dr.R.Naveen Kumar Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
22.	Dr.P.Saji Raveendran Associate Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
23.	Mr. T. Ravisankar Assistant Professor (Selection Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060	Internal Member
24.	Dr. R. Gukendran Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
25.	Dr.M.Sambathkumar Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
26.	Mr.K.V.Satheeshkumar Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
27.	Mr.C.Sathishranganathan Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member

28.	Dr.P.Prabhakaran Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
29.	Dr.M.Vijayanand Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
30.	Mr.B.S.Hari Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
31.	Dr.A.Tamilvanan Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
32.	Mr.M.Dharmaraj Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
33.	Dr.S.M.Senthil Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
34.	Dr.N.Baaskaran Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
35.	Mr.R.Manivannan Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
36.	Mr.A.Saravanan Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
37.	Mr.S.Karthi Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
38.	Mr.A.Abubakkar Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
39.	Mr.K.Paramasivam Assistant Professor (Senior Grade) Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
40.	Dr.A.Santhosh Kumar Assistant Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
41.	Mr.M.Makeshkumar Assistant Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
42.	Mr.R.Karthikeyan Assistant Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member

43.	Mr.T.Rajagopal Assistant Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
44.	Mr.N.Prasanna Assistant Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060.	Internal Member
45.	Mr.S.Ajay Assistant Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060	Internal Member
46.	Mr.R.Kamalakannan Assistant Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060	Internal Member
47.	Mr.M.Mahesh Assistant Professor Department of Mechanical Engineering Kongu Engineering College, Perundurai - 638 060	Internal Member

**The following members were present as special invitees: Nil**

**The following members have requested for leave of absence:**

- University Nominee  
Dr. P. Sathyabalan  
Professor  
Department of Mechanical Engineering  
Kumaraguru College of Technology  
Athipalayam Road, Chinnavedampatti, Coimbatore - 641049.

#### **Meeting of the Mechanical Engineering Board:**

Chairman/BoS welcomed the members and briefed on curriculum, syllabi of courses to be added and syllabi of courses to be modified under Regulation 2020 for UG & PG Programmes.

The board discussed and approved the following points as per the agenda:

**Item No. 23.1: Ratification of the following items under R2018 & R2020 as given in Annexure-I.**

- a. Course and Syllabi for PhD Course work
- b. One / Two credit courses
- c. On line courses
- d. Curriculum and Syllabi amendments under R2018 & R2020 for UG / PG courses
- e. Introduction of new electives under R2018 & R2020 for UG / PG courses
- f. Credit transfer from Foreign Universities, Change of Regulations for readmitted students, Transferred candidates
- g. Other items if any

It is resolved to ratify the above items a, b, c, d, e, f and g as given in Annexure – I.

**Item No. 23.2. Approval of the curriculum, syllabi of courses to be added newly and syllabi of courses to be modified from 2<sup>nd</sup> semester to 8<sup>th</sup> semester for BE/BTech Mechanical Engineering / MSc under R2018 / R2020 and for PG degree programmes under R2020 as given in Annexure-II.**

The members discussed the curriculum, syllabi of courses to be added newly and syllabi of courses to be modified from 2<sup>nd</sup> semester to 8<sup>th</sup> semester for BE/BTech Mechanical Engineering and for PG degree programmes as given in Annexure-II and approved the same.

**Item No. 23.3. Approval of the syllabi of courses to be studied for honours degree under R2020 as given in Annexure-III.**

The members discussed the syllabi of the courses to be studied for honours degree under R2020 as given in Annexure – III and approved the same. (put NA if not applicable)

**Item No. 23.4. Approval for Value Added Courses (one / two credit courses), on-line courses with syllabi to be offered from first semester onwards, Transfer of credits from UGC & AICTE approved institutions and Credit transfer from foreign universities under R2018 & R2020 as given in Annexure-IV.**

The members discussed the value added courses (one/ two credit courses), on-line courses with syllabi to be offered from first semester onwards, Transfer of credits from UGC and AICTE approved institutions including NPTEL, SWAYAM, etc., and Credit transfer from foreign universities under R2018 & R2020 (from the year 2021-22 onwards) as given in Annexure – IV and approved the same. **NOTE: MATLAB courses will be included as 1 or 2 credits.**

**Item No. 23.5. Approval of Syllabus for PhD courses under R2020 as given in Annexure-V.**

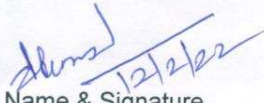

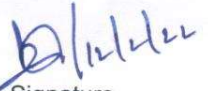
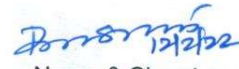

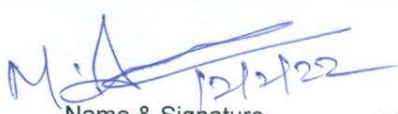




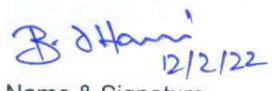

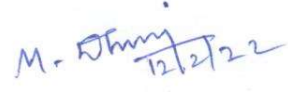



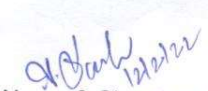
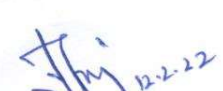


The members discussed the Syllabus for PhD courses under R2020 (if any from the year 2021-22 onwards) as given in Annexure – V and approved the same.

**Reporting Item No. 23.6. Proctored online/ conventional examination system being followed for the November / December 2021 end semester / trimester examinations as given in Annexure-VI.**

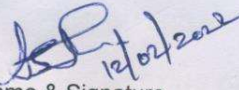
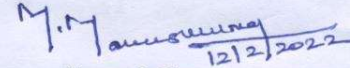
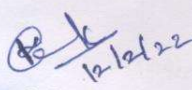
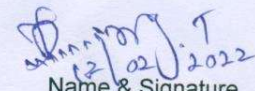
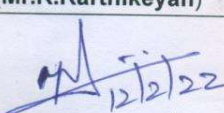
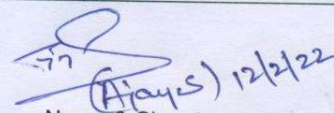
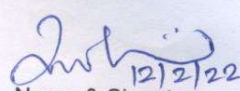
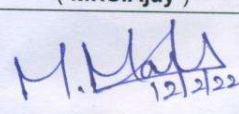
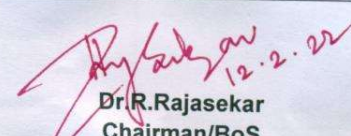
The members appreciated the proctored online/ conventional examination system being followed for the November / December 2021 end semester / trimester examinations as given in Annexure-VI.

The meeting was concluded with a vote of thanks to the members.

<p><i>Leave of absence.</i></p> <p>Name &amp; Signature (Dr. P. Sathyabalan)</p>	<p><i>R. Thundil Karuppa Raj</i></p> <p>Name &amp; Signature (Dr. Thundil Karuppa Raj)</p>
<p><i>D. Rajini</i></p> <p>Name &amp; Signature (Dr. N. Rajini)</p>	<p><i>K. Aravindhan</i></p> <p>Name &amp; Signature (Mr. K. Aravindhan)</p>
<p><i>D. Gobu</i></p> <p>Name &amp; Signature (Mr. D. Gobu)</p>	<p><i>P. Senthilvel Murugan</i> 12/2/22</p> <p>Name &amp; Signature (Dr.P.Senthilvel Murugan)</p>
<p><i>P. Navaneethakrishnan</i> 12/2/22</p> <p>Name &amp; Signature (Dr.P.Navaneethakrishnan)</p>	<p><i>V. Hariharan</i> 12/2/22</p> <p>Name &amp; Signature (Dr.V.Hariharan)</p>
<p><i>P. Sathiamurthi</i> 12/2/22</p> <p>Name &amp; Signature (Dr.P.Sathiamurthi)</p>	<p><i>A. Somasundaram</i> 12/2/22</p> <p>Name &amp; Signature (Mr.A.Somasundaram)</p>
<p><i>K. Dineshkumar</i> 12/2/22</p> <p>Name &amp; Signature (Dr.K.Dineshkumar)</p>	<p><i>S. Selvakumar</i> 12/2/22</p> <p>Name &amp; Signature (Dr.S.Selvakumar)</p>
<p><i>A. Sivakumar</i> 12/2/22</p> <p>Name &amp; Signature (Dr.A.Sivakumar)</p>	<p><i>P. Thangavel</i> 12/2/22</p> <p>Name &amp; Signature (Dr.P.Thangavel)</p>
<p><i>K. S. K. Sasikumar</i> 12/2/22</p> <p>Name &amp; Signature (Dr.K.S.K.Sasikumar)</p>	<p><i>P. Selvakumar</i></p> <p>Name &amp; Signature (Dr.P.Selvakumar)</p>
<p><i>T. P. Sathishkumar</i> 12/2/22</p> <p>Name &amp; Signature (Dr.T.P.Sathishkumar)</p>	<p><i>C. Baskar</i> 12/2/22</p> <p>Name &amp; Signature (Dr.C.Baskar)</p>

 Name & Signature <b>(Dr.A.Mohankumar)</b>	 Name & Signature <b>(Dr.R.Naveen Kumar)</b>
 Name & Signature <b>(Dr.P.Saji Raveendran)</b>	 Name & Signature <b>(Mr.T.Ravisankar)</b>
 Name & Signature <b>(Dr.R.Gukendran)</b>	 Name & Signature <b>(Dr.M.Sambathkumar)</b>
 Name & Signature <b>(Mr.K.V.Satheeshkumar)</b>	 Name & Signature <b>(Mr.C.Sathishranganathan)</b>
 Name & Signature <b>(Dr.P.Prabhakaran)</b>	 Name & Signature <b>(Dr.M.Vijayanand)</b>
 Name & Signature <b>(Mr.B.S.Hari)</b>	 Name & Signature <b>(Dr.A.Tamilvanan)</b>
 Name & Signature <b>(Mr.M.Dharmaraj)</b>	 Name & Signature <b>(Dr.S.M.Senthil)</b>
 Name & Signature <b>(Dr.N.Baaskaran)</b>	 Name & Signature <b>(Mr.R.Manivannan)</b>
 Name & Signature <b>(Mr.A.Saravanan)</b>	 Name & Signature <b>(Mr.S.Karthi)</b>
 Name & Signature <b>(Mr.A.Abubakkar)</b>	 Name & Signature <b>(Mr.K.Paramasivam)</b>



 Name & Signature <b>(Dr.A.Santhosh Kumar)</b>	 Name & Signature <b>(Mr.M.Makesh Kumar)</b>
 Name & Signature <b>(Mr.R.Karthikeyan)</b>	 Name & Signature <b>(Mr.T.Rajagopal)</b>
 Name & Signature <b>(Mr.N.Prasanna)</b>	 Name & Signature <b>( Mr.S.Ajay )</b>
 Name & Signature <b>(Mr.R.Kamalakannan)</b>	 Name & Signature <b>(Mr.M.Mahesh )</b>
	 <b>Dr.R.Rajasekar</b> <b>Chairman/BoS</b>



## **Annexure – I**

**Ratification items under R2018 & R2020 implemented during the academic year 2021-22 and/or previous years.**

- a. Course and Syllabi for PhD Course work -Nil
- b. One credit courses - Nil
- c. On line courses – List attached in Annexure – IV
- d. Curriculum and Syllabi amendments under R2018 & R2020 - Nil
- e. Introduction of new electives under R2018 & R2020 -Nil
- f. Credit transfer from Foreign Universities, Change of Regulations for readmitted students, Transferred candidates -Nil
- g. Other items if any

## Annexure - II

(i) Curriculum, syllabi of courses to be added newly and syllabi of courses to be modified from 2<sup>nd</sup> semester to final semester for BE- Mechanical Engineering under R2020

(a) List of courses newly added:

S.No.	Course Name	Semester	Regulation
	Nil		

(b) List of courses modified the syllabus content:

S.No.	Course Code & Course Name	Semester	Regulation
	Nil		

(c) List of courses removed:

S.No.	Course Code & Course Name	Semester	Regulation
	Nil		

(d) List of courses swapped:

S.No.	Course Code(s) & Course Name(s)	Existing Semester	Swapped Semester	Regulation
1	20MET21 - Manufacturing Technology	II	III	2020
2	20CSC31 - Programming in C	III	II	
3	20CSC41 - Python Programming	IV	III	
4	20MEC32 - Engineering Materials and Metallurgy	III	IV	
5	20MET51 -Kinematics of Machinery	IV	V	
6	20MET53 - Metrology and Measurements	VI	V	
7	20MEL53 - Metrology and Measurements and Automobile Engineering Laboratory	VI	V	
8	20MET61 - Dynamics of Machinery	V	VI	
9	20MET63 - Design of Machine Elements	V	VI	
10	20MEL61- Dynamics Laboratory	V	VI	
11	20GEP61-Comprehensive Test / Viva	VII	VI	
12	20MEP61 - Project Work I	VI	VI	
13	20MEC71 - Mechatronics and IoT	VI	VII	
14	20MEP71 - Project Work II Phase I	VII	VII	
15	20MEP81 - Project Work II Phase II	VIII	VIII	
16	20MEE03 - Automobile Engineering	VII	V	
17	20MEE04 - Climate Change and New Energy Technology	VII	V	
18	20MEE13 -Gas Dynamics and Jet Propulsion	V	VII	
19	20MEE14 - Refrigeration and Air Conditioning	V	VII	

**Curriculum from 2<sup>nd</sup> semester to final semester BE/BTech Mechanical Engineering / BSc under R2020**

**B.E. DEGREE IN MECHANICAL ENGINEERING  
CURRICULUM UNDER REGULATIONS 2020**

**(For the candidates admitted from academic year 2020-21 onwards)**

<b>SEMESTER – I</b>									
<b>Course Code</b>	<b>Course Title</b>	<b>Hours/Week</b>			<b>Credit</b>	<b>Maximum Marks</b>			<b>Category</b>
		<b>L</b>	<b>T</b>	<b>P</b>		<b>CA</b>	<b>ESE</b>	<b>Total</b>	
	<b>Theory/Theory with Practical</b>								
20EGT11	English Language Skills	3	0	0	3	50	50	100	HS
20MAC11	Matrices and Differential Equations	3	1*	2*	4	50	50	100	BS
20PHT11	Applied Physics	3	0	0	3	50	50	100	BS
20CYT11	Applied Chemistry	3	0	0	3	50	50	100	BS
20MEC11	Engineering Drawing	2	0	2	3	50	50	100	ES
20MET11	Engineering Mechanics	3	1	0	4	50	50	100	PC
	<b>Practical</b>								
20PHL11	Physical Sciences Laboratory I	0	0	2	1	50	50	100	BS
20MEL11	Engineering Practices Laboratory	0	0	2	1	50	50	100	ES
20VEC11	Yoga and Values for Holistic Development	1	0	1	1	100	0	100	HS
20MNT11	Induction Training Program #	-	-	-	0	100	0	100	MC
<b>Total Credits to be earned</b>					<b>23</b>				

# Induction Training Program (including, Indian Constitution and Essence of Indian Knowledge Tradition, etc.) to be conducted at the beginning of the semester for 2 week. L – Lecture, T – Tutorial, P – Practical, C – Credits, CA – Continuous Assessment, ESE – End Semester Examination, CBS – Curriculum Breakdown Structure. \*Alternate week

SEMESTER – II									
Course Code	Course Title	Hours/Week			Credit	Maximum Marks			Category
		L	T	P		CA	ESE	Total	
Theory/Theory with Practical									
20EGT21	Advanced Communication Skills	3	0	0	3	50	50	100	HS
20MAC21	Multivariable Calculus and Complex Analysis	3	1*	2*	4	50	50	100	BS
20PHT21	Materials Science	3	0	0	3	50	50	100	BS
20CYT22	Chemistry for Mechanical Systems	3	0	0	3	50	50	100	BS
20MET22	Basics of Electrical and Electronics Engineering	3	0	0	3	50	50	100	ES
20MET21/20CSC31	Manufacturing Technology (2020-2021)	3	0	0	3/4	50	50	100	PC/ES
	Programming in C (2021-2022)	3	0	2					
Practical									
20PHL21	Physical Sciences Laboratory II	0	0	2	1	50	50	100	BS
20MEL21	Electrical and Electronics Engineering Laboratory	0	0	2	1	50	50	100	ES
Total Credits to be earned					21/22				

\*Alternate week

SEMESTER – III									
Course Code	Course Title	Hours / Week			Credit	Maximum Marks			Category
		L	T	P		CA	ESE	Total	
Theory/Theory with Practical									
20MAT31	Probability and Partial Differential Equations	3	1	0	4	50	50	100	BS
20CSC31 /20CSC41	Programming in C(2020-2021) / Python Programming (2021-2022)	3	0	2	4	50	50	100	ES
20MEC31	Fluid Mechanics and Hydraulic Machines	3	0	2	4	50	50	100	ES
20MET31	Engineering Thermodynamics	3	0	0	3	50	50	100	PC
20MEC32 / 20MET21	Engineering Materials and Metallurgy (2020-2021) / Manufacturing Technology (2021-2022)	3	0	2/0	4/3	50	50	100	PC
20MET32	Material Removal Processes	3	0	0	3	50	50	100	PC
Practical / Employability Enhancement									
20MEL31	Production Technology Laboratory	0	0	2	1	50	50	100	PC
20MEL32	Machine Drawing Laboratory	0	0	2	1	50	50	100	PC
20MNT31	Environmental Science	2	0	0	0	100	0	100	MC
Total Credits to be earned					24/23				

SEMESTER – IV									
Course Code	Course Title	Hours / Week			Credit	Maximum Marks			Category
		L	T	P		CA	ESE	Total	
Theory/Theory with Practical									
20MAT41	Statistics and Numerical Methods	3	1	0	4	50	50	100	BS
20CSC41/ 20MEC32	Python Programming (2020-2021) / Engineering Materials and Metallurgy (2021-2022)	3	0	2	4	50	50	100	ES/PC
20MET41	Strength of Materials	3	1	0	4	50	50	100	PC
20MET42	Thermal Engineering	3	0	0	3	50	50	100	PC
	Open Elective I ( Data Structures using Python for 2021-22, Any other OE course for 2020-21 for all branches)	3	1/0	0/2	4	50	50	100	OE
Practical / Employability Enhancement									
20MEL41	Material Property Testing Laboratory	0	0	2	1	50	50	100	PC
20MEL42	Thermal Engineering and Renewable Energy Laboratory	0	0	2	1	50	50	100	PC
20EGL31	English for Workplace Communication Laboratory	0	0	2	1	50	50	100	HS
20GET31	Universal Human Values	2	0	0	2	100	0	100	HS
Total Credits to be earned					24				

SEMESTER – V									
Course Code	Course Title	Hours / Week			Credit	Maximum Marks			Category
		L	T	P		CA	ESE	Total	
Theory/Theory with Practical									
20MET51	Kinematics of Machinery	3	0	0	3	50	50	100	PC
20MET52	Heat and Mass Transfer	3	0	0	3	50	50	100	PC
20MET53	Metrology and Measurements	3	0	0	3	50	50	100	PC
	Professional Elective I	3	0	0	3	50	50	100	PE
	Open Elective II (Data Structures using Python for 2020-21 batch, Java Programming / Web Engineering for 2021-22 batch)	3	1/0	0/2	4	50	50	100	OE
Practical / Employability Enhancement									
20MEL51	Heat Transfer Laboratory	0	0	2	1	50	50	100	PC
20MEL52	Computer Aided Drawing Laboratory	0	0	2	1	50	50	100	PC
20MEL53	Metrology and Measurements and Automobile Engineering Laboratory	0	0	2	1	50	50	100	PC
20GEL51/ 20GEI51	Professional Skills Training I / Industrial Training I *	--	--	--	2	100	0	100	EC
Total Credits to be earned					21				

\* 80 hours of training

30 hours of training

SEMESTER – VI									
Course Code	Course Title	Hours / Week			Credit	Maximum Marks			Category
		L	T	P		CA	ESE	Total	
Theory/Theory with Practical									
20MET61	Dynamics of Machinery	3	0	0	3	50	50	100	PC
20MET62	Finite Element Analysis	3	0	0	3	50	50	100	PC
20MET63	Design of Machine Elements	3	0	0	3	50	50	100	PC
	Open Elective III (Java Programming / Web Engineering for 2020-21, Any other OE course for 2021-22 )	3	0	0	3	50	50	100	OE
Practical / Employability Enhancement									
20MEL61	Dynamics Laboratory	0	0	2	1	50	50	100	PC
20MEL62	Simulation and Analysis Laboratory	0	0	2	1	100	0	100	PC
20MEL63	CAD/CAM Laboratory	0	0	2	1	100	0	100	PC
20GEL61/ 20GEI61	Professional Skills Training II / Industrial Training II *	--	--	--	2	100	0	100	EC



20GEP61	Comprehensive Test / Viva	--	---	---	2	100	0	100	EC
20MEP61	Project Work I	0	0	4	2	100	0	100	EC
<b>Total Credits to be earned</b>					<b>21</b>				

SEMESTER – VII									
Course Code	Course Title	Hours / Week			Credit	Maximum Marks			Category
		L	T	P		CA	ESE	Total	
Theory/Theory with Practical									
20GET71	Engineering Economics and Management	3	0	0	3	50	50	100	HS
20MEC71	Mechatronics and IoT	3	0	2	4	50	50	100	PC
	Professional Elective II	3	0	0	3	50	50	100	PE
	Professional Elective III	3	0	0	3	50	50	100	PE
	Professional Elective IV	3	0	0	3	50	50	100	PE
	Professional Elective V	3	0	0	3	50	50	100	PE
Practical / Employability Enhancement									
20MEP71	Project Work II Phase I	0	0	6	3	100	0	100	EC
Total Credits to be earned					22				

SEMESTER – VIII									
Course Code	Course Title	Hours / Week			Credit	Maximum Marks			Category
		L	T	P		CA	ESE	Total	
Theory/Theory with Practical									
	Open Elective IV	3	0	0	3	50	50	100	OE
	Professional Elective VI	3	0	0	3	50	50	100	PE
Practical / Employability Enhancement									
20MEP81	Project Work II Phase II	---	---	14	7	50	50	100	EC
Total Credits to be earned					13				

**Total Credits: 169**

**PROFESSIONAL ELECTIVE (PE)**

S. No.	Course Code	Course Name	L	T	P	C	Sem	Domain/Stream
		Elective – I						
1.	20MEE01	Fluid Power System	3	0	0	3	V	Design
2.	20MEE02	CAD/CAM/CIM	3	0	0	3	V	Design
3.	20MEE03	Automobile Engineering	3	0	0	3	V	Thermal
4.	20MEE04	Climate Change and New Energy Technology	3	0	0	3	V	Thermal
5.	20MEE05	Unconventional Machining Processes	3	0	0	3	V	Mfg.
6.	20MEE06	Design for Manufacture and Assembly	3	0	0	3	V	Mfg.
7.	20MEE07	Operations Research	3	0	0	3	V	Ind. Engg.
8.	20MEE08	Production Planning and Control	3	0	0	3	V	Ind. Engg.
		Elective – II						
9.	20MEE09	Design of Transmission Systems	3	0	0	3	VII	Design
10.	20MEE10	Vibration and Noise Control	3	0	0	3	VII	Design
11.	20MEE11	Production Tool Design	3	0	0	3	VII	Mfg.
12.	20MEE12	Manufacturing Information System	3	0	0	3	VII	Mfg.
13.	20MEE13	Gas Dynamics and Jet Propulsion	3	0	0	3	VII	Thermal
14.	20MEE14	Refrigeration and Air Conditioning	3	0	0	3	VII	Thermal
15.	20MEE15	Supply Chain Management	3	0	0	3	VII	Ind. Engg.
16.	20MEE16	Lean Six Sigma	3	0	0	3	VII	Ind. Engg.
		Elective – III						
17.	20MEE17	Fundamentals of Research	3	0	0	3	VII	General
18.	20MEE18	Piping Design	3	0	0	3	VII	Design
19.	20MEE19	Design of Jigs, Fixtures and Press Tools	3	0	0	3	VII	Design
20.	20MEE20	Fuels and Combustion Technology	3	0	0	3	VII	Thermal
21.	20MEE21	Computational Fluid Dynamics	3	0	0	3	VII	Thermal
22.	20MEE22	CNC Technology	3	0	0	3	VII	Mfg.
23.	20MEE23	Precision Engineering	3	0	0	3	VII	Mfg.
24.	20MEE24	Total Quality Management	3	0	0	3	VII	Ind. Engg.
25.	20MEE25	Project Management	3	0	0	3	VII	Ind. Engg.
		Elective – IV						
26..	20MEE26	Mechanics of Composite Materials	3	0	0	3	VII	Design

27..	20MEE27	Advanced Mechanics of Materials	3	0	0	3	VII	Design
28.	20MEE28	Turbomachines	3	0	0	3	VII	Thermal
29.	20MEE29	Design of Heat Exchangers	3	0	0	3	VII	Thermal
30.	20MEE30	Additive Manufacturing	3	0	0	3	VII	Mfg.
31.	20MEE31	Welding Technology	3	0	0	3	VII	Mfg.
32.	20MEE32	Quality Control and Reliability Engineering	3	0	0	3	VII	Ind. Engg.
33.	20MEE33	Industrial Engineering	3	0	0	3	VII	Ind. Engg.
		Elective – V						
34.	20MEE34	Introduction to Aircraft Systems	3	0	0	3	VII	Design
35.	20MEE35	Industrial Tribology	3	0	0	3	VII	Design
36.	20MEE36	Instrumentation in Thermal Engineering	3	0	0	3	VII	Thermal
37.	20MEE37	Energy Auditing and Management	3	0	0	3	VII	Thermal
38.	20MEE38	Modelling and Analysis of Manufacturing Systems	3	0	0	3	VII	Mfg.
39.	20MEE39	Micro Electro Mechanical Systems	3	0	0	3	VII	Mfg.
40.	20MEE40	Maintenance Engineering	3	0	0	3	VII	Ind. Engg.
41.	20MEE41	Industrial Safety Engineering	3	0	0	3	VII	Ind. Engg.
42.	20MEE42	Hybrid Vehicle Technology	3	0	0	3	VII	General
		Elective – VI						
43.	20MEE43	Introduction to Aircraft Structures	3	0	0	3	VIII	Design
44.	20MEE44	Principles of Farm Machineries	3	0	0	3	VIII	Design
45.	20MEE45	Power Plant Engineering	3	0	0	3	VIII	Thermal
46.	20MEE46	Energy Conservation in HVAC System	3	0	0	3	VIII	Thermal
47.	20MEE47	Nanotechnology for Mechanical Engineers	3	0	0	3	VIII	Mfg.
48.	20MEE48	Non Destructive Evaluation Techniques	3	0	0	3	VIII	Mfg.
49.	20MEE49	Industrial Marketing	3	0	0	3	VIII	Ind. Engg.
<b>Total Credits to be earned</b>						<b>18</b>		

\* Domain/Stream Abbreviations: Mfg – Manufacturing, Ind. Engg. – Industrial Engineering,

OPEN ELECTIVE COURSES OFFERED TO OTHER DEPARTMENTS (OE)								
S. No.	Course Code	Course Name	L	T	P	C	Pre-requisites	Sem
		<b>Mechanical Engineering Stream</b>						
1.	20MEO01	Renewable Energy Sources	3	0	2	4	Nil	IV
2.	20MEO02	Design of Experiments	3	0	2	4	Nil	V
3.	20MEO03	Fundamentals of Ergonomics	3	0	0	3	Nil	VI
4.	20MEO04	Principles of Management and Industrial Psychology	3	0	0	3	Nil	VI
5.	20MEO05	Safety Measures for Engineers	3	0	0	3	Nil	VIII
6.	20MEO06	Energy Conservation in Thermal Equipments	3	0	0	3	Nil	VIII

The total credits for the BE (Mechanical Engineering Branch) programme is 169 with the following curriculum breakdown structure:

S.No.	Category		Credits	% out of total credits
1.	Humanities and Social Sciences	HS	13	7.7
2.	Basic Sciences	BS	30	17.8
3.	Engineering Sciences	ES	20	11.8
4.	Professional Core	PC	56	33.1
5.	Professional Electives	PE	18	10.7
6.	Open Electives	OE	14	8.3
7.	Employability Enhancement Courses	EC	18	10.7
8.	Mandatory Courses(Induction Programme, Environmental Science)	MC	0	-
		Total :	169	100 %

**Syllabi for the courses mentioned in above items (a) and (b) under R2018 / R2020 - NIL**

(ii) Syllabi of courses to be added newly and syllabi of courses to be modified for PG programme under R2020

(a) List of courses newly added:

S.No.	Course Name	Semester	Regulation
	Nil		

(b) List of courses modified the syllabus content:

S.No.	Course Code & Course Name	Semester	Regulation
	Nil		

(c) List of courses removed:

S.No.	Course Code & Course Name	Semester	Regulation
	Nil		

(d) List of courses swapped:

S.No.	Course Code(s) & Course Name(s)	Existing Semester	Swapped Semester	Regulation
	Nil			

Syllabi for the courses mentioned in above items (a) and (b) under R2020 - Nil

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### **Annexure - III**

#### **Syllabi of the courses to be studied for BE/BTech Mechanical Engineering with Honours in Smart Manufacturing under R2020**

**(put NA if not applicable)**

#### **DEPARTMENT OF MECHANICAL ENGINEERING**

If a candidate earns 18 to 20 credits additionally in any particular specialization during the programme, such candidate can be awarded with Honours degree in that specialization as per the guidelines of AICTE upon getting the approval from Anna University, Chennai. A candidate shall have not less than 8.0 CGPA and no history of arrears to opt for the honours degree and has to maintain the same during the entire programme.

#### **BE Degree in Mechanical Engineering with Honors in Smart Manufacturing**

##### **List of courses to be studied additionally for Honours degree**

<b>S. No.</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1	Factory Automation	3	1	0	4
2	Digital Manufacturing	3	1	0	4
3	Industrial IOT	3	1	0	4
4.	Data Science and Analytics	3	1	0	4
5.	Smart Manufacturing Transformation	3	0	0	3
<b>Total Credits</b>					<b>19</b>



**BE Degree in Mechanical Engineering with Honours in Computational Product Design**

**List of courses to be studied additionally for Honours degree**

<b>S. No.</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1	Product Design and Development	3	1	0	4
2	3D Scanning and Reverse Engineering	3	0	2	4
3	3D Modeling and Prototyping	3	0	2	4
4.	Industrial FEA	3	0	2	4
5.	Fracture and Failure Mechanics	3	0	0	3
	<b>Total Credits</b>				<b>19</b>

#### Annexure – IV

**List of One / Two credit courses, on-line courses and syllabi, Transfer of credits from UGC and AICTE approved institutions and Credit transfer from foreign universities under R2018 & R2020 (from the year 2021-22 onwards)**

The following courses offered under NPTEL category for the academic year 2021-22 - ODD Semester and recommended the credits are given below.

<b>Sl. No</b>	<b>Name of the Course</b>	<b>NPTEL/ GIAN</b>	<b>Hosting Institution</b>	<b>Recommended Credits by the Host Institution</b>	<b>Recommended Credits by the Internal BOS Members</b>
1	Vibration and Structural Dynamics	NPTEL	IIT Kharagpur	2	2
2	Thermal Operations in Food Process Engineering: Theory and Applications	NPTEL	IIT Kharagpur	3	3
3	Sustainable Engineering Concepts and Life Cycle Analysis	NPTEL	IIT Kharagpur	2	2
4	Municipal Solid Waste Management	NPTEL	IIT Guwahati	3	3
5	Data Base Management System	NPTEL	IIT Kharagpur	2	2
6	Design, Technology and Innovation	NPTEL	IIT Bombay	2	2
7	Ethics in Engineering Practice	NPTEL	IIT Kharagpur	2	2
8	The Future of Manufacturing Business: Role of Digital Technologies	NPTEL	IITM & Wipro 3D	2	2
9	Sustainability through Green Manufacturing Systems: An Applied Approach	NPTEL	IIT Kanpur	2	2
10	Introduction to Mechanical Vibration	NPTEL	IIT Roorkee	2	2
11	Product Design and Development	NPTEL	IIT Roorkee	1	1
12	Principles of Vibration Control	NPTEL	IIT Kanpur	1	1
13	Rapid Manufacturing	NPTEL	IIT Kanpur	3	3
14	Automation in Manufacturing	NPTEL	IIT Guwahati	3	3
15	Structural Analysis of Nanomaterials	NPTEL	IIT Roorkee	1	1

The following courses offered under NPTEL category for the academic year 2021-22 – EVEN Semester and recommended the credits are given below.

<b>Sl. No</b>	<b>Name of the Course</b>	<b>NPTEL/ GIAN</b>	<b>Hosting Institution</b>	<b>Recommended Credits by the Host Institution</b>	<b>Recommended Credits by the Internal BOS Members</b>
1	Satellite Attitude Dynamics and Control	NPTEL	IIT Kharagpur	3	3
2	Waste to Energy Conversion	NPTEL	IIT Roorkee	2	2
3	Electrochemical Technology in Pollution Control	NPTEL	Indian Institute of Science	2	2
4	Water and waste water treatment	NPTEL	IIT Roorkee	3	3
5	Data Base Management System	NPTEL	IIT Kharagpur	2	2
6	Design, Technology and Innovation	NPTEL	IIT Bangalore	2	2
7	Ethics In Engineering Practice	NPTEL	IIT Kharagpur	2	2
8	Leadership	NPTEL	IIT Kharagpur	1	1
9	Product Design and Manufacturing	NPTEL	IIT Kanpur	3	3
10	Smart Materials and Intelligent System Design	NPTEL	IIT Kanpur	1	1
11	Introduction to Soft Matter	NPTEL	Indian Institute of Science	2	2
12	Steel Quality: Role of Secondary Refining & Continuous Casting	NPTEL	IIT Madras	3	3
13	Mining Machinery	NPTEL	IIT Kharagpur	3	3
14	Drilling And Blasting Technology	NPTEL	IIT Kharagpur	2	2
15	Introduction to Atmospheric and Space Sciences	NPTEL	IIT Roorkee	3	3

## **Annexure – V**

**Syllabi for PhD courses under R2020 from the academic year 2021-22 onwards -NIL**

## **Annexure-VI**

### **REPORTING ITEM**

**Online/ conventional method of examination system being followed for the November / December 2021 ( both regular and arrear exams) End Semester / Trimester Examinations to be held in February 2022.**

- a) As per the directions issued by Anna University and guidelines issued by Higher Education Department, Government of Tamilnadu, BE / BTech, BSc and MSc (Integrated) End Semester Examinations will be conducted through online mode, with students taking up the examinations from their places of stay. Examinations will be proctored by using appropriate software and also be monitored by faculty invigilators.
- b) MBA, MCA, ME / MTech and PhD coursework End Semester / Trimester Examinations will be conducted through conventional method (paper and pen) in campus.
- c) The above examination procedure shall also be followed for the maximum period exhausted students