

Indian Institute of Technology Tirupati  
Curriculum for Dual Degree  
B. Tech in Mechanical Engineering and M. Tech in Thermal Engineering and  
Energy Systems

from Academic Year 2023-2024 onwards

### Semester-I

S.No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ES103M/ EA101M	Introduction to Programming/ Engineering Drawing	BET/ BES	2-0-3-4 1-0-3-3	ES1101/ EA1101	14 4
2.	CY101L/ CY102L	Physical and Theoretical Chemistry/ Organic and Inorganic Chemistry	SCY	2-1-0-3	CY1101/ CY1202	4 4
3.	ES101M	Concepts in Engineering and Design	BET	1-0-2-2	ID1101	4
4.	MA101L	Calculus	SMA	3-1-0-4	MA1101	4
5.	PH101L	Introduction to Classical Mechanics	SPH	2-1-0-3	PH1101	4
6.	PH103P/ CY103P	Physics Laboratory/ Chemistry Laboratory	SPH/ SCY	0-0-3-2	PH1103/ CY1204	4 4
7.	EA102P	Workshop-I	BES	0-0-3-2	EA1103	4
8.	HS10XN	Language Course (Pass/Fail)	HPF	2-0-0-2	HS110X	
<b>Total Credits</b>				<b>22/21</b>		

#### Approved Language Courses

Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
HS101N	Proficiency in English	HPF	2-0-0-2	HS1101	4
HS102N	Basic Course in German			HS1103	6
HS103N	Basic Course in Japanese			HS1105	6
HS104N	Basic Course in Sanskrit			HS1107	6
HS105N	Basic Course in Spanish Language			HS1109	9

### Semester-II

S.No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ES103M/ EA101M	Introduction to Programming/ Engineering Drawing	BET/ BES	2-0-3-4 1-0-3-3	ES1101/ EA1101	14 4
2.	CY101L/ CY102L	Physical and Theoretical Chemistry/ Organic and Inorganic Chemistry	SCY	2-1-0-3	CY1101/ CY1202	4 4
3.	ES201L	Engineering Mechanics	BET	3-1-0-4	ES2101	4
4.	MA102L	Differential Equations and Matrices	SMA	3-1-0-4	MA1202	4
5.	PH102L	Introduction to Electrodynamics and Quantum Mechanics	SPH	2-1-0-3	PH1202	4
6.	PH103P/ CY103P	Physics Laboratory/ Chemistry Laboratory	SPH/SCY	0-0-3-2	PH1103/ CY1204	4 4
7.	EA103P	Workshop-II	BES	0-0-3-2	EA1202	4
<b>Total Credits</b>				<b>21/22</b>		

## Semester-III

S. No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ES202L/ ES203L	Ecology and Environment/ Life Sciences	BET/ SLS	2-0-0-2 2-0-0-2	ES2103/ BS2101	8 9
2.	ES102L	Basic Electrical Engineering	BET	3-1-0-4	ES1201	8
3.	ME201L	Thermodynamics	PMT	2-1-0-3	ME2101	8
4.	ME202M	Strength of Materials	PMT	2-1-2-4	ME2103	8
5.	ME203M	Material Science and Engineering	PMT	3-0-2-4	ME2105	8
6.	MAE1	Mathematics Elective-1	SMA	3-0-0-3		
7.	HSE1	Humanities Elective-1	HSS	3-0-0-3		
<b>Total Credits</b>				<b>23</b>		

## Semester-IV

S.No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ES202L/ ES203L	Ecology and Environment/ Life Sciences	BET/ SLS	2-0-0-2 2-0-0-2	ES2103/ BS2101	8 9
2.	ME204M	Fluid Mechanics and Hydraulic Machines	PMT	2-1-2-4	ME2202	8
3.	ME206M	Manufacturing Technology	PMT	3-0-2-4	ME2204	8
4.	ME205M	Kinematics and Dynamics of Machines	PMT	2-1-2-4	ME2206	8
5.	MAE2	Mathematics Elective-2	SMA	3-0-0-3		
6.	HSE2	Humanities Elective-2	HSS	3-0-0-3		
<b>Total Credits</b>				<b>20</b>		

## Semester-V

S. No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ME303M	Heat and Mass Transfer	PMT	3-1-2-5	ME3101	8
2.	ME301M	Machining Processes	PMT	3-0-3-5	ME3103	8
3.	ME302L	Design of Machine Elements	PMT	3-1-0-4	ME3105	8
4.	ME304M	Mechanical Measurements and Metrology	PMT	3-0-2-4	ME3107	8
5.	FRE1	Free Elective-1	FRE	3-0-0-3		
<b>Total Credits</b>				<b>21</b>		

## Semester-VI

S.No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ME305L	Applied Thermal Engineering	PMT	3-1-0-4	ME3202	8
2.	ME308M	System Dynamics and Control	PMT	3-0-2-4	NA	23
3.	ME306P	Machine Drawing	PML	0-0-6-4	ME3292	8
4.	DPE1	Department Elective-1	PMT	3-0-0-3		
5.	FRE2	FreeElective-2	FRE	3-0-0-3		
6.	HSE3	Humanities Elective-3	HSS	3-0-0-3		
<b>SUMMER</b>						
7.	ME391G	Industrial/Research Internship	PIT	---2	IT3202	1
<b>Total Credits</b>				<b>23</b>		

## Semester-VII

S. No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ME401M	Energy Conversion Systems	PMT	2-1-3-5	ME4101	8
2.	ME402L	Operations Research	PMT	2-1-0-3	ME4103	8
3.	ME493N	Industrial Lecture	PIL	1-0-0-1	IL4101	1
4.	ME601L	Advanced Thermodynamics	PMT	3-0-0-3		
5.	ME515L	Advanced Fluid Mechanics	PMT	3-0-0-3		
6.	ME505M	Experimental Methods for Engineers	PMT	2-0-2-3		
7.	FRE3	Free Elective-3	PMT	3-0-0-3		
<b>Total Credits</b>				<b>21</b>		

## Semester-VIII

S. No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ME403M	Mechatronics	PMT	3-0-2-4	ME4202	8
2.	ME404L	Industrial Automation	PMT	3-0-0-3	ME4204	8
3.	HS401L	Professional Ethics	HPE	2-0-0-2	HS4202	7
4.	ME501L	Computational Fluid Dynamics	PMT	2-0-2-3	ME5101	20
4.	DPE2	Department Elective-2	PMT	3-0-0-3	ME5202	6
6.	DPE3	Department Elective-3	PMT	3-0-0-3		
7.	ME693G	Seminar	PMT	- - - 1	ME5210	4
8.	ME695G	Viva-voce	PMT	- - - 2	ME6111	4
<b>Total Credits</b>				<b>21</b>		

## Semester-IX

S. No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ME691G	Project Phase-I	PMP	- - - 10	ME6150	4
2.	DPE5	Department Elective-4	PMT	3-0-0-3		
3.	FRE4	Free Elective-4	FRE	3-0-0-3		
4.	FRE5	Free Elective-5	FRE	3-0-0-3		
Total Credits				19		

## Semester-X

S. No.	Course Code	Course Name	Category	L-T-P-C	Course Code (prior to Jul 2022)	Senate
1.	ME692G	Project Phase-II	PMP	- - - 15	ME6250	4
Total Credits				15		

**TOTAL CREDITS: 205**