



Maharaja Education Trust (R), Mysuru

MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE

An Autonomous Institute, affiliated Visvesvaraya Technological University, Belagavi

Belawadi, Srirangapatna Taluk, Mandya – 571 477

Approved by AICTE, New Delhi |Recognized by Govt. of Karnataka|



Ref. : MITM/ME/Scheme (M.Tech)/2023-24/111

Scheme of Teaching and Examination for Master of Technology (Autonomous Scheme-2023)

Master of Technology (M.Tech) – Thermal Power Engineering (MTP)

(Effective from the Academic Year 2023-24)

I-Semester – Thermal Power Engineering

Sl. No.	Course Area	Course Code	Course Title	TD/PSB	Teaching Hours/Week				Examination				Credits
					Theory/Lecture	Tutorial	Practical/Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	BS	M23MTP101	Applied Mathematics	Basic Science	03	00	00	00	03	50	50	100	3
2	IPC	M23MTP102	Theory and Design of Modern IC Engine	ME	03	00	00	00	03	50	50	100	4
3	PC	M23MTP103	Advanced Fluid Mechanics	ME	03	00	02	00	03	50	50	100	4
4	PC	M23MTP104	Advanced Thermodynamics and Combustion	ME	02	00	02	00	03	50	50	100	3
5	PC	M23MTP105	Finite Element Method in Heat Transfer	ME	02	00	02	00	03	50	50	100	3
6	MC	M22RMI106	Research Methodology and IPR	Humanities Any Dept	03	00	00	00	03	50	50	100	3
7	PCL	M23MTPL107	FEM & Simulation Lab	ME	01	00	02	00	03	50	50	100	2
8	AUD/ AE	M23AUD108/ M23AEC108	NPTEL/MOOC/Coursera/MIT	ME	Classes and evaluation procedures are as per the policy of the online course providers							PP	
Total					17	04	06	00	21	350	350	700	22

PC: Professional Core Course, PCL: Professional Core Course laboratory, AE: Ability Enhancement Course, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation.



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Professional Core Course (PC): Refers to Professional Core Course Theory, its Teaching– Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPC shall be evaluated both by CIE and SEE.

Integrated Professional Core Course (IPC): Integrated Professional Core Course (IPC): Refers to Professional Theory Core Course Integrated with practical of the same course. The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper.

Audit Courses /Ability Enhancement Courses Suggested by BOS (ONLINE courses): Audit Courses: These are prerequisite courses suggested by the concerned Board of Studies. Ability Enhancement Courses will be suggested by the BoS if prerequisite courses are not required for the programs.

Ability Enhancement Courses:

- These courses are prescribed to help students to enhance their skills in in fields connected to the field of specialization as well allied fields that leads to employable skills. Involving in learning such courses are impetus to lifelong learning.
- The courses under this category are online courses published in advance and approved by the concerned Board of Studies.
- Registration to Audit /Ability Enhancement Course shall be done in consultation with the mentor and is compulsory during the concerned semester.
- In case a candidate fails to appear for the proctored examination or fails to pass the selected online course, he/she can register and appear for the same course if offered during the next session or register for a new course offered during that session, in consultation with the mentor.
- The Audit Ability Enhancement Course carries no credit and is not counted for vertical progression. However, a pass in such a course is mandatory for the award of the degree.

Skill development activities: Under Skill development activities in a concerning course, the students should

- Interact with industry (small, medium, and large).
- Involve in research/testing/projects to understand their problems and help creative and innovative methods to solve the problem.
- Involve in case studies and field visits/ fieldwork.
- Accustomed to the use of standards/codes etc., to narrow the gap between academia and industry.
- Handle advanced instruments to enhance technical talent.
- Gain confidence in modeling of systems and algorithms for transient and steady-state operations, thermal study, etc.
- Work on different software/s (tools) to simulate, analyze and authenticate the output to interpret and conclude.

All activities should enhance student's abilities to employment and/or self-employment opportunities, management skills, Statistical analysis, fiscal expertise, etc.

Students and the course instructor/s to involve either individually or in groups to interact together to enhance the learning and application skills of the study they have undertaken. The students with the help of the course teacher can take up relevant technical –activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.



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Scheme of Teaching and Examination for Master of Technology (Autonomous Scheme-2023)

Master of Technology (M.Tech) – Thermal Power Engineering (MTP)

(Effective from the Academic Year 2023-24)

II-Semester - Thermal Power Engineering

Sl. No.	Course Area	Course Code	Course Title	TD/PSB	Teaching Hours/Week				Examination				Credits
					Theory/Lecture	Tutorial	Practical/Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PC	M23MTP201	Advanced Power Plant Cycles	ME	02	00	02	02	03	50	50	100	3
2	IPC	M23MTP202	Advanced Heat Transfer	ME	03	02	00	0	03	50	50	100	4
3	PE	M23MTP203x	Professional Elective - 1	ME	02	00	00	02	03	50	50	100	3
4	PE	M23MTP204x	Professional Elective - 2	ME	02	00	00	02	03	50	50	100	3
5	MPS	M23MTP205	Mini Project with Seminar	ME	00	00	04	02	--	100	--	100	3
6	PCL	M23MTPL206	CFD and Numerical Lab	ME	01	00	02	00	03	50	50	100	02
7	AUD/AE	M23AUD207	Suggested ONLINE courses	ME	Classes and evaluation procedures are as per the policy of the online course providers								PP
					10	00	08	08	15	350	250	600	18

PC: Professional Core Course, PCL: Professional Core Course laboratory, AE: Ability Enhancement Course, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation, MPS: Mini Project with Seminar

Professional Elective 1		Professional Elective 2	
Code	Title	Code	Title
M23MTP231	Steam and Gas Turbines	M23MTP241	Refrigeration and Air Conditioning
M23MTP232	Renewable Energy Technology	M23MTP242	Hydrogen and Fuel Cell Technologies
M23MTP233	Design and Optimization of Thermal Energy Systems	M23MTP243	Jet and Rocket Propulsion systems
M23MTP234	Cryogenics	M23MTP244	Computational Methods in Heat Transfer and Fluid Flow
M23MTP235	Nuclear Engineering in Power Generation	M23MTP245	Energy Conservation and Management

Professional Core Course (PC): Refers to Professional Core Course Theory, its Teaching– Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPC shall be evaluated both by CIE and SEE.



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Integrated Professional Core Course (IPC): Integrated Professional Core Course (IPC): Refers to Professional Theory Core Course Integrated with practical of the same course. The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper.

Audit Courses /Ability Enhancement Courses Suggested by BOS (ONLINE courses): Audit Courses: These are prerequisite courses suggested by the concerned Board of Studies. Ability Enhancement Courses will be suggested by the BoS if prerequisite courses are not required for the programs.

Ability Enhancement Courses:

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- The courses under this category are online courses published in advance and approved by the concerned Board of Studies.
- Registration to Audit /Ability Enhancement Course shall be done in consultation with the mentor and is compulsory during the concerned semester.
- In case a candidate fails to appear for the proctored examination or fails to pass the selected online course, he/she can register and appear for the same course if offered during the next session or register for a new course offered during that session, in consultation with the mentor.
- The Audit Ability Enhancement Course carries no credit and is not counted for vertical progression. However, a pass in such a course is mandatory for the award of the degree.

Skill development activities: Under Skill development activities in a concerning course, the students should

- Interact with industry (small, medium, and large).
- Involve in research/testing/projects to understand their problems and help creative and innovative methods to solve the problem.
- Involve in case studies and field visits/ fieldwork.
- Accustomed to the use of standards/codes etc., to narrow the gap between academia and industry.
- Handle advanced instruments to enhance technical talent.
- Gain confidence in modeling of systems and algorithms for transient and steady-state operations, thermal study, etc.
- Work on different software/s (tools) to simulate, analyze and authenticate the output to interpret and conclude.

All activities should enhance student's abilities to employment and/or self-employment opportunities, management skills, Statistical analysis, fiscal expertise, etc.

Students and the course instructor/s to involve either individually or in groups to interact together to enhance the learning and application skills of the study they have undertaken. The students with the help of the course teacher can take up relevant technical –activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.

Mini Project with Seminar: This may be hands-on practice, survey report, data collection and analysis, coding, mobile app development, field visit and report preparation, modelling of system, simulation, analysing and authenticating, case studies, etc.

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a senior faculty of the department. Students can present the seminar based on the completed mini project. Participation in the seminar by all postgraduate students of the program shall be mandatory.

The CIE marks awarded for Mini-Project work and Seminar, shall be based on the evaluation of Mini Project work and Report, Presentation skill and performance in Question-and-Answer session in the ratio 50:25:25. Mini-Project with Seminar shall be considered as a head of passing and shall be considered for vertical progression as well as for the award of degree. Those, who do not take-up/complete the Mini Project and Seminar shall be declared as fail in that course and must complete the same during the subsequent semester. There is no SEE for this course.

Internship: All the students shall have to undergo a mandatory internship of 06 weeks during the vacation of II and III semesters. A Semester End Examination shall be conducted during III semester and the prescribed internship credit shall be counted in the same semester. The internship shall be considered as a head of passing and shall be considered for vertical progression as well as for the



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award of degree. Those, who do not take-up/complete the internship shall be declared as fail in the internship course and must complete the same during the subsequent examinations after satisfying the internship requirement.

Scheme of Teaching and Examination for Master of Technology (Autonomous Scheme-2023)

Master of Technology (M.Tech) – Thermal Power Engineering (MTP)

(Effective from the Academic Year 2023-24)

III-Semester- Thermal Power Engineering

Sl. No.	Course Area	Course Code	Course Title	TD/PSB	Teaching Hours/Week				Examination				Credits
					Theory/Lecture	Tutorial	Practical/Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PC	M23MTP301	Design of Heat Transfer Equipment's	ME	03	00	00	02	03	50	50	100	4
2	PE	M23MTP302X	Professional elective - 3	ME	03	00	00	00	03	50	50	100	3
3	OE	M23MTP303X	Professional Elective 4	ME	03	00	00	00	03	50	50	100	3
4	PW	M23MTP304	Project Work Phase -1	ME	00	00	06	00	--	100	--	100	3
5	SP	M23MTP305	Societal Project	ME	00	00	06	00	--	100	--	100	3
6	INT	M23MTPI306	Internship	ME	06 Weeks Internship Completed during the intervening vacation of II and III Semester				--	50	50	100	6
Total					09	00	12	02	09	400	200	600	22

PC: Professional Core Course, PCL: Professional Core Course laboratory, AE: Ability Enhancement Course, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation, SP: Societal Project, IN: Internship, PW: Project Work

Professional Elective - 3		Professional Elective 4	
Course Code	Course title	Course Code	Course title
M23MTP321	Alternative Fuels for IC Engines	M23MTP331	Theory of IC Engines
M23MTP322	Thermal Power Station	M23MTP332	Environmental Engineering and Pollution Control
M23MTP323	Convective Heat and Mass Transfer	M23MTP333	Safety in Engineering Industry
M23MTP324	Gas Dynamics	M23MTP334	Biomass Energy Conversion Techniques



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M23MTP325	Measurement Systems in Thermal Engineering	M23MTP335	Non-Conventional Energy Sources
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Project Work Phase-1: The project work shall be carried out individually. However, in case a disciplinary or interdisciplinary project requires more participants, then a group consisting of not more than three shall be permitted. Students in consultation with the guide/co-guide (if any) in disciplinary project or guides/co-guides (if any) of all departments in case of multidisciplinary projects, shall pursue a literature survey and complete the preliminary requirements of the selected Project work. Each student shall prepare a relevant introductory project document and present a seminar.

Internship: All the students shall have to undergo a mandatory internship of 06 weeks during the vacation of II and III semesters. A Semester End Examination shall be conducted during III semester and the prescribed internship credit shall be counted in the same semester. The internship shall be considered as a head of passing and shall be considered for vertical progression as well as for the award of degree. Those, who do not take-up/complete the internship shall be declared as fail in the internship course and must complete the same during the subsequent examinations after satisfying the internship requirement.



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IV-Semester- Thermal Power Engineering

Sl. No.	Course Area	Course Code	Course Title	TD/PSB	Teaching Hours/Week				Examination			Credits	
					Theory/Lecture	Tutorial	Practical/Drawing	SDA	Duration in hours	CIE Marks	SEE Marks		Total Marks
1	PW	M23MTP401	Project Work Phase II	ME	--	--	18	0	03	100	100	200	18
Total					--	--	18	0	03	100	100	200	18

Project Work Phase-2: Students in consultation with the guide/co-guide (if any) in disciplinary project or guides/co-guides (if any) of all departments in case of multidisciplinary projects, shall continue to work of Project Work phase -1 to complete the Project work. Each student / batch of students shall prepare project document and present a seminar.

CIE marks shall be awarded by a committee comprising of HoD as Chairman, all Guide/s and co-guide/s (if any) and a senior faculty of the concerned departments. The CIE marks awarded for project work phase -2 shall be based on the evaluation of Project Report, Project Presentation skill, and performance in the Question-and- Answer session in the ratio of 50:25:25.

SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the Institute norms.

