

**Broad frame work for proposed integrated M. Tech –Ph. D program under  
Faculty of Technology, University of Pune**

**Admissions:**

- Any engineering graduate or science post graduate [including agriculture / bio technology], post graduate in computer related programs [MCA/MCS/MSc etc].
- GATE score mandatory for candidates having experience less than 2 years. These are exempted from entrance examination.
- Candidates possessing industrial experience more than 2 years are eligible for entrance examination.
- All the candidates required to appear at the interview.
- Entrance examination / GATE score will have a weight age of 70 %, while interview will have a weight age of 30 %.
- Entrance test will consists of general aptitude, fundamentals of science and engineering, mathematics of undergraduate level.
- This is 8 semester 160 credit program.

**Course Structure:**

Abbreviations: BoS – Board of Studies, FoT- Faculty of Technology; UoP-University of Pune

- Every candidate, admitted to the program, has to earn 160 credits before submission of the thesis.
- All core courses are domain specific, for a particular discipline of Studies in Engineering/Technology.
- The program specific electives are based on recent advances in the field of Engineering/Technology related to that specialization.
- The General/open electives are encompassing in nature and designed by every BoS, pertaining to diversified domains of Engineering and Technology. These courses can be taken by candidate, admitted to any discipline of Research under FoT.
- Seminars I and II are to be delivered on any contemporary topic in the domain of technology, the candidate relates to.

**University of Pune**  
**Faculty of Technology**  
**Board of Studies in Mechanical and Materials Technology**  
**Curriculum Structure**

Sr. No	Course Title	Semester	Credits
01	<b>Materials Engineering</b>	I	5
02	<b>Finite Element Method</b>	I	5
03	<b>Mathematical Modeling and Analysis</b>	I	5
04	<b>Instrumentation &amp; Experimental Techniques</b>	II	5
05	<b>Optimization Techniques</b>	II	5
06	Elective*	I	5
07	Elective*	II	5
08	Elective*	II	5
09	Open Elective	I	5
10	Open Elective	II	5
11	Seminar –I (Advanced Topic based on courses in semester I)	I	5
12	Seminar-II (Advanced Topic based on courses in semester II)	II	5
13	<b>Advanced Mathematics</b>	III	5
14	<b>Advanced Technologies in Materials and Mechanical Engineering</b>	III	5
15	<b>Research Methodologies</b>	III	5
16	Seminar-III on Literature Review of Research Problem)/ field works/assignments	III	5
17	Research Progress Seminar I and Report	IV	20
18	Research Progress Seminar II and Report	V	20
19	Research Progress Seminar III and Report	VI	20
20	Research Progress Seminar IV and Report	VII	20
21	Thesis Submission	VIII	--

**\* Electives to be selected from following list**

MME1: Advanced Stress Analysis	MME7: Advanced Thermodynamics	MME13: Advanced Gas Dynamics
MME2: Vehicle Dynamics	MME8: Advanced Heat Transfer	MME14: Advanced Air conditioning and Heating and Ventilation
MME3: Engineering Fracture Mechanics	MME9: Advanced Fluid Mechanics	MME15: Internal Combustion Engines
MME4: Vibration & Noise Control	MME10: Computational Fluid Dynamics	MME16: Advanced Physical & Mechanical Metallurgy
MME5: Advanced Machine Design	MME11: Refrigeration Technology	MME17: Microcontrollers
MME6: Analysis & Synthesis of Mechanism	MME12: Industrial Automation	MME18: Drives & Actuators

## Note

Candidates are required to perform minimum four (4) assignments for each core and elective course, and submit report as a bona fide document to supervisor/course instructor. The assignment may be in the form of modeling/ simulation/ programming/ experimental investigation/ fieldwork.

## Structure at a Glance:

- M. Tech equivalent Courses : 10 with 50 credits
- M. Tech related Seminars : 02 with 10 credits
- Preparatory PhD courses : 04 with 20 credits
- Research Progress Seminars : 04 with 80 credits

## Schedule of the courses

- Admissions to this program will be done once in a year preferably in July.
- In general, credits for the courses will be earned in initial semesters of the program.
- BoS of various programs need to study several courses being offered for regular M.E / M.Tech programs at approved research centers, post graduate courses offered by the university departments in identifying the core and elective courses for the respective program. Candidates are expected to attend these courses at respective locations in initial phase of this program. For example a student registering for a program in “Electrical and Electronics” may take some M. Tech courses offered at COEP /VIT/SCOE/PICT or UoP Departments.
- Sponsored Candidates [who are not taking any fellowship / stipend] are permitted to take these courses on “Self Study” basis.
- Preparatory PhD Courses will be centrally conducted at UoP and evaluated by the FoT.
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## Quality Measures

- Maximum 3 failures are allowed through-out the course work or else candidature will be terminated.
- Upon successful completion of course work, with the earning of 80 credits, a research committee (RC) will be formed which shall consist of Guide, industry Co-guide [or Industry Guide and Institute Co-Guide, as the case may be], two experts from the identified pool of experts by the respective board, and one senior expert from the pool of experts identified by the other boards as nominated by the Dean of the FoT. This committee will closely monitor the progress of the candidate and recommend the continuation of the research. If the progress is not satisfactory for consecutive two times, the candidate will have to drop the program.
- The RC will accept the pre-synopsis only after minimum **one** publication in journals of high repute. The list of such journals to be furnished by respective boards.
- The evaluation of all the courses shall be done by respective research centers, university departments identified by the respective boards as per the prevailing evaluation systems of the institutes. For example a candidate registered for course at COEP shall be evaluated as per

present evaluation system of the COEP. Whereas, the other course for which he has registered at other place like university department/ SIT, will be evaluated by UoP. All courses will have a theory paper of 100 marks. The conversion of marks and grade sheet compilation will be done by this faculty of technology.

### **Financial Matters**

- The Course teacher shall be paid an honorarium of Rs. 10,000/- per credit for a batch of 20 students for in house courses. If the batch exceeds 20, this will be doubled.
- Every RC member shall be entitled for an honorarium of Rs. 2000/- per candidate per semester.
- The guide shall be entitled to receive an honorarium of Rs. 5000/- per candidate per semester.
- The faculty shall pay Rs. 6000/- per course per candidate to the respective research center towards the academic fees for accommodating the candidates desirous to take courses offered by the respective research centers. The Faculty of Technology to make all administrative arrangements with these external centers.

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