PhD ORDINANCES AND REGULATIONS

INDIAN INSTITUTE OF TECHNOLOGY MADRAS
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NOMENCLATURE USED

IIT	An Indian Institute of Technology under MHRD, India
IITM	Indian Institute of Technology Madras
IISc	Indian Institute of Science, Bengaluru
IIM	An Indian Institute of Management under MHRD, India
CFTI	Centrally Funded Technical Institute (as declared by MHRD)
HTRA	Half-time Research Assistantship awarded by IITM
HoD	Head of the Department
DC	Doctoral Committee for PhD scholars
GTC	General Test Committee for MS scholars
IC & SR	Center for Industrial Consultancy & Sponsored Research at IITM
CGPA	Cumulative Grade Point Average
R&D	Research and Development
MoU	Memorandum of Understanding
DST	Department of Science and Technology in India
UGC	University Grants Commission
CSIR	Council of Scientific and Industrial Research
AICTE	All India Council of Technical Education
JRF	Junior Research Fellowship
QIP	Quality Improvement Program of AICTE
PG	Postgraduate degree
UG	Undergraduate degree

DEGREES

PhD	Doctor of Philosophy
	Regular PhD for those joining after a Master's degree
	Direct MS + PhD in Engineering/ Management for those joining after BE/ BTech or MSc
	Upgraded PhD in Engineering/ Management for those upgrading from MS or MTech
MS	'Master of Science' or 'Master of Science by Research' in Engineering/Technology/ Management
MS(E)	Master of Science (by Research) in Entrepreneurship
ME	Master of Engineering (2 year program)
MTech	Master of Technology (2 year program)
MSc	Master of Science (2 year program in sciences)
MA	Master of Arts (2 year program)
MBA	Master of Business Administration (2 year program)
BE	Bachelor of Engineering (4 year program)
BTech	Bachelor of Technology (4 year program)

ABBREVIATION OF EXAMINATIONS

GATE	Graduate Aptitude Test in Engineering administered by IISc/ IITs
CSIR-NET	National Eligibility Test administered by CSIR for award of JRF in Physical, Chemical, Mathematical, Earth Atmospheric Ocean & Planetary and Life Sciences
UGC-NET	National Eligibility Test administered by UGC for JRF award in Humanities, Social Sciences, Environmental Sciences, Forensic Science, Computer Science & Applications, Electronic Science
CAT	Common Admission Test administered by IIMs
NBHM	National Board of Higher Mathematics which administers examination for scholarship to PhD, MA, and MSc

GRE   Graduate Record Examination administered by ETS

GMAT   Graduate Management Aptitude Test administered by Graduate Management Admission Council (GMAC)

TOEFL   Test Of English as Foreign Language administered by ETS

<h1 style="color:red; text-align:center;">ORDINANCES AND REGULATIONS</h1>

PhD ORDINANCES

PhD-O.1   A candidate who has qualified for the award of Master's degree of this Institute or a recognized Institute or University in the discipline as prescribed in the regulations of the Senate is eligible to apply for the PhD program of this Institute.

PhD-O.2   A candidate who has qualified for the award of Bachelor's Degree in Engineering/ Technology with good academic background in the discipline as prescribed in the regulations of the Senate is also eligible to apply for MS + PhD program in Engineering/ Technology/Management of this Institute.

PhD-O.3   The award of the PhD degree shall be in accordance with the regulations of the Senate of this Institute.

REGULATIONS

PhD-R.1   CATEGORIES OF ADMISSION

Candidates will be admitted to the Doctor of Philosophy (PhD) program of IITM under one of the following categories with following requirements.

Category	Remarks
Regular-HTRA	with Half-Time Research Assistantship from IIT Madras
Regular-Fellowship	with funding from outside agencies such as UGC, CSIR and industries
Regular-Project	with funding through a project administered by IC&SR at IITM
Regular-Project-NHTRA	with funding through a project administered by IC&SR at IITM; without eligibility for funding under HTRA
Regular- NHTRA	Without funding
External	Should be sponsored by and employed in a industry/ organization/ institution having R&D facilities and recognized by DST (DSIR) or IITM, with at least 2 years of experience.
Part-time Staff	Should be employed in a reputed Institution/ University / Organization within commutable distance, with at least 2 years of experience. Should be employed as a permanent staff member of IITM with atleast 2 years of experience.
QIP	Should be sponsored by AICTE under Quality Improvement Program (QIP) through Centre for Continuing Education (CCE) at IITM.

1. For admission under **Regular-HTRA and Regular Fellowship** as well as the Regular-**Project** category, the Departments will adopt common shortlisting criteria and have a common merit list.

2. Candidates **currently** employed on a **project** at IITM with a minimum project experience of *2 years* can apply for admission to *PhD and* will be treated equivalent to that of External category.

3. A research scholar under the **external** category will normally carry out part or all of his/ her research work in the industry/ organization/ national laboratory (or university in case of management studies) employing the scholar under the supervision of a co-guide also employed in the same organization and a guide at IITM. External scholars employed in IITM Research Park need not have a co-guide from their organization.

4. In general, **external** and **part-time** scholars have a minimum residential requirement of one semester. **Part- time** scholars will be permitted to do course work without residential requirement, with the permission of their employer.

5. *Regular-HTRA scholars can move to Regular-NHTRA or Regular-Project and revert back to Regular- HTRA later.*

6. Senate in its 281st meeting approved to waive the residential requirements for the scholars registered under external / part-time for Ph.D program, who complete / plan to complete their course work requirements through IIT Madras web based on-line courses with the approval of DC. And also approved that the scholar can spend one semester period over a period of program instead of one time.

7. *Regular-NHTRA scholars can move to Regular-HTRA Category only after acquiring appropriate additional qualifications required for such conversion.*

8. *Only those Regular-Project scholars whose interview marks was equal to or above the cut-off for*
Regular-HTRA can move to Regular-HTRA.

9. **Inter disciplinary MS/PhD**
   a. Admission of scholars in the ID programme will be based on an ID research proposal based selection procedure as formulated by the ID Research Programme Committee. (Pl refer MS PhD admission brochure for details of area of research)

   b. The DC of the scholar will decide the course requirement in 0th DC meeting conducted soon after admission.

   c. DC will decide about the syllabus of Comprehensive Examination in the 0th DC Meeting..

10. The medium of instruction & communication for Academic Research shall be English (eg. DC Reports, Synopsis, Title of thesis in the Degree Certificate, Seminar Presentation etc.) . (**278th Senate**)

PhD-R.2 ELIGIBILITY FOR PhD/ DIRECT ADMISSION TO MS + PhD PROGRAMS/ UPGRADATION:

All the applicants should have a good academic record.

There are three modes (PhD, Direct admission to MS + PhD and Upgraded PhD) in which a candidate can be admitted to a PhD Program. The minimum qualifications for each of these modes are as follows. *These qualifications should be in relevant areas/ disciplines provided by the respective Departments in the admission brochure released with the admission notice.* The Admissions Brochure will also include details about inter-disciplinary research areas and the corresponding eligible disciplines given by the Departments. Short-listed candidates will be called for a "test and interview" or "Interview" by a Selection Committee in the respective Departments (Refer to the Procedures in Appendix).

PhD-R.2.1 *Minimum Qualifications for PhD:*

Candidates applying for PhD in one of the following areas need to have *any one* of the minimum qualifications mentioned in the table below**.**

Area	Minimum Qualifications	
	Educational qualification	**Additional qualifying exam**
Engineering	*ME/ MTech/ MS by Research in Engineering / 5 year integrated Masters/ Dual Degree in Engg* 2 year M.Sc from IITs (entry through JAM) with CGPA 8.0 and above BS+MS (5 year integrated) from CFTI	**-None-**
	MSc from any Recognized University / Institute	Valid *GATE* score/ UGC-NET / CSIR-NET /NBHM / Inspire or equivalent qualification tenable for year of registration. In case of candidates with more than 5 years relevant experience after MSc, requirement of a test score may be waived by the Selection Committee.
	ME/M.Tech or MS by Research in Engineering or 2 year M.Sc from IITs (entry through JAM) with CGPA 8.0 and above/ BS+MS (5 year integrated) from CFTI	-None-

Sciences	*M.Sc from IITs without minimum CGPA of 8.0/ M.Sc from other Institutions*	valid *GATE score*/ UGC-NET fellowship/ CSIR-NET fellowship/ NBHM PhD scholarship or equivalent qualification tenable for the current year of admission
	BTech from an *IIT* with a minimum CGPA of *8.0*	-None-
	BTech from an *IIT* without the above minimum CGPA	Valid Gate Score
	Bachelor's degree in Engineering/ Technology from any recognized Indian University with a minimum CGPA of *8.0* on a 10.0 point scale	Valid Gate Score
Humanities and Social Sciences	*Master's degree / Dual degree* or equivalent *In relevant discipline*	valid *GATE score* / UGC-NET / CSIR-NET or equivalent qualification tenable for current year or GRE (For NHTRA) 3 years of experience in research / industry in lieu of the above examinations (Only for NHTRA Candidates)
Management	*Master's degree/ two year PG Diploma in relevant discipline and* a Bachelor's degree (Minimum 5 years of Graduate and undergraduate education) (OR) Five year integrated *Master's degree / dual* degree *or* equivalent in a relevant discipline --- Candidates with MBA or two year PG Diploma from CFTI with a minimum CGPA of 8.0.	*CAT/ GATE/ UGC-NET/ CSIR-NET/* GMAT/ GRE or equivalent. The following candidates are exempted from these examinations: → External/ Part-time candidates with at least 5 years of managerial experience Candidates with only GRE/GMAT scores are not eligible for HTRA --- None

NOTES:

a) The Selection Committees may set more stringent criteria than the minimum qualifications listed above.

b) For QIP/ External Registration/ part-time and Institute staff categories, the requirement of valid GATE score or CSIR/ UGC - JRF or Lectureship/ NBHM/ CAT or equivalent qualification may be waived.

c) The Selection Committees may consider meritorious candidates from disciplines other than those listed in the Admission Brochure, if there is good match between the educational/ research background of the candidate and the proposed area of research.

d) Master's degree (ME/ MTech/ MS) implies a two year PG program from an accredited University.

e) The Selection Committees may consider candidates with one year PG degree from accredited Universities under Direct admission to MS + PhD (PhD-R.2.2), provided they meet the eligibility requirements for Direct admission to MS + PhD. Courses completed in one year PG program may be considered by the Doctoral Committee (DC) (PhD-R.7) towards course requirement for Direct admission to PhD. Scholars will be eligible for HTRA only if they qualify in GATE (equivalent to Direct admission to MS+PhD).

f) In case of candidates with more than 5 years relevant experience after MSc, requirement of a test score may be waived by the Selection Committee.

PhD-R.2.2 *Minimum Qualifications for Direct admission to MS+PhD:*

Candidates with BE/ BTech are eligible for direct admission to MS+PhD as a Regular full-time scholar in Engineering, subject to any one of these requirements:

Educational qualifications	Additional qualifications
BS /BE/BTech from a Centrally Funded Technical Institute (CFTI) with a minimum CGPA of *8.0* on 10.0 point scale	-None-
BTech from a CFTI without the above minimum CGPA	Valid GATE score
Bachelor's degree holder in Engineering/Technology with a minimum CGPA of 8.0 or equivalent from any other University	Valid GATE score
Bachelors degree holder in Engg/Technology from research R& D Organizations having a proven research record.	None

- Regular full-time candidates in their final year prior to graduation may also apply for Direct admission to MS + PhD. Admission of such Scholars will be subject to their qualifying GATE prior to joining, failing which their admission offer will be cancelled..

- Candidates from Centrally Funded Technical Institutes (CFTI) having a CGPA of 8.0 and above, if found suitable, can be offered admission to MS+PhD programme with HTRA.
- External candidates with proven research record do not need a GATE score.

In addition, **top 10% of the students in their 3rd year of Bachelor's degree in other Institutions (which enter into a specific MoU with IITM in this regard)** can apply for Direct admission to MS+PhD.

- Selected students will move to IIT Madras in their 4th year.
- Credits earned during first year of Direct admission to MS+PhD at IITM shall have equivalence to credits needed for the 4th year of the BTech. The credits will be transferred to the parent Institute for the award of BTech degree.
- The scholars are eligible for HTRA for 5 years, after completing their first year of stay successfully at IITM and qualifying in GATE. *Students from CFTIs with a CGPA of 8*.0 on a 10.0 point scale *and above will be eligible for HTRA without GATE requirement and students from non CFTI are required to qualify in GATE to be considered for HTRA*.
- If the student does not perform well in courses at IITM, he/ she will be transferred back to the parent Institute along with credits earned.
- The candidate should complete the comprehensive viva within 5 semesters after joining IITM.
- A student who is deemed incompetent or is otherwise unable to continue in the Direct PhD program will be allowed to drop out any time after the 5th year of joining the BTech programme. The student's BTech credits completed at IITM will be transferred to the parent institute.

PhD-R.2.3 *Minimum Qualifications for Upgrading to PhD:*

Candidates registered for MS/ MTech/ MSc at IITM are eligible for an upgrade to the PhD program in the same department, if they satisfy the following criteria:

(a) For M.Tech: completed all the courses prescribed for the first 2 semesters with a minimum CGPA of 8.0.

(b) For M.Sc.: completed all the courses prescribed for the first 3 semesters with a minimum CGPA of 8.0.

(c) For M.S.: Minimum CGPA of 8.0 in the prescribed courses completed (at least three of the prescribed courses should have been completed).

Upgrade requests should be submitted within 2 years from the date of joining. For MS scholars who have completed 2 years, request for an upgrade may be considered if at least one journal paper has been accepted/ published.

PhD-R.2.4 *Option of Getting Two Degrees for Direct MS+PhD and Upgraded PhD:*

Direct MS+PhD as well as Upgraded PhD scholars are eligible to receive two degrees (MS/MTech/MSc & PhD) if they have met the course requirements of the respective Master programme as well as PhD programme as given in PhD-R.11. Provisional Certificate for the Master Degree will be issued to the scholars on approval of PhD synopsis by the DC

PhD-R.2.5 *MTech/ PhD Dual Degree program in ED department:*

The selection of candidates will be through MS admission process. Final selection will be as per the criteria fixed by the department selection committee.

PhD-R.3 INTERNATIONAL STUDENTS

Foreign nationals are those with foreign passports, including those who are PIO/ OCI card holders.

- Foreign nationals can only register as full-time scholars and they are not eligible for HTRA.

- Foreign nationals with eligible degree from Indian Universities will be treated on par with Indian nationals for admission (PhD-R.2).

- Foreign national who are PIO / OCI card holders are eligible for admission with the prescribed fee for Indian nationals.

- Foreign nationals with foreign degrees must meet the minimum educational requirements (PhD-R.2) equivalent to an Indian Master's degree in the relevant disciplines. In addition, they should have valid score in *CAT/ GATE/ UGC-NET/ CSIR-NET/* GMAT/ GRE or equivalent examination in the relevant discipline.

- International students are expected to have a working knowledge of English and should have cleared TOEFL.

PhD-R.4 SELECTION PROCEDURE

Eligible candidates possessing the minimum educational qualifications and satisfying additional criteria set by the departments from time to time, will be called for test and an Interview and/or Test by the Selection Committees of the respective departments.

For candidates who have obtained PG degree 10 years earlier as on the last date prescribed for receipt of the completed application, a departmental test may be conducted.

The applications of foreign nationals may be considered without a personal interview / test.

Based on the academic record and the performance of the candidates in the test and interview, the Departmental Selection Committee will recommend to the Chairman, Senate the names of candidates found suitable for admission to the Ph.D. Programme.

PhD-R.5 ADMISSION

a) Candidates whose selection is approved by the Chairman, Senate will be admitted to the PhD program after payment of prescribed fees. Selection procedure can be found in Procedures.
b) After cancellation of a registration, the Institute reserves the right to allow re-registration on a case-by-case basis.

PhD-R.6 REGISTRATION

a) A scholar's date of joining is normally the date of registration.
b) The registration of an IC&SR project staff may be made effective from a date 6 months prior to joining, based on the recommendation of the DC. Senate may permit an additional period of 6 months.

PhD-R. 7 GUIDES AND CO-GUIDES

- For each scholar, a faculty member of IITM shall be nominated as a guide by the Dean (Academic Research) to supervise the progress.

- In addition to the guide, at most only Adjunct faculty member from IITM may be appointed as a co-guide (281st Senate)

  - For External category scholar, a co-guide from the respective organization with suitable qualification is to be nominated.

- A co-guide from outside IITM may be allowed with the approval of Chairman, Senate on a case-by-case basis.

In addition to the above,

a) If the guide from IITM proceeds on leave for more than a year, another faculty member may be appointed as a co-guide.

b) A faculty member who has guided a candidate for at least 3 years, will continue to be a guide post-retirement. However, another faculty member with at least 5 years of remaining service at IITM will be nominated as a co-guide at the time of the guide's retirement.

c) A faculty member retiring within 3 years may be permitted to be a guide for a new scholar. However, another faculty member with at least 5 years of remaining service at IITM will be appointed as a co-guide when the scholar joins IITM. On retirement, the faculty member will continue to be a guide.

d) CSIR/ other Emeritus Fellows / Scientists / Emeritus Professors, currently holding office at IITM with an appointment period of at least two years, can be a co-guide along with a guide who has at least 5 years of remaining service at IITM.

e) Faculty from other CFTIs/ Universities or experts from Industries with a PhD in relevant area OR a Master's degree in Engineering / Management with adequate professional experience in the relevant field may be nominated as a co-guide, based on the recommendation of the DC after duly considering the co-guide's credentials. If the co-guide's organization does not have an MoU with IITM, he/she shall sign an Intellectual Property Rights (IPR)/ Non-Disclosure Agreement (NDA). IITM will have no financial obligation to the co-guide.

f) The Doctoral Committee may recommend change of guide/co-guides or appointment of a co-guide for valid reasons.

g) Nomination t of co-guide, based on the recommendation of the DC, should be made within two years from the date of joining. Beyond this limit, Dean (Academic Research) will consider such requests on case-to-case basis, based on the recommendation of the DC.

PhD-R.8 DOCTORAL COMMITTEE (DC)

A Doctoral Committee shall be constituted to periodically assess the scholar's progress.
The following is the composition of the Doctoral Committee (DC):

1.	Head of the Department (HoD) or nominee	Chair
2.	Guide/ co-guides	Member(s)
3.	Minimum of two faculty members from the scholar's Department*	Members nominated by the Chair, Senate or his/ her nominee from the suggested panel of names by HoD
4.	A minimum of one faculty member of allied Departments/ Institutions	

for Interdisciplinary PhD scholars, there will be one member each from the respective departments of the guides.

1. If the HoD is the guide, a Professor nominated by the Chair, Senate or his/her nominee will be the Chairman of the DC.
2. The HoD must attend comprehensive examination / synopsis / thesis report / viva-voce meetings.

3. If a DC member goes on leave for more than a year or resigns/ retires from IITM, the Chair, Senate or his/ her nominee will nominate another member on the suggestion of the Chair, DC.
4. The DC members from outside IITM must meet the same eligibility criteria as co-guides (PhD-R.7).
5. The DC shall conduct periodic progress review meetings as outlined in PhD-R.10.
6. All the DC members will be invited for all the meetings related to the scholar.
7. One DC meeting shall be conducted between 3 to 3. ½   279th Senate
8. All the decisions and recommendations made by the DC shall be minuted and forwarded to the Dean (Academic R esearch).

PhD-R.9 ENROLLMENT

• A scholar is required to enroll each semester after paying the requisite fees, until the submission of the thesis.
• Enrollment has to be completed on the stipulated date and should be approved by HoD.
• The enrollment will be cancelled if the progress is not satisfactory.
-   Scholars of External category / Part time /RKA / Temporary withdrawal / Maternity leave/ and those who are on academic duty with prior permission from the Institute are eligible to enroll in Absentia during the stipulated period after payment of requisite fee.

PhD-R.10 PhD REQUIREMENTS

The requirements in the order of completion for PhD are listed below.

Requirements	Expected time frame	Section
Course work	Within two semesters*	PhD-R.11
Comprehensive examination	Within three semesters*	PhD-R.12
Research Proposal Seminar (Seminar 1)	Within one year after passing comprehensive examination	
Research Colloquium (Seminar 2)	At least 6 months after Seminar 1 and before Synopsis submission	
Synopsis	Within 5 years for Regular PhD and 6 years for Direct/ Upgraded PhD	PhD-R.13
Thesis submission	Within one month after acceptance of Synopsis	PhD-R.13
PhD viva voce examination		PhD-R.15

* Time frames are shown for Regular PhD scholars, only for indicative purposes. Exact time frame for different categories can be found in the respective sections indicated in third column.

a) For Interdisciplinary (ID) scholars, a 0th DC has to be conducted in which the courses are to be decided and the syllabus for comprehensive examination will be decided.
b) Registered scholars should submit progress report twice in a year(15th June and 15th Dec.) to the Doctoral Committee (DC). The guide's assessment of the progress and approval of the Chair, DC is required for enrollment in the subsequent semester. Continuance of enrollment will depend on the recommendation of the DC.
c) In case, the six-monthly progress report is considered 'unsatisfactory' by the guide and/or Chairman DC, a special DC is to be convened to review the research progress.
d) Comprehensive exam and the two seminars are considered as DC meetings.
e) Beyond 5 years for Regular PhD and 6 years for Direct/ Upgraded PhD, progress meetings will be held once every 6 months in the presence of the Dean (Academic Research) or his/ her nominee.
f) In addition to the above, the HOD / Dean, AR may decide to convene special DC meeting(s) based on the request from scholar / guide, to address any issue(s) with respect to the research progress of the scholar

PhD-R.11 COURSE WORK

PhD-*R.11.1 General Guidelines*

a) Courses that meet the minimum requirements shall be at the post-graduate level at IITM and will be prescribed by the DC.

b) Changes in the prescribed courses shall be made only by the DC.

c) The DC may prescribe additional UG or PG courses for a scholar, over and above the minimum requirements.

d) The DC may approve courses already undergone by the scholar in other Institutions towards meeting the course work requirements. These courses must be equivalent to those prescribed and the scholar's performance in these courses must meet the minimum requirements.   Courses already undergone by a Research Scholar in IITM or other Institutions shall not be considered if they were part of the requirements for the award of any other degree/ diploma.

e) Contact courses may be allowed subject to the recommendation of DC and approval by Dean AR

f) Scholars are expected to complete the course work requirements within 2 semesters. Scholars joining PhD directly after BE/ BTech/BS are expected to complete the course work requirements within 3 semesters.

PhD-R.11.2 *Course Work Requirement for Research Scholars*

Discipline	Mode	Qualifying Degree	Minimum Course work	Min. credits
Engineering	Regular	ME/ MS/ MTech	2 Core courses and 2 out of at least 4 electives prescribed by DC along with ID6020.and ID6021*	36
	Upgraded/	BE/ BTech/ MSc	5 Core courses and 3 out of at least 5 electives prescribed by DC as well as XX6999 and XX7999 along with ID6020.	84 (72+12)
	Direct MS+PhD	BE/ BTech	5 Core courses and 3 out of at least 5 electives prescribed by DC as well as XX6999 and XX7999 along with ID6020/ID6021*	84 (72+12)
Science	Regular	MSc	2 Core courses and 2 out of at least 4 electives prescribed by DC along with ID6020/ID6021*	36
	Upgraded	MSc,/ MTech	2 Core courses and 2 out of at least 4 electives prescribed by DC as well as XX6999 and XX7999 along with ID6020/ID6021*	48
	Regular	BTech	5 Core courses and 3 out of at least 5 electives prescribed by DC as well as XX6999 and XX7999 along with ID6020/ID6021*	84 (72+12)
MTech-PhD of Engineering Design (Dual Degree)	Regular	BTech/BE	5 Core courses and 3 out of at least 5 electives prescribed by DC. For appearing in comprehensive examination courses work is required. Mini project not required. Laboratory / practice components in courses to be highlighted	72

(* - ID6021 is optional, to be decided by the Department as well as DC)

a) All core courses prescribed by the committee have to be completed, while only the minimum number of electives (from among those prescribed) as indicated in the table is required.

b) If more than the minimum required electives have been completed, only the electives with the best performance will be considered for computing the CGPA.

c) Research scholars shall obtain a minimum CGPA of 7.50 in the courses taken by them subject to a minimum of "C" grade in each of the prescribed courses.

d) Once a course is successfully completed, it cannot be repeated.

e) For scholars upgrading from MS/ MTech to PhD in Engineering, the courses successfully completed by him/ her in MS/ MTech may be considered by the DC towards meeting the course-work requirements.

f) ***MTech + PhD dual degree in Engineering Design***: Credits/ courses will be similar to that of the existing Senate-approved MTech + PhD. 72 credit course-work is required to appear in comprehensive examination; mini project is not required.

g) If scholars upgraded from MS or directly joining PhD choose to get both MS and PhD degrees, they should complete the following two courses (6 credits each), additionally, by the 4th semester. Completion of these two courses will be towards partial fulfillment of award of MS. These courses are included in the CGPA and minimum grade of 'C' is required. For each of the two courses, scholars have to submit a project report and give a seminar presentation.

   1) XX6999 – Critical review of Literature (where XX is the Department Code).

   2) XX7999 –Simulation/ Preliminary Experimental/ Analytical Verification of prior art or as appropriate to the discipline.

h) Scholars upgrading from MTech to PhD have to complete all the MTech course work requirements and two special courses viz.,XX6999 & XX7999 in lieu of the project required, as listed in Table above.

i) Scholars in Mathematics department upgrading from MSc/ MTech to PhD need to complete MA6999 only.

j) Final classification of courses taken by the scholar for the categories of Core, Elective and Optional (if any) shall be approved by DC in the meeting conducted at the time of Research colloquium (ie.) 3 to 3.1/2 years.   279th Senate

PhD-R.11.3 *Grades and CGPA*

Based on the semester performance, each scholar is awarded a final grade at the end of the semester in each subject. The grades and the corresponding grade points are as follows:

Grade	S	A	B	C	D	E	U
Points	10	9	8	7	6	4	0

The CGPA will be calculated according to the formula

$$\text{CGPA} = [\Sigma (C \times GP)] / \Sigma C$$

Where C = credits and GP = the grade point obtained for the course. The sum is over all the successfully completed courses.

PhD-R.12   COMPREHENSIVE EXAMINATION

The objective of the Comprehensive Examination is to test breadth of knowledge in his/her discipline and areas related to his/her field of research.

PhD scholars must pass the Comprehensive Examination conducted by a Comprehensive Examination Committee of his/ her Department within the time frame provided in the following table.

Regular PhD	Within 3 semesters (expected: within one year of registration)
Direct MS+PhD	Within 5 semesters (expected: within two years of registration)
Upgraded PhD	Within 2 semesters after Upgrade for MTech/MS; within 3 semesters for MSc

a) The Committee will consist of the Doctoral Committee (DC) members and at least two other faculty members of the Institute nominated by the Chairman, DC.

b) If the research scholar does not pass the Comprehensive examination in the first attempt, he/she will be allowed one more attempt within 6 months of the first attempt.

c) For a research scholar from Engineering/Management who does not pass the Comprehensive Examination after two attempts, his/her enrollment will be suspended from the date of declaration of the result. If he /she chooses to change the registration from PhD to MS program (PhD- R.20), the request may be approved based on DC recommendation. If the DC does not recommend the conversion, the registration will be canceled from the date of declaration of the comprehensive result.

d) The comprehensive Examination will consist of a written test and oral examination. The department will decide the exact scope of written and oral components and will intimate the same to the Dean (AR). The HoD will intimate the scope of the examination to the research scholar sufficiently in advance to enable the scholar to prepare adequately.

e) The DC will decide the method of Comprehensive Examination for scholars in inter-disciplinary PhD program and inform the Dean (AR).

PhD-R.13   THESIS AND SYNOPSIS AND PANEL OF EXAMINERS

The PhD thesis is a detailed report of all the important original research work and findings of the scholar. The synopsis will summarize the important contributions of the research work presented in the PhD thesis.

a) On satisfactory completion of the prescribed courses, the comprehensive examination, the two seminars and the research work, the scholar shall submit the synopsis of his/her research work in the required format along with the first draft of the thesis, to the Academic Section, through the guide(s) and HoD, for consideration of the DC.

b) Prior to submission of the synopsis, a PhD scholar is required to have at least one paper either published or accepted for publication in an acceptable refereed journal. The DC may recommend exceptional cases that do not meet this requirement, which will then be reported to IITM Senate.

c) The scholar must present the synopsis before the DC. On approval of the synopsis by the DC, the research scholar needs to submit the thesis within one month of the synopsis approval date. The DC will recommend a panel of minimum 8 external examiners from outside IITM for evaluation of the thesis. In the panel there must be a minumum of 2 examiners from a foreign country and a minimum 2 examiners from India. The thesis will be referred to two examiners chosen by the Chair, Senate or his/her nominee from this panel for evaluation.

d) Upon acceptance of Synopsis, the DC will also recommend a panel of 4 internal examiners from IITM, from which one will be selected by the Chair, Senate or his/ her nominee to be part of the viva voce exam board.

PhD-R.14   THESIS REPORTS

a) If two examiners declare the thesis as 'commended', the viva voce exam will be conducted.

b) If an examiner recommends that the thesis should be resubmitted after revision, the research scholar will be allowed to do so within the time stipulated by the DC, failing which the revised thesis will not be accepted and his/her registration will be cancelled.

c) If one of the external examiners evaluates the thesis as 'not acceptable', the thesis shall be referred to a third external examiner from the panel for evaluation.

e) If two examiners, after referral to a third examiner if necessary, evaluate the thesis as 'not acceptable', the thesis will not be accepted and the registration of the scholar will be cancelled.

e) In all other cases not covered by the above Regulations, the matter will be referred to the Doctoral Committee for consideration.

PhD-R.15   PhD VIVA VOCE EXAMINATION

The viva voce exam board consists of the following members:

1.	Head of the Department (If HoD happens to be the guide, the Chairman DC)	Chair
2.	The external examiner will be thesis examiner from within India (in case there are two examiners from within India, the one nominated by the Chairman Senate or his nominee). If an Indian examiner is not available, the Chair, Senate or his/her nominee will nominate an internal examiner from a panel of examiners approved by the DC.	Member
3.	Research Guide(s)	Member

4.	Internal examiner chosen from the panel suggested by the DC (OR) a specialist in the subject nominated by the Chair, Senate or his/her nominee from a panel approved by the DC.	Member

- DC members will be invitees to the viva voce exam.
- If both external examiners are from within India, both may be invited to the viva voce exam, and at least one should attend. In case neither of the external examiners is able to attend viva voce exam, an additional internal examiner will be nominated.

a) If the thesis is recommended for acceptance at the end of the viva voce exam, the Chair of the board shall forward the thesis to the Academic Section certifying that the revisions recommended by the board, if any, have been incorporated in the thesis.

b) If the viva voce exam board evaluates the performance of the scholar as not satisfactory, the scholar shall reappear for viva voce exam, not earlier than a month and not later than six months from the first viva voce exam.

b) For the second viva voce exam, the board will also include the members of the DC. If the performance of the research scholar is still not satisfactory, the matter will be referred to Senate for a decision.

c) The examiners' name can be appended in the final thesis only with the consent of the examiners.

PhD-R.16   MINIMUM AND MAXIMUM DURATION

The minimum period of study and research for full time research scholars required from the date of registration to the date of submission of thesis and the maximum duration are as follows:

Mode	Discipline	Qualifying Degree	Minimum	Maximum*
Regular PhD	Engineering	MTech/ ME/ MS	2 years	5 years
		MSc	3 years	5 years
Regular PhD	Sciences, Humanities, Management	Master's degree	2 years	5 Years
Direct MS+PhD		BE/BTech/BS	3 years_	6 Years
Upgraded PhD		M.Tech/MS M.Sc	3 years 3 years	6 years 5 years + time taken from admission to upgradation

*The DC may grant an extension of 2 more years to submit the thesis. An additional year may be allowed for scholars in the following categories: (i) QIP (ii) External (iii) Part-time and (iv) Staff

The minimum residential requirement for the scholars under External or part-time (Not employed in the Institute) registrations is one semester. This requirement is waived for external scholars who are employed in the IITM Research Park.

For female scholars to whom Maternity Leave is sanctioned for a period of 180 days, the leave period will not be counted for the maximum period of registration.

PhD-R.17   RELIEF FROM PhD PROGRAMME TO TAKE UP EMPLOYMENT

Scholars who have a job offer can obtain relief from the program upon recommendation by the DC, if they have completed the minimum residential requirement (as per PhD R.16), the course work, the comprehensive examination and the research proposal seminar.

The scholar should keep the registration alive by payment of the requisite fees every semester. Renewal of the registration for every semester will be considered only if the DC finds scholar's progress to be satisfactory and recommends continuance of registration.

PhD-R.18   T E M P O R A R Y WITHDRAWAL FROM THE PROGRAMME

A scholar may be permitted by the Dean, Academic Research to withdraw from the program for a period not longer than a semester for health reasons or any other valid grounds, if recommended by the DC. The maximum time permitted for temporary withdrawal from the program is for a period of one year, which may be taken continuously with the reapproval by the DC.

PhD-R.19 CANCELLATION OF REGISTRATION

a)   If the research progress of a scholar is found to be unsatisfactory over a long period of time the DC may recommend cancellation of registration after periodic review of the progress.

b)   The registration is liable to be cancelled if the scholar does not enroll every semester.

c)   The registration of a research scholar, who has not submitted his/ her thesis before the end of the maximum permissible period (PhD-R.15), will be cancelled.

PhD-R.20 REVERSION OF UPGRADED PhD TO MASTER'S PROGRAMMES

PhD-R.20.1 *Reversion of scholars Upgraded from MS to PhD*

a)   The scholar may apply for reversion to the MS Program under the supervision of the same guide(s) after one semester from the date of Upgradation if he/she has completed two and half years from the date of original MS registration. The DC may recommend reversion of registration for approval by the Senate

b) If the scholar does not pass the comprehensive examination in two attempts, he/ she will be reverted to the MS Program.

d)   The DC will consider the application only if the scholar has completed all the course requirements prescribed originally by the GTC when the scholar registered for MS and if the research work carried out till date is found suitable for submission as an MS thesis. The DC may recommend reversion of registration for approval by the Senate. The DC will continue to function as the GTC till the completion of the MS requirements. The scholar must complete the MS degree requirements (see MS ordinances & Regulations) within one year from the date of reversion

PhD-R.20.2 *Reversion of scholars Upgraded from MTech to PhD*

a)   The Scholar may apply for reversal of registration to the original M.Tech program after one semester from the date of Upgradation if he/she has completed three years after the date of original MTech Registration. The DC may recommend reversion of registration for approval by the Senate.

b) If the scholar does not pass the comprehensive examination in two attempts, he/she will be reverted to the MTech Program.
If the Senate approves the reversal of registration upon recommendation by the DC, The scholar must complete the MTech requirements (See MTech. Ordinances & Regulations) within one year from the date of reversion.

c) An MTech+PhD Dual degree scholar of Engineering Design may be permitted to exit with an MTech degree if they do not pass the comprehensive exam twice, provided they satisfactorily complete the required number of courses and submit an MTech project report.

PhD-R.20.3 *Reversion of scholars Upgraded from MSc to PhD*

a) The scholar may apply for reversion to the MSc Program under the supervision of the same guide(s) after 6th semester. The DC may recommend reversion of registration for approval by the Senate

b) If the scholar does not pass the comprehensive examination in two attempts, he/ she will be reverted to the MSc
Program.

The DC will continue to function as the GTC till the completion of the MS requirements. The scholar must complete the MS degree requirements (see MS ordinances & Regulations) within one year from the date of reversion.

PhD-R.21 CONVERSION OF REGULAR/ DIRECT MS+PhD REGISTRATION TO MS

A Direct MS+ PhD scholar can apply for conversion to MS, if he/she fulfills all MS admission criteria for the corresponding year of selection, subject the recommendation of the DC. This option is not available for Regular PhD scholars.

A Regular / Direct MS+PhD scholar in Engineering / Management who does not pass the Comprehensive Examination in two attempts, may request the DC to convert his/her registration from PhD to MS under the same guide. If this option is not exercised, his/her registration will be cancelled. The DC may recommend conversion of registration for approval by the Senate.

a) The DC will continue to function as the GTC till the completion of the MS requirements.

b) The duration of the scholar's MS program shall not be more than 3 years from the date of first registration in the PhD program.

c) In its first meeting following the conversion of registration, the GTC may prescribe any additional necessary to satisfy the requirements of the MS program.

d) The award of HTRA to the scholar will be as per the MS Program.

PhD-R.22 AWARD OF PhD DEGREE

Upon satisfactory performance in the viva voce exam and the submission of final thesis, the scholar will be awarded PhD degree on the recommendation of the Senate and with the approval of the Board of Governors of IITM. The date of effective of Degree shall be BoGs date. (279th Senate)

The award of PhD degrees to the scholars who have completed all the requirements will be considered before convocation on request.

Direct MS+ PhD and PhD scholars who have upgraded from MS will be awarded the MS and PhD degrees after successfully completing all the requirements. The name of the MS degree under this option will be "Master of Science" in YY (name of the department). PhD scholars who have upgraded from MTech will be awarded the MTech and PhD degrees after successfully completing all the requirements.

PhD-R.23 DISCIPLINE

Every scholar is required to observe disciplined and decorous behaviour both inside and outside the campus and should not indulge in any activity, which will bring down the prestige of IITM.

Any act of indiscipline of a scholar reported to the Dean of Academic Research will be referred to a Discipline and Welfare Committee nominated by the Senate. The committee will investigate and recommend suitable punishment if it finds the charges substantiated. The recommendation of the Committee will be considered by the Board of Academic Research, which will authorize the Dean of Academic Research to take appropriate action. The Dean (Academic Research) will report the action taken at the next meeting of the Senate.

Appeal: The scholar may appeal to the Chair, Senate whose decision will be final.

PhD-R.24 POWER TO MODIFY

Notwithstanding all that has been stated above, the Senate reserves the right to modify any of the above regulations.

PROCEDURES

ADMISSION PROCESS

There is a standing advertisement for PhD admissions throughout the year valid from April 1st to March 31st of the next year. Accompanying admissions brochure has the details of different disciplines eligible for each department, including the interdisciplinary PhD program. There are various modes through which a candidate can apply to the PhD program as described in PhD-R.2. Those with a Master's degree can apply for the regular PhD. Those who have completed Bachelor's degree in Engineering/ Technology with an exceptional academic record but without a Master's degree can apply for the direct MS+PhD program.

Good academic record is expected from all the applicants. Applicants are short-listed by the department selection committee based on their academic performance and addition qualifying exams as applicable (PhD-R.2). The short-listed candidates are called for a test/ interview. Typically, the Departments will conduct the test/interview twice a year in November/ December and April/ May. Some of the Departments might conduct the test/interview more frequently.

The selection for MTech+PhD dual degree program in Engineering Design Department will be through the MS admission process.

Based on the academic record and the performance of the candidates in the "test and interview" or "interview", Departmental Selection Committee will recommend the names of the candidates found suitable for admission to the Chair, Senate. Applications of foreign nationals may be considered without an in-person interview/ test.

IITM will notify the selected candidates through post and email. The selected candidates are required to pay the requisite fees and report to campus for registration within a stipulated time frame. Based on research profile, preferences of the scholars and the prospective guides, and the Department's guide assignment policy, which will be made known to the scholar, the scholar will be assigned a guide.

The Dean (Academic Research) will then constitute a Doctoral Committee (PhD-R.8), based on recommendations of guide and the Department HoD, to assess the progress of the scholar periodically. The scholar has to complete coursework and other requirements as outlined in PhD-R.11. The scholar has to enroll every semester by payment of requisite fees, until the completion of the degree requirements.

Applications will be sought from bright students who are in their 4th year in between October - and December and after completion of selection process, offer of admission to PhD programme will be issued as follows: (i) those who have got valid GATE score regular offer of admission will be given (ii) those who do not have valid GATE score or awaiting for the GATE results will be given a provisional offer subject to qualifying the GATE.

Leave and Travel entitlement

- ➢ All scholars are eligible for 8 days casual leave and 15 days vacation leave in a calendar year.
- ➢ Participation in any scientific events/workshop in India or abroad will be treated as "On duty"
- ➢ Travel entitlement for participating in scientific events/workshop in India in II AC by Train
- ➢ Maternity as per GoI instructions issued from time to time will be available to female scholars
- ➢ For attending International conference, eligible scholars will be provided financial assistance by the Institute not exceeding RS.1.50 lakhs (inclusive of Airfare/Visa/Registration fee/Accommodation and local journey).

Process for Upgrading from Master's Program to PhD:

Eligibility criteria for upgrading can be found in PhD regulation, PhD-R2.3.

From MS: The General Test Committee or GTC (MS-R.8) of the scholar will consider the application for the upgrade under the supervision of the same guide(s). It will then make its recommendation to the Chairman, Senate for approval of the upgrade as per rule. If approved, a Doctoral Committee will replace the GTC.

From MTech: A Committee with 4 to 5 members (with potential guide as one of the members), duly constituted by the Head of the Department (HoD), will consider the application for upgrade. It will then make its recommendation to the Chairman, Senate for approval as per rule. If approved, a DC will be constituted and guide(s) will be allotted (PhD-R.6).

For MSc: A Committee with 4 to 5 members (with potential guide as one of the members), duly constituted by the Head of the Department (HoD), will consider the application for upgrade. It will then make its recommendation to the Chairman, Senate for approval as per rule. If approved, a DC will be constituted and guide(s) will be allotted.

Subsequent to the approval of upgrade from MS / MTech / MSc and constitution of DC, the scholar should pass comprehensive viva within two attempts within the time frame mentioned in PhD-R.12.

Alternate option for MS and MTech: A scholar / student can approach the HoD with the recommendation of a chosen advisor. If permitted, he/she can take comprehensive examination when it is offered by the department. After passing the comprehensive viva within two attempts, he/she shall exercise the option for upgrade within a month. If he/she fails twice in comprehensive examination, he/she can continue to be in the original program and no more option is available for upgradation.

Department Procedures:

Department should have same short-listing criteria for Regular-HTRA and Regular-Project students.

Every department should send the method of guide allocation passed by their Departmental Consultation Committee (DCC) to Dean (Academic Research) for approval. Faculty and students will be informed of this method.

Based on research profile, preferences of the scholars and the prospective guides, and the Department's guide assignment policy, the scholar will be assigned a guide by the HoD.

The guide provides the area of research and suggests a panel of faculty members (at least 4 internal to the department and 2 from other departments) to the HoD, indicating their areas of specialization, for constitution of the scholar's Doctoral Committee. The Head of the Department (HoD) will intimate the Dean, Academic Research, the area of research, the name(s) of the guide(s) and other members of the Doctoral Committee. This has to be done within 8 weeks of the date of joining.

Department maintains an enrollment roster for scholars to enroll in the beginning of each semester and provide the same to the Dean (Academic Research) by the end of the first week of the semester.

Seminars given by the scholars and the final PhD thesis viva voce examination must be announced by the guide/ department to the academic community at IITM by email.

THESIS AND SYNOPSIS

The PhD thesis is a detailed report of all the important original research work and findings of the scholar. The synopsis will summarize the important contributions of the research work presented in the PhD thesis, including the publications resulting from the thesis. Thesis shall be based on the IITM template.

Synopsis meeting will be held at the office of the Dean, Academic Research. Scholars should submit required number of hard and soft copies of the synopsis along with thesis and its abstract on the day of synopsis meeting. However, one month time will be given to improve the thesis. If a modified thesis is not submitted within one month, the thesis submitted earlier will be treated as final version. The Dean AR may grant additional time beyond one month on request from the scholar for valid reasons.

The guidelines for use of standard anti-plagiarism software/ platform for the PhD thesis are as follows:

1. The scholars have to certify that a standard software / platform was used for checking against Plagiarism.
2. The guide has to ensure checking against plagiarism through any standard software before submission of PhD / MS thesis and endorse the undertaking of the scholar.
3. The guide may obtain a special relief from this checking from the Dean (Academic Research) on grounds of IPR implications or National Security, if applicable.

In the synopsis meeting, the scholar will make a brief presentation of the main contributions of the thesis.

Upon acceptance of the synopsis, the DC will recommend a panel of 8 external examiners, of which at least 2 should be from outside India. The thesis shall be reviewed by at least 2 of the examiners selected from this panel by the Dean (Academic Research). The examiner is expected to send the report on the thesis within two months from the date of receipt of the thesis. When the two reports from external examiners are received they are

circulated to the DC. In case of undue delay in receiving the thesis report after issuing 2nd reminder to the examiner, the Dean (Academic Research) shall appoint another examiner for evaluating the thesis.

In addition, a panel of 4 internal examiners will be recommended by the DC, one of whom will be selected by the Dean (Academic Research) as a member of the PhD viva voce exam board.

Fellowship for scholars who submit thesis before maximum duration

Fellowship deemed to be equivalent to Institute Pre-Doctoral Fellowship (except contingency) will be awarded for a maximum period of six months from the date of submission of final synopsis with thesis for the Regular-PhD scholars who have submitted thesis within 4½ years and for Direct / Upgraded Regular-PhD scholars within 5 years. They will pursue the work as defined for Institute Pret-Doctoral Fellow. The fellowship can be terminated on one month notice either by the scholar or by the Guide.

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VIVA-VOCE EXAMINATION

a) The external examiner may attend the viva voce exam in person or by video-conferencing
b) The response of the candidate to the reports as well as the modified e-thesis will be circulated to the board prior to the viva voce meeting.
c) The scholar will present his/ her thesis work and the response to the examiners' comments. The viva voce board will examine the scholar and evaluate the performance as satisfactory or otherwise. Further, it will ensure that the scholar answers the questions raised by the thesis examiners satisfactorily.
d) The viva voce board may also recommend revisions to be made in the final version of the thesis after taking into consideration suggestions of the examiners and the discussion at the viva-voce.
e) Scholars shall submit one copy of the final form of thesis in A5 size and an electronic version in PDF format after the viva voce board recommends the award of the PhD degree.

RELIEF OF RESEARCH SCHOLAR:

After submission of thesis 90 days is allowed, if requested by Guide and HOD. Otherwise, Academic section inform the departments to send no dues for relief within one week.