INDIAN INSTITUTE OF TECHNOLOGY DHARWAD

ORDINANCES, RULES AND REGULATIONS

MS Programme

Academic Office

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INDIAN INSTITUTE OF TECHNOLOGY DHARWAD

MS Programme Overview

The Institute offers a *Master of Science (MS) by Research* Programme in a wide range of areas in Engineering. The broad objectives of the MS programme are: to keep pace with the expanding frontiers of knowledge and to provide research training relevant to the present social and economic objectives of the country.

The academic programme leading to the MS degree is broad-based. It involves a minimum course credit requirement and a research thesis. The institute encourages courses as well as research activities in interdisciplinary areas by letting students to have multiple research guides specialized in complementing disciplines. The faculty who themselves are highly experienced in research are committed to provide highly stimulating research ambience for students to flourish.

Facilities for research work leading to the MS Degree are available in all the departments. Further, the Institute undertakes sponsored research and development projects from industrial and other organizations in the public and private sectors. These projects constitute additional well-funded opportunities for students to work upon. Several seminars and lectures are held throughout the year. A large number of distinguished scientists and engineers both from India and abroad, visit the Institute to deliver lectures and hold discussions with the research groups. These interactions provide eminently needed exposure and help students plan their future career and endeavours.

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Abbreviations
Common Abbreviations:

MHRD Ministry of Human Resource Development, Government of India

DST	Department of Science and Technology, under MHRD
IIT	An Indian Institute of Technology under MHRD
IITDh	Indian Institute of Technology Dharwad
IISc	Indian Institute of Science
CFTI	Centrally Funded Technical Institute (as declared by MHRD)
PhD	Doctor of Philosophy
MS	Master of Science by Research in Technology
RPC	Research Progress Committee for MS students
APEC	Academic Progress Evaluation Committee
SPI	Semester Performance Index
CPI	Cumulative Performance Index
R&D	Research and Development
MoU	Memorandum of Understanding
DST	Department of Science and Technology, Government of India
UGC	University Grants Commission
CSIR	Council of Scientific and Industrial Research
AICTE	All India Council for Technical Education
JRF	Junior Research Fellowship
QIP	Quality Improvement Program of AICTE
PG	Postgraduate
UG	Undergraduate

Degrees:

PhD Doctor of Philosophy
- Regular PhD for those joining after a Master's degree

- Upgraded PhD in Engineering for those upgrading from MS

MS	Master of Science by Research in Engineering/Technology
ME	Master of Engineering (2 year programme)
MTech	Master of Technology (2 year programme)
MSc	Master of Science (2 year programme in sciences)
BE	Bachelor of Engineering (4 year programme)
BTech	Bachelor of Technology (4 year programme)

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.

Ordinances, Rules and Regulations

MS Ordinances

The Ordinances of the Institute shall take precedence over the Rules in the matter of any dispute.

MS-OD.1: The Master of Science (MS) by Research programme of IIT Dharwad is a programme of Research with the governing rules and regulations formulated by the Senate of the Institute. The Senate can modify or change the structure, the governing rules and regulations from time to time.

MS-OD.2: IIT Dharwad considers meritorious candidates, with research aptitude and appropriate qualifications, for admission to the MS programme.

MS-OD.3: A student who has registered for the MS programme is awarded the MS degree, after

1. Successful completion of the prescribed course-work with specified minimum performance requirements AND
2. Successful completion of the minimum stipulated period of research AND
3. Successful defence of the thesis by the student before the Board of Examiners constituted for the viva-voce examination AND
4. Approval of the award of the MS degree by the Senate, based on points 1. - 3. above.

MS-OD.4: The degree of Master of Science by Research shall not be conferred as an *ad eundem* degree.

Rules and Regulations

1. Admission

MS-R.1.1 Categories of Admissions

Students may be admitted as full-time or part-time research scholars, as described below. The full-time research scholars are expected to carry out their research normally at the Institute. The part time students have to attend the classes during regular semesters of IIT Dharwad till they complete their coursework. They can carry out the research at their parent organization.

Full Time research scholars:

A full-time research scholar may be admitted in one of the following categories:

1. Teaching Assistant (TA): scholarship from IITDh (MHRD)
2. Fellowship Awardee (FA): with funding from outside agencies such as UGC, CSIR and industries
3. Teaching Assistant – Project (TAP): with funding through a sponsored project
4. Self-Sponsored (SW): The sponsored candidates receive their funding from their parent organization

Part Time research scholars:

1. External (EX): Should be employed in and sponsored by an industry/ organization/ institution having R&D facilities and recognized by DST (DSIR) or IITDh. Minimum 2 years of work experience is necessary.
2. College Teacher (CT): Should be employed in a reputed Institution/ University within commutable distance (overnight train/bus journey) from IITDh. Minimum 2 years of work experience is necessary.

Note that:

1. Each department will have (its own) same shortlisting criteria for admission under *TA* and **TAP** category. The merit list will also be common for these two categories.

2. Students under the *EX* category will normally carry out part or all of his/ her research work in the industry/ organization/ national laboratory employing the scholar under the supervision of a co-guide also employed in the same organization and a guide at IITDh.

3. *EX* and *CT* scholars have to attend the classes during regular semesters of IITDh until they complete their coursework.

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

MS-R.1.2 Eligibility Criteria for Admission to the MS Programme

IIT Dharwad considers the candidates with research aptitude and consistently excellent academic records for the admission to the MS programme.

MS-R.1.2.1 Minimum Qualification

Educational Qualification:

1. BE/BTech or equivalent degree in a relevant discipline with *first class*[*#] AND
2. Valid GATE Score in relevant paper[†]

* In case the University/Institute does not award class, candidate should have scored minimum 60% marks or equivalent CGPA/CPI (6.0 on the scale of 10 or 4.8 on the scale of 8 etc.).

\# For SC/ST/PwD candidates, the relaxation of 5% (0.5 on the scale of 10 in case of CGPA/CPI) is admissible.

[†] Valid GATE score is essential for candidates applying in TA category (except for candidates who have BTech or equivalent degree from IITs or BS degree from IISc with minimum CPI/CGPA of 8.0 on the scale of 10).

The qualification should be in relevant areas/ disciplines provided by the respective Departments in the admission brochure released with the admission notice. The Admission 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 the admission process, normally consisting of a **screening test and/or interview** by a Selection Committee in the respective Departments (Refer to the Procedures in Appendix MS-A.1).

NOTES:

a) The Department Selection Committees may set more stringent criteria for short-listing than the minimum educational qualifications listed above.
b) For External / part-time categories, the requirement of valid GATE score or CSIR/ UGC JRF or Lectureship 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) Candidates in the final year of their qualifying degree may be considered for the admission to the MS programme, provided, they graduate before the registration date specified by the Institute.
e) Mere satisfaction of the eligibility criteria, does not automatically entitle the applicant for admission to the MS programme.

2. Selection Procedure

The admission process for MS programme will be conducted twice a year: in June/July for admissions in Autumn semester and in December for the Spring Semester.

Eligible candidates possessing the minimum educational qualifications (as per MS-R.1.2), and satisfying additional criteria (if any) set by the Departments from time to time, will be called for a *Selection Process* by Selection Committees of the respective Departments. The Selection Process generally consists of a Screening Test for shortlisting followed by an Interview of the shortlisted candidates.

Based on the academic record and the performance of the candidates in the interview and/or the screening test, the Departmental Selection Committee will recommend to the Chairman, Senate the names of candidates found suitable for admission to the MS programme in Engineering.

3. Admission and Registration

MS-R.3.1 Admission

1. Candidates whose selection is approved by the Chairman, Senate will be offered provisional admission to the MS programme.

2. Their admission will be confirmed after payment of prescribed fees and submission of the relevant documents specified in the admission offer letter.

MS-R.3.2 Registrations

a) IIT Dharwad follows a semester system. All students have to clear the Institute and Hostel dues and register in each semester until the submission of the thesis.

b) If a student does not register in a particular semester without prior permission of the Institute, he/she ceases to be a student and the admission is liable to be cancelled. Further, if a student does not register for TWO consecutive regular semesters, the admission will be cancelled automatically.

c) All students should ordinarily submit their final year mark-sheet/provisional certificates of the qualifying degree within a month after joining the Institute. The original degree certificate must be produced for verification within one year from the joining date.

d) Candidates who are working with any organization, **MUST** submit the **relieving letter** from that organization at the time of joining the Institute, if they are admitted in TA, TAP or FA category. For the students admitted in other categories NOC/Sponsorship certificate is required.

e) **Any student who is found to have concurrently registered for any postgraduate degree at another institute/university shall be automatically deregistered from the Institute.**

f) The admission of a student may be cancelled if it is found that any false information is provided or any of the facts are misrepresented by the candidate. If such a candidate has already been awarded the degree, the same may be withdrawn.

g) The date of joining of a research scholar is normally the date of registration to MS programme.

4. Course Work

On joining the Institute every student is required to plan his/her course-work in consultation with a Faculty Advisor.

MS-R.4.1 Credit Requirements

1. All students of the MS programme are normally required to complete the prescribed 34 credits within the first two semesters from the date of joining, by completing the coursework prescribed by the faculty advisor. Details of the Credit Structure are given in Appendix MS-A.2.

2. In addition, the research scholars should complete PP/NP course on Communication Skills.
3. Changes in the prescribed courses shall be made only with approval of the APEC.
4. MS students will be allowed to take additional courses beyond the prescribed 34 credits, with the approval of APEC.
5. MS students will be allowed to take only one UG course for credit requirements.

MS-R.4.2 Performance Requirements

The details about course evaluation, grade assignment and calculation of Semester Performance Index (SPI) & Cumulative Performance Index (CPI) are given in Appendix MS-A.2. A MS student must fulfill the following performance requirements:

MS-R.4.2.1. **A student MUST get at least CC grade in EVERY course (other than optional) registered as a credit course, including seminar.**

MS-R.4.2.2. *Academic Probation* **to the students having lower grade than the minimum requirement for continuation of their studies:** For students who have scored grade lower than CC in *at most one* course in their first semester may be offered an academic probation, with appropriate conditions decided by APEC.

5. Advisors/Research Progress Committee (RPC)

MS-R.5.1 Assignment of Advisors

1. The details of research topics/areas proposed by various faculty members will be made available to the students. The students are encouraged to discuss those topics/areas with the respective faculty members.
2. The allocation of advisor(s) to the students will be finalized at the end of one semester from the date of joining.
3. For each scholar, one or two faculty members of IITDh shall be chosen as advisor(s) by the APEC to supervise the progress.
4. A co-advisor from outside IITDh may be allowed with the approval of Chairman, Senate.

MS-R.5.2 Research Progress Committee (RPC)

A Research Progress Committee (RPC) shall be constituted to periodically assess each student's progress. The RPC will normally consist of the Advisor(s) and at least two other faculty members conversant with the fields of research. The members of the RPC may be from within or outside the Institute.

The names of the RPC members and any subsequent changes in its composition shall be communicated to the Academic Office for record.
The RPC is expected to monitor the progress of the candidate until the completion of the programme.

6. Place of work, Progress and Duration

MS-R.6.1: For the full-time students, it is expected that, normally, the research work is carried out within the Institute. However, if necessary, on the recommendation of the Advisor(s), the

Institute may allow the research work for the MS degree to be partially or wholly carried out at another organization approved by the Institute.

MS-R.6.2: The minimum duration of the MS programme is 2 years and maximum duration is 3 years from the date of joining.

MS-R.6.3: The students shall normally submit a report and give a seminar in front of RPC as their research proposal seminar within two semesters from the date of joining. The RPC will evaluate and approve/modify/reject the research proposal. In case of rejection/modification of the proposal, the student has to present the seminar again after the period specified by the RPC, normally within 3 months.

MS-R.6.4: The student has to present a Progress Seminar (PS) for evaluation to the RPC, once per semester, till the submission of the synopsis. If the work presented by a student is found insufficient or un-satisfactory by the RPC, the student has to present PS again, after working on the comments/recommendations of the RPC, not later than two months from the previous PS date.

The continuance of registration and financial assistance of all students is subject to favourable recommendation by the RPC based on their PS.

7. Open Seminar, Thesis Submission and Defence

The MS thesis is a detailed report of all the important original research work and findings of the scholar.

MS-R.7.1 Open Seminar

Prior to the submission of the thesis, a comprehensive internal assessment of the Research Work will be carried out by the RPC through an Open Seminar and a report. The student can submit the thesis only if the panel is satisfied about the quality and the quantity of the work for submission as MS thesis.

MS-R.7.2 Thesis Submission

1) The thesis shall be submitted within one month from the date of successful synopsis seminar. In exceptional circumstances, the APEC may permit extension of thesis submission time based on valid reasons on case to case basis.

2) Depending upon the nature of publication(s) arising out of the thesis work, the RPC will recommend submission of the thesis as per the following guideline:

   Before submission of the thesis to Academic office, students are encouraged to
   i) Publish at least one research paper in a refereed journal, or
   ii) Publish at least one full conference proceedings paper, or
   iii) File at least one patent.

3) After submission of the thesis, the student has to defend the thesis in front of a panel of examiners appointed by APEC. The panel of examiners will normally consist of a member of RPC and an examiner from other department or from outside IITDh.

8. Award of MS degree

Upon satisfactory completion of all requirements and the submission of final thesis, the student will be awarded Master of Science by Research degree subject to the recommendation of the Senate and the approval of the Board of Governors of IITDh.

9. Other Administrative Rules

MS-R.9.1 Financial Assistance

There are various sources from which a research scholar is provided financial assistance.

The Teaching Assistants will be paid a stipend as per the rules of MHRD in force from time-to-time. Currently, TAs are eligible to receive stipend for a maximum duration of Two and a half years or till the date of defence, whichever is earlier. For receiving the stipend, the TAs are expected to assist in academic/administrative activities for smooth functioning of the Institute.

The TAP category students will receive stipend as per the norms of the funding agency.

MS-R.9.2 Upgradation from MS to PhD

(a) Students registered for MS are eligible for an upgrade to the PhD programme, if they have a minimum CPI of 8.0 in the prescribed courses completed, provided (s)he satisfies all the eligibility requirements in force at that time, for admission to PhD program.

(b) Upgrade requests should be submitted along with a research proposal for PhD programme.

(c) The student will have to present the research proposal submitted in front of the RPC for a decision on upgrade request.

(d) MS students who upgrade their registration to PhD should successfully complete the additional coursework prescribed by the APEC.

(e) After upgradation to PhD, the student will be governed by the Rules and Regulations of PhD programme in force.

MS-R.9.3 Temporary Withdrawal from the Programme

A student may be permitted by the Dean (AP) to withdraw from the programme for a semester or longer for health reasons or any other valid grounds, if duly recommended by the RPC. Normally, a scholar will be permitted to discontinue from the programme only for a maximum continuous period of two semesters.

MS-R.9.4 Cancellation of Registration

a) The registration of a student whose progress is not found to be satisfactory by the RPC or who has not enrolled, is liable to be cancelled.

b) The registration of a student who has not submitted his/ her thesis before the end of three years from the date of joining is liable to be cancelled.

MS-R.9.5 Discipline

Every student 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 IITDh.

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

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

APPENDIX

MS-A.1 ADMISSION PROCESS

The advertisement for the admission to the MS programme will be published on the Institute website twice a year. In September/October for the admission in Spring Semester and in March/April for the admission in Autumn semester. Accompanying admissions brochure will have the details of different disciplines eligible for each department, including the interdisciplinary MS programme.

Good academic record is expected from all the applicants. Applicants are short-listed by the department selection committee based on their academic performance and additional qualifying exams as applicable (MS-R.1.2). The short-listed candidates are called for a *selection process*, normally consisting of a *screening test* and an *interview*. Typically, the Departments will conduct the selection process twice a year: in November/ December and April/ May.

Based on the academic record and the performance of the candidates in the selection process, Departmental Selection Committee will recommend the names of the candidates found suitable for admission to the Chairman, Senate.

IITDh will notify the selected candidates through email only. 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 (AP) will then constitute a Research Progress Committee (MS-R.5.2), based on recommendations of guide, to assess the progress of the student periodically. The student has to complete coursework and other requirements as outlined in Section 4. The student has to enroll every semester by payment of requisite fees, until the completion of the degree requirements.

MS-A.2 Pattern of Courses and Credits, Course Assessment and Award of Grades

The courses offered for the MS Programme may be: Lecture Courses, Laboratory Courses, Design Courses, Seminars, Supervised learning courses, or courses pertaining to Communication Skills.

MS-A.2.1: The credit for a course depends upon the contact hours and self-study hours associated with it and is obtained by adding all these hours.

MS-A.2.2: Credit Seminar / Research Proposal Seminar

A Seminar shall satisfy the following conditions:

1. Each seminar shall carry four credits.
2. The Seminar shall be treated as a course for the purpose of registration and evaluation.
3. The Seminar co-ordinator shall arrange the seminars and forward the grades awarded by the panels of examiners to the Academic Office by the end of the semester.
4. A student shall not take more than one Seminar during the entire MS Programme.

MS-A.2.3 Communication Skills (PP/NP course)

These courses are compulsory for all MS students.

   a. MS students are normally required to clear the Communication Skills course within the first two semesters.
   b. These courses are an addition to the minimum course credit requirement prescribed.

MS-A.2.4 Grade Points: For every course taken by the student, he/she is assigned a grade based on his/her combined performance in all the assessments. These grades are described by the following letters and corresponding grade points.

AA (10 points), AB (9 points), BB (8 points), BC (7 points), CC (6 points), CD (5 points), DD (4 points), and FR (0 points), PP (Passed, 0 points), NP (not Passed, 0 points) or AU (Passed, 0 points).

Some courses are only associated with PP/ NP grades. In such courses, satisfactory completion is indicated by the award of the PP grade.

MS-A.2.5 Audit Course: The students may be allowed to register for at most two Audit courses per semester, in addition to the specified credit requirements. The option of permitting student to register a course as "Audit" is left to the course instructor. The students registered for auditing a course shall be awarded the grade AU if they fulfil the requirement as prescribed by the Instructor. The Instructor shall include such AU grades in the final grade report for that course. **If the student does not qualify for the grade AU, it will be assumed that the course has been dropped** by that student. It will not appear the semester grade card/transcript issued.

MS-A.2.6 II grades: The grade II shall be awarded to a student in a course if he/she has satisfactory in-semester performance and has fulfilled the attendance requirement, but has not appeared for the semester-end examination. The student will be eligible for a make-up for the

semester-end examination provided the student submits valid documental proof on the reason of the absence. The Academic Office will decide whether re-examination is to be allowed, after consulting with Dean (AP). In case a re-examination is allowed and is conducted, the instructor shall decide the final grade on the basis of sum of in-semester and the re-examination marks. The weightage of the re-examination would be the same as that of the final examination that the student has missed. In all other cases the II grade will be converted to FR grade.

MS-A.2.7 Method of Computing SPI and CPI

The performance of a student in a semester is indicated by a number called the Semester Performance Index (SPI). The SPI is the weighted average of the grade points obtained in all the courses taken by the student during the semester.

Example: Suppose in a given semester, a student has taken five courses having credits C_1, C_2, C_3, C_4, C_5 and his/her grade points in those courses are G_1, G_2, G_3, G_4, G_5 respectively.

Then his/ her

$$SPI = \frac{C_1 G_1 + C_2 G_2 + C_3 G_3 + C_4 G_4 + C_5 G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

SPI will be calculated (after re-examination, if any) on the basis of the final grades awarded AA, AB, BB, BC, CC, CD, DD and FR. The SPI is calculated up to two decimal places.

An up-to-date assessment from the time the student entered the Institute is obtained by calculating a number called the Cumulative Performance Index (CPI). The CPI is the weighted average of the grade points obtained in all the courses taken by the student since he/ she entered the Institute. It is calculated in the same manner as the SPI.