

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

Academic office

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**Structure of the Dual Degree Programme
(M.Tech./M.Phil.+ Ph.D.)**

FINALIZED STRUCTURE OF THE DUAL DEGREE (M.TECH./M.PHIL. + Ph.D.) PROGRAMME AS APPROVED BY THE SENATE: in its 194th Meeting on 6 May 2009

Preamble: IIT Bombay seeks to get the best students to join its Doctoral Programmes. It is particularly helpful, if students who have obtained an M Tech / M Phil Degree from one of the IITs; in particular, IIT Bombay, could continue into a PhD Programme soon after the M Tech. It is even more helpful and productive, if the student has commenced working on a research proposal during the M Tech, which can immediately be built upon for the purpose of a Doctoral Thesis. Further, when admitting a Doctoral student, one would ideally like to have a thorough knowledge of his/ her ability to complete a Programme leading to the award of the Degree of Doctor of Philosophy.

While current rules allow movement from an M Tech/ M Phil to a PhD Programme, they are rather restrictive in the set of students thus permitted (only after the first semester, CPI above 9.0, and so on, also mandate forfeiting the Masters' Degree). One of the objectives of this programme is to make a much wider choice of motivated and capable M.Tech. / M. Phil. students who could become research scholars, without compelling them to forfeit the Masters' Degree for which they have been admitted.

It may also be noted, that the IIT Council, in its 39th meeting convened on 28.1.2009, has welcomed the initiative by the IITs to introduce Dual Degree Masters'-PhD Programmes (Vide Item 39.22).

At first, the complete programme as applicable to a two-year (full time) M. Tech./ M. Phil. Programme is detailed. Subsequently, the modifications needed in a three year (part time) programme are outlined.

I. Complete Programme as applicable to a two year (full time) M. Tech./ M. Phil. Programme:

1. By the first stage of evaluation of the Masters' Dissertation, promising and motivated students in the Masters' (M Tech/ M Phil) Programmes can be encouraged to move to a Dual Degree M Tech/ M Phil + PhD Programme in a seamless manner - with the concurrence of the proposed Doctoral Supervisor (normally expected to be the same as the Supervisor during the first stage of Masters' Dissertation, but not mandatory) AND the PGC of the concerned academic unit. A recommendation to this effect would be routed from the proposed Supervisor, through the Postgraduate Committee (DPGC/IDPC/SPGC) of the academic unit to the PGAPEC for approval, and subsequent report to the Senate as a part of the PGAPEC report for ratification.

2. This would administratively mean that: they could now plan their final semester in such a manner, that they complete any remaining coursework for the Masters' Degree,

and work towards constructing a **Research Proposal** instead of the Final Stage Dissertation (Report). The interpretation in this case is, that the **research proposal has replaced the dissertation**, and the academic difference is that - an M Tech/ M Phil Dissertation **may or may not** have components that could be built into a PhD Thesis by additional work - for example, it may primarily describe sophisticated developmental or implementational novelties, which need not necessarily lead onward into Doctoral level investigations. On the other hand, a research proposal is an indication of Masters' level dissertation work which clearly indicates potential for Doctoral investigations, through some preliminary efforts in that direction. **The Research Proposal, on its own, is NOT archived by the Institute.**

3. A **Research Progress Committee (RPC)** is constituted immediately at the time of, or soon after, the first stage of examination of the (earlier) dissertation, and in any case not later than the end of the corresponding semester. This RPC advises the student on any additional courses, if any, that should be taken over the fourth and fifth semester to build the background needed for a PhD Thesis. During the same period, the qualifying examination if prescribed by the academic unit, must also be completed. It is normally expected that the student completes all coursework related to the Dual Degree Programme by the end of the fifth semester. While the RPC has complete freedom in prescribing courses to be taken on credit/ audit, it is suggested that any additional courses, if prescribed, beyond the requirements of the M. Tech./M. Phil Degree, be taken on **audit**, rather than on credit, to allow the objective of course exposure to be fulfilled, but to avoid an effect of the relative performance in the class on doctoral studies/ Ph.D. confirmation.

4. The research proposal can be examined by the RPC any time **at or after the point of the First Stage Examination** of the M. Tech./ M. Phil. Dissertation of the candidate - notably, this means that for extremely meritorious candidates, **the first stage examination of the dissertation and the examination of the research proposal can be merged into one concurrent examination.** This means that the RPC can be constituted at the time of the first stage examination of the dissertation itself, and it evaluates the first stage presentation per se. If it finds that the work merits award of the AA Grade, then it may also consider whether the work also merits treatment as a Research Proposal directly, and certify the Research Proposal as having been completed concurrent to the first stage.

The first stage examination of the dissertation/proposal has been retained as a part of the process. This allows for the possibility of a **separate examination of the research proposal**, to allow some flexibility while completing the requirements of the M.Tech./M.Phil. Degree. The separate examination would be required:

(i) if the supervisor has not felt it appropriate to constitute the RPC at the time of the first stage examination itself, but prefers to let the first stage examination proceed as usual,

and take a final decision to allow movement to the Dual Degree M-PhD Programme only after the first stage evaluation has been completed.

(ii) if the RPC has been constituted, and examines the first stage work - finding it not adequate to award the AA Grade; or, even if adequate to award the AA Grade, not adequate to be considered as a Research Proposal then and there.

5. Relaxation in course work/ modifications in course work, AFTER the point of movement from the M Tech/ M Phil to the Dual Degree M Tech/ M Phil + PhD Programme can be recommended on a case by case basis for a candidate by the PGC of the concerned academic unit, and **shall normally be accepted routinely on the merit of this recommendation.** However, in case the candidate chooses to exit from the Dual Degree M Tech/ M Phil + PhD Programme with only the M Tech/ M Phil Degree, all requirements of the lone M Tech/ M Phil Degree must be completed. When a transfer from the lone Masters' programme to the Dual Degree M Tech/ M Phil + PhD Programme is made, a plan of course work to be **subsequently** followed (which could also be **no** further coursework in some cases or just the standard **remnant** coursework for the Masters' Programme in some others) should be forwarded by the concerned PGC along with the recommendation for this transfer. Such a system would allow for the maximum possible flexibility in the matter of subsequent coursework. Completion of prescribed coursework for the Masters' Programme, and any further coursework recommended by the PGC for the Dual Degree, is **mandated for confirmation** of registration.

6. Preferably before the end of the fourth semester, and in any case not later than 31 October of the same calendar year in which the fourth semester occurs; this research proposal must be presented to the Research Progress Committee (RPC) of the student. The Proposal must be evaluated for suitability to be pursued into a complete Doctoral Thesis. If it is found unsatisfactory/ incomplete in the first instance, one more opportunity is given to the student to make a revised proposal by 31 January of the subsequent calendar year.

7. Subject to all of the following:

(a) the student having completed a satisfactory Research Proposal and on its successful examination by the RPC constituted

(b) the student having completed the course requirements for the M Tech/ M Phil, as also any additional courses if prescribed for the PhD Programme by the RPC

(c) the student having completed a Qualifying Examination, if prescribed by the concerned academic unit, successfully

the student is deemed to be **CONFIRMED** in the Doctoral Programme with effect from the **commencement of the THIRD SEMESTER** of this Dual Degree M Tech/ M Phil + PhD Programme.

8. Now that the confirmation has been spelt out, the rest of the process for the PhD in this Dual Degree M Tech/ M Phil Programme follows in a natural extension from the PhD Programme of the Institute.

9. Scholarship options can be contemplated by the Financial Authorities of the Institute to make the transfer to the Dual Degree Programme attractive for worthy candidates. It is recommended that an enhancement in scholarship be given immediately after making a **successful Research Proposal**.

10. The Research Proposal is treated as the first Annual Progress Examination of the PhD Student. The student must subsequently be examined for annual progress commencing with July-August of the fourth academic year of the programme.

11. Financial Support shall be available for a maximum of FIVE years from the commencement of the M Tech/ M Phil Degree.

12. On successful completion and examination of the Doctoral Thesis, BOTH the degrees - M Tech/ M Phil AND PhD are awarded to the candidate.

II. Modification for Three Year Part-time M. Tech./ M. Phil.

Programmes: All the activities of movement from the M. Tech./M. Phil. Programme to the Dual Degree Programme as also the point of confirmation of Ph.D. Registration are moved to one year later as compared to the two-year programme. However, for a meritorious candidate, this does not affect the possibility of still completing the Dual Degree M. Tech./M. Phil. + Ph.D. Programme in five years. The Senate and the Financial Authorities of the Institute can consider awarding an additional year of support to such candidates moving from the three year part-time programmes.

III. Exit Option:

In the (hopefully rare) case when a student who moves to the Dual Degree Programme cannot complete the requirements of a PhD, an exit with the M. Tech./M. Phil. Degree can be earned at any time **at or after the end of the final semester of the normal M.Tech./M.Phil. Programme**, by letting the research proposal, possibly with some work done to polish it to necessary completion, be examined in the standard manner as per the requirements of an M Tech/ M Phil dissertation, for suitability for the award of an M Tech/ M Phil degree. When the research proposal is so put forth for examination by the panel of examination of a final stage of the Masters' Dissertation, it must indicate adequate work done to merit award of the Masters' degree in question, although it may or

may not now be continued into a PhD. This shall be certified in the standard way by the standard procedure for M Tech/ M Phil Dissertations, and this research proposal shall then be treated as a Masters' Dissertation to permit exit only with an M Tech/ M Phil Degree, and **archived**. If the candidate desires to pursue a PhD at IIT Bombay in the future, fresh admission to the PhD programme must be sought, whereupon rules as applicable to fresh admissions would apply.

This Dual Degree M Tech/ M Phil + PhD Programme (Scheme) has been approved for implementation in all academic units of IIT Bombay, by the Senate of IIT Bombay, for commencement from the Autumn Semester of the Academic Year 2009-2010. This implies that M.Tech./M.Phil. students whose first stage examination of the dissertation is due in September-October 2009 can also be considered for movement to this programme.

A candidate who moves to this Dual Degree Programme shall be awarded Scholarship as admissible for a Ph.D. student with Masters' qualification after the date of successful examination of Research Proposal.

Appendix:

Some consolidated reflections on the philosophy behind the Programme.

1. The genuinely interested candidate gains by not having to apply again for the PhD, as also probably a more attractive scholarship in the Masters' tenure, if we agree upon the same.
2. The number of students need not increase in the Institute immediately, since the quota consumed in the Dual Degree M Tech/ M Phil + PhD Programmes by a given academic unit can be subtracted from the PhD quota to it in the coming academic year. This is to address the immediate concern about increasing the number of students – but this may not be a concern at all after a few years.
3. The student earns BOTH the degrees at the end. Even if he/ she does not make it to the PhD, there can be a graceful exit with a Masters' Degree in between.. Only tried and tested students shall be admitted to this programme. In other words, there need not be "admissions" to the Dual Degree M Tech/ M Phil Programme, there could be CONVERSIONS from a M Tech/ M Phil to such a Dual Degree Programme immediately with effect from the Academic Year 2009-2010. In future years, the Senate could also contemplate specific ADMISSIONS to this programme - if necessary making this, subject to the student numbers not increasing across the Institute, in case there are infrastructural and resource limitations.

4. There is universal agreement that we certainly need to encourage M. Tech/ M. Phil. students who are meritorious, to continue into a Ph.D. at IIT Bombay, without forcing them to forfeit the M. Tech/ M. Phil. Degree. The thought behind not forcing them to forfeit the M. Tech./M. Phil. Degree is as follows:

(i) Typically, students recognize the uncertainty behind entering Doctoral studies. Given the needs of a typical student at the age at which he/she is likely to enter the Doctoral Programme, the option of "giving up what is already in hand and seeking something greater after some years, but fraught with some uncertainty" is likely to appear unwise. Therefore, the mental security associated with also obtaining the M. Tech./ M. Phil. is a very important factor.

(ii) If we wish to increase the number of good students opting to pursue doctoral studies at IIT Bombay, we must also remember that all of them may not wish to join the academic profession immediately. Having an M. Tech./ M. Phil. Degree gives the message of a training somewhat broader based than the Ph.D., and having the Ph.D. also gives the necessary higher qualification when needed. From an employment perspective, earning both the degrees can only be advantageous.

5. It must be remembered that one is awarding the M. Tech./M. Phil Degree, for which a reasonable set of requirements must be fulfilled in reasonable synchronism with other M. Tech/ M. Phil. students. On the other hand, there must be good reason for a student to seek to move into this programme, as opposed to completing the M.Tech/ M.Phil. Degree and then entering the Ph.D. Programme through fresh admission.

6. Lateral movement from the only M. Tech./M. Phil. Programme to the Dual Degree Programme must occur after ascertaining the merit of the candidate over a long enough time, and in a manner feasible in the system that we have, with the commitments that faculty already fulfil. There is greater likelihood of meritorious candidates being identified and groomed, if it fits into the running activities of the M. Tech/ M. Phil. Programmes in a convenient way, rather than if it requires significant departure from the same. This programme will automatically allow a thorough examination of candidates who are likely to complete a PhD, and also motivated.

7. Even after making the movement from the lone M.Tech./M. Phil. to the Dual Degree, it would help if there is one quick and clean opportunity to let the student exit in normal course – which has been ensured. At the same time, one must ensure that if the student **does** continue successfully into completion of the Ph.D., there is all to facilitate this.