

Terms of Reference for Review of the IITs

Preamble

The review is envisaged as an institutional review principally focusing on the core academic activities of teaching, research, as also interaction with the industry. Due importance, however, should be attached to a review of matters that influence academic performance, such as governance, management structure, support systems and institutional culture. All of these should be such as to enable the Institute being reviewed to realize the goals enunciated in its Vision and Mission statements.

The Review Committee should assess the performance of the institution and make recommendations at two levels: the general and the specific. Some aspects that must necessarily be covered under each are listed below.

I. General considerations

The Committee should opine on A) where the Institute stands in relation to charters and projections spelt out in the past; B) its plans for the future; and C) the metrics that the Institute adopts in assessing itself.

A. Progress in relation to previous projections. The IITs were set up as outlined by the Sarkar Committee Report, which also spelt out their charter. The charter has undergone minor changes to keep pace with the times and as reflected in the IIT reviews of 1972, 1986 and 2004. Furthermore, each Institute may have enunciated its own Vision and Mission statements. Progress may be reviewed under two major heads:

- In relation to the IITs' charter
- In relation to the Institute's existing Vision and Mission statements.

B. Plans for the future. Along with Vision and Mission statements, a strategy may have been articulated by the Institute as to how to reach its goals. The Committee could therefore remark on:

- Projections made
- Strategies formulated.

C. Measures adopted toward A and B above

The Institute may internally assess its own performance using a set of criteria and metrics. The Committee may opine on the suitability and robustness of these.

II. Specific Indicators

The Review Committee should consider separately the Institute's performance in the arenas of its core academic activities: teaching and research. A selection of indicators is listed below.

1. Curriculum and Courses Offered

- i. Range of degrees and disciplines.
- ii. Consistency of curricula with academic vision.
- iii. Vision for curricula and academic offerings 5-10 years in the future.
- iv. Quality of programmes (Under-graduate/ Post-graduate)
 - a. Relevance to recruiters (Industries/ academic institutions/ R&D labs).
 - b. Periodicity of curriculum review at both UG and PG level.
 - c. Mechanism for program review at the UG and PG level.
 - d. Course work mandated for Masters students and the average courses done per Masters student.
 - e. Course work mandated for PhD students and the average courses done per PhD student.
 - f. Student placements

2. Teaching environment

- a. Teachers Adequacy: (eg. Teacher- student Ratio for each academic department)
- b. Average number of tutors in courses with more than 100 students
- c. Quality of engagement of teachers with students. (Student feedback on courses and curricula.)
- d. Number of students who were motivated to opt for careers in engineering / science/ technology sectors. Base on available data, for at least last five years).
- e. Adequacy of infrastructure teaching labs and equipment, for example by assessing average number of students per experiment in core courses.
- f. Adequacy of laboratory assistants
- g. Modernization of libraries: extent of electronic accessibility to library resources.
- h. Availability of students' workshops/ "tinkering" labs to students so that they may pursue their own ideas
- i. Feedback from employers in science/ engineering sectors. The placement office should be mandated to obtain annual feedback from employers (industry/ R&D labs/ academic institutions) about the quality and performance of the Institute's students in key parameters. See also point 8 below.
- j. Internal assessment reports of departments and centers. These reports should have been discussed at length in institute's senate.

3. Research and Development

- a. Range of research activities: (i) Volume, (ii) Breadth
- b. Publications per Faculty / Masters/ PhD student
- c. Publications per Faculty / Masters/ PhD student in a list of top 10 journals in broad research fields as identified by the Institution's departments/ centers. This list of journals should be whetted appropriately by an independent group of peers/ experts and updated periodically every 5 or more years.
- d. Average number of citation per department/ center/ school.

- e. Number of papers with citations that are more than the average number of citations of the journal in which they are published.
- f. Other major research contributions: Technology developed/ technology transferred/ patents filed/ patents obtained/ etc.
- g. Recognitions & Awards (national and international) to faculty/ research staff/ post-graduate students

4. R&D environment

- a. Average time that it takes a new faculty to set up lab
- b. Retention of young faculty: What percentage of young faculty remains with institute for at least ten years? Base on data of previous decade.
- c. Consultancy and project money from non-internal sources.
- d. Research grants/ seed money from internal savings of the Institute to young faculty/ post-doctoral fellows/ Post graduate students
- e. Collaborations internally and with other Institutes: number of papers/ projects/ PhD students with collaborating authors/ mentors.
- f. Adequacy of research infrastructure, labs and equipment
- g. Adequacy (number and competence) of research and technical assistants/ officers/ engineers.
- h. Number of large interdisciplinary research projects.
- i. Work space for Ph.D. scholars, i.e., do they get their own desk/ computer?
- j. Number of international conferences/ workshops attended by a Ph.D student (for exposure/ paper presentation)
- k. Number of papers with PhD student as first author
- l. How many M.Tech students were motivated into pursuing PhDs. How many joined PhD programs at own/ sister institutes? Base on available data, for at least last five years.
- m. Number of Phd graduates who pursued a career in academics, (abroad or IIT/ IISC/ TIFR/ CISR/ BARC/ R&D labs etc.). Base on available data, for at least last five years.
- n. Number of post-doctoral scholars hired in the institute
- o. Number of International students as PhDs / post-doctoral scholars
- p. Visiting researcher programs: Strength/ extent of engagement measured e.g., by
 - (i) Number of international visiting researchers who stay for at least a week.
 - (ii) Number of courses/ workshops with international participation.
- q. Internal assessment reports of departments and centers. These reports should have been discussed at length in institute's senate.

5. External Stakeholder Engagement

A. Industry Collaboration

- a. Number of PhD/ Masters theses directly linked to/ funded by industrial projects
- b. Total income from Industry Sponsored Projects
- c. Technology transfer / adopted by labs, industry
- d. IPR and patents. Please report patents obtained/ filed separately.
- e. Curriculum development initiatives for Industry

- B. Contribution to National Development Goals/Priorities
 - a. Number of nationally relevant research projects, e.g., in sectors of defense, medicine, environment, energy, health, infrastructure, etc.
 - b. Engagement/ help/ leadership provided to other technical institutes/ labs in areas of teaching and research, e.g., via programs such as TEQIP, or availability of specialized laboratories, etc..
 - c. Policy Inputs/ Consultancies

- C. Social Responsibility
 - a. Community relevant projects, social outreach
 - b. Sensitiveness to on-campus labour/ environment/ energy/ water/ land etc. issues.
 - c. Environment/ energy/ water/ land/ employment impact on local communities

- D. Alumni Engagement
 - a. Contributions from Alumni
 - b. Engagement with alumni (academic/ publicity/ policy/ growth)

6. Vision for the future:

Institute and its departments/ centers should spell out its strategic vision for next decade.

7. Governance and Financial Resources

- i. Management
 - a. Adequacy of administrative support/systems in relation to the level of activities envisaged?
 - b. Responsiveness of the system to faculty, student needs
 - c. Periodic feedback/evaluation of administration from the institute's stakeholders (faculty/research staff/students/etc.). Should include parameters gauging sensitivity/efficiency and pro-activity/transparency.

- ii. Financial Resources Management
 - a. Fund mobilization (besides MHRD)
 - i. Internal Revenue Generation as percentage of Non-Plan expenditure
 - ii. Corpus Fund
 - b. Cost Efficiency
 - i. Cost per student
 - ii. Fee per student per annum/ Non-Plan Expenditure per student
 - iii. Total fee paid by student (discounted)/ Per annum average salary

- iii. Transparency:

Mechanism of transparency in place by the Institute as steps that have been taken for internal quality assurance

 - a. Transparent decision making processes
 - b. Academic issues, research grants, systems for recognition/ awards etc.
 - c. Procurement processes
 - d. Infrastructure development, right from requirement to planning to execution.
 - e. Proactive disclosure on all critical issues

- f. Placing information in public domain: website
- iv. Infrastructure: Is the support infrastructure (IT, Hostels, Faculty/ Staff housing, sports facilities) adequate? And how sensitive and eco-friendly it is to the campus and surrounding environment (land/ water/ energy/ greenery).

8. Stakeholders Survey

- a. Internal Stakeholders
 - i. Students
 - ii. Faculty
 - iii. Non-faculty
- b. External Stakeholders
 - i. Industry
 - ii. Alumni
 - iii. Community leadership
 - iv. Government

9. Diversity

What is the current status of diversity (gender/ international) on campus? Does the Institute have programmes to promote diversity among students, staff and faculty? Does the Institute have adequate mechanisms to deal with issues related with discrimination and harassment? Reports of such cases and action taken should be made available.

10. Process of External Review

- (a) The Peer Review of each Institute would be carried out on a periodic basis, once in every five years. For the new IITs, similar exercise be carried out on completion of five years.
- (b) The Review Committee will consist of five eminent persons from Industry and Academia, to be selected by the Chairman of the Council of IITs, from a panel of 10 names proposed by the Board of Governors of respective Institutes. The report of the Review Committee will be placed before the IIT Council for its consideration.
- (c) Besides periodic review of the institution, each IIT will similarly undertake, an in-house, department-wise review before any external Peer Review is carried out. The report will be considered by the concerned BOG of IIT and the recommendations made therein would be pursued at appropriate level i.e. at the Institute level, Board level and the IIT Council, if necessary.
