

INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE

DEPARTMENTAL REVIEW TEMPLATE

1. Name of Department/Center : Electrical Engineering

2. Reviewers : Prof H.P. Khincha

Prof D. Tulkarum

3. Date of Review: 4 and 5 Aug 2014

GRID FOR ASSESSMENT

NOTE:

- i. Please grade in the box provided for the following parameters in the range of 1-10 with 10 being the highest.
- ii. Leave 'blank' for 'No Comment'.
- iii. Kindly give your opinion on the strength and weakness of the Department/ Center and your suggestions for future growth.

I. ACADEMICS

I.1	Undergraduate	Score
1.	Curriculum	- 8 -
	i. Curricular Structure	- 8 -
	ii. Course Syllabi	- 8 -
	iii. Flexibility	- 7 -
2.	Formal Academic Load on Students	- 8 -
	i. Teaching	- 8 -
	ii. Laboratory/Practical	- 8 -
	iii. Projects(minor/major)	- 8 -
3.	Evaluation Process	- 8 -
	i. Continuing Evaluation	- 8 -
	ii. Mid-term Evaluation	- 8 -
	iii. End-term Evaluation	- 8 -

4.	Academic Ambience	- 7 -
5.	Opportunity for Peer-Based Learning	- 7 -
6.	Opportunity for Further Learning(Breadth and Depth)	- 8 -
	i. Elective Courses Specialization	-
	ii. Minor with Major Discipline	-
	iii. Honors Programme in Major Discipline	-
7.	E-Assisted Learning	- 8 -
	i. Availability of Library Resources and Major Search Engines (like Scopus, Web of Science)	- 7 -
	ii. Multi-Media Assisted Teaching	-
8.	In -Curriculum Research/Exploration Opportunity to Students	- 6 -
9.	Technical Societies/ Colloquium for Students	- 8 -
	i. Departmental Society	- 6 -
	ii. Student Chapter(s) of Professional Societies	-
10.	Faculty -Student Interaction	- 8 -
11.	Faculty Mentoring of Students	- 8 -
12.	Faculty Advisor System for Students/Class of Students	- 8 -
13.	Self Study Courses for Student	- 6 -
14.	Effective Teaching Mechanism for Enhanced Number of Students in Various Classes	- 7 -
15.	Effectiveness of Assisted Learning: Tutorial System for B.Tech Students/ Seminars	- 8 -

I.2	Graduate Programmes (Masters)	Score
1.	Curriculum	- 8 -
	i. Curricular Structure	- 8 -
	ii. Course Syllabi	- 8 -
	iii. Flexibility	- 7 -
2.	Formal Academic Load on Students	- 8 -
	i. Teaching	- 8 -
	ii. Laboratory/Practical	- 8 -
	iii. Seminar/Dissertation	-
3.	Evaluation Process	- 8 -
	i. Continuing Evaluation	- 8 -
	ii. Mid-Term Evaluation	- 8 -
	iii. End-Term Evaluation	-
4.	Academic Ambience	- 7 -
5.	Opportunity for Peer-Based Learning	- 7 -
6.	Opportunity for further Learning(Breadth and Depth) Elective Courses (Specialization Electives)	- 7 -
7.	E-Assisted Learning	- 8 -
	i. Availability of Library Resources and Major Search Engines (like Scopus, Web of Science)	- 8 -

	ii. Multi-Media Assisted Teaching	- 7 -
8.	In -Curriculum Research/Exploration Opportunity to Students	- 6 -
9.	Technical Societies/ Colloquium for Students	- 6 -
	i. Departmental Society	- 6 -
	ii. Student Chapter(s) of Professional Societies	- 8 -
10.	Faculty -Student Interaction	- 8 -
11.	Faculty Mentoring/Supervising of Students	- 8 -
12.	Faculty Advisor System for Students/Class of Students	- 8 -
13.	Effectiveness of Assisted Learning: Home Assignments/Seminars/Presentations	- 7 -

I.3	Doctoral (Ph.D) Programmes	Score
1.	Pre-Ph.D Courses and Evaluation Process	- 7 -
2.	Comprehensive Courses Examination	- 7 -
3.	Breadth and Depth of Knowledge of Students	-
4.	Seminar/ Presentations and Technical Communication	- 7 -
5.	Average No. of Research Students/Faculty	- 6 -
6.	Average No. of Research Papers of Ph.D Students	- 6 -
7.	Average Duration to Complete Ph.D (years)	- 8 -

II. RESEARCH

		Score
1.	Research Ambience in the Department	- 7 -
2.	Research Awareness among Doctoral Students	- 7 -
3.	Competence Level of Doctoral Students for Research	- 6 -
4.	Quality of Research	- 7 -
5.	Quality of Publications	- 6 -
6.	Impact of Publications	- 6 -
7.	Relevance of Research to Knowledge Generation	- 6 -
8.	Societal Relevance of Research	- 6 -
9.	Exposure of Researchers to the International State of Art	- 6 -
10.	Student Exposure to Attending Quality Conferences/Symposia	- 6 -
11.	Growth in Ph.D Programme	- 8 -
12.	Quality of Research Infrastructure	- 7 -
13.	Utilization of Existing Research Infrastructure	- 7 -
14.	Department Initiative on Faculty Hiring	- 7 -
15.	Breadth and Depth of Research in the Department	- 6 -
16.	Research Intensity of Faculty Members	- 6 -

Futuristic Areas For Hiring Faculty Members
<p>Research Areas for Improvement</p> <p>Comments (not more than 100 words for each given below)</p> <p>Strength:</p> <p>Weakness:</p> <p>Suggestions for improvement:</p>

see Report attached.

III. Departmental Infrastructure

	Score
1. Adequacy of Class Rooms and Multi-Media Facility	- 7 -
2. Availability of Laboratories	- 7 -
3. Availability of Conference/Seminar Room, etc.	- 7 -
4. Availability of Seating Space for Research Students	- 8 -
5. Availability of Internet Services in Research Labs and Class Rooms	- 8 -
6. Departmental Library and E-Resources	- 8 -
7. Computing Facilities and Software	- 8 -
8. Adequacy of Offices and Furnishing for Faculty	- 8 -
9. Faculty- Student Ratio	- 7 -
10. Support Staff (Technical/Administrative) Adequacy	- 6 -

Comments (not more than 100 words for each given below)

Strength:

Weakness:

Suggestions for improvement:

See the Report
attached.


IV. Admissions of Ph.D Students

		Score
1.	Intake of Ph.D Students	8
2.	Admission Process	9
Suggestions:		
		See Report attached

V. Outcomes

		Score
1.	Placements	- 7 -
	i. Placement of B.Tech/IDD Students	- 6 -
	ii. Placement of Masters Student	. 6 -
	iii. Placement of Ph.D Students	
2.	Average No. of Ph.D.s Awarded per Year	- 7 -
3.	Publications per Faculty in ISI Indexed Journals/Year	- 7 -
4.	Average Citations per Faculty/Year (Last-Three Years) (Web of Science/Scopus)	- 7 -
5.	Recognitions; Awards(National/International) to Faculty/Students	- 6 -
6.	Consultancy and Projects	- 6 -
7.	No. of Ph.D. graduates who took Academics as Career (Based on Data of Last 5 Years)	- 7 -
Comments and Suggestions for improvement:		
See Report attached -		

Date: 18 Aug 2014

H.P. Khincha 

(Signature of the Reviewer)

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(Name and Address of the Reviewer)

REVIEW COMMITTEE REPORT

Department of Electrical Engineering, IIT Roorkee

Review Committee Visiting dates: 4th and 5th August 2014

The review committee of the Department of Electrical Engineering, IIT Roorkee consisted of the following Members:

Prof. H P Khincha and Prof. D Thukaram, Indian Institute of Science, Bangalore-560012

The Review Committee heard presentation by the head of the department on the first day and had detailed discussions with the committee of Professors and faculty of the department. The review committee also obtained feedback from the department Student's co-ordination committee. The review committee members also met the supporting staff and visited laboratories of the department and discussed with the research students about the on-going research work. The review committee members had one more meeting with the faculty members on the second day. The members of the committee also met the Director of the Institution..

At the outset, the review committee members wish to express their appreciation to the members of the department of electrical engineering for very good organization of meetings and laboratory visits as well as opportunity for pleasant interaction with all stakeholders of the department.

The committee is glad to submit the following summary of findings and suggestions.

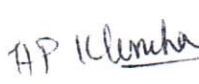
The department is doing good job of running successfully under graduate, post-graduate and research degree programs. By and large B. Tech. and M. Tech. students are happy with their academic program. Many of the faculty members of the department have been recognized by the Institute for their quality of teaching. The number of research students in the department has significantly increased over the last few years. The research output of the department has remained steady indicated by the Ph.D. degrees awarded and the number of research publications. The stakeholders relationships in the department is very healthy and cordial. The department has a good record of conducting conferences and continuing education programs.


The department has scope and potential for reaching greater heights and achievements. Some of the suggestions towards this are given below.

- The department should continually benchmark itself with leading peer academic Institutions from within and outside the country with regard to research publications, research guidance, professional service, and honors/awards received. It can be seen that there is room for improvement in these areas that the department needs to strive and reach.

- We believe that there are a few of the faculty members deserving of high recognition and that the Institute should proactively identify them and nominate them for such honours. More faculty members should aspire to achieve such recognition by excelling academically and professionally. Some of the younger faculty members can be mentored and encouraged to work to win recognitions such as Swarna Jayanthi Fellowship and Bhatnagar Award.
- Seed money to fresh faculty to setup new research Laboratories and initiatives can be increased.
- The number of research publications, particularly in leading research journals needs to be improved. Benchmarking exercise would show the deficiency in the average publication record of the department. More publication of books/monographs of international standards would also be a welcome addition to the image of the department.
- We find that the average number of research scholar per faculty (at doctoral and post-doctoral levels) is also low compared to other well known institutions. If this is due to any Institute Policy, it may be reviewed. The department should take proactive measures to attract more number of good research scholars.
- We suggest that the faculty members, in addition to carrying out the research in their chosen area, collaborate together and identify group level thrust areas for research that they would like to be known for as divisions and department nationally and internationally. The department should also focus on inter-disciplinary research programs. The department should also strive to attract more external research funding.
- We also suggest that the department should take a review into the type and the number of consultancy activities so that they operate at the higher technology levels of professional needs and avoid routine consulting.
- Increased student intake requires additional space allocation. The space used for teaching, project and research work is inadequate in many laboratories, and that they present an unsafe working environment. The safety conditions in the laboratories needs improvement and some of the traditional laboratories need modernization and upgrading.
- Annual presentation of work of research scholars in the department can be mandated for improved research interactions.
- There is need for an exercise to prepare vision and strategic research and academic plan and to take up some focused and impactful programs.

- Shortage of faculty is a severe constraint. This leads to increased teaching load and hence restricts research and other academic activities. This needs to be addressed and remedial measures to be taken up at the earliest.
- There is need to strengthen the innovation, entrepreneurship initiatives at the department. Initiatives to participate in more international programs will also be good for the department.
- There may be initiatives taken to formalize the activities of quality cell to fulfill academic integrity requirements.
- The introduction of technology in the teaching learning activity is inadequate and more active participation of the faculty in these initiative is required. The department has potential to initiate innovative virtual teaching programs in Biomedical discipline and this may be attempted.
- Many research scholars expressed a desire to obtain training in teaching during their stay in IIT to prepare for a teaching career. This may be considered by the department.
- More project oriented teaching may be tried in all the courses so as to impart industry relevant hands on experience.
- Due to the increase in student strength and decrease in supporting technical staff strength the lab oriented course work, project work and research work are adversely affected. Laboratory technical staff and administrative staff of the department may receive periodic training within and outside the Institute to effectively discharge their duties. A mechanism to recognize and reward outstanding staff of the department may be evolved.
- Procedure for purchase, accounts, and audit could be computerized so as to speed up the process and reduce the time spent by faculty, staff and students.
- The achievements and sustenance of excellence in all endeavors are a continuum and will need to be nurtured and pursued with great care, at the same time impacting the academic brand and meet societal requirements.


Prof. H P Khincha


Prof. D Thukaram