

INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE

DEPARTMENTAL REVIEW TEMPLATE

1. Name of Department/Center : CHEMISTRY

2. Reviewers :

- i) Prof. J. P. Mittal, BARC, Mumbai
- ii) Prof. Ganesh Pandey, CBMR, Lucknow
- iii) Prof. Suresh Das, NIIST, Trivandrum

3. Date of Review:

24/03/14

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 <ol style="list-style-type: none"> i. Curricular Structure ii. Course Syllabi iii. Flexibility 	i) 8 ii) 8 iii) 6
2.	Formal Academic Load on Students <ol style="list-style-type: none"> i. Teaching ii. Laboratory/Practical iii. Projects(minor/major) 	i) 8 ii) 6 iii) 6
3.	Evaluation Process <ol style="list-style-type: none"> i. Continuing Evaluation ii. Mid-term Evaluation iii. End-term Evaluation 	i) —

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

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

	ii. Multi-Media Assisted Teaching	5
8.	In –Curriculum Research/Exploration Opportunity to Students	6
9.	Technical Societies/ Colloquium for Students	
	i. Departmental Society	—
	ii. Student Chapter(s) of Professional Societies	
10.	Faculty –Student Interaction	6
11.	Faculty Mentoring/Supervising of Students	6
12.	Faculty Advisor System for Students/Class of Students	6
13.	Effectiveness of Assisted Learning: Home Assignments/Seminars/Presentations	—

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

II. RESEARCH

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

Futuristic Areas For Hiring Faculty Members

- i) synthetic organic chemistry
- ii) Bioorganic Chemistry
- iii) Chemical Biology

Research Areas for Improvement**Comments (not more than 100 words for each given below)****Strength:**

organic chemistry being a central science is not represented properly. Few more bright young researchers in this area should be inducted to fill this gap. Emerging area in chemical biology should be strengthened.

Weakness:

- i) Inadequate representation of ~~modern~~ faculties in many core areas of modern research.
- ii) competitive spirit to attract major funding from research

Suggestions for improvement:

- i) ~~Very~~ classical research areas pursued by some faculties should be slowly phased out
- ii) Bright young researchers with proper exposure ~~is~~ should be attracted in the department.
- iii) Experimental physical chemistry should be strengthened.

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.	8
4. Availability of Seating Space for Research Students	5
5. Availability of Internet Services in Research Labs and Class Rooms	6
6. Departmental Library and E-Resources	8
7. Computing Facilities and Software	7
8. Adequacy of Offices and Furnishing for Faculty	3
9. Faculty- Student Ratio	7
10. Support Staff (Technical/Administrative) Adequacy	5

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

Strength:

- i) Good modern equipments are procured and housed.
- ii) Laboratory ~~spc~~ log books are maintained
- iii) Equipments are installed properly.

Weakness:

- i) Laboratory space is inadequate
- ii) Safety standard in the laboratories are poor, ~~shower and eye wash~~
- iii) Cleanliness in the laboratories appeared poor.

Suggestions for improvement:

- i) Better laboratory space for better research should be provided
- ii) Shower and eye wash should be installed in each laboratory.
- iii) Laboratory safety in general should be improved.

- iv) old fume hoods should be replaced
- v) More sophisticated research equipments should be provided to the department.

IV. Admissions of Ph.D Students

		Score
1.	Intake of Ph.D Students	8
2.	Admission Process	8

Suggestions:

Open and competitive procedure should be adopted for admission

V. Outcomes

		Score
1.	Placements	8
	i. Placement of B.Tech/IDD Students	7
	ii. Placement of Masters Student	8
	iii. Placement of Ph.D Students	
2.	Average No. of Ph.D.s Awarded per Year	
3.	Publications per Faculty in ISI Indexed Journals/Year	4
4.	Average Citations per Faculty/Year (Last-Three Years) (Web of Science/Scopus)	
5.	Recognitions; Awards(National/International) to Faculty/Students	5
6.	Consultancy and Projects	4
7.	No. of Ph.D. graduates who took Academics as Career(Based on Data of Last 5 Years)	

Comments and Suggestions for improvement:

- i) M. Tech students should be given exposure to industrial training (at least 6 months)
- ii) Move technical course work for M. Tech students
- iii) Form. sc. dissertation ^{student} should ~~have~~ be given 1 year time
- iv) courses should be adequately distributed for the entire duration
- v) Elective-theoretical chemistry courses at M. sc. level.
- vi) Library timings should be increased.
- vii) Each lab should have proper fume hoods.
- viii) Down time of major equipments should be reduced
- ix) Students should be given hands on training for running instruments.
- x) Laboratory and class room furnitures need to be replaced.

Date: 25/03/14


 (Signature of the Reviewer)

Prof. Ganesh Pandey
 Director, Centre of Biomedical
 Research, Lucknow-226014
 (Name and Address of the Reviewer)

INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE

DEPARTMENTAL REVIEW TEMPLATE

1. Name of Department/Center :

Chemistry Dept., IIT, Roorkee

2. Reviewers :

Prof (Dr) J. P. MITTAL, MNSAHA Distinguished
 Shrihar Atomic Res Center Prof
 Dr Suresh Das, Director, NIIST, Trivenetris
 Dr Ganesh Pandey - Lucknow

3. Date of Review:

24. March 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 <ol style="list-style-type: none"> i. Curricular Structure ii. Course Syllabi iii. Flexibility 	8
2.	Formal Academic Load on Students <ol style="list-style-type: none"> i. Teaching ii. Laboratory/Practical iii. Projects(minor/major) 	8
3.	Evaluation Process <ol style="list-style-type: none"> i. Continuing Evaluation ii. Mid-term Evaluation iii. End-term Evaluation 	1

4.	Academic Ambience	7
5.	Opportunity for Peer-Based Learning	7
6.	Opportunity for Further Learning(Breadth and Depth)	6
	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	—
9.	Technical Societies/ Colloquium for Students	6
	i. Departmental Society	—
	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	7
13.	Self Study Courses for Student	—
14.	Effective Teaching Mechanism for Enhanced Number of Students in Various Classes	—
15.	Effectiveness of Assisted Learning: Tutorial System for B.Tech Students/ Seminars	7

I.2	Graduate Programmes (Masters)	Score
1.	Curriculum	8
	i. Curricular Structure	—
	ii. Course Syllabi	—
	iii. Flexibility	—
2.	Formal Academic Load on Students	8
	i. Teaching	—
	ii. Laboratory/Practical	—
	iii. Seminar/Dissertation	—
3.	Evaluation Process	8
	i. Continuing Evaluation	—
	ii. Mid-Term Evaluation	—
	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)	6
7.	E-Assisted Learning	8
	i. Availability of Library Resources and Major Search Engines (like Scopus, Web of Science)	—

	ii. Multi-Media Assisted Teaching	7
8.	In –Curriculum Research/Exploration Opportunity to Students	
9.	Technical Societies/ Colloquium for Students	
	i. Departmental Society	7
	ii. Student Chapter(s) of Professional Societies	
10.	Faculty –Student Interaction	8
11.	Faculty Mentoring/Supervising of Students	7
12.	Faculty Advisor System for Students/Class of Students	7
13.	Effectiveness of Assisted Learning: Home Assignments/Seminars/Presentations	1

I.3	Doctoral (Ph.D) Programmes	Score
1.	Pre-Ph.D Courses and Evaluation Process	8
2.	Comprehensive Courses Examination	7
3.	Breadth and Depth of Knowledge of Students	8
4.	Seminar/ Presentations and Technical Communication	8
5.	Average No. of Research Students/Faculty	7-10
6.	Average No. of Research Papers of Ph.D Students	1-2
7.	Average Duration to Complete Ph.D (years)	.5 yrs

II. RESEARCH

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

Futuristic Areas For Hiring Faculty Members
Photonics, Instrumentation / Bio Inorganic Chemistry / Ultrafast Kinetics
Expt Physical Chemistry *urgently required*

Research Areas for Improvement
Photonics, Theoretical Chemistry

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

Strength:
 Cohesive Faculty in large number of areas of chem
 • Lots of strength in Materials Chem
 Sensors Chemistry, P.

Weakness:
 1. Lack of space in laboratories
 2. Safety in Labs is very poor, like eye wash etc
 3. Shortage of Technical Assistants for maintenance of lots of Equipments.

Suggestions for improvement:
 ① Dept. should be urgently allowed to hire some Technical staff for maintenance
 ② Bio inorganic chemistry is missing / Ultrafast Kinetics
 ③ Should help benchmark transfers with chemistry Dept. *other IITs*
 ④ Interdisciplinary interactions should be enhanced

III. Departmental Infrastructure

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

⑩ Laboratory Furniture for setting & Laboratory Furniture for Expt - should be enhanced urgently & change

⑫ All old Fumehoods should be urgently changed as they are all broken.

⑬ More Chemistry related sophisticated Equipments are required to be located in the Chemistry Dept.

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

Strength:

1. I am impressed that a number of young Faculty members from different parts of country have been recruited. They should be encouraged to get more competitive funding for various Funding agencies.

Weakness:

1. V. poor in laboratory safety practice - need to be improved
2. ~~lack~~ lack of enough space in laboratory + lab. Tables for students
3. .

Suggestions for improvement:

- ① Should take a safety Audit from an independent agency - preferably
- ② a stock of all chemicals hidden inside shelves
- ③ Safety for large number of Equipments

IV. Admissions of Ph.D Students

		Score
1.	Intake of Ph.D Students	8
2.	Admission Process	8
Suggestions:		

V. Outcomes

		Score
1.	Placements i. Placement of B.Tech/IDD Students ii. Placement of Masters Student iii. Placement of Ph.D Students	8 7 7
2.	Average No. of Ph.D.s Awarded per Year	
3.	Publications per Faculty in ISI Indexed Journals/Year	8
4.	Average Citations per Faculty/Year (Last-Three Years) (Web of Science/Scopus)	6
5.	Recognitions; Awards(National/International) to Faculty/Students	6
6.	Consultancy and Projects	3
7.	No. of Ph.D. graduates who took Academics as Career(Based on Data of Last 5 Years)	8

Comments and Suggestions for improvement:

1. M.Tech & MSc + MSc (Integrated) ^{courses} / Should be separate
course
2. Opportunity should be encouraged for placement of M.Tech/Msc students in different industries should be encouraged
M. Sc. Integrated Prog should be restarted.
3. Course in Instrumentation can be initiated
4. ♻️ Bathrooms ^{Toilets} for Men/Women students should be in much better shape
5. Clean drinking Water Fountains are needed for student
6. More Technical courses at Advanced level for M.Tech students
7. On Campus Placements should be improved
8. Exposure to Industry for M.Tech Students

Date: 25/3/2014

25/3/2014


(Signature of the Reviewer)

9. More MOU with foreign universities as needed.
10. Library Time can be enhanced

(Prof.) Dr. Jai P. MITTAL
MNSRCA Distinguished Professor (NAS)
Pancha Atomic Research Center
(Name and Address of the Reviewer)
Trombay, Bombay 400085

INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE

DEPARTMENTAL REVIEW TEMPLATE

1. Name of Department/Center : *Chemistry*
2. Reviewers : *Dr. J. P. Mittal*
Dr. Ganesh Pandey
Dr. Suresh Das
3. Date of Review: *24/3/2014*
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GRID FOR ASSESSMENT

NOTE:

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I. ACADEMICS

I.1	Undergraduate	Score
1.	Curriculum <ol style="list-style-type: none"> i. Curricular Structure ii. Course Syllabi iii. Flexibility 	<i>10</i> <i>9</i> <i>8</i>
2.	Formal Academic Load on Students <ol style="list-style-type: none"> i. Teaching ii. Laboratory/Practical iii. Projects(minor/major) 	<i>10</i> <i>9</i> <i>8</i>
3.	Evaluation Process <ol style="list-style-type: none"> i. Continuing Evaluation ii. Mid-term Evaluation iii. End-term Evaluation 	<i>—</i>

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

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

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

I.3	Doctoral (Ph.D) Programmes	Score
1.	Pre-Ph.D Courses and Evaluation Process	8
2.	Comprehensive Courses Examination	7
3.	Breadth and Depth of Knowledge of Students	8
4.	Seminar/ Presentations and Technical Communication	7
5.	Average No. of Research Students/Faculty	5
6.	Average No. of Research Papers of Ph.D Students	
7.	Average Duration to Complete Ph.D (years)	4.5

II. RESEARCH

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

Futuristic Areas For Hiring Faculty Members

Research in materials, functional materials, Chemistry-biology interface, experimental physical chemistry

Research Areas for Improvement

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

Strength: The department has well qualified faculty with expertise in diverse areas. The faculty is active in publishing. The department has special expertise on materials and sensor research which could be developed as niche areas.

Weakness:

Given the quality of the research faculty the ranking of IIT-Roorkee chemistry department should be higher within the IITs. Currently the ranking is IIT-K > IIT-B > IIT-Kharagpur > IIT-Delhi. Efforts towards basic research to its logical end i.e. developing technology could be improved. Project funding brought in by faculty could be improved.

Suggestions for improvement: The department should benchmark itself with other chemistry departments in the IITs, to start with. Targets for 1yr, 2yr, 5yr with regards to publications/faculty, impact factor/paper, citations/paper could be identified and monitored.

Inter disciplinary interactions with engineers/biologists could be improved

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.	8
4. Availability of Seating Space for Research Students	5
5. Availability of Internet Services in Research Labs and Class Rooms	6
6. Departmental Library and E-Resources	7
7. Computing Facilities and Software	7
8. Adequacy of Offices and Furnishing for Faculty	6
9. Faculty- Student Ratio	8
10. Support Staff (Technical/Administrative) Adequacy	5

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

Strength: Research/Laboratory space per scientist is improving. Several sophisticated pieces of equipment are available or are in the process of being established. The equipment are well housed and log-books are maintained. The department has adequate classroom and seminar room space.

Weakness: The laboratory space/faculty need to be substantially improved. Sitting space for students is highly inadequate. The chemistry labs need hoods and need to be airy and well ventilated. Access to instruments for students need to be improved especially after office hours. Inventory of chemicals in the dept. and with individual faculty should be available which can lead to unnecessary purchase and wastage. Safety issues need to be addressed. Computational and library facilities are inconvenient for students. ~~Support staff~~ Additional equipment support for chemistry required.

Suggestions for improvement: Laboratory furnishing to be improved. The laboratory space per faculty could be significantly increased. Access to instruments may be improved by training seminar students. A safety audit may be conducted by a recognized agency and suggestions implemented. Airflow and ventilation of chem. labs to be improved. New fume hoods, change old fume hoods to be replaced. Maintenance and consumable grant to Division could be increased, which is necessary to keep instruments functioning. Improved access to drinking water.

IV. Admissions of Ph.D Students

		Score
1.	Intake of Ph.D Students	8
2.	Admission Process	8

Suggestions:

Ph.D. course work could be made more relevant to area of research chosen by student.

V. Outcomes

		Score
1.	Placements	8
	i. Placement of B.Tech/IDD Students	6
	ii. Placement of Masters Student	7
	iii. Placement of Ph.D Students	
2.	Average No. of Ph.D.s Awarded per Year	
3.	Publications per Faculty in ISI Indexed Journals/Year <i>~1/Yr.</i>	4 8
4.	Average Citations per Faculty/Year (Last-Three Years) (Web of Science/Scopus)	8 N.Avalable
5.	Recognitions; Awards(National/International) to Faculty/Students	6
6.	Consultancy and Projects	5
7.	No. of Ph.D. graduates who took Academics as Career(Based on Data of Last 5 Years)	8
Comments and Suggestions for improvement: <i>M.Tech. courses could be made more flexible. Opportunities for conducting project work with industries. The department could be encouraged to enter into MOUs with foreign universities, industries for conducting such programs. Project work for M.Sc. could be extended for 1yr. Industry sponsored M.Tech scholarships could be explored. M.Sc. Integrated program may be continued. M.Sc and M.Sc Int courses may be separated to suit their needs.</i>		

Date: 28/8/2014



(Signature of the Reviewer)

Dr. Juresh Das
 Director, CSIR-NIIST
 Trivandrum 695019
 (Name and Address of the Reviewer)