



# Indian Institute of Technology Jodhpur

## Department of Mechanical Engineering

Review Period: July 2015 to 31 July 2022

### Evaluation Sheet for Internal Review of the department

#### Committee Members

1. Sivakumar Srinivasan
2. Jaywant H Arakeri
3. Ashitava Ghosal

No	Item	Evaluation
1.	<p><i>Opinion and suggestions about the curriculum of different academic programs (B.Tech/M.Sc/M.Tech) offered by the department and their relevance</i></p> <p><b>B Tech</b> In a meeting with BTech students, the committee made the following observations:</p> <ul style="list-style-type: none"><li>• Students are, in general, satisfied with the curriculum. However, only a few students in their final year were forthcoming with their views.</li><li>• Faculty members were accessible and supportive</li><li>• Non-graded courses are helpful</li><li>• Students are in favour of Interdisciplinary course options. They felt the courses are helpful for placement</li><li>• Students wanted the probability and statistics to be included as an elective option to credit</li><li>• Students want elective options to be allowed from the 5<sup>th</sup> semester</li><li>• Attempts need to be made to increase interest among the students in core mechanical engineering</li><li>• Attempts need to be made to increase interest in internships in core industry</li><li>• Efforts to be made to improve placements in the core mechanical engineering sector companies</li><li>• An exclusive space for tinkering/maker's space would greatly help</li><li>• Research internships within and outside IIT Jodhpur, such as in IITs, IISc or summer fellowship programs by Indian Academies and R&amp;D centers, may be facilitated</li></ul> <p><i>Aghosal</i>      <i>JArakeri</i>      <i>CM</i></p>	<b>Very Good</b>

	<p><u>M Tech</u> The committee had an interaction session with the PG students in ME. The committee makes the following observations:</p> <ul style="list-style-type: none"> <li>• The students are happy with the faculty and the curriculum</li> <li>• Seats get filled, and the numbers appear healthy</li> <li>• Students felt that project topics and problems handled were on par with other well-known universities.</li> <li>• There is a good exposure to experimental aspects</li> <li>• Students are happy with their freedom to choose electives</li> <li>• Clear rules (ordinances) may be available for the dual degree program (and, perhaps, other programs)</li> <li>• Participation of student representatives in the department meetings on academic matters may be encouraged.</li> <li>• Number of credits for electives may be increased from 6 to 9</li> <li>• The number of courses in the 3<sup>rd</sup> semester may be reduced to one or, at the maximum, two.</li> <li>• M Tech ( and dual degree) students should be allowed to spend their last year completely on project/research</li> </ul>	
2.	<p><i>Comments about the teaching learning process adopted by the department. Your suggestions and advice for the same</i></p> <p>Some of the observations made by the committee and the suggestions are provided below:</p> <ul style="list-style-type: none"> <li>• Overall, the teaching-learning process appears good.</li> <li>• Two of the faculty members seem to have received the best teacher awards.</li> <li>• Some courses, such as Engineering Mechanics and Digital Manufacturing, were well appreciated</li> <li>• Dimensional understanding and sketching needs to be a part of the engineering visualization course. Some part of the course should include drawing by hand.</li> <li>• Teaching feedback and confidence in expression may be encouraged by the faculty.</li> </ul>	<b>Very good</b>
3.	<p><i>Provide your overall evaluation about outcome of the programmes and performance of the graduated students in the profession. Any suggestions will be welcome</i></p> <p>The following are some observations and suggestions:</p> <ul style="list-style-type: none"> <li>• Placement statistics appear good. Most of the jobs for B Techs appear to be in non-core sectors</li> <li>• Not clear why there are so few students interested in higher studies/GATE/engineering services, etc.</li> <li>• The placement for M Techs last year was good. Efforts may be made to sustain this.</li> </ul> <p><i>Abhisat      JArakeri      CM</i></p>	<b>Very good</b>

	<ul style="list-style-type: none"> <li>• However, more companies in core sectors may be encouraged to come for placement</li> <li>• Help in the placement of Ph.D. students is not currently available. Help in getting post-doctoral fellowships etc., is required.</li> <li>• Involvement of Alumni (more in the future) needs to be pursued.</li> </ul>	
4.	<p><i>Provide your assessment of the doctoral programmes (Ph.D. &amp; MTech-PhD) of the department. Please indicate your suggestions for improving the same.</i></p> <p>The committee's assessments and suggestions are provided below:</p> <ul style="list-style-type: none"> <li>• Students and faculty interaction seem to be good. The PhD students who explained their research were confident and well versed in what they were doing.</li> <li>• Facilities for state-of-the-art experiments in some areas appear inadequate (e.g., PIV, holography, laser diagnostics etc.)</li> <li>• There are too many courses in the MTech+ PhD degree</li> <li>• PhD scholars (&amp; younger faculty) should aim for mainstream journals</li> <li>• Some PhD research (at least for a few students) may be directed toward basic engineering research.</li> </ul>	<b>Good</b>
5.	<p><i>Your feedback about laboratory facilities, including research infrastructure and facilities in the department</i></p> <p>Committee's feedback on infrastructure, including lab facilities:</p> <ul style="list-style-type: none"> <li>• Laboratory facilities for the UG courses are good, but the space is cramped.</li> <li>• Laboratory facilities for current faculty research appear to be good but may not be adequate for the goal of 35 faculty. Plans are required in advance to increase office and lab space.</li> <li>• In addition to the bought-out teaching aids for experiments, innovative experiments may be set up for UG students, for example, using features like high speed video, audio recording available in smart phones.</li> </ul>	<b>Good</b>
6.	<p><i>Provide committee's assessment of academic research of the department. In particular, provide your input about</i></p> <p>(i) <i>Quality of the research activities pursued by the department,</i>  (ii) <i>Number and quality of publications</i></p> <p><i>Your suggestions and advice will be of immense value</i></p> <p>Committee's suggestions:</p> <ul style="list-style-type: none"> <li>• PhD scholars (and younger faculty) should aim for mainstream journals.</li> <li>• The number of papers per faculty is about five, which is OK for a young department. However, there is an uneven distribution in quantity and quality.</li> </ul> <p><i>Aghosal</i>      <i>J Arakeri</i>      <i>CM</i></p>	<b>Good</b>

	<ul style="list-style-type: none"> <li>• Many research equipment/facilities seem to be bought out and not custom-made by the group. The facilities created for studying high-speed flow, flexible flapping and auto-pilot for quadcopters were notable exceptions.</li> <li>• Building experimental test set-ups by the students help in their better training and the long-term development of the lab.</li> </ul>	
7.	<p><i>Provide committee's assessment of different sponsored research and consultancies undertaken by the departmental faculty members.</i></p> <p>From the committee's view point, the sponsored research and consultancy assignments undertaken by the department faculty appear reasonable, with significant improvements in recent years. Centres of Excellence which are being envisioned should help.</p>	<b>Good</b>
8.	<p><i>Provide committee's assessment of industry interface and industry-linked research activities by the department.</i></p> <p>The committee feels that the industry interface and related research activities also appear to be good with several projects which are applied and coming from Industry.</p>	<b>Good</b>
9.	<p><i>Provide committee's assessment about outreach, continuing education/executive education programmes of the department. Please indicate the committee's suggestions for improving the same.</i></p> <p>Committee's assessments, observations and suggestions:</p> <ul style="list-style-type: none"> <li>• Outreach activity for water purification is notable.</li> <li>• UG interaction with nearby villages is good.</li> <li>• Continuing education is nascent. Only one NPTEL course on Applied Ergonomics. Other planned NPTEL courses need to be brought to completion.</li> </ul>	<b>Good</b>
10	<p><i>Please indicate committee's assessment about the departments linkage with the peer groups in the country and abroad. Please assess the extent of inter-disciplinary connect with other departments in the institute. Committees suggestions for improvement in these aspects will be of immense value</i></p> <p>The committee felt that the linkage with peer groups in the country and abroad doesn't appear to be extensive.</p> <p><i>Aghosal</i>      <i>JArakeri</i>      <i>CM</i></p>	<b>Good</b>

	<p>Inter-disciplinary connects within the institute and with AIIMS appear to be very good. The department faculty could put more effort into conducting GYAN-type courses. Also, more interaction with older IITs, IISc and national research labs is desirable for a healthy networking.</p> <p>Establishing visiting Chair Professorships attracting eminent faculty from the institutes in India and abroad is another mode of increasing interaction and increasing visibility. These could be for a few months to a year. Funding for this may be sought from industry and the state government.</p>	
11	<p><i>Provide committees assessment about faculty of the department:</i></p> <ol style="list-style-type: none"> <li>1. Coverage of different areas of relevance for the department in the faculty</li> <li>2. Quality of the faculty of the department</li> </ol> <p><i>Suggestions about the areas for future growth of faculty strength will be highly appreciated.</i></p> <p>Suggestions and observations by the committee:  <u>Coverage</u>  Three areas of Thermo-Fluid Engineering, Design and Advanced Manufacturing. In these three areas, there is good coverage</p> <p><u>Quality</u>  Faculty are young and enthusiastic, and they appear to be doing well in teaching and have initiated research in several areas.</p> <p>Areas to be considered for future growth: Acoustics, Turbo-machinery, Electrochemical devices and products (Batteries, Fuel cells) and Medical devices/health care.</p>	<b>Good</b>
12	<p><i>Based on the Vision, Mission and Goals identified by the department, comment about the committee's overall assessment of the progress made so far.</i></p> <p>Committee's assessment:</p> <ul style="list-style-type: none"> <li>• Vision, Mission and Goal, as listed and as far as Teaching and Curriculum is concerned, appear to be fine.</li> <li>• Research collaboration with academia and industry needs to be further strengthened.</li> <li>• Some PhD research (at least for a few interested students) may be directed towards basic engineering research and similarly for India-centric problems.</li> <li>• Some research problems can be addressed in depth in the long term, maybe over several PhD students.</li> </ul>	<b>Good</b>
13.	<p><i>Overall assessment by the committee and suggestions</i></p> <ul style="list-style-type: none"> <li>• It is a young department, full of energy, which could be leveraged to strengthen the department and the output.</li> </ul> <p><i>Aghosal      J Arakeri      CM</i></p>	<b>Very Good</b>

	<ul style="list-style-type: none"> <li>• Faculty development programs for young faculty may help in teaching and research.</li> <li>• Planning for needed space (for 35 faculty) for laboratories and offices must start right away.</li> <li>• An exit policy for PhD students should be evolved.</li> <li>• Visibility of the department can be improved by setting up visiting chair professorships, conducting GYAN-type courses, and national and international workshops and conferences.</li> <li>• Regular department seminars and lectures from academia and industry to make students and faculty aware of newer trends and interesting research problems.</li> <li>• An office of research grants for disseminating research funding opportunities and coordinating with funding agencies could be set up.</li> </ul>	
14.	Any other aspect committee wish to note/highlight  <b>NIL</b>	

*Aghosal*

J Arakeri

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