Indian Institute of Technology Jodhpur

Department of Computer Science & Engineering

Review Period: July 2015 to 31 July 2022

Evaluation Sheet for Internal Review of the department

Committee Members

1. Prof. R. K. Shyamasundar

2. Prof. P. J. Narayanan.

3. Prof. Chiranjib Bhattacharyya

Committee may provide a single combined report.

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Note:

1. In column 2, please provide description of the committee's assessment.

2. In column 3, Please choose one of the progress indicators from the below

Excellent

Very good

Good

Average

Below Average

Due to the nature of some specific questions, it may not require any progress indicator.

3. Please use additional pages if required.

4. Please sign on every page and submit to the Director IIT Jodhpur

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Sr. No	Item	Evaluation
1.	*Opinion and suggestions about the curriculum of different academic programs (B.Tech/M.Sc/M.Tech) offered by the department and their relevance* The Department offers various programs in two disciplines, **Computer Science and Engineering**(CSE) and **AI**. The program offerings in these two areas include 4 year Tech, 2 year MTech, and MTech-PhD Dual Degree. Based on some observations, we first provide our opinions and then provide some suggestions. **Opinion about Course Structure** • The programs are contemporary and is positioned to produce high quality Engineers skilled in CSE and AI. • The programs are well thought through and faculty needs to be congratulated. **Opinion about Course Structure of BTech Programs** • The programs aim to provide specialized Instruction in CSE, Data Science and AI. It also allows broad-based Engineering Education at the same time. • In the BTech program the students need to take 10 credits of Electives. This is a very progressive move which will make the education more broad-based. • The opportunity of earning an additional BTech Degree on completing additional 10 credits of Course work, provides exposure. • 15 credits of Non-graded courses provides much needed exposure to Humanities, and Ethics • Syllabi of all the courses are at par with leading universities of the country. • BTech students are asked to make presentations in their courses. This helps develop communication skills. • Possibly because of Faculty interests, most student projects and their interests are concentrated in AI and allied areas. It is important that at the BTech level they get more exposure to other branches of CSE, such as Advanced Algorithms, OS and Databases. **Opinions about Course structure of MTech and PhD programs** • MTech programs are well structured with sufficient number of CORE and Electives. The electives are split between 18	2

	credits of program related courses and 6 credits from any program. • MTech-PhD dual degree program seems promising and can be a model for rest of the country **Suggestions** • Exposure to courses in CS Theory and Systems at the BTech level can be increased. This can be best done when new faculty members join. • OS/DBMB/PLangs: Dept. can ponder over the following questions and take necessary actions as appropraite: Are the courses on the mentioned subjects ioo compressed? Is full experience (say of writing a compiler or OS) being given? • Sequencing of BTech Courses can be reviewed after discussion with the students. • Department can review if the students are obtaining enough hands on experience. The Dept can arrive at a metric in consultation with industry experts or researchers on System Research. One such metric of evaluation could be number of lines of Code in C/C++/Python a student needs to write to graduate with a Btech degree. Perhaps, the assessments could augmented through Professors of Practice from Industry.	
2.	*Comments about the teaching learning process adopted by the department. Your suggestions and advice for the same* Following are some of the comments which are based on the report and the lab visits. • Based on our interaction, the teaching process seems to be overall good. • Students are often asked to make presentations. This is an excellent way to introduce students to research and also to improve their communication skills • Exposure to core CS subjects like Advanced Algorithms, OS, Programming languages, DBMS etc., need to increase. Apart from faculty hiring, inviting experts from India and abroad could be considered; one can think of 1 credit modules as well for short-term visiting experts. • Are BTech students being challenged enough on building large s/w systems? Department can assess and take necessary steps. • Computing facilities are excellent. We assume that these resources are not only being used for research but also for course	**1**

	assignments. If not then Dept could make efforts to obtain more resources to enable computation heavy assignments	
3.	Provide your overall evaluation about outcome of the programmes and performance of the graduated students in the profession. Any suggestions will be welcome This is a young Department and programs are just being launched. Initial Indicators are pointing to expectations that large number of well-trained students in CSE and AI will graduate from this institute in the coming years. With new faculty being appointed the already good research profile will significantly improve. - Graduated BTech/MTech students seem to be on par with their peers from other institutions. - PhD program is too new to know the impact of its graduates. **Suggestions** 1. More research needs to enter the curricula at the Undergraduate level. One indicator could be the number of papers a student must read before she/he graduates. 2. Diversification areas with a reasonable threshold in groups size in various areas would be beneficial 3. Perhaps, research rationale for goal oriented, foundation oriented, society-oriented research could be well articulated through a series of seminars by faculty and external experts in the beginning of each semester.	**1**
4.	Provide your assessment about the doctoral programmes (PhD & MTech-PhD) of the department. Please indicate your suggestions for improving the same. It is good to see that the Dept is following a strict guideline to train PhD scholars. The goal here must be to make the student get a ground grounding in CSE so that he could become good academic/industrial researcher and a teacher. **Suggestions:** - Comprehensive-SOTA-RP can be combined together. Dept. Can consider and if they see merit in the suggestion approach the Institution. A combined procedure would cut down the duration of evaluation and help the student focus more on research. - Doctoral students seem to be motivated and challenged. They may not be interacting across areas/groups as much as one wishes. - As most of the work in engineering, It is important to keep in view the quote due to *Richard Hamming: In engineering, if you do not know what you are doing, you should not be doing.*	**2**

5.	Your feedback about laboratory facilities including research infrastructure and facilities in the department ▪ Facilities are excellent, including computing resources, laboratory resources, etc. ▪ PhD and UG students appreciated this aspect greatly ▪ It is important to maintain these facilities and augment them in a continuous mode.	1

6.	Provide committee's assessment of academic research of the department. In particular, provide your input about
	    (i) Quality of the research activities pursued by the department,
	    (ii) Number and quality of publications
	Your suggestions and advice will be of immense value
	
	▪ Research output of the faculty is very good. Most of them have been in the department for less than 2 years. Output and outcome of research performed in the department with students may be coming out only in the coming years.
	▪ The research groups seem to be pursuing current problems and publishing in very good conferences and journals.
	
	Suggestions:
	▪ Focus on publishing in the most respected global venues.
		1

7.	Provide committee's assessment of different sponsored research and consultancies undertaken by the departmental faculty members. ▪ Consulting can be more though CSE is not an area where a lot of industry consulting happens anywhere in the country ▪ The department seem to be attracting sufficient sponsored research projects. Attracting interns and research project staff to Jodhpur needs attention to sustain more of them	2
8.	Provide committee's assessment of industry interface and industry linked research activities by the department. ▪ Samsung lab, Meta project, etc., seem promising ▪ Otherwise, since the department is new, the engagements may not be many as of now. ▪ Looking forward to more industry engagements in the coming years and perhaps, the concrete outcome should reflect goals of the industry and the Dept	2
9.	Provide committee's assessment about outreach, continuing education/executive education programmes of the department. Please indicate committee's suggestions for improving the same. ▪ Excellent, with executive education making a mark already.	1

	▪ Bringing executive MTech students to campus for immersion is a good idea. ▪ The self-funded MTech seats is innovative and seems to bring quality MTech students in good numbers to the department.	
10.	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 ▪ Linkages with other groups have started, but could improve in quantity and intensity ▪ Department is very young and it is too early to judge this aspect. ▪ However, it should be kept in mind from start. Bringing faculty and researchers from other institutions to spend time at IIT-J will help the department a lot.	2

11.	Provide committees assessment about faculty of the department:
	  1. Coverage of different areas of relevance for the department in the faculty
	  2. Quality of the faculty of the department
	Suggestions about the areas for future growth of faculty strength will be highly appreciated.
	
	▪ The department is very heavily AI or CV focussed today. It is great to be very strong and be known for one area, but all should be represented.
	▪ Several theory/algorithms faculty have joined recently and the situation may improve soon
	▪ Compilers, Databases, etc., need more representation among the faculty as well as in the curriculum
		2

12.	Based on Vision, Mission and Goals identified by the department comment about the committee's overall assessment of the progress made so far. • Seem appropriate. Nothing of concern here.	1
13.	Overall assessment by the committee and suggestions ▪ The department is very young, having grown from 4 to 20 in just over 3 years. Good faculty members have joined recently and there is much promise for the future. ▪ The institute should support the institute strongly and must grow to a size fo 35-40 faculty members quickly, maintaining balance in different areas of CS. ▪ A majority of the faculty members do not have significant international exposure or post-PhD experience in top tier institutions anywhere. Institute should make it a priority to	

	facilitate them to spend 6 months to 1 year with a leading research group over the next 5 years or so.	
14.	Any other aspect committee wish to note/highlight ■ Given the initial history of the institute, the department of CSE has done very well and has grown rapidly. The momentum in hiring needs to be maintained and it is important to keep a in each of the major areas at least has acritical number of faculty and also look for challenging interdisciplinary areas as well. ■ The department and the institute are encouraged to come up with mechanisms to attract more faculty, research staff, etc., to IIT-J. Translational research, innovation, and entrepreneurship may lag behind if some of the locational disadvantages are not overcome.	