

Department of Mechanical Engineering Indian Institute of Technology Kanpur

Response to the ARC Interim Report

The philosophy behind the development of an ideal UG curriculum proposed by the academic review committee (ARC) is well appreciated by the Department. The Department during the discussion felt that there is no explicit mention about how the proposed new curriculum will be successful in alleviating the weaknesses of the present curriculum identified by the ARC. The proposed curriculum should be correlated with the weaknesses of the present curriculum. Further, the success of any curriculum depends on the feasibility of its administrative implementation. In the proposed curriculum, some of the implementation issues are not clear. They should also be carefully looked into.

Some of the issues related to above comments are presented below in a point wise manner.

1. It has been proposed in the new curriculum that the student tutors should man the discussion hour. In view of this, the department proposes that all the tutors (students and faculty both) should attend the lecture classes of the course instructor-incharge, The student tutors should have offices in the department, and the department should make sure that the student tutors do not register for the courses whose classes clash with the lectures & discussion hours of the courses in which s/he is a tutor...

2. The department feels that the present credit based system is well understood worldwide and it conforms to the international standard/practice. Hence, the proposed credit system should be relooked into from the point of view of its merits and demerits.

3. In the proposed graduation requirements, the graduating CPI has been lowered down to 4.0 from 5.0. The department does not feel it appropriate because the graduating percentage of

40% is followed in the universities where absolute marks grading scheme is in place. In such systems, normally the best student gets about 80% marks. In the letter based grading scheme of IIT Kanpur, the highest score of best student is 100%. Therefore, dropping the graduation requirement to 4.0 CPI becomes lower than the universities following absolute marking system. It is also felt that students with lower CPI may not be welcomed by the outside world and would have difficulties in getting the right kind of job opportunities.

4. The proposal on second B.Tech. degree requires some additional considerations. The students are likely to face difficulties in selecting their courses due to the prerequisite requirements (both core and departmental) and timetable constraints. In all likelihood, their graduation date is going to be stretched beyond the stipulated time.

5. The department had many queries and apprehensions about the new proposed separate degree program in engineering science. For example, will there be a separate department for the general administration (i.e. head, DUGC, industrial training for the B.Tech. in engineering science)? The students in engineering science stream will take courses in other departments, and their course work will depend on the regular course structure proposed by the parent department. Timetable clash and prerequisite requirements will add to the constraints of the students in engineering science stream in selecting the appropriate courses.

6. The new curriculum proposes inter-departmental participation in teaching/tutorship of core courses (i.e. science departments participating in engineering department courses and vice versa). It is proposed that the participation in tutorship between engineering and science departments can be encouraged but certain apprehensions were expressed about the inter-departmental teaching lecture classes. The inter-departmental participation between science and engineering stream for core course teaching may also lead to additional preparation workload on the faculty.

7. The PE (Physical education) courses are offered in first year only in both the existing and proposed curriculum. However, it is felt that the introduction to physical education should be gradual with soft option like yoga, jogging, swimming etc. in the beginning. The PE courses should be redistributed to later semesters. The physical education is relevant to students throughout their stay in the UG program not for the first year students only, and should be introduced in a gradual manner. The new proposal for tutorship of the PE courses by faculty members from different departments can be difficult as enough number of competent faculty members may not be available.

8. The department agrees with the modification suggested by ARC related to the TA 101 i.e. Engineering Drawing course. However, the department does not agree with the observation in the ARC report about the existing TA course in manufacturing to be heavy and therefore does not favor splitting the TA201 course to TA102 (ME) & TA201 (MME). However, the department suggests the TA201 course to be offered as an optional core course. The departments should be given an option to opt out of the TA201 course if they feel so.

9. The proposed new curriculum supports the systems engineering oriented courses similar to the existing BTP course being run in the Department of Mechanical Engineering. The department recommends the BTP to remain in overall curriculum of the institute.

10. The departmental specific communication course (Semester V) should not be made compulsory on all departments. The department should be allowed to introduce project based communication course content in their regular laboratory course structures.

11. The policy on attendance should be left to the instructors instead of the institute policy of minimum 80% attendance to appear in the final examination. As a first step, the institute has to formulate the policy of taking attendance in large core classes. This can be an unnecessary administrative load on the institute.

Response to Questions posed to the departments

1. The department is not in favor of offering any minor sub specialization.
2. The students should take all compulsory departmental courses including the prerequisites to get the 2nd B.Tech. degree.
3. The department doesn't favor introducing B.Tech. (Honours) degree.
4. The department does not favor any exit option for the under-performing students in core courses.
5. The department would like to retain the status-quo of the ESO courses as in the present curriculum: (1) ESO 202 (Thermodynamics), (2) ESO 204 (Mechanics of Solids), (3) ESO 210 (Introduction to Electrical Engineering), (4) ESO 214 (Nature and properties of Materials)
6. The department will integrate project based communication course contents with the laboratory courses.
7. The department does not encourage switching from two mid-term pattern to one mid-term pattern.