

Office of the Dean Academics

Minutes of the sixteenth meeting of Undergraduate Curriculum Implementation Committee

December 17, 2013

The sixteenth meeting of the Undergraduate Curriculum Implementation Committee (UCIC) was held in the EE Committee Room at 1000 hrs on December 12, 2013. The following members were present:

(Italics indicate inability to attend).

Prof. Anurag Sharma, *Prof. Santanu Chaudhury*, *Prof. S. R. Kale*, Prof. Sanjeev Sanghi, Dr. Atul Narang, Prof. Shantanu Roy, Dr. N. D. Kurur, Prof. B. Bhattacharjee, Prof. Anshul Kumar, Prof. S. D. Joshi, *Prof. Ambuj Sagar*, Dr. Seema Sharma, *Dr. S. Dharamraja*, *Prof. T.R. Sreekrishnan*, *Prof. R. Chattopadhyay*, Prof. D. Ravi Kumar, Prof. Joby Joseph, *Dr. D. Sundar*, *Prof. A. S. Rathore*, Dr. B.R. Chahar, Dr. Subodh Kumar, Prof. G. S. Visweswaran, *Dr. N. Chatterjee*, Prof. Sangeeta Kohli, Prof. P. Srivastava, *Prof. Manjeet Jassal*, *Prof. James Gomes*, Prof. M.R. Ravi.

Prof. Rengasamy also attended the meeting on behalf of members from Textile Technology Department. Mathematics Department replaced Prof. Dharmaraja and Prof. Niladri Chatterjee with Prof. Amitabha Tripathi and Dr. Sivanandan Sampath. Prof. Amitabha Tripathi attended the meeting.

The meeting started with a welcome to all members.

1. **Confirmation of minutes of meetings 14 and 15 dated October 14 and 30, 2013:** The minutes were confirmed as circulated.
2. **CS course for first year students without and with CS background at school:** The CSE Department had circulated a document (Annexure A) detailing out the clear advantage students with a CS background in school have over the others in the first year CS courses in 2012, viz., CSL101 and CSL102. Taking cognizance of the fact that although the statistics may show stark differences owing to other social factors, since the faculty teaching the course strongly felt the need for different pedagogical approach for the two sections of students, the committee recommended the following:
 - a) The students with CS background in school must be taught in a separate section from the others.
 - b) In order that the two sections come to the same level of accomplishment in programming by the end of the course, the evaluations should be common, but approaches different. In order to allow this, the committee recommended that until midway through the course, the two sections would have different sets of assignments, which would be compulsory but not counted for evaluation in the first half of the course. There would also be no Minor test 1. In order to ensure seriousness in these assignments, honesty and a minimum accomplishment in these assignments should be mandated to pass the course.
 - c) After midway through the semester, the tests, exams and assignments for the two sections would be common, and evaluations would be based on these for the grading in the course.The CSE Department was requested to examine these options and respond to the UCIC as soon as possible.
3. **Programme Structure of Chemical Engineering B.Tech:** Prof. Shantanu Roy explained the Department's decisions pertaining to the programme structure. He pointed out that the Department has opted to include the Material Science course offered by AM Department under PL category, and an additional Material Science course in the core. He also mentioned that Chemistry Department has been requested to Design a core chemistry course for the programme. The core now includes 11 credits of laboratory courses out of 67 core credits. The committee examined the structure and recommended the following modifications:
 - a) At least one HU course should be scheduled in II year, and multiple HU course requirement in a single semester must be avoided.
 - b) In order to accommodate HU, the Biology / Environment course could be scheduled in IV or V semester instead of III or IV.
 - c) Regarding the Departmental specialization on Energy and Environment, it was suggested to explore offering the specialization in collaboration with Mechanical Engineering, and likewise, the one on Biotechnology and complex fluids, it was suggested to explore collaboration with DBEB. It was also felt that the two topics on Biotechnology and Complex Fluids seemed to be dissimilar topics artificially combined together, and the Department was requested to look into this aspect.
4. **Any other item: HM category courses proposed by Management Studies:** The three UG courses proposed by the Management Studies Department for the HM category were discussed in detail. The following feedback was given:

- a) In the column “Status” in the first page of the templates, it should be written “HM category for UG students”.
- b) Whichever course that would form a core course for the Minor Area programme (if proposed by the DMS), should have the name of at least two potential faculty members who could teach the course.
- c) In case the courses have an overlap with any existing / new MBA course, it should be specified in the templates of both courses so as to preclude the possibility of UG students crediting both such courses.
- d) Regarding SML302, it was observed that the contents were in too much detail, and included module-wise references in terms of research papers etc. in the contents. It was suggested that the contents be made crisp. It was recommended that the textbooks be specified separately from the reference material in the list of books/references. It was also felt that it is not a good idea to specify research papers as study material for undergraduate level courses.

The Departmental representative was requested to pass on the comments to the Department for revision of the templates before they could be circulated to Departments for comments.

5. Any other item: Timelines for Approval of templates: The following timelines were decided:

Last date for Departments to send templates to UCIC: 31.12.13

UCIC meeting for review of templates (whole day saturday): 11.1.14

Senate meeting for approval of templates and course structure: between 27 and 31.1.14

Departmental representatives were requested to impress upon the Departments to stick to the above deadlines scrupulously so that the approval of the UG curriculum revision can be done on time.

The meeting ended with thanks to the chair.

Comments, if any, may kindly be sent to the undersigned by 26.12.2013.

M.R. Ravi
Associate Dean Academic (Curriculum)
and Convener, UCIC

Annexure A
Document on First Year CS courses from
Department of Computer Science & Engineering

29th Nov 2013

Subject: Separating students with Computer Science background in school in the first year CS course

Preamble: In the discussion regarding separation or otherwise of students with CS background in school, three issues have been raised.

1. Is the performance of these students really different?
2. Is there sufficient number of students with CS background in school?
3. If a different level (meaning higher level) course is taught separately for students with CS background would it not give them a disadvantage vis-a-vis discipline change?
4. Level playing field?

Based on the analysis of data in the previous years we are able to address all the above queries. Please note that till the academic year 2010-11, students with CS background in School were taught CSL102 and others CSL101. For the AY 2011-12, & 2012-13 they were taught discipline-wise due to a number of constraints including slotting constraints as well as faculty resources. Thus we have clear performance data for both cases and now in a position to take a decision on academic basis.

- A. Performance of two categories of students:** For the AY 2012-13, we have individual students' data with grades as well as information on where they had CS in their class XII examination. This data is obtained from their school transcripts by AR UGS. As this is when both CSL101 and CSL102 was separated discipline-wise, we have the clear comparison of students when they are mixed together and taught. In each instance (of the four course offerings), students with CS in class XII consistently got an average grade point between 0.87 and 0.98 higher in comparison to those who did not have the CS background. The four course average has CS background students obtaining 0.92 grade score higher than non-CS background students.

SEM	COURSE	Avg Grade	CS in XII	Number of Students	%with CS
AY 2012-2013 Sem 1	CSL101	8.29	YES	55	23.57%
		7.40	NO	155	
	CSL102	7.96	YES	50	25.25%
		7.09	NO	148	
AY 2012-2013 Sem 2	CSL101	6.89	YES	63	21.14%
		5.91	NO	235	
	CSL102	7.00	YES	26	22.22%
		6.08	NO	91	

- B. Fraction of students with CS background:** The second issue concerns the number of students with CS background in school. Till AY 2010-2011, the split into CSL101 and CSL102 was based on having CS in school or not, it is easy to generate this data. The number has varied between 22.58% and 38.23% but clearly the current year's number if it is around 13%, it is more of an aberration. Here is the %age of students with class XII experience based on course registration counts for AY 2003-2004 to AY 2010-2011 when the registration into courses segregating them. We have also included the 2012-13 data above. Clearly one would be expecting around 200 students each year.

Academic Year	CS in Class XII (Based on CSL102 Registration)
20032004	38.23%
20042005	35.47%
20052006	25.51%

20062007	34.90%
20072008	30.29%
20082009	35.34%
20092010	29.21%
20102011	22.58%
20122013	23.52%

- C. **CSL102 a disadvantage:** We have grade data from AY 2009-10 onwards. During this period of 8 semesters the average grade of CSL102 was slightly higher; 6.95 for CSL102 vs 6.84 for CSL 101 and thus being taught a different course did not mean a disadvantage for CSL102 students.
- D. **Level playing field:** One of the arguments against two versions of the course has been that it would not provide level playing field to students especially applying for discipline change. In fact the data in the table below shows that this denies level playing field to non-CS background students. Though the average grade difference was 0.92 (as described in item B), but chances of CS background student vis-à-vis a non-CS background student getting A/A(-) grade is 2.5 to 3 times higher. As the concern is for providing level-playing field when they opt for discipline change, normally this concerns students scoring A or A(-) grades in the first year courses.

Year & Course		CS background		Non-CS Background	
		Number	Percentage	Number	Percentage
2012-2013 CSL102	Registered	118		390	
	A	25	21.2	30	7.7
	A(-)	22	18.6	43	11.0
2012-2013 CSL102	Registered	76		239	
	A	13	17.1	21	8.8
	A(-)	19	25.0	25	10.5
Total of 866 students had registered for CSL101/102 in the two semesters and data on 43 students background was not available (including exchange students and some dropouts etc.)					

- E. **Feedback from Instructors:** All the statistics and data apart, there is consensus among the instructors offering this course for many years that it is very difficult to teach a mixed class of students. The difference in background severely impacts the teaching-learning process. In a system like ours, this feedback normally forms a critical input to any curricular decisions.
- F. **Conclusion:** In view of the arguments advanced above, it is clear that the decision to teach CS and non-CS background together in the same class is academically undesirable and would in fact lead to a significant disadvantage to students with non-CS background while not providing sufficient learning challenge to the CS background students. The department strongly recommends review of this decision by the UCIC.