As promised in our last issue, we continue our analysis on why students don’t study at IITB, with this article. For those who missed our last issue, this is a part of a series of articles that Insight has been sporting aimed at examining the role that academics play in undergraduate student life on campus. In the last issue, our focus was on the pursuit of other passions and its impact on academics while this time we dig into the factors that concern effective teaching and learning.

Teaching

Surveys among our students have consistently shown them to be unhappy with the teaching at IITB. The last survey conducted by Insight showed that 88% of the respondents feel that one of the important factors why they don’t study is because the professors haven’t succeeded in generating enough interest in their courses. 72% of the respondents also blame the course content for being too theoretical and lacking an application perspective making it uninteresting.

“Unfortunately, both Teaching and Research are full-time jobs” says Prof. Shivprasad, the Dean Academic Programmes, “Professors constantly face that tradeoff. Increased focus on one would surely impact the other.”

Teaching vs. Research

One oft-quoted factor is that professors have two different jobs to perform here: teach and research. Since the late 1980s, the administration has been putting a lot of emphasis on the research accomplishments of faculty members. It is also important to note that research is the most important factor in faculty recruitment as well as promotion, although course evaluation is also a component. It’s not hard to see why it is possible that research could be more interesting while teaching could be relegated to being one of the unpleasant aspects of the job, for many professors.

Large Classes

One of the biggest challenges often quoted by professors in recent times is the sudden surge in the number of students. With a shortage of faculty, this directly translates to more students per class. The challenge is further aggravated by the fact that the increase has not been gradual leaving no time for the infrastructure of the teachers (and their courses) to evolve to the change. Only recently has IIT Bombay been able to catch up, at least in terms of infrastructure with the completion of the new Lecture Hall Complexes.

Realising the gravity of the challenge, the Senate set up a committee in August 2010 for recommending Norms for Teaching Large Classes. Apart from various administrative recommendations like auditing the rule-books of all academic programmes, the committee also recommended setting up of a Centre for Effective Teaching methodologies with trained professionals for providing methodological support to the faculty. The committee recognises the need for such a centre by noting that training faculty in teaching and making available consultancy services for teaching is ever more important as professors no longer are able to give individual attention as they used to, due to the large classes.

Variation among faculty

All faculty members aren’t the same - some are naturally better at teaching and some aren’t; some are more enthusiastic and some less. A study done by Prof. Sudhakar shows that course evaluation for the same course shows variation even when taught by different instructors. Conversely, it also shows remarkably consistent response over years for the same faculty member. This shows that there is a scope for improvement among some faculty, and also substantiates the need for a centre for Effective Teaching in IIT Bombay. See graphs.

Slides as a teaching standard

As the committee also observes, slides are as a very effective way to reduce the effort of the faculty in repeated offerings of courses. When the uploaded slides have all the content, it could make the lectures entirely superfluous making students feel that there is no value addition to them attending classes. Many students want to revert to traditional blackboard teaching which is both effective and interactive and feel that slides should be used merely to augment it.

Need for improved course content

The surveyed students complained that their courses never teach them practical applications, something that is possible only through labs. They said they have no idea of the bigger picture behind the new faculty. The faculty members who’re relatively inexperienced at teaching would benefit greatly from this.

Our Observations

Based on our research for the article, we at Insight make the following observations:

1. As recommended by the senate committee, a Centre for Pedagogy is crucial for improving the overall teaching standards at IIT Bombay. MPT, for instance, has had a huge success with its Teaching and Learning Laboratory.
2. A mentoring platform for faculty could be set-up by the institute for the senior faculty to mentor the new faculty. The faculty members who’re relatively inexperienced at teaching would benefit greatly from this.
3. Professor-student interactions outside lectures are non-existent for most of the students. As a person who has been in the field for many years, a professor could be a much better academic mentor for a student than any senior student could possibly be. There should be proactive steps from both the professors and the students towards this.
4. The Institute Student Mentor Programme (ISMP) can play a crucial role in instilling the right academic culture in freshmen, including a strong sense of ownership of their education.
5. A Continuous evaluation pattern should be followed to curb the menace of the “4 days a sem” study. The performance of students in the quizzes is extremely easy for the students to blame the teachers, but the student community too must introspect.

Insight’s survey results show that 75% don’t spend any time on academics if there are no upcoming assignments or exams and 88% of students study less than 3 hours a week. Why is it that the student body is so demotivated when it comes to academics?

Learning

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The Placement Pull

A common theme that arose out of our discussions with both the faculty and the student body is the decreasing relevance of subject knowledge in securing good jobs. For most departments, very few good core companies recruit at IITB. Additionally, real R&D often does not happen in the Indian offices of even the best core companies for which we are usually recruited. Core jobs also often pay far less than the multitude of non-core options available. Prof. Ballal eloquently attributes this to the paradigm shift in the societal power structure from ‘creators of wealth (engineers)’ to the ‘managers of wealth’.

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A lot of freshmen get carried away with the glitz and glamour of extra-curricular activities and can be easily misled by ‘machiavellian’ seniors to believe that success in extracurriculars and positions of responsibility can more than make up for poor academics in the placement context.

Course Feedback statistics

Colors indicate distinct instructors

Course Feedback is strongly correlated to the instructor

Reference: Report by Prof. Sudhakar at the IFM, 2010

Colors indicate distinct instructors

Why Don't We Study at IITB: Part 2

KSHTIZ SWAROOP, NIVVEDAN S, SAAZ SAKRIKAR, SAHIL VAIYDA, SIDDHARTH BHANDARI, SOMESH SONTAKKE, TAMNAY SRIVASTAVA

* Insight has been following up with Professors Sudhakar and Dhamdhere who were a part of this committee on the progress of its recommendations.
During the beginning part of a course should he formative (i.e.) should guide the design of the rest of the course, rectifying the difference in expectations of the instructor and the students, if any. Students also express privacy concerns to their marks and grades, where public disclosure could lead to demotivation of the students in the lower rungs. Instructors and TAs could use the individual grading feature on moodle instead of making everyone's scores public.

7. Although the administrative and technical support has improved greatly with the LHC, instructors still complain of technical problems. Active care should be taken to ensure that incidents which disrupt the class activity such as failure of Audio/Video equipments, Air-conditioners, and software are minimized.

8. TAs must be sufficiently trained in the course content/teaching before they are allowed to assist a course. Evaluation for TAs should be performed along the present performance measurement for professors. Teaching awards for TAs can also be instituted.

There is scope for a lot of work and we do have long way to go, but it is about time we started treading that path actively with renewed enthusiasm.

What has IITB been doing?

There have been efforts in this regard by various concerned faculty since 2010 when Prof. Sudhakar (Aerospace Engg.) took it upon himself to survey students, professors and analyse the courses. He was able to statistically show that the oft repeated complaint 'students are not as good as they used to be' may, in fact, be incorrect. This data also showed that the teaching methodology employed by faculty made an impact on the course. He also identified that IITB lacked in training professors in pedagogy (the science of education).

Later the same year, Professors Sethi (CESE), Sudhakar and Pandey (SOM) made a presentation at the Faculty Academic and Research Meet (FARM). They collected the opinions of many professors and students about their motivation, ethos, and subject knowledge of UG students. Based on this, they mainly attributed the lack of motivation to the failure by faculty in creating enough interest in the core branch of the UG branch, a fall off in the engineering sector. Other factors pointed out were large class sizes coupled with poor infrastructure, and that academic excellence is not well rewarded.

A whopping 75% of the students reported that the fact that they feel that they can get a decent grade even by studying for a night prior to the exam greatly. A whopping 75% of the students reported that the fact that they feel that they can get a decent grade even by studying for a night prior to the exam greatly.

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GuruCool

Want to showcase some unique methods professors employ to make their course interesting and possibly add to the coolness factor. Our executive panel asked around among their friends for some "cool" professors/ courses, and everyone had differing views. All in all, it is a unique course in that it is challenging as well as fun. Midsem and endsem questions require us to design experiments to resolve the historical questions related to DNA. She then shows us the actual experiment that had solved the question, the data from it, and how else it could have been interpreted.

Students with not much prior biology experience also enjoy the course because of the unique examination format. Quizzes are based on research papers where students are asked to, for example, show which data points on a curve supports a certain hypothesis. Midsem and endsem questions require us to design experiments to test new hypotheses. All in all, it is a unique course in that it is challenging as well as fun.

Prof. Parag Chaudhuri (CSE) - Neelbar Jathar Prof. Parag Chaudhuri teaches Computer Graphics - both the basic. Although, you may argue that graphics is fun by itself, it still takes a lot to keep people interested for 90 minutes in the middle of the afternoon. Prof Chaudhuri's lectures effortlessly mesh mathematics and movies, keeping students hooked to the lecture. However, he can be equally impatient about someone not doing their homework or someone having not seen Ratatouille.

His knowledge of computer games and indeed his passion for the same ensures that students are able to connect well with him. To top it all, he holds an animated movie competition where winners receive tickets to a movie of their choice. The Bottom-line - If you are looking for a 'cool' professor, look no further!

Prof. UK Ananthavardhan (Mathematics) - Sabarasee C

We had ~10 classes of his in a half-sem course, Complex Analysis (MA 205). I can scarcely remember a moment in these 15 hours when I felt disinterested, or even bored. And I am talking about classes in PCSA!

His exams were gems! The day before the endsem, he released the question paper with a very small portion of each question blanked out. We thought we were in for an easy exam until we realized just how difficult he still could make the paper. Not difficult - challenging. And fun too. He tested us in a variety of question patterns over the half sem, and each held its own. It's not in every course that you see that even the student who scored a DD appreciates the course as much as the one who scored an AP.

Add to it all, he knows more than half the class personally, and takes special interest in answering doubts outside classes (and in class too, of course). He is also a very cheerful guy to talk to, and has been a great mentor/guide in my case. A genius, he knows just how each concept he teaches applies in the practical world, and he thoroughly enjoys discussions with students, all of which adds to how vast his knowledge is. He was recently selected for the Excellence in Teaching Award. No surprises there!

Have you had professors who have used sneaky but cool techniques to keep you rooted to your seats or make you want to wake up at 8:30 just for that one class? Do you know of some methods that a professor of yours adopted that you wish your professor also does? Do tell us! Send in your writeups to insight@iith.ac.in