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ACADEMIC CURRICULUM A NEED FOR

ADITI KOTHIAL, NIRANJAN THAKURDESAI, SANDEEP UPADHYAY, VIPUL AGARWAL

PG Academic Curriculum has been a topic of debate over the past few years. While the current system does a reasonably good job according to some, others feel that changes are necessary to make the curriculum student-friendly, to adapt it to suit industry standards and to increase the overall quality of IITB PG education. At the same time, there is a need for increasing the quality and quantity of research output so that our Institute comes at par with reputed global universities. By means of a first-ever PG ATM and a survey, Insight identified some major problems and worked towards proposing solutions and taking them up with the relevant stakeholders in the institute.

DO WE NEED A REPETITION OF COURSES?

It is a common grievance that students who have completed some courses at the UG level already, and are repeating them at IITB, have an unfair advantage over others for whom the courses are uncharted territory. Moreover, such courses are deemed as a "waste of time" by the former category.

Prima facie analysis of this issue may lead to conclusion that these courses should be removed from the curriculum. However, this is a double-edged sword and further insight is warranted, as is evident from our survey results. Over 180 respondents filled up our survey, an excellent sample size for the PG students community. While nearly half our respondents agreed with the proposition, a quarter were undecided and an equal number disagreed. Our panelists talked to the HODs of some departments about the issue. Based on their responses and the survey results, there is a strong argument against scrapping these courses as they are foundation-building and are essential. The statistics also support this point. Not more than 15 to 20% students get AAs and some even barely scrape through these basic courses with a DD, justifying their inclusion in the curriculum.

IT IS A COMMON GRIEVANCE THAT STUDENTS WHO HAVE COMPLETED SOME COURSES AT THE UG LEVEL ALREADY, AND ARE REPEATING THEM AT IITB, HAVE AN UNFAIR ADVANTAGE OVER OTHERS FOR WHOM THE COURSES ARE UNCHARTED TERRITORY.

Another plausible idea for dealing with this issue is to introduce a "clearance test" for mandatory UG courses. For students scoring more than a certain threshold, the courses should be waived off and they should be allowed to take department electives instead. This ensures that students having a good understanding of a particular topic do not waste more time over it while simultaneously bringing other students at par with them. Some HODs feel that this option can be implemented, and individual departments may consider this depending on the number of core courses.

As mentioned earlier, this is a very complex issue. The jury's still out.

A DYNAMIC CURRICULUM

One of the suggestions that emerged from the survey was regarding course structure - that courses have a "dynamic" syllabus; topics deemed fundamental by the department would form the compulsory part of the syllabus. This would be followed by topics of common interest to both the instructor and students. We asked the authorities how feasible this is. They did not disagree with the option; however they indicated that there were issues with implementation. For instance, with 60 students in a course it will be very difficult to have a single opinion.

In some departments a dynamic syllabus is already being implemented with content based on the judgement of the particular

instructor offering the course. But they have reservations against the syllabus being driven by students. Finally, they don't support this idea for basic courses, but are open to considering this suggestion for electives, applied and seminar courses. One possible implementation would involve a basic part, and a bunch of special topics, say five, out of which the class can choose two.

PROJECTS

Over three-fourths of our survey respondents feel that projects should be floated at the end of the first semester so that students can select appropriate courses in their second semester, thus helping their project-work. While some departments already do so, others float projects only after the end of the second semester. According to the HODs, the current structure is designed in such a way so that after two semesters, students would have studied courses under many professors and get an idea about their teaching and assessment methods before beginning a project with them. Moreover, the seminar in the first or second semester gives students exposure to a research area which they can continue with if they like, while retaining the option to change the guide or area if they so prefer. Finally, HODs believe that the logic of this structure is to wean away the student from regular course work and towards independent research.

A test for allotting projects was tried in some departments but according to the HODs, it was found to be hard on students.

OVER THREE-FOURTHS OF OUR SURVEY RESPONDENTS FEEL THAT PROJECTS SHOULD BE FLOATED AT THE END OF THE FIRST SEMESTER SO THAT STUDENTS CAN SELECT APPROPRIATE COURSES IN THEIR SECOND SEMESTER, THUS HELPING THEIR PROJECT-WORK.

CURRICULUM RECHANGE



It also puts an extra burden on professors. Further, it is not feasible since different professors have different criteria for selecting students. While CPI seems to be a common and objective criterion, others require a short write-up on the topic based on the merit of which they select applicants.

Some students also suggested outlining an agenda at the start of the project, with grades being allotted according to the fulfilling of the agenda. Authorities also said there is already a set agenda, albeit an informal one, which can be made formal and they also contend that anyway, one can only set generic goals in research. Besides, projects are most often aimed towards providing research training, so grading is done based on how well a student absorbs the training, how coherently they can write a report and how good the presentational skills are.

A COURSE ON RESEARCH METHODS

Currently, all PGs have to take HS 791 and XX 792 – communication skills I and II. Which are conducted institute level and departmental level respectively. Though these courses mention the basics of research methodology, and some departments do modify the course to suit the requirement of individual departments, but the emphasis remains on presentation and writing skills.

However, over 85% of our respondents agree that they need a course on research methods at the departmental level as the 791 and 792 courses are found wanting in experiment-related aspects - design of an experiment, analysis, data interpretation etc. In this regard, the authorities feel that research methods are something that students learn hands-on during their seminar/project work. Thus there seems to be disconnect between the requirements of the students and the authorities. Introducing a research-methods course at the departmental level is a suggestion that

individual departments may consider as per their requirements.

SOFTWARE SKILLS

Programming is a *sin qua non* for advanced study in any discipline. Even though languages are taught as a credit course at the departmental level, students have complained about the lack of effectiveness of these courses.

A functional knowledge of packages like MATLAB, Linux, LaTeX is also essential. While this is currently achieved on-the-fly as students go about their courses/projects, a better way perhaps will be to create an online platform where tutorials and videos can be posted, thereby freeing up some time for the instructor who, otherwise, has to deal with this in a lecture. Nearly 80% feel that they should be offered workshops/online tutorials for such softwares.

Some engineering departments have a software tools lab wherein 6 to 7 softwares covering simulation, analysis etc. are taken up. This practice can be extended to other departments as well. In fact, over 80% feel that a software tools lab is necessary. While the authorities agree with this, there is a caveat to it: with a 40+ credit load each semester and only two years of time, making the software tools lab a compulsory course may not be quite feasible. It can rather be floated as an elective.

COURSE-BASED VS THESIS-BASED MASTERS

Another issue that was raised by students in our survey was that of having the option of a course-based masters rather than only having the default thesis-based masters. This way, students who are not interested in research would not have to do the thesis under obligation while students genuinely interested in research would not have to worry about taking unnecessary courses to fulfill credit requirements. We asked our

HODs for their opinion on this. They agreed that there was a lot of discussion regarding this and that it is a good and feasible idea. However the credit structure will need to be completely changed, with the former being called M.Tech and the latter MS (Research). While they are not opposed to it, they do contend that M.Techs form the backbone of research in the department and so there is concern of students siphoning away to course-based M.Techs. But they also add that for students who are not motivated by research, the course-based option is a good one as it offers them flexibility. The caveat here is that our M.Tech programs are designed by the government and any change will have to be systemic.

FOLLOWING A COURSE-BASED MASTERS, STUDENTS WHO ARE NOT INTERESTED IN RESEARCH WOULD NOT HAVE TO DO THE THESIS UNDER OBLIGATION WHILE STUDENTS GENUINELY INTERESTED IN RESEARCH WOULD NOT HAVE TO WORRY ABOUT TAKING UNNECESSARY COURSES TO FULFILL CREDIT REQUIREMENTS.

CONCLUSION

The academic curriculum for PG studies in the institute, while seems to be at par with the Indian standards, needs urgent reforms to make post graduate studies flexible, and functional with regards to industry as well as advanced research requirements. As one of the premier institutions of higher studies in India, we need to set the tone for future of higher education in the country, in this regard, developing a flexible and superior curriculum will go a long way, for which discussion amongst and between, students and faculty is required. This is our effort to participate in the debate



IIT-B SECURITY GUARDIANS AMONG US

ABHISHEK ANDASU, AMIYA MAITREYA, ANISH HOLLA, PALKA PURI, RISHABH ISRANI, SAYESHA ARAVAPALLI

Most campus residents would agree to the fact that IIT-B's security team forms an essential part of the institute's day-to-day functioning. With an increasing student population, changing mindsets, as well as more awareness about the need for robust security, the security personnel play a more proactive than reactive role - preparing for potential hazards in advance rather than responding only when something happens. The job of making the campus a safe environment to study, work and visit make them an integral part of the institute's brand.

Unfortunately, most campus residents admit to having a gap in their knowledge with regards to the campus security. Through this article, we attempt to alleviate this problem by dealing with the various aspects of IIT-B's security, its proficiency, role and duties.

WHOM DOES IITB SECURITY COMPRISE OF?

In addition to the guards who are tasked with ensuring the safety of campus residents on the ground, IIT-B's security team also includes several senior personnel like security inspectors and security officers. They have different degrees of experience in handling security matters, and form the organisational hierarchy of the team. Apart from this, the security often liaises with the local police, especially during high alert situations in the city.

Another integral component of the campus security is the Quick Response Team, or QRT. As the name suggests, QRT deals with emergency situations that require immediate action, such as cases of accidents, harassment, etc. It consists of 12 members - both uniformed officers and plainclothesmen - who operate from the main gate and can be reached at any time

of the day by calling on special QRT helpline numbers. In addition to this, a night pick-up car service has also been started recently to aid the security of female residents. Its purpose is to aid those returning to their hostels from secluded spots in the campus after hours. However, as great as these initiatives sound, their effectiveness is largely inhibited by the campus community's lack of awareness about them. For example, in a recent survey conducted among 400 students, a shocking 56% responded by saying that they had no idea that the QRT existed. Further, 36% said that while they were aware of the service, they had never used it. The night pick-up service had a similar response, with most female respondents admitting they did not know of the service and how it works. During our

IN A RECENT SURVEY CONDUCTED AMONG 400 STUDENTS, A SHOCKING 56% RESPONDED BY SAYING THAT THEY HAD NO IDEA THAT THE QRT EXISTED.

interview, senior security officer, Mr. L.J. Ingle was informed of these disappointing statistics and echoed our concerns about the need for better awareness in the campus community. Seeing how most of the negative respondents were freshmen students, perhaps an apt first step could be to have an extensive talk on security matters during orientations and have the security team liaise with the ISMP/ICSP body.

SECURITY GUARDS

There are about 270 security guards who make up the backbone of the security team. Only about 20 of them are female guards; a ratio that follows the trend of similar observations in the institute. When asked, Mr. Ingle seemed to share the opinion

that the students-to-guards ratio is far from ideal, and is no match for the ever increasing population of campus residents.

How are they recruited?

The security guards are recruited either as employees of the Maharashtra State Force (MSF) or are hired on a contractual basis through private security firms. Currently, the recruitment of guards as MSF employees is on hold, and a sizable

IT IS ESTIMATED THAT THE INSTITUTE PAYS A TOTAL OF RS. 15 LAKHS PER MONTH TO HIRE GUARDS FROM PRIVATE SECURITY FIRMS. HOWEVER, A SIGNIFICANT CHUNK OF THIS MONEY IS RETAINED BY THE FIRMS AND DOES NOT MAKE ITS WAY TO THE SECURITY GUARDS

fraction of the guards (close to 50%) have been hired through private firms. During our interview, Mr. Ingle and other officials shared some of their concerns regarding this trend. The most troubling of them was the injustice being done to these guards in terms of their pay due to bureaucratic reasons. It is estimated that the institute pays a total of Rs. 15 lakhs per month to hire guards from private security firms. However, a significant chunk of this money is retained by the firms and does not make its way to the security guards. As a result, contractually hired guards are often considerably underpaid in comparison to their MSF counterparts. In addition to this situation being upsetting in itself, it also has several secondary consequences. Because they are being underpaid compared to the other guards for the same kind of work, and are essentially temporary employees, often, there is no sense of ownership or enthusiasm associated with the job. There

is also the problem of accountability. Often, when a complaint is registered against a guard, they are simply moved to another contracted location by their firm, with no long-term repercussions. There have been cases where the guards disregarded their supervisors' orders, thus hindering the harmonious functioning of the security team.

What is their training like?

After joining the security team, a guard is usually given basic training for a duration of 10 days. Their fitness levels are checked and they are given elementary knowledge of rifle operation, fire fighting and such. However, they aren't given any self-defense training nor are they allowed to carry weapons. If an unfortunate situation arises, Mr. Ingle commented that typical guards would have little advantage over the civilian campus residents they are supposed to protect. Interestingly, when similar questions were asked to students, their responses were quite positive. 69% of respondents strongly agreed that they had no cause to feel unsafe in the campus and were satisfied with the overall security level. However, when asked questions about hostels, their responses were divided. 54% of the survey takers stated that they felt their hostel security guards were adequately alert and vigilant while 42% said that more security is required.

Another troubling fact is that the guards have not been given any specialised training to deal with natural disasters like floods or earthquakes. This is especially troubling in light of the following statistic: When asked if they are aware of the safety protocols to be followed in case of such situations, a striking 71 % of students responded negatively.

Despite this, a great victory for the security team was that a heartening 60% of students strongly agreed that they felt comfortable approaching the guards with their problems, should any arise, and trusted they would resolve them.

A typical working day

Once deemed fit for duty, a guard is either assigned to monitor the security desk at one of the entry gates or the academic area, or they could be stationed in one of the many student hostels on campus. The security of girls' hostels are managed solely by female guards and according to rules, at least two female guards must be present at the main gate at all times. Depending on the place of posting, the responsibilities of a guard can range from checking visitors' ID cards and handing out tickets to autorickshaws at the main gate, to maintaining an entry register and issuing music room keys to hostel residents. While those assigned to the entry gates have the privilege of having fellow guards for company, the guards on hostel duty generally spend their day on a lonely security desk. A few survey respondents also expressed concerns about this

sedentary nature of the guards' jobs, which surely would take a toll on their health.

The guards are allotted a security post on a rotatory basis for a maximum of 14 days, to ensure that no nexus is formed between the guard and students, or other institute employees of that area. There are scheduled attendance checks carried out by senior officials, especially during the graveyard shifts, to ensure that the guards are not slacking off.

Typical shifts of a security guard last eight hours but this number can easily double depending on the day. Cometh December, when the institute gearing up to host Mood Indigo and Techfest, the security guards have new categories of issues to deal with it. Primarily, they now have to guard the invited students and people outside of the IIT-B community against any mishaps. Since there is no cost for entry into campus, the responsibility to ensure protection from any possible threat entering the campus is an unavoidable job. Extra equipment like metal detectors, sniffing dogs, barricades etc. are rented by the campus security. Though the IIT-B security usually suffices, forces are boosted through over-time shifts for the already existing task force. These include late night patrols of the campus, to ensure no outsiders are hanging around the campus after concerts and such. This extra effort, on their half, doesn't go unrewarded and they are paid an honorarium for the additional work. In addition to this, there are members of the student body organising the event, who work closely with the security personnel to make the smooth execution of the festival possible. Talking to the students of the organising bodies, one quickly gets the idea that the security is very crucial for the success of their events and is not something to be taken lightly.

How can we make their jobs easier?

With a population of over ten thousand, it's not an easy task to keep the campus safe. A security guard's job is such that altercations and arguments with campus residents are unavoidable. For example, if asked to disperse from an unrestricted area in the campus, 80% of the survey respondents said that they expect an explanation from the guard. However, out of these 80% respondents, only 39% claim to have received a satisfactory one. The situation is aggravated if the students involved are a 'couple' who often accuse the guards of moral policing. When asked about such incidents, Mr Ingle stressed that the guards are explicitly asked to keep aside their judgement or biases while on the job. "Even though it might seem otherwise, this is done solely to ensure the safety of the students, 'couple' or not."

When asked about other points of contention between students and security guards, two situations stood out in particular. As a part of their duty, guards may be assigned to man key kiosks in

the academic area, ensuring that people don't access restricted areas without authorization. Often, students ask for keys to labs or offices that they don't have formal permission to access. While their reasons for this may be genuine ("I forgot my bag inside!"), a security guard simply does not have the authority to allow this. In the most urgent of situations, a student may be allowed inside accompanied by a guard to retrieve his/her belongings. They may be asked to sign a piece of paper clearly stating the time and purpose of their entry, to be corroborated by the accompanying guard. Most students protest, considering this to be an unnecessary hassle. However, as Mr. Ingle put it, "This is done to ensure that neither the student nor the guard on duty is punished unjustly." If things go missing, it is not uncommon for the unauthorised student and the guard on duty to be blamed.

Another incident that Mr. Ingle recounts had to do with a group of students leaving on a department trip. They had hired a bus for the journey, and the guards allowed it to enter the gate after due assurances that the appropriate permission slip would be produced on the way out. According to Mr. Ingle, the 'slip' was nothing but a hastily scribbled list of names of the concerned students, signed by the general secretary. When the students were disallowed from leaving in the bus, they decided to exit the gate on foot individually, hoping to board it outside. Mr. Ingle explained that while the activities of students outside the campus are generally not the institute's concern, in this case, since the bus had already been captured entering the institute on camera, the guards simply couldn't knowingly allow the students to leave on the trip without any formal permission. He urges students to get the appropriate permission slips and guest passes signed and readied on time to reduce the probability of such unpleasant interactions.

Finally, all the security officials interviewed for the article seemed to echo the same sentiment - while misunderstandings are inevitable, it is the welfare and safety of the campus residents that is the main priority of the campus security.

WHERE DOES IITB SECURITY LACK?

Despite the challenges faced, it is no secret that the security team does a commendable job of keeping the campus safe. However, there are still certain lacunae in the security apparatus.

The most apparent one is the lax security at the entry gates. Currently, a student ID card is the primary security parameter for gaining entry inside the institute. However, 45% of survey respondents admitted to forgetting their ID cards 'most of the time'. What happens in such a situation? Technically, students who wish to enter the institute without their ID cards must write their names and roll numbers in a register at the gate. A while ago, there

was a provision for signing in using LDAP credentials at the security desk to prove one's identity too. The situation in practice is quite different. A majority of students stated that most of the time, they are allowed inside after answering a few cursory questions like their hostel number or roll number. Being asked to wait at the gate while somebody brings your ID card is almost unheard of. It is understandable that with the large number of pedestrians and vehicles passing through the gates everyday, it is essential to make the entry process as quick and smooth as possible. But surely, the security of the institute should not be neglected for the sake of convenience.

This semester also witnessed a few cases of laptops being stolen from hostel rooms. While such cases are directly dealt by the Mumbai Police, lack of adequate security vigilance in hostels and careless behaviour of students, have made it easy for prospective thieves. Increasing CCTV surveillance in hostel area has been in the pipeline for sometime now, with its implementation already ongoing in some hostels.

Another cause of concern raised by various survey takers was the rash driving inside the institute. While the majority of these offenders are delivery boys, auto rickshaw drivers and such, a few cases involved permanent residents of the institute. Mr. Ingle strongly urges residents who witness any irresponsible drivers, to take down the vehicle number and report it to the QRT or the security desk at the main gate immediately.

In addition to these, there were concerns raised about a few poorly lit areas in the institute such as the SAC shortcut next to the old swimming pool. The security team is aware of this issue, and is working to resolve it. Residents are also urged to report any malfunctioning streetlights to the Hostel Affairs council immediately.

QUICK RESPONSE TEAM

YOU CAN CONTACT THEM AT

9167398598 9833337979
9167398599 9833338989

HOW WELL ARE YOU INFORMED?

ARE THERE ANY PLAINCLOTHES SECURITY OFFICIALS? WHAT SHOULD I DO IF I ENCOUNTER SOMEBODY WHO CLAIMS TO BE A SECURITY OFFICIAL?

Some security guards do patrol in plainclothes, but are still expected to carry their identity cards. Whenever in doubt, a student can request the guards to produce their identity cards. In case a plainclothes officer asks to search your room, in addition to asking for an ID proof, a student can also contact the Duty Officer to verify if the search was authorized.

IF I'M CAUGHT BREAKING A RULE ON CAMPUS, WHAT HAPPENS TO ME?

Students are asked to produce ID cards to ascertain whether they actually are students. If the guards are convinced that a student has broken some rule or is complicit in some illegal activity, they would typically note the roll number and other details of the offender and pass them on to the security office later. Depending on the seriousness of the offence, a guard can also bring the student with them to the security office. If a student feels that they are being wrongly punished, they are encouraged to go up to the security office and sort matters out with the Duty Officer directly.

CAN I CONTACT THE SECURITY IF I'M IN TROUBLE OUTSIDE THE INSTITUTE?

Technically, the security bears no responsibility for students when they are off campus. Any help that is rendered to the students is done with cooperation with the local police. The security can however be contacted on the QRT helplines if you want to check in with your auto rickshaw or taxi details. You can call them back when you have reached your destination safely. In case they do not hear from you, they will take necessary measures to track the vehicle and your location down.

Maushi chi...



Baburao speaking



Zzzzzzzzzz.....





FLIPPED CLASSROOMS

A REVIEW

ABHINAV GARG, BHARADWAJ RALLABANDI, DEVANG THAKKAR, DHARAMVEER KUMAR, GURMEET BEDI, NAVEEN HIMTHANI, RAHUL WANKHEDE, SHREY GADIYA

The effectiveness of classroom teaching has since long been a topic of multifarious debates with students and educators both divided into various schools of thoughts. From those who advocate that classroom-teaching be scrapped, to those making its case as crucial components in a student's learning process, this method has had a lot of people fighting for and against it. Over the past decade, a new attempt for addressing these concerns has emerged in the form of Flipped Classrooms. It is a pedagogical model that, true to its name, flips the classrooms - shifting the uptake of lecture material outside the classroom, and utilizing classroom time for problem solving, clearing of doubts, and review. In contrast, a conventional classroom would involve lecturing (with some doubt addressal), and most of problem solving and review would be left for a student to accomplish after the class. Interestingly, there have been quite a few courses at IIT Bombay that have employed this model for some time now. The pertinent question then is, what really is up for offer, and why should students and educators be concerned? As it turns out, a lot, and in this article an attempt is made to review the strengths and shortcomings of this novel technique, and contrast what works on paper and in practice.

FLIPPIN' GOOD?

Lectures at IIT Bombay typically last an hour or an hour and half in length. A survey was conducted by Insight for the purpose of this article, that asked, among other questions, what students perceived to be their optimum attention span. About a third among the respondents claimed that to be between 30 and 45 minutes, while about a quarter sided with 15 to 30 minutes.

This mismatch in the lecture duration

and attention span is part of a grander debate, and warrants solutions like reducing the length of lectures, or giving the students in-lecture breaks. But since flipping a classroom predominantly implies putting the lecture content online in the form of videos, this problem is solved in a very natural way. The freedom to adjust the lecture speed, rewatch certain segments, and divide the lecture into parts corresponding to one's attention span increases the understanding of content. A conventional classroom enforces a certain pace, which is necessary to ensure that certain ground is covered in a given time, but it often comes at the cost of not every student being synchronised with the course progress. Another problem that is often attached to regular classrooms is that the lecturer is not always able to assess the

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understanding of every student without having quizzes that carry merit towards the student's final score. Online platforms have an added advantage that they provide hard statistics to professors, which helps them make their teaching more data driven. A good example of this being the re-emphasis of content that is understood poorly by students, using metrics such as their performance in in-video quizzes.

WHAT IS YOUR OPTIMUM ATTENTION SPAN?



VIDEO LECTURES ARE MORE TUNED TO EFFECTIVE LEARNING. TO WHAT EXTENT DO YOU AGREE WITH THIS?





AVERAGE: 3.5

**STRONGLY
DISAGREE**

NEUTRAL

**STRONGLY
AGREE**

IN WHAT WAY DO YOU USE VIDEO LECTURES IN ADDITION TO ROUTINE CLASSROOM LECTURES?

FOR CLARIFYING THE CONCEPTS BEING TAUGHT		177/480	37%
FOR LEARNING BEYOND CLASSROOM		63/480	13%
FOR BOTH THE ABOVE		138/480	29%
I DON'T		102/480	21%

Insight set out to assess how well these claims hold when we look at the performance of students, for it would be grossly erroneous to merely speculate thus. Prof. Kameswari Chebrolu from the department of Computer Science and Engineering has a lot of experiences to share when it comes to Flipped Classrooms. Besides having conducted the course on Computer Networks under both the traditional and flipped classroom model, she has also worked intensively on the efficacy of flipped classrooms. In her research paper, Experiences in Development and Deployment of a Learning Management System for Flipped Classes, she presents the following numbers:

STUDENT PERFORMANCE COMPARISON

OFFERING	SIZE	MAX. MARKS	AVG. MARKS
SPRING 2009 (TRADITIONAL)	56	79	50
SPRING 2012 (TRADITIONAL)	72	85	56
AUTUMN 2013 (FLIPPED)	94	93	64
SPRING 2015 (FLIPPED)	96	92	69

Keeping in mind certain caveats like variability in student population, differences in exam patterns, and instructors' bias given a shift in classroom model, the results are certainly encouraging. Prof. Bhalchandra Puranik from the Mechanical Department, who took a course on Heat Transfer II in a semi-flipped manner says that Flipped Classrooms are an extremely convenient method for courses where a great portion of the theory deals with derivations and applications that do not require much explanation. Prof. Puranik would ask students to watch video lectures already available on NPTEL and then move off tangentially to more rigorous topics not covered in the video lectures after having revised the content briefly, which is why he prefers calling his method of teaching 'semi-flipped'.

Looking at it from the viewpoint of course logistics too, there are substantial long term gains due to repeatability of content.

ONCE CONTENT IS PREPARED, IT SOLVES A LARGER PURPOSE OF PROVIDING QUALITY EDUCATION ACROSS THE NATION

Although the work entailed for professors and course staff increases significantly in the beginning, this hard work has a very short recovery period since a lot of time and manpower is saved down the line. According to Prof. Kameswari Chebrolu, "Preparation for Flipped Classrooms is akin to preparing multimedia textbooks, a natural extension to static textbooks that are currently followed. Reusability allows the professor to spend less time on preparing lectures, and more on evaluating student understanding and their own research. Moreover, once content is prepared, it solves a larger purpose of providing quality education across the nation".

The resources thus saved can be put into more effective tutorial and office hours

which have been known to improve understanding even in the traditional method of teaching. Increased classroom interactivity enhances student participation, and particularly helps weak students enhance their grip on the content. With flipped classrooms, another advantage is that each video lecture could have prerequisites and suggested video snippets that would help the students revise the concepts being used in the upcoming lecture. Professor Varsha Apte says that "a mixture of flipped and traditional classroom would be the best approach wherein she has the option to teach the basic concepts in a traditional way." Furthermore, flipped classrooms would enable students to study at their preferred timings, which would be a great boon for students since according to the survey conducted for Edition 18.1's 'How Do We Study?', around two-thirds of the respondents said they were more inclined to study at night.

THE FLIP SIDE

Flipped Classrooms, given all their advantages, aren't a magic pill. Among the professors that were interviewed, there was consensus that the applicability may be restricted to smaller student populations, and it may not work out in large classrooms. Use of reliable technology is a necessary basis and the creation of video lectures for online viewing takes requires a lot of time from the professors which is often not a welcoming idea. Although the resources once set up would be helpful for the future batches, the threshold effort that is required is significantly high. There have been known instances wherein students and faculty inexperienced in this model have borne the brunt of an unfamiliar classroom setting, leading to guarded opinions about their efficacy. In a brief word regarding the same with students and faculty for CS 101 last year, this view was echoed pretty strongly.

Classroom interactivity, although boosted in many avenues, fundamentally changes its form in comparison to the traditional setting. Prof. Bhaskaran from the department of Computer Science and Engineering says, "The positives of lecturing certainly go away. It is not a major issue, since normally only a fraction of students interact in lectures, but News Forums are a weak substitute for face to face interaction during learning of new content." Prof. Narayan Rangarajan, the Dean of Academic

Programmes, although fairly open to the idea of Flipped Classrooms, was quick to caution about its caveats, particularly emphasising on the requirement of a strong layer of TAs to monitor communication channels and tutorials. He suggested the integration of the traditional setting with existing MOOC platforms like edX, Coursera, and Khan Academy among others - with professors pointing out relevant lectures to add on or emphasise course content.

Different from interactivity, the regularity of contact in the traditional classroom has a big upside in learning. "Some students, especially those in the top ten percentile, feel that they miss out on quality student-instructor interaction, for the news forum is a poor substitute for face-to-face communication", opines Prof Bhaskaran. In addition, a latency in doubt resolution may crop up in the Flipped model, which may create issues in courses which are fairly involved. The onus on the student to stay synchronised increases under the Flipped model, which may be a red flag. In this matter, Prof. Puranik said, "I'm not totally in favour of Flipped Classrooms, since not every student may be able to understand the material on their own. They are better suited for basic courses, and advanced course are best handled through the traditional approach."

In the Flipped mode, professors usually keep office hours for students to walk in

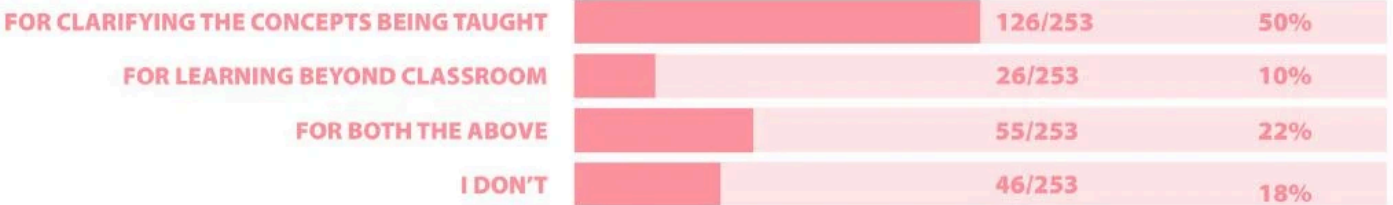
and discuss doubts. Students often have common doubts which would result in the faculty explaining the same concepts again and again. While this redundancy is often absent in a traditional classroom setting, one can argue that it can be removed by proper utilisation of online forums.

Prof. Kameswari also made another subtle point that reflects the professor's perspective in making the switch between the two models. "While the advantages are many, I sometimes miss the joy of teaching in the traditional way". Immediate feedback from the class, be it dumbfoundedness or awe at a concept, can be crucial in terms of cues and rewards for the teachers. This can be lacking in Flipped Classrooms by the very nature of the model.

WAY TO GO?

With both the models laid bare in their strengths and weaknesses, it's not surprising that the faculty and students interviewed or surveyed were divided in their opinions on which model wins. The only line of consensus was that there are certain factors, such as the complexity of course content, class size, and the professor's level of comfort with switching to a predominantly digital model, that determine how a course should be conducted. A better choice would, in fact, be to split the course logistics and reap benefits of both the models.

IF YOU HAD THE OPTION TO CHANGE THE PEDAGOGICAL MODEL OF EXISTING COURSE TO FLIPPED CLASSROOMS, YOU WOULD. . .





ANEES VP, ANURAG CHAFALE, APRAJIT LOHAN, CHANDNI RAJENDRAN, GARRY FERRAO, HIMANI MEHTA, MIHIR BHOSALE, SUMIT SHEKHAR

As the institute struggles to deal with the growing number of students on one hand, and budget cuts on the other, the struggle is reflected in the infrastructure found herein. To add to that, Mumbai's weather is moderately hot and highly humid, and poses a significant challenge in structural integrity. Many structures in the institute, like hostels, VMCC, Workshop Bays, and Infinity Corridor face various problems, especially in the monsoon. It is essential that IIT-B's image as the premier institute of our country with the best of infrastructure be maintained and all steps be taken by the authorities for this. We aim at exploring the causes and effects of these issues and institute policies formulated thence.

CRUMBLING HOSTELS

Recently, in H9, the bottom layer of a patch of the room's ceiling fell down all of a sudden, dropping debris on a student's laptop (thankfully he wasn't present there then, and hence was not injured), leaving the reinforcing rebar exposed, which

seemed rusted. Previously, an entire balcony in H2 had collapsed, with thankfully no injuries.

While it is understandable that these hostel buildings are pretty old and need and undergo maintenance, dangerous incidents like the ones above leave the status of the safety of hostels hanging in the mind of students. Structural integrity is the study of the safe design and assessment of structures against the failure caused due to weather condition, external dead load, and design limitations and such tests need to be done on hostel buildings from time to time. Major leakage issues were experienced within a year of construction in H15 and 16. There were problems with the drainage system, including improper slopes in bathrooms and easily clogging drains. Clearly, the contractor has not done a satisfactory job with respect to quality and overall finishing.

Presently, the hostels 4, 5, 6, and 7 have false walls in the rooms which will be soon converted to proper walls and major

reconstruction work is going to be done in H4 and H8. It has been observed that the last wing of H7 has started to sink. H7 will be replaced by a building similar to hostels 17 and 18, which have received permission for construction and are awaiting sanction of funds.

Along with the structural issues highlighted above, there lies an even more pertinent problem - that of capacity. Accommodation issues faced at the beginning of semesters have become a start-of-the-year norm. There are two reasons: firstly, the student intake has increased, and secondly, the temporary hostel arrangements which are made towards the beginning of the semester. This process takes a long time - till the month of September at the least - for the issues to be resolved smoothly. There is a need for proper planning methods/ systems.

Since there are issues like limited space in the institute, coupled with increasing number of students, the only way to manage this situation is by going vertical with double loaded corridors. Hence all the new hostels henceforth will be made using this design unlike the buildings of H12, 13, and 14 which use up much more space. It is estimated that the construction of hostels 17 and 18 will need 2 years to finish. It will be a 1000 single room building for students, along with 12 double room twin sharing basis with the intention of providing for parent's stay if required. One of these two hostels will be built between H5 and H9



A PICTURE OF THE RESULT OF THE FALLEN CEILING DEBRIS. COURTESY TUSHAR SINGH THAKUR.

CONTRACTORS FOR BUILDING HOSTELS ARE SELECTED ON THE BASIS OF THE LOWEST BID MADE BY THEM AFTER THE QUOTATIONS HAVE BEEN FLOATED. EFFORTS ARE BEING MADE TO MAKE ALL THE NEW HOSTELS AS ECO-FRIENDLY AS POSSIBLE. LIKE SOLAR HEATERS IN H15, 16, ETC

and one will be built between H8 and H7. The allocation to single rooms of the hostels and the new hostels will be done based on a Common Seniority List (CSL).

HOW ARE CONTRACTORS HIRED?

Contractors for building hostels are selected on the basis of the lowest bid made by them after the quotations have been floated. The team of Dean IPS, Associate Dean IPS, OSD and experts are responsible for overlooking the construction of new hostels. After the plan has been proposed, they review it and freeze the designs, after which the quotations are sent out and during the process of the construction also, they have regular site visits and review discussions. Efforts are being made to make all the new hostels as eco-friendly as possible, like solar heaters in H15, 16 etc.

THE VMCC VERDICT

The Victor Menezes Convention Centre was inaugurated in 2011 and is used as a venue for conferences and lectures. Considering that many of the dignitaries that are invited to IITB come to VMCC, it does not serve to create a good impression, given the PoP (Plaster of Paris) work deteriorating in many places, and the lack of weather protection on the side facing Hillside Road.

Top two floors of the building house laboratories of Civil Engineering. However, as per the opinion of many regular users of the building, it is not designed properly for the harsh monsoon conditions of Mumbai, and though the Institute is spending lots of money on maintenance, it seems to be futile.

The canopy, which was the architectural identity of the building, collapsed in last year's monsoon season, but till this date has not been restored. It was supposed to protect the building from heavy rain but it hardly served that purpose. Due to this, many of the laboratories on top floor get exposed to rain.

Heavy PoP work done on roofs of open foyers is deteriorating and some parts have already collapsed due to rain exposure. This has already affected the ambiance of the building (the problem with external PoP work is also found in the refurbished PCSA, where the foyer shows stains already).

Secondly, pigeons use this PoP work for shelter, which creates nuisance (usually PoP is used for interior decoration and not for exterior as it deteriorates drastically when exposed). To avoid these failures, the Institute erects temporary structures which stop the monsoon rain which is main cause for them.

The building also has a central air cooling system which fails to provide proper cooling at top floors and there is condensation leakage from its pipelines, leading to deterioration of the false ceilings in the rooms.

NEW CSE AND COMPUTER CENTER BUILDING

While it is a good thing to match the infrastructural level of institute with the rest of the world, the environmental aspect of construction must not be ignored while doing this. The New Computer Center which is under construction has architecture which, instead of paint, uses white PVC cladding on the outer side of the walls, which makes the building attractive and also helps in maintaining optimum temperature inside the building across the year. However, the use of such wall cladding generates more heat in surrounding areas due to high degree of reflection of sun rays. This might have an adverse effect on the surrounding environment. This building also seems to have very few openings and windows for sunlight to enter, and the result is a larger consumption of electricity and lighting during the day.

WORKSHOP BAYS

Workshop bays are few of the oldest buildings in institute. During monsoon, roofs of the buildings are covered with plastic sheets to avoid leakage from roof. It seems that these buildings are hardly ever painted and have not been made weather proof. Usually, buildings in heavy monsoon areas must be painted every 2 to 3 years to ensure that they are protected from damage.

INFINITY CORRIDOR

Infinity corridor is one of the most iconic structures in the institute. However, the state of the corridor is extremely unsightly and seemingly dangerous. Many parts of corridor are supported by scaffolding of steel rods and wood which means this structure can collapse any time if the support is removed. The deteriorating condition of the corridor near Mechanical Engineering and also the library is fairly well known. The roof of the corridor is of the form of undulating triangles spanning the corridor transversely, and this may not be the most efficient design to get rid of the rainfall. Other than this, the corridor faces leaks during the monsoon and has also seen spalling in many places with the rebar visible. Again, direct exposure of structure reinforcement to weather is weakening the structure.

ACCORDING TO SOME OF THE INSTITUTE'S PHYSICALLY DISABLED STUDENTS, THE CORRIDOR IS IMPOSSIBLE AND DANGEROUS TO USE DURING MONSOON.

The floor of the corridor is very slippery during monsoons, and may cause minute accidents to pedestrians. Some tiles have also come off or have broken down in parts of the corridor. This has also made movement around there extremely difficult for students on wheelchairs. According to some of the institute's physically disabled students, the corridor is impossible and dangerous to use during monsoon.

However, this could change in some time. Plans for refurbishing the corridor have been made and comments on the plan were invited by Dean IPS in December 2015. Part of the plan - the corridor between Workshop Bays and Library as well as the new shed-like construction which shall house a coffee shop - are already in place. Further, this plan seeks to strengthen the Arch and perhaps rebuild the corridor around Mechanical Engineering department and the Library.

POOR FOOTPATHS

The condition of the footpaths at many locations is also deplorable. During the monsoon these footpaths become slippery because of moss, and the institute's solution is to use bleaching powder to reduce the slipperiness. This is a temporary arrangement, as well as being irritating with the heavy chlorine stench around the footpath.

Last year, new lamp posts were installed beside the foot paths on some streets. Near H7, however, due to poor foundations of the lamp post, some of them began bending slowly from base and destroyed the adjacent footpath. No notice was taken by any official authority till the lamp posts actually collapsed on the paths.

Another problem with construction is debris being strewn on footpaths and not being picked up for long. This sometimes occurs near areas with heavy student footfalls (e.g. the road between LCH and PCSA-Civil) and can also be an impediment to safety, let alone being a nuisance.

However, the constructive work done by the Institute can not also be ignored. IIT Bombay boasts of a significantly large number of footpaths with ramps which make them very accessible to students with special needs. New footpaths near SoM/Convocation Hall are being built as of January. New footpaths have also been built beside H10 and near H15 and it is hoped that the institute takes such examples ahead.

NEW BUS STOPS

The permanent bus stops were constructed which helped save money that was annually spent on temporary bus stops sheds. The newly built bus stop for Hostel-12-13-14 collapsed within a short span after the construction. The cause is still not known. However, this bus stop was reconstructed with similar design, thereby leaving no guarantee of a possible collapse in the near future.

LACK OF FACILITIES

Not all the buildings are easily accessible to people with special needs. The entry to the SAC can be improved for better access to people with special needs. There is also a prevailing lighting problem in the institute's premises. Many students like taking a stroll in the campus, and keeping in mind the general safety concerns of students, better

lighting solutions need to be used, especially near places like IDC

ISSUES WITH THE CONSTRUCTION PROCESS

Construction causes severe noise which turns out to be distracting and a cause of hindrance. Reconstruction of labs and offices is not planned efficiently, which leads to research students and professors lacking the space to work. Often, safety precautions are not in place, with live electric cables are all over the place, for example. There ought to be signs in place indicating areas where construction is going on (especially with respect to minor construction and maintenance work), so that there are no accidents.

It has been seen that there are problems after a newly built structure is finished.

After H15 was constructed, the work for H16 was going on. However, for an entire year there was no properly paved road leading to H16. Similarly, the road leading to H15's gate (the position of the gate of the hostel has now been shifted) was strewn with potholes, making walking to the hostel very difficult during the rains. The new Gymkhana building also has an improper finish with respect to the connecting road. Last year, large ponds of water had accumulated just outside the compound wall of the new SAC building, which clearly indicated a lack of sufficient drainage offered there.

BUILDING THE INSTITUTE'S IMAGE

While there is a large amount of work left to be done on various fronts as the Institute yearns for a spot amongst the top universities in the world, it should be

known that crumbling hostels and corridors don't really go well with that image. The immensity of the task of maintaining such a huge institute is of course, a challenge. However, this won't help one deny the situation on ground - further hostel collapses and leaky and creaky living spaces, more students inhumanely stuffed into hostels, and a general lack of aesthetic. It's not all hopeless, though. With the new H10 being constructed, UG girls can finally look forward to single rooms in their last year just like the guys, while the new IITB-Monash Centre looks extremely pleasing. These are just a couple of examples where the institute has taken steps, and it would be great if good infrastructure is something one could look forward to in the near future.

EDITORS' NOTE

It has been a fulfilling experience to work on this print edition, which is the first since the start of our tenure. We've tried our best to cover issues pertinent to you, touching upon the topics of academic reforms and campus life in the issue. We would love to receive your feedback and suggestions about the kind of content you'd want to be covered on Insight. Just drop a message on our facebook page or mail us at insight@iitb.ac.in.

Cheers,

Shreerang Javadekar and Shreeyesh Menon

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