

Possible Impact of Student Intake Increase

Department of Computer Sc. and Engg.

The Basic Data

- Increase to be rolled out the years 2007-2009.
- The increase is 113%, 130% and 154%, for the years 2007, 2008 and 2009, respectively.
- This will include obviously the UG program, and the non-self-financed, non-sponsored (core) PG program.

Plan for the above increase in terms of infrastructure.

Think about ...

The plan must be divided into 2 parts:

- short-term, i.e., upto 2010, and
- the long term, i.e., beyond 2010.

The repercussions of the Biswas Committee report should also be factored in. The plan points out certain subjects for thought:

- (a) classrooms
- (b) lab upgrade problems and solutions.
- (c) faculty cabins and area.
- (d) study area for senior PG students.

Short Term

For the short term, the request suggests that we should be "realistic" and propose

- (a) all civil work, repairs and modifications.
- (b) furniture, teaching aids and classroom facilities.
- (c) faculty cabins.
- (d) lab facilities upgrade.
- (e) if everything else fails, infrastructure requirements external to the department.

This response is expected by March 22, 2007. IN the long term, a classroom-cum-lab complex is planned.

Thus ...

Student Intake and TAs:

As per the formula, our intake in 2006 through to 2010 will be as follows:

Intake Summary				
Degree	2006	2007	2008	2009
B. Tech	37	42	49	57
DD	22	25	29	34
M.Tech (CSE, TAs)	38	52!		
M.Tech (IT, TAs)	17	51!		
Total M.Tech TAs	55	103?	117?	135?

The number of TAs allotted for the year 2007 to the Department of old CSE is 52 and old IT is 51 for a total of 103.

UGs

Based on the data available for 2005 and 2006, the current and the predicted UG course strength falls into 5 main categories. Assuming that minor offering starts at 30 and gradually increases to atmost 50, we have:

UG Course Enrollments						
Type	2006	2007	2008	2009	limit	course/s
UG 1st year	59	67	78	91	91	1
UG minor (IInd year)	0	89	107	128	140	4
UG (btech+DD)(IIIrd year)	59	59	59	67	91	5
CS317 (also taken by MSc Math)	80	80	84	95	124	1
electives (atmost)	40	40	40	46	60	3

PGs

Top PG course (CSE and IT) are listed below. The expansion in these enrollments are not expected to be 154% since we may restrict the number of sponsored, self-financed category students. Even then, in the end with 135 TAs, we should expect classes of sizes exceeding 120.

PG Course Enrollments				
Sem I	2006	2007	2008	2009=limit
CS601	90	100	110	120
CS631	75	83	91	100
CS615	45	50	55	60
CS705	45	50	55	60
IT601	65	73	81	90
IT625	45	50	55	60
IT653	85	93	101	110
Sem II	2006	2007	2008	2009=limit
CS686	65	73	81	90
IT608	60	67	74	80
IT628	70	78	87	95
IT640	90	100	110	120

Pairs

At this point, it may be useful to compute the total student-course pairs which will be taught in the CSE department in the limit:

Sem I	population	multiplicity	pairs
CS101	1000	1	1000
UG minor (IIInd year)	140	4	560
UG (IIIrd year)	90	4	360
UG (IVth year)	90	4	360
PG (Ist year)	150	5	750
PG (IIInd year)	150	4	600
Total			3630

Sem II	population	multiplicity	pairs
CS152	140	1	140
UG minor (IIInd year)	140	4	560
UG (IIIrd year)	90	4	360
UG (IVth year)	90	4	360
PG (Ist year)	150	5	750
PG (IIInd year)	150	3	450
Total			2480

The average class

In other words, assuming a teaching load of 1 course per semester and about 32 faculty members, we have an average class strength of

- 110 in sem I and
- 75 in sem II.
- Assuming a TA for every 25 students, we need 144 TAs in sem I and 96 in sem II.

Classrooms

We will not consider < 60 requirements in our calculations.

Based on this, our requirement of large classrooms (in number of slots) is as follows:

Large Classroom Requirement						
	2006 sem I	2007	final	2006 sem II	2007	final
60-80	8	7	3	9	9	2
80-100	3	7	7	2	6	9
100+	0	1	8	0	1	6

Assets

Our current assets, as far as large classrooms are concerned are (with their enhanced capacities and comments)

Classroom Assets		
room	size	comments
S9(CSE)	80	compact benches and layout
Impact LT	80?	needs major furbishing
SH	100?	needs furbishing
A1/A2	60	broken benches
SIC301	80	AC/Projector
IT-LH	110	needs synch. with CDEEP
IT-Audi	220	good shape

In view of the load, it seems clear that for the year 2007 and also later, we need to establish one additional classroom of size 100. All classrooms need to be blackboard/whiteboard and projector enabled.

New Building?

We also look at the planned new building and (according to the version that we have) see that it has:

area (sq.m.)	number
75	2
80	2
90	2
195	1

To put this in perspective, room A1 is roughly 90 sq. m., and has a capacity of < 60. Thus we see that the planned new building will be woefully inadequate as far as large classrooms is concerned.

Labs

Here is a list of laboratory courses which are held in CSE/IT with their current strengths and projected (final) strengths:

Laboratory Courses				
sem I	2006	2007	2009	comments
CS293	59	89	140	minor
CS377	59	59	91	
CS387	80	80	124	(maths MSc included)
CS389	59	59	91	
CS699	60	75	100	(pg lab)
IT619	30	55	55	(pg lab)
sem II	2006	2007	2009	comments
CS154	59	97	140	minor
CS296	59	89	140	minor
CS386	59	59	91	
CS394	59	59	91	
CS298	59	89	140	hardware lab minor

Thus in Sem I there are 4 UG (of which 1 minor), 1 PG + CS101. and in Sem II there are 5 UG (of which 2 minor)

Lab Assets

Laboratory Assets		
lab	seats	comments
OSL	75	
NSL	80?	
DMC	30?	needs major work
CH(IT)	120?	needs major work and movement
SIC-309	10	mtech student labs
SIC-313	14	mtech student labs
SIC-312	14	mtech student labs
SIC-310	10	mtech student labs
SIC-209	10	mtech student labs
SIC-212	1	mtech student labs

The CSE research area lab data needs to be prepared.

CS101 Issues

CS101 ran in 2006 with 650 students.

- There were 2 hrs of lectures and 2 hrs of lab.
- The lectures were in PCSA, each of 325 students.
- Labs were arranged in OSL with a batch of 65, with two slots: 6-8 and 8:30-10:30 in the evening.

Capacity of PCSA is 380. Predicted strength of CS101 for 2007, if in the current format, is 730. Thus, in the current format, each lab-batch would be 75 strong. This is summarized below:

CS101 Lab. Batch Size		
2006	2007	limit
66	73	100

Plan for 2007

class	no.	location	class	no.	location
CS152	67 (97)	SH	IIInd year (minor)	59 (89)	A2 (IT-LH)
IIIrd year	59	A1	special UG courses	80	SH
big PG	> 80	IT-LH	big PG	< 110	IT-301

lab	no.	location	lab	no.	location
CS 293	89	NSL+DMC	CS 377	59	NSL
CS 387	80	NSL+DMC	CS 389	59	NSL
PG lab	130	NSL+OSL	CS 101	80	NSL
CS 154	67 (97)	NSL+DMC	CS 296	89	NSL+DMC
CS 386	59	NSL	CS394	59	NSL
CS 298	89	NSL+DMC			

Plan for the limit

class	no.	location	class	no.	location
CS152	140	IT-Audi	IInd year (minor)	140	IT-Audi
IIIrd year	91	SH	special UG courses	124	IT-LH
big PG	> 110	IT-Audi	big PG	< 110	IT-LH

lab	no.	location	lab	no.	location
CS 293	140	NSL+OSL	CS 377	91	NSL+DMC
CS 387	124	NSL+DMC	CS 389	91	NSL+DMC
PG lab	155	NSL+OSL	CS 101	100	NSL+DMC
CS 154	140	NSL+OSL	CS 296	140	NSL+OSL
CS 386	91	NSL+DMC	CS 394	91	NSL+DMC
CS 298	140	NSL+OSL			

Our Response

- We assume that for the M.Tech input, the number of TAs will be according to formula.
- The plan assumes changes arising from the Biswas committee report and accounts for merger of CSE with KRESIT.
- We also assume that the repairs of the CSE building will succeed and that all rooms in that building will be available for utilization.

For the plan to work, it is crucial that the department retains control over all facilities and locations currently with it.

Classrooms and Labs

Long Term Needs in Central Facility

No.	Classroom Size	Total No. of slots	Suggested No. of rooms
1	80-100	5	2
2	100-150	4	1

Laboratories

- We assume that CS101 laboratory will be conducted as before, i.e.,
 - ▶ In Sem I with an enrollment of about 1000.
 - ▶ 2hr slots per student per week in the period 6pm-10:30pm.

In addition, we need a PC Lab. for conducting CS101 laboratory which should have 150 PCs and which is available 12 hrs a day.

No.	Quantum of Work	Deadline
1	New furniture repairs in rooms A1/A2	June 2007
2	New furniture for SH to increase capacity to 100	June 2007
3	New furniture and fixtures for Impact LT	June 2007 ?
4	OHP, blackboards and screen for Impact LT	June 2007 ?
5	OHP, blackboards and screen for S9	June 2007
6	Coverision of DMC into lab furniture and PCs	June 2007
7	Tablet or white boards for IT-LH	June 2007
8	More chairs for IT-301	June 2007
9	SH needs a PA system	June 2007
10	Possible reconstruction of G7 and Impact LT into a single room	June 2007 ?
11	Remodelling and sound-proofing of IT-LH	June 2007
12	Conversion of circular hall for PG personal space	Dec. 2007

Recommendations and Issues

- Establish SH as a 100-seater and possibly one more, say, Impact-LT+G7 as a 120 seater. This will reduce the load on IT-LH.
- Discuss with CDEEP to clarify use of IT-LH. If required, remodel and sound-proof IT-LH.
- Discuss with CDEEP about room IT-201 (an 80-seater).
- Repair all < 60 facilities, especially, A1 and A2.
- IT-LH may need white-boards or tablet.
- Argue for institute facilities for > 100.
- Ensure that NSL, OSL and DMC capacities are 80, 75 and 40 respectively.
- Establish Circular Hall as personal space for PG students.
- Get furniture for SH, DMC, Circular Hall and possibly Impact-LT and G7.
- Move courses out of sem I to achieve a balance in the course-loading.
- Consider running a course twice in a year.