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INDIAN INSTITUTE OF TECHNOLOGY, KANPUR  
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No.R/S-N/IITK/2011-12/30  
February 29, 2012

**To: All Members and Special Invitees of the Senate and also to all faculty who are not members of the Senate.**

**Subject: Minutes of the 2011-12/1<sup>st</sup> (Special) meeting of the Senate held on 15<sup>th</sup> February 2012 at 1730 hrs in the L-17, Lecture Hall complex of the Institute**

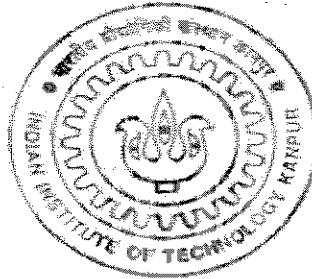
I am forwarding herewith a copy of the Minutes of the 2011-12/1<sup>th</sup> (Special) meeting of Senate held on 15<sup>th</sup> February 2012 for your information and comments. Comments, if any may please be sent to the undersigned by 09<sup>th</sup> March 2012.

**R. K. Sachan  
Acting Secretary, Senate**

Prof. \_\_\_\_\_

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IIT Kanpur

**INDIAN INSTITUTE OF TECHNOLOGY, KANPUR**



# **SENATE**

## **MINUTES OF THE 2011-12/1<sup>st</sup> (Special) MEETING**

**DATE : February 15, 2012**  
**TIME : 1730 hrs.**  
**VENUE : L-17, Lecture Hall Complex,  
IIT Kanpur**

**INDIAN INSTITUTE OF TECHNOLOGY, KANPUR**

**Minutes of the 2011-12/1<sup>st</sup> (Special) meeting of the Senate held on  
Wednesday, February 15, 2012 at 1730 hrs.  
in L-17, Lecture Hall Complex, IIT Kanpur.**

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## INDIAN INSTITUTE OF TECHNOLOGY, KANPUR

**Minutes of the 2011-12/1<sup>st</sup> (Special) meeting of the Senate held on  
Wednesday, February 15, 2012 at 1730 hrs.  
in L-17, Lecture Hall Complex, IIT Kanpur.**

At the outset the Chairman, Senate welcomed all the members present and called the meeting in order.

<b>Item No.1</b>	To discuss the report of the Prof. T Ramasami Committee on the Alternate Admission System for Engineering Programmes in India (including IITs).
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Chairman, Senate gave a brief account of recent history of JEE, including changes that have taken place in the last 10-15 years. He also mentioned various committees that have studied undergraduate admission process, and gave their recommendations. These included Acharya Committee and Ramasami committee. He then went over the process followed by Ramasami Committee, and also summarized its important recommendations. Chairman, then asked the members to focus on the following aspects while making their comments on issue of multiple entrance exams in the country, six options presented in Ramasami Committee, Indian Statistical Institute (ISI) report on statistical normalization of marks across different States Boards, aptitude test, consideration of 12<sup>th</sup> class Board marks, format of the test, and weights of different components for ranking.

With this background, the floor was opened for discussion.

During the discussion, the following points were made by various members:

1. It was disappointing that the report that has suggested such sweeping changes to the admission process of IITs and has been accepted by IIT Council, without seeking feedback from individual institutes (IITs).
2. The Institutes of Technology Act mentions that IIT Council only has advisory role in the admission process. Senates of individual IITs have been empowered to decide the admission process through framing of Ordinances.
3. Deciding on the admission process for IITs without any discussion with the IITs is an infringement of their autonomy. Till now, we could claim that ministry does not interfere in academic matters, and we had full academic autonomy. This claim will no longer be possible.
4. Ramasami Committee did not have adequate representation of academicians, and people with long experience in teaching at university level.
5. Ramasami Committee should have sought views directly from IIT faculty before preparing its report, and another round of feedback from all stake holders after the draft report was prepared.

6. The 2000 responses received by Ramasami Committee on the web hardly constitutes any meaningful feedback from stake holders. They should have been more pro-active in seeking opinions of all stake holders.
7. Ramasami Committee claims to have interacted with several "senior faculty members" of IITs. No one in the Senate has admitted to have communicated with Ramasami Committee. It shows that the interaction was extremely limited.
8. Ramasami Committee has not worked in transparent fashion to reach its conclusions and recommendations.
9. The Act has created a nice balance of power between Council, Board and Senate, with proper checks and balances. This balance should be maintained in the long-term interest of the system.
10. Senate should be flexible. It should agree to a process of change which involves IIT Council coordinating between individual Senates and having heard from all institutes, coming up with a compromise solution. That compromise solution should be adopted by all Senates.
11. It is strange that IIT Council, which should be primarily concerned with IIT system, has approved a report which proposes changes to admission process of all engineering institutes in the country, not just the IITs. How come IIT Council has such jurisdiction.
12. Any implementation of Ramasami Committee recommendations should be delayed till all Senates have had a chance to discuss the report and make their own recommendations.
13. If coaching and stress are the major issues that Ramasami Committee is trying to solve, then a different approach can be considered. If we do not assign branch at the time of admission, but do so after a year, then the stress of each mark being important, will go away.
14. We should not be discussing just the 6 options suggested by Ramasami Committee. We should look at all options to improve our admission process.
15. The real problem is lack of opportunities, which causes 5 lakh students to try for 10,000 seats. Government should do something to improve opportunities.
16. Using statistical procedures to determine rank of students from a very narrow percentile band is problematic, both because of extraneous factors coming into determining student performance, and the confidence one could place while applying to an individual a statistical procedure developed on a much broader set of scores.
17. Statistical co-efficients which do not work for individual cases will decide careers of students.
18. If the statistical procedure for normalization is really so good as is being claimed, then why have another examination at all for entrance. Government can ban all entrance tests, and make it a law to admit students at under-graduate level using only the 12<sup>th</sup> class marks of board examination.

19. The main point of the ISI study is to suggest that computing percentile score on the marks distribution from previous years also serves the present year's performance. This claim however is not that well supported - e.g. around 90 percentile level for the CBSE board, the same aggregate score (about 0.85, figure on page 2 of ISI report) we find a difference of about 3-4 percentile ranks between 2007 and 2010. Given the formula they suggest, this would make a difference of 12 to 16 points in the final "score". However, the gap is smaller above 95 percentile, and on the whole, this may serve as a practicable approach.
20. In the ISI report, assumption 1 (Section 2) does not seem to take into account two realities: (a) Variation in scores due to examiners being different: Depending on who the examiner is, an answer script score will lie in a band. How large is this band for a given board? Also of importance, how does such a band vary from board to board? Although, given two scores,  $s_1$  and  $s_2$ , with  $s_1$  less than  $s_2$ , in the expectation (as stated in assumption 1), it should be true that merit of one scoring  $s_1$  is less than that of one scoring  $s_2$ , it does not follow that the first sentence of Section 4, a non-probabilistic statement, will unconditionally hold.
21. Since, there are so many doubts have been expressed about the ISI process of normalization, we should request our colleagues in statistics to study that process and advise its effectiveness.
22. ISI has done a simple linear interpolation, which is not very satisfactory.
23. Unfortunately, several boards are currently unable to conduct the 12<sup>th</sup> class examination in a fair and transparent fashion, and there are reports of large-scale cheating and corruption every year in media.
24. The marks obtained in the board examinations should be used only for deciding the eligibility for the admission to IITs. This should be done after they have been normalized using a scientific statistical method. There should be no weight given to the board marks in the final ranking of the candidates.
25. Keeping the 12<sup>th</sup> class marks as eligibility criteria, of the order of 90 percentile, will achieve the goal of students taking the board exams and hence school education seriously. It is not clear what extra will be achieved by giving 40 percent weight to board marks.
26. Giving 40 percent weight to board marks can potentially increase corruption and use of unfair means in the board examinations. It may also lead to favoritism.
27. Giving 40 percent weight to board marks will result in increased coaching, as now the students will go for coaching for both the common entrance test and the board examinations.
28. Giving 40 percent weight to board marks will result in increased stress, as every mark in every subject counts for ranking in the admission process.
29. The best part of JEE has been its "process integrity" something that cannot be expected from the boards to the same degree. To give weight to 12<sup>th</sup> class marks before the boards have shown "process integrity" is too premature.
30. Number of entrance exams is very large today, and mechanisms need to be found out to reduce this number. Also, we need to find ways to encourage students to take school education more seriously, and strengthen the board exams. But using 40 percent weight of board marks for admission will give so much incentive for corruption, that it will destroy whatever good exists in the boards today. So, instead of improving the boards, this step will actually weaken them further.

31. There are several concerns about the effectiveness of the normalization process. If normalized scores are used only for determining eligibility, the quality of normalization will not be very important. But if the normalized scores of 12<sup>th</sup> class are to be used for ranking, then even slight variations will make the whole process unfair and susceptible to legal challenges.
32. Difference in standards: Consider two populations each of 1000 students with a total ordering in merit. Let us say that Board A does manage to distinguish amongst the top 10, these students get the marks in a subject from 100, down to 91, consistent with their individual merits. In the other board B, the top 10 students each scores 100 marks. In the standard way of computing percentile rank, the 10th student in merit from the top in Board B will have the rank 99.5. Whereas the similarly merited student in Board A would have scored 91, therefore, his percentile rank will be 99.00, assuming no bunching in scores in the range 91 to 100 in Board A. Thus two students, with same merit value, can get different percentile scores depending on the board, because of difference of standards in Boards.
33. For normalization of marks across boards, one should not just look at the statistical methods, but there should be a group which should every year look at the functioning the boards, the quality of question papers, etc., and tweak the normalization process on a year to year basis.
34. An Engineering Entrance Examination should not and cannot be viewed as the principal instrument of fixing large scale problems prevailing in the school education system (lack of effective teachers, mode of delivery, fraudulent and farcical science practical, easily comprised processes etc.). It also cannot be viewed as a means of ending competition for premium opportunities in the face of huge demand, no matter how perfect is the examination system. On the converse the Entrance Examination should try and do its honest best to select in the face of these problems.
35. We should start with board marks only being used for eligibility. We can use board marks in future, if we can see that a greater focus on board exams have improved their functioning and reduced corrupt practices.
36. The board examination after 12<sup>th</sup> class should be based on both 11<sup>th</sup> class and 12<sup>th</sup> class syllabus.
37. Inclusion of board marks violate level playing field for the students. When JEE was a 2-stage process, even though IITs conducted both the stages, we still did not consider the first stage marks for the purpose of ranking, since it seemed to violate the principle of level-playing field. The same principle should hold now and we should not have any weight for 12<sup>th</sup> class marks, only the eligibility should be decided on that basis.
38. Most boards have a process for re-evaluation of examination copies. The result of re-evaluation often comes long after the admission process is over. How would these students be treated in the new system. Will their rank be improved and they will be allowed new branch, which may already be full.
39. We should use the normalization process and find out the normalized (percentile) score of all students in recent batches. If most of the students had a normalized score above 85 percentile, then we should make 85 percentile as the eligibility condition.

40. If corruption increases in boards due to 40 percent weight of 12<sup>th</sup> class marks, it will become very difficult for students with financially weak background to come to IITs.
41. In order to improve school boards, we should not destroy a well functioning system.
42. IITs also have to accept part of the blame for these "reforms." They have not been actively studying problems in our current admission process, and solving them.
43. We can use the proposed Main-cum-Advanced test for shortlisting about 50,000 students, and should have the old-style examination involving long answers and partial marking for correct steps.
44. We should do away with negative marking in JEE.
45. We should study why BITS Pilani, which had its own normalization process of 12<sup>th</sup> class marks, and used to admit students on the basis of normalized marks, has shifted completely to an entrance test.
46. IIT system can help in ensuring integrity of the National Test, but it cannot be held responsible for ensuring this on the scale and scope of a National Test.
47. IIT System should reserve its right to use any National Standardizing Score outside its purview as it deems fit, and with the freedom to design an additional test for a small number.
48. Multiple Choice Questions (MCQ) are very limited in usefulness, and are necessary evil to deal with large number of candidates, along with necessity to machine grade their answers.
49. Normal stepwise long answer questions are far more effective in assessing a learner's abilities, and thinking orientation and degree of match with the desired thought process in a context.
50. Multiple Choice Aptitude Test is an untested bogey, or at its best an uncritical superstition, with no basis or proof that it works ( just as measures of intelligence such as IQ), de-contextualized pattern recognition or puzzle solving can fall easy prey to superficial training, or gaming the system, lacks the depth of a scholarly discipline or an intellectual tradition to test anything real, and at its best can become some surrogate version of intuitive Maths.
51. Limited Number of Multiple Tests by different agencies is actually good since a student can choose to appear according to his or her comfort level of the scope and nature of competition, can be independently fine tuned for accommodating individual purposes, too much should not depend on one big opportunity and an unmanageably large system, and unity that kills diversity should be avoided.
52. We should add a test of comprehension and other subjects that are normally taught at school, but are not part of JEE as of now.
53. Since we have JEE marks, board marks, and our performance data for the last several batches, we should study correlation between these quantities, and in case, there is lack of correlation between JEE marks and students' performance in IITs, then JEE should be fixed to become a better predictor of success, rather than removing JEE.
54. We should study with our data, as to which students would not have been admitted if the new system had been in place in those years. It would give us a useful insight into the functioning of the new system.



55. Long answer type question papers were not ideal. There were times when grading was uneven. It should be kept in mind while debating a MCQ versus long answer type test.
56. Since JEE can be given twice, students giving 12<sup>th</sup> class exam this year are hoping that there will be JEE next year with a similar process that we have announced for 2012. Any change, therefore, should be announced at least 18 months in advance. This year's class 12<sup>th</sup> students do not have time to change their study methods, or their focus.
57. Aptitude test will have a negative bearing on the rural-urban divide. Urban students will be able to perform better in an aptitude test. Hence it is unfair.
58. We should introspect and review our admission process, and not an external committee.
59. We should study Chinese system, since they too have expanded in a big way in the last couple of decades, they too have some very good universities, and a large number of aspirants for those universities. How have they managed admission in such a scenario.
60. We can have a mix of MCQ and a bit of writing in the exam. For every MCQ, we could ask the student to write a line or two to test whether he has really understood. This line will be graded only for those questions which are correctly answered, and only for those students who have sufficient number of MCQs correctly answered.

Taking on account the discussion held on the floor of the Senate the Chairman, Senate announced that :

- (i) Transcript of the discussion held in the Senate meeting will be available to all.
- (ii) Chairman, Senate will constitute two committees to take feed back from students/faculty members before 13<sup>th</sup> March 2012.
  - (a) One Committee will be formed in for inviting suggestions and forming views on the change proposed in the T Ramasami Committee report, the committee will also seek views, carry out discussion and suggest changes to be made to the current JEE system.
  - (b) The another Committee is to study in detail the report of the Indian Statistical Institute and provide its views on the issue of normalizing marks obtained by students across different 12<sup>th</sup> class Boards.

After every one had a chance to express his/her views, Senate unanimously expressed that:

1. Any decision of implementing the test for IIT system be kept in abeyance till it has been discussed by various stake holders, in particular, Senates of different IITs.
2. Chairman should form a group which will take feedback from faculty and students on the issue of changes to under-graduate admission process. The group may suggest changes to proposals made by Ramasami Committee, and also, any changes to current JEE.

3. Serious reservation on the consideration of the performance of students in the Board Examinations to be taken for the purpose of ranking during admission to IITs.
4. Chairman should form a group to study the ISI report on statistical normalization of 12th class marks across multiple Boards.

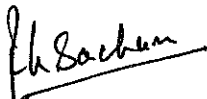
The meeting ended with vote of thanks to the Chair.

**Approved**

Sd/-  
**Sanjay G Dhande**  
**Director & Chairman Senate**

**Copy to:**

- 1) All members and Special Invitees of the Senate for their information, record and comment(s), if any.
- 2) All faculty, who are not members of the Senate, for their information only.



**R K Sachan**  
**Acting Secretary Senate**