

COUNCIL OF IITS

AGENDA

Meeting No. : 44th

**Venue : Senate Room,
Indian Institute of Technology, Delhi,
Hauz Khas,
New Delhi – 110 016.**

**Date : 12th May, 2012
(Saturday)**

Time : 11.00 A.M.

**SECRETARIAT OF THE COUNCIL OF IITS
MINISTRY OF HRD, NEW DELHI**

(i)

44th Meeting of Council of IITs on 12.05.2012

AGENDA

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3. Pursuant to the aforesaid discussion, the proposed reforms were discussed further by the Senates of IITs between 25th April- 5th May, 2012. We have since received the observations/ resolutions of the Senates of seven older IITs in this regard, a gist of which is at **Annexure-II**. The minutes/ resolutions of the various Senates have been compiled and placed at **Annexure-III**.

4. A comparison and consolidation of the views expressed by the various Senates bring out the following:-

- (i) By and large the IITs have opted to retain the existing format of JEE for the year 2013. They however, have expressed their willingness to assist in the academic activities of the common national test, if held, in 2013.
- (ii) Only IIT-Guwahati has fully supported the proposal of single exam with weightage to School Board marks.
- (iii) From 2014 onwards, the national entrance test may be used as the Screening test for the purpose of admissions to the undergraduate program to the IITs. A limited number of candidates (say 50,000) from the said test, will be eligible to appear in the Advanced test to be conducted by the IITs.
- (iv) Only the performance in the Advanced test will be used to select and admit candidates to the IITs undergraduate programs.
- (v) The Board performance may not be used for the preparation of the final merit list.
- (vi) There is no clear majority view emerging with respect to the issue whether to use Board marks as cut-off or as part of the initial Screening process.
- (vii) The details of the Advanced test will be finalized in due course of time by discussion amongst the IITs so that it can be implemented from the year 2014.

5. The Council may like to take a view. The outcome of the deliberation will be discussed further in a separate meeting with the faculty representatives, two each from the seven older IITs and certain members of Council before a final decision is taken by the joint meeting of Councils of IITs and NITs scheduled to be held on 28th May, 2012.

Joint Entrance Examination for Admission to Engineering Programmes in CFTIs

Multiplicity of entrance examinations for admission to engineering institutions has been a cause of concern. The burden imposed on the students in terms of time, payment of examination fees and the stress caused in scheduling and preparing for each examination is tremendous and the anxiety and trauma on both the students and parents have been highlighted on numerous occasions. Besides, the present system of examination has unwittingly distorted the very foundations of the school education system; rote learning and coaching have taken precedence over the analytical and problem solving ability. The IIT Council which also have been seized of the matter of reforms in the way students are admitted into technical institutes at the undergraduate level for quite some time formed a committee under the Chairmanship of Prof. Acharya to consider ways to bring about changes. The Acharya Committee took input from within as well as outside the IIT system and suggested inclusion of Board results in the evaluation criteria of the admission process. As the suggestions made by the Acharya Committee had some issues regarding the way Board results were to be included, the Council formed another committee under the Chairmanship of Dr. Ramasami to examine the matter further. The Ramasami Committee consulted experts from ISI Kolkata on this issue. The experts examined the results of a few major Boards of the last few years, and advised that the best way the results from different Boards could be compared would be to use percentile ranks in each Board as the marks for the Board evaluation component.

2. This was presented before the Council in its meeting on 18 September 2011. The Council accepted the report of the Ramasami Committee and decided that the report would also be placed before CABE and the State Education Ministers so that the new system could be put in place by the academic session 2013-14. As a follow up, a meeting was held on 18 January 2011 which was chaired by the Minister, HRD, Shri Kapil Sibal, and in which

stakeholders representing the Centrally Funded Technical Institutes (CFTI) (IITs, NITs and IIITs), the CBSE, the MHRD, AICTE , and Dr. Ramasami, were invited. The meeting decided on the broad contours of the road ahead to implement the recommendations of the Ramamsami Committee. The proposal to hold a common National Examination with weightage to State Board results, normalized on the basis of percentile formula, for admission to engineering institutions was endorsed 'in-principle' by the Education Ministers in the State Education Ministers' conference held on 22nd February, 2012.

3. This note gives details of the implementation of the admission procedure to be adopted by the CFTIs for the admission process in 2013 as also by the States and other institutions wanting to be part of the single examination system. The single entrance examination for admission to engineering programmes in the Centrally Funded Technical Institutes and other willing institutions will be named as the **Joint Entrance Examination (JEE)**.

4. **MAIN and ADVANCE Papers:** The JEE will consist of two papers MAIN and ADVANCE. The first MAIN paper – usually scheduled in the morning hours – will be an examination of 180 minutes. The main objective of the first paper will be to test the foundational understanding of the candidate in Physics, Chemistry and Mathematics as learnt in the 10+2 years. The examination (test) will be designed by not only the domain experts of Physics, Chemistry and Mathematics but could also involve participation of experts in Psychometry. The second paper ADVANCE in the afternoon will also be a paper of 180 minutes duration. It will have the same syllabus as the MAIN paper. The questions will test the problem-solving abilities of students besides the skills of problem formulation and incisive thinking.

5. **The JEE result will specify the Board Marks (in equivalent terms), the Main examination marks and the Advance examination marks.**

6. **Board Marks** - The JEE result will specify the Board Marks. The percentile rank of a student in the science stream in the Board, he or she appears in, will be the marks out of hundred for the Board marks component.

The rank should be given up to 9 decimal places to enable tie breaking. The formula to be used for the percentile rank is to be

$$(c_l + 0.5f_i)/N * 100$$

where c_l is the count of all scores less than the score of interest, f_i is the frequency of the score of interest (the number of students with the same score), and N is the number of examinees in the sample.

7. The percentile rank of students are to be based on the scores obtained from adding the marks obtained in the Board examination in the following subjects: a) Physics, b) Chemistry, c) Mathematics, d) one language subject, e) best subject among the electives taken by the student.

8. **MAIN and ADVANCE Test Syllabi** - The syllabus for Main and Advance tests will be the same. This common syllabus will be prescribed by the Academic Group of the JEE each year.

9. **Application Forms** – Candidates will submit separate application forms for a) taking the JEE and b) for admission to the participating CFTIs and other institutions. Application for JEE will result in allotment of a reference JEE number. After obtaining this number, a candidate has to apply for admission in specific participating CFTIs/ other participating technical institutions quoting this number. This will enable the linkage between the two applications.

10. **CFTI Rank Assignment** - In addition to the marks in the three components, a CFTI Rank will also be provided to each candidate. The rank will be determined by using the following weightages: Board marks – 40%, Main Test – 30%, Advance Test – 30%. Tie breaks will be handled in the following order: a) Board Percentile Rank, b) Main Test marks, c) Advance Test marks, d) marks in the subject with the lowest average marks of the Advance test, e) marks in the subject with the second lowest average marks of the Advance test, and f) marks in the subject with the third lowest average marks of the Advance test.

11. Examples of how the Board marks and the CFTI rank will be computed are given in Appendix V.

12. **Other Participating Institutions** – It would be open to the States and other participating institutions to use the results of JEE and to adopt the same pattern of admission, with appropriate weightage for State Board results, normalized on the basis of percentile formula, which would not be less than 40% (and could go even up to 100%) and the JEE scores for the Main Test. (The Advance Test score could also be added if the Institute so wishes like the CFTIs).

13. **JEE Apex Board:** In order to conduct the examination of a large number of students in an efficient manner, an apex body called JEE Apex Board will be constituted. The Board will have an Executive Director who will be responsible for smooth conduct of the JEE. The details of JEE Apex Board is given in Appendix I.

14. **JEE Academic Group:** The activities of paper setting of MAIN and ADVANCE for JEE 2013 are academic exercises. Hence, a group of specialists primarily from the IITs headed by Convener (Academic) will be constituted. This group is called JEE Academic Group (JAG). The details are given in Appendix II.

15. **JEE Delivery Group:** The delivery processes such as collection of application forms, collection of fees, coordination with zonal offices, delivery of test papers etc will be the responsibility of JEE Delivery Group (JDG). It will be headed by Convener (Examination). The details are given in Appendix III.

16. **JEE Interface Group:** The coordination with school boards, the handling of several legal issues, ensuring strict security of the organization and evaluating the school board performance of students in a normalized manner shall be handled by a group – JEE Interface Group (JIG). The implementation of arriving at the normalized school performance can be coordinated by JEE Interface Group. It will be headed by Convener (Interface). The details are given in Appendix IV.

JEE Apex Board (JAB, in short)

The JAB will be constituted by IIT-NIT Council and will be responsible for the overall policies and statutory responsibilities of conducting of the 2013 examination and declaration of scores as per a schedule to be announced by April / May 2012. The composition of JAB shall be as follows :

An eminent academician	Chairperson
Representative Director(s) of IIT system	Member(s)
Representative Director(s) of NIT system	Member(s)
Representative Director(s) of IIIT system	Member(s)
Chairman CBSE	Member
Chairman AICTE	Member
Representative of MHRD	Member
Convener (Academic) JEE 2013	Member
Convener (Interface) JEE 2013	Member
Convener (Examinations) JEE 2013	Member –
Secretary	

2. The terms of reference of JAB shall be as follows :

2.1 JAB 2013 shall be notified by Ministry of Human Resource Development, Government of India on behalf of Chairman of IIT Council, Chairman of NIT Council and all other such bodies.

2.2 JAB as a body shall meet once in four months for regular meetings. For special or emergency matters, JAB meetings can be convened with the approval of Chairperson JAB.

2.3 JAB will have the final authority for setting up the policies, rules, regulations of conducting the examination JEE 2013.

JEE Interface Group (JIG, in short)

The function of this group is two-fold. First, it will be in dialog with all State and other HSC Boards of the country. Each Board will have to have some coordination with JEE 2013 schedule. It is very critical that the results of each Board are available to JEE 2013 exercise by a predetermined date. This is a major responsibility of each school board. In order to ensure this process, the JIG will create a platform of communication with all Boards and synchronize all the activities. The JIG will ensure that the results of all Boards (HSC examination) are delivered accurately and in time to JEE 2013.

2. The second important aspect of the JIG would be coordinate with all IITs, NITs and IIITs. Faculty members of these institutions have several questions which need to be answered. Issues may come up in terms of operational, academic or financial nature. The policies of JAB should be open, transparent and logical for all to understand and appreciate. The reputation of present JEE system needs to be protected and enhanced further. JIG will ensure that this aspect is carried out as well or even better than the past practices.

Example Board Marks and CFTI Rank Calculations

The percentiles will be calculated by the formula:

$$(c_l + 0.5f_i)/N * 100$$

Where c_l is the count of all scores less than the score of interest, f_i is the frequency of the score of interest, and N is the number of examinees in the sample.

2. Let us assume for a moment that this is the ONLY basis for admission into CFTIs. Let us assume that the total number of students appearing in the Science stream in the country is 20,00,000 (twenty lakhs). Let us further assume that the total number of seats available in the CFTIs is 20,000 (1% of the total number of students). Who will get admission into the CFTIs? Those with a percentile rank of 99 or above will get admission (as all of them will be in the top 1% in their Boards). How many from Board A and how many from the Board B will qualify? It will depend on how many students pass in Science in A and in B. If there are 5,00,000 students who pass in Science in Board A and there are 15,000 students who pass in Board B, then the top 5000 and the top 150 from the two Boards respectively will get admissions. The only point here is that someone may object that the quality of students in Board A are much better than the students in Board B. Here we will have to take recourse to the fact that the sample population in both cases is large enough that the abilities of the proportionate number of students (in the ratio of 100:3) in the two Boards will be the same. This scheme will essentially choose students from each Board in proportion to the number of students passing from each Board.

3. If a Board gives full marks to a large number of students, they will all come "first". But by the second part of the formula, their percentile score will be the "average" of the number who got the same marks. So all the students will get lower percentile marks.

4. Now, to this scheme if we add one or two tests, then what will be the impact on admissions? If all the students doing well in the Board exams

perform almost equally well in the tests, then the test marks will decide the overall ranking, as the top 1% (the top 20,000 students across all the Boards) will be having 99 marks or more in the Board results component. So, the Board results will act as a filter to decide who gets in, similar to the current filter in the JEE system where a minimum of 60% is required to be eligible to be considered. But at the same time it gives someone who is in the top 80,000 a fighting chance to get in as his percentile score will be 96 and he has to make up only 3 marks (or 1.2 marks if Board results have only a 40% weightage) in the tests over the others in the top 20,000. But this student will work hard to get into the top 20,000 as every mark will count in deciding who gets in and who does not. So, while the scheme leaves the field open for those who do not do very well in the Board exams to qualify by making up in the tests, it also requires students to do as well as they can in the Board exams.

5. This scheme is immune to "marks inflation" in Boards, as only the rank in a Board matters, not the absolute marks.

Example:

5.1 Student Alok passes from Board B1 with a percentage of 88%. His rank in B1 is 2000 out of 5,00,000 students who have passed in the Science stream. By the above formula, his Board score will be 99.6001. Alok gets 94 in the main test and 94 in the Advance test. His total score will then be 96.2404 (40% of 99.6001 plus 24% of 94 plus 36% of 94).

5.2 Student Bina passes from Board B2 with a percentage of 90%. Her rank in B2 is 1000 out of 20,000 students who have passed in the Science stream. By the above formula, her Board score will be 95.0025. Bina gets 97 in the main test and 97 in the Advance test. Her total score will then be 96.201 (40% of 95.0025 plus 24% of 97 plus 36% of 97).

5.3 Student Nita passes from Board B3 with a percentage of 75%. Her rank in B3 is 15000 out of 4,00,000 students who have passed in the Science stream. This makes her Board score 96.250125. Nita gets 99 in the main test and 99 in the Advance test. Her total score will then be 97.9005 (40% of 96.250125 plus 24% of 99 plus 36% of 99).

5.4 So Nita is first, followed by Alok, and then followed by Bina. Nita, in spite of not doing so well comparatively in the School Boards, made up by her excellent showing in both the tests. Bina, on the other hand, could not make up her lower Board score by her performances in the tests. Her Board score was lower than Alok's because her rank of 1000 out of 20000 is poorer than Alok's worse rank of 2000 because he is in a Board with a larger number of students, that is 5,00,000. It is the relative rank that matters. The percentage marks obtained by Alok, Bina and Nita have played no role in the final result.

5.5 Finally, Puneet comes first in Board B1 with a percentage of 98%. His Board score is thus 99.9999. But his test scores are 90 in the main and 96 in the Advance. This gives him a total score of 96.15996. In spite of coming first in B1 he is fourth among these four students as his main test result was relatively poor.

Gist of views expressed by the Senates of Seven Older IITs

1 IIT Kharagpur :

- The pride of IIT JEE must be retained.
- IIT Kharagpur is willing to expand the ambit of IIT JEE for use by other Institutions.
- IITs should have complete control of policy decisions and academic related matters of setting question papers, printing of papers, evaluation, and merit list preparation etc.
- Common core syllabus in Physics, Chemistry and Mathematics across the Boards must be ensured.
- A better normalization procedure for different Board Scores may be explored.
- A minimum of two years lead time is necessary for examining the effect of the Board performance on the JEE ranking and the availability of Board result in time.

2. IIT Guwahati :

- The Senate of IIT Guwahati is in broad agreement with the proposal.
- The Senate is of the view that the Main examination should be an aptitude test. It should test for analytical, reasoning and logical skills. The paper should be available in all official languages.
- The Senate is of the view that, due to various reasons, the changes to the existing IIT JEE examination should not be done before 2014.

3. IIT Roorkee :

- Admission to engineering Programme in the Centrally funded Technical Institutes should be made through a two stage

examination process, with effect from the academic session 2013-14.

Stage-I :

- The Stage-I examination would be conducted by the Central Board of Secondary Education in April 2013. It would be an objective answer type of examination in Physics, Chemistry and Mathematics and would carry a weightage of 60%. The remaining 40% weightage would be given to the 12th Board performance as proposed by Gautam Barua.

Stage-II :

- The top 5 percentile of the group of candidates arrived at by adding the normalized score of Stage-I written examination, and the normalized score in the 10+2 examination are to be permitted to appear in the Joint Entrance Examination, which will be jointly conducted by the IITs.
- This examination will consist of a descriptive type of question paper in Physics, Chemistry and Mathematics.
- Since the Board Examination marks will be available only by early June 2013, the JEE examination will be held in early July 2013. The ranks for admission to the IITs will be based only on the performance of a candidate in the JEE examination. The whole process of evaluation and counseling should be completed by early August.
- The semester can start by late August or early September. The Academic Calendar of the IIT system shall accordingly be aligned and modified. The Senate of IIT Roorkee does not see a problem with the shifting of the academic calendar from end July to end August.

4

IIT Madras :

- The Senate favoured a single-day entrance exam consisting of a Main test with MCQ questions in Maths, Physics and Chemistry, and an Advanced **Quantitative** test based on the same subjects.

The latter test will have problems with numerical answers, possibly in multiple parts.

- The Senate recommended two options :

Option-1 (preferred):

- A weighted mark obtained from Board percentile rank (0.4) + Main test marks (0.6) will be used for gating purpose alone. Advanced Quantitative paper marks alone used for ranking the candidates for IIT admission. Only those candidates with the weighted mark higher than the pre-announced MQM will be ranked using the Advanced Quantitative paper marks.

Option-2:

- A weighted mark obtained from Board percentile rank (0.2) + Main test marks (0.4) + Advanced Quantitative test marks (0.4), will be used for ranking candidates for IIT admission.

5. IIT Kanpur :

- The Joint Entrance Examination of IITs should take place in 2013 largely in the same format as has been happening in recent years. Any minor change can be done by the Joint Implementation Committee (JIC) and Joint Admissions Board (JAB), as has been happening from time to time.
- IIT Kanpur desires to have a two-stage process for admission from 2014. It is agreed that in principle, the first stage (screening) could be the common national test, and the second stage should be JEE conducted by IIT system.
 - Chairman, Senate shall appoint a committee which will interface with the group responsible for the common national test. The committee shall provide inputs about what may be tested (for example, aptitude, communication skills, etc., beyond Physics, Chemistry, and Mathematics). This committee shall identify expertise within the Institute and coordinate the contributions of IIT Kanpur towards the common national test.

- The decision of using the common national test as a screening test for JEE will be re-affirmed by Senate in July 2013 based on the feedback by this committee.
- When a two-stage admission process is implemented, JAB should decide the format of the JEE, the number of candidates to be permitted, and other operational details.
- Even when two-stage admission process is implemented, the ranking for the purpose of admission shall be only based on performance in JEE. No weight is to be given to national test and/or board performance in ranking.

6. IIT Delhi :

- The proposed reforms suggested by Ramasami Committee may not serve the purpose of achieving the stated objectives of these reforms.
- **Any changes in admission system to CFTIs including the IITs should be implemented only from 2014.**
- Class XII marks (in absolute percentile form) should be considered only as a **qualifying criterion**.
- There should be a two-tier process for entrance to IITs. The **main examination** will be the first tier, which will serve the purpose of both a qualifying and a screening examination for the second tier, i.e. **advanced examination**. The main examination will be based on Physics, Chemistry, Mathematics and General Aptitude, and may be in MCQ format, so it can be administered to a large number of students nationally.
- The main examination may be held more than once in a year and a candidate's score in this examination should be valid for two years. A candidate can appear for the main examination multiple time and the best of the candidate's performances will be considered.
- The top few percentile students in the merit list of the main examination will be eligible to appear in an advance examination, which may be of a non-MCQ format, in the subjects of Physics, Chemistry and Mathematics. The responsibility of conducting this examination will rest solely with IITs. Admission to the IITs shall be

based on a merit list prepared solely on the basis of the advanced examination. The advanced examination will be conducted only once a year and a candidate will be permitted to take the advanced examination a maximum of two times.

7. IIT Bombay :

- Admission to IITs is proposed to be carried out through a two-stage process. The proposed National Test for entrance to Engineering Institutions will be used as the first stage for the purpose of screening. For the students selected through this stage, IITs will conduct a separate second stage test for admission to IITs.
- The number of candidates selected by the First Stage Test will be about 5 times the total number of available seats in all the IITs.
- Use of National Test for the purpose of screening will require that the merit list and the database of screened candidates are made available to IITs by the end of April.
- IITs can provide the required academic support for the proposed National Test.
- The candidates selected through the First Stage Test will be eligible to appear in the Second Stage Test (JEE) only for that particular academic year, which will be held in May every year.
- The merit list for admission to IITs will be based solely on the performance in the Second Stage Test.
- JEE will be conducted by IITs as a subjective type test based on conceptual understanding, analytical thinking and problem solving abilities. It will consist of separate sessions for Physics, Chemistry and Mathematics.
- Performance in the Board examination will be used only as an eligibility requirement for admission to IITs.
- The scheme should be implemented from 2014 onwards.

Minutes / Resolution of Senates received from seven older IITs

Sl. No.	Name of the Institute	Annexure
1.	IIT Kharagpur	III-A
2.	IIT Guwahati	III-B
3.	IIT Roorkee	III-C
4.	IIT Madras	III-D
5.	IIT Kanpur	III-E
6.	IIT Delhi	III-F
7.	IIT Bombay	III-G

**INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR**

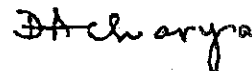
Dated, May 03, 2012

A special senate meeting where all faculty were invitees, was held on 02.05.2012 at 3.00 PM. In Kalidas Auditorium of the Institute. Prof. Gautam Barua, Director, IIT Guwahati was invited to the meeting to help discussion on the single agenda item "To discuss the alternate admission system for Engineering Programmes in India through Joint Entrance Examination". Various issues related to the JEE for admission to all Engineering Institutions were discussed. The following resolutions were taken:

1. The pride of IIT JEE must be retained.
2. IIT Kharagpur is willing to expand the ambit of IIT JEE for use by other Institutions.
3. IITs should have complete control of policy decisions and academic related matters of setting question papers, printing of papers, evaluation, and merit list preparation etc.
4. Common core syllabus in Physics, Chemistry and Mathematics across the Boards must be ensured.
5. A better normalization procedure for different Board Scores may be explored.
6. A minimum of two years lead time is necessary for examining the effect of the Board performance on the JEE ranking and the availability of Board result in time.



(T. K. Ghosal)
Registrar(Offg.) and
Secretary, Senate



(D. Acharya)
Director and
Chairman, Senate

No.DIR/IITR/
4th May, 2012

Dear Shri Sahay,

Kindly refer to your letter D.O. No.F.21-3/2012-TS.1 dated 3rd May, 2012 regarding Lok Sabha Starred Question No. 472 : Common Entrance Examination. We are sending the information as discussed in faculty meeting and finally accepted by the Senate.

Abstract from the Urgent Meeting of the Senate on 28th April, 2012.

The Chairman (Director) provided a briefing on the proposal from MHRD for a Common Entrance Examination for Admission to Engineering Programmes in the Centrally Funded Technical Institutes (CFTIs), in the light of the recommendations of the Ramasami Committee, and gave a brief overview of the discussions held in the Institute Faculty Meeting held on 23rd April, 2012. After significant discussion on the proposal, the Senate decided as under:

- (1) Admissions to Engineering Programme in the Centrally Funded Technical Institutes should be made through a two stage examination process, with effect from the academic session 2013-14.
- (2) Stage-I: The Stage-I examination would be conducted by the Central Board of Secondary Education in April 2013. It would be an objective answer type of examination in Physics, Chemistry and Mathematics and would carry a weightage of 60%. The remaining 40% weightage would be given to the 12th Board performance as proposed by Gautam Barua.

Stage-II: The top 5 percentile of the group of candidates arrived at by adding the normalised score of Stage-I written examination, and the normalised score in the 10+2 examination as detailed in Para (2) above, are to be permitted to appear in the Joint Entrance Examination, which will be jointly conducted by the IITs. This examination will consist of a descriptive type of question paper in Physics, Chemistry and Mathematics. Since the Board Examination marks will be available only by early June 2013, the JEE examination will be held in early July 2013. The ranks for admission to the IITs will be based only on the performance of a candidate in the JEE examination. The whole process of evaluation and counselling should be completed by early August. The semester can start by late August or early September. The Academic Calendar of the IIT system shall accordingly be aligned and modified. The Senate of IIT Roorkee does not see a problem with the shifting of the academic calendar from end July to end August

I hope this is in order and look forward to meeting you on 12th May, 2012 in the IIT Council Meeting.

With kind regards,

Yours sincerely,

(Pradipta Banerji)
Director, IIT Roorkee

Shri R.D. Sahay
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Govt. of India
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INDIAN INSTITUTE OF TECHNOLOGY MADRAS

Extract from the minutes of the 254th meeting of the Special Senate held on 03.05.2012

The 254th meeting of the Special Senate was held at 3.00 p.m. on 03.05.2012 at the Central Lecture Theatre. The extract from the minutes of this meeting pertaining to the proposal for the new JEE based single examination is furnished below:

Proposal for the New JEE based on a Single Examination

The Senate of IIT Madras deliberated the proposal for the new JEE based on a single examination. The Senate favoured a single-day entrance examination consisting of a Main test with MCQ questions in Mathematics, Physics and Chemistry, and an Advanced *Quantitative* test based on the same subjects. The latter test will have problems with numerical answers, possibly in multiple parts. The answers will be entered by the candidates on a machine-readable form.

The Senate recommended two options as described below for ranking the candidates for admission to the IITs. Of the two, Option 1 is the preferred option of IIT Madras. In Option 1, the concept of *gating* is introduced. All candidates with weighted marks above a pre-announced (at the time the examination brochure is released) Minimum Qualifying Mark (MQM) will be considered for ranking using the marks obtained in the Advanced Quantitative paper. In Option 2, a weighted mark obtained from Board percentile rank, Main test marks and Advanced Quantitative test marks will be used for ranking.

The weights recommended by the Senate for the three components, namely, Board percentile rank, Main marks, and Advanced Quantitative marks, are given in the brackets.

Option-1 (preferred):

A weighted mark obtained from Board percentile rank (0.4) + Main test marks (0.6) will be used for gating purpose alone. Advanced Quantitative paper marks alone used for ranking the candidates for IIT admission. Only those candidates with the weighted mark higher than the pre-announced MQM will be ranked using the Advanced Quantitative paper marks.

Option-2:

A weighted mark obtained from Board percentile rank (0.2) + Main test marks (0.4) + Advanced Quantitative test marks (0.4), will be used for ranking candidates for IIT admission.

(PROF. BHASKAR RAMAMURTHI)
Director and Chairman, Senate

IIT KANPUR :

After detailed discussions, the Senate expressed that the following views concerning the proposal of a common national test and JEE be forwarded to IIT Council.

1. The Joint Entrance Examination of IITs should take place in 2013 largely in the same format as has been happening in recent years. Any minor change can be done by the Joint Implementation Committee (JIC) and Joint Admissions Board (JAB), as has been happening from time to time.
2. The eligibility for JEE-2013 should continue to be 60 percent and 55 percent, depending on the category of the student, for those who gave 12th class examination in 2012 so that they are not affected in any way by the change. However, those students who will appear for the Board Examination in 2013, the eligibility for appearing in JEE may be decided on percentile terms. Final decision about the issue of considering the Board performance in percentile form should be taken by JAB.
3. IIT Kanpur desires to have a two-stage process for admission from 2014. It is agreed that in principle, the first stage (screening) could be the common national test, and the second stage should be JEE conducted by IIT system.
 - (i) Chairman, Senate shall appoint a committee which will interface with the group responsible for the common national test. The committee shall provide inputs about what may be tested (for example, aptitude, communication skills, etc., beyond Physics, Chemistry, and Mathematics). This committee shall identify expertise within the Institute and coordinate the contributions of IIT Kanpur towards the common national test
 - (ii) The decision of using the common national test as a screening test for JEE will be re-affirmed by Senate in July 2013 based on the feedback by this committee.
4. When a two-stage admission process is implemented, JAB should decide the format of the JEE, the number of candidates to be permitted, and other operational details.
5. Even when two-stage admission process is implemented, the ranking for the purpose of admission shall be only based on performance in JEE. No weight is to be given to national test and/or board performance in ranking.
6. IIT Kanpur would be willing to provide necessary help and expertise, primarily in academic matters, to develop a high quality national test in the country.

IIT DELHI

Minutes of the Senate -Special/1 meeting held on 2/5/2012 in the Seminar Hall

Present :

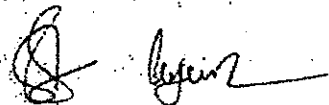
The names of the members who attended the meeting are given at Appendix A.

The Chairman, Senate welcomed all the senate members, special invitees and faculty members to the special meeting of the Senate.

Item No.1: To consider and discuss the new Education System for the Engineering Institutions including IITs.

The Chairman, Senate gave a brief background for convening the special meeting of the Senate. He informed the Senate that a meeting of All IITs Faculty Federation with Hon'ble Minister for Human Resource Development was held on 11th April, 2012 at Vigyan Bhawan where it was decided to refer the matter related to proposed reforms in the admission system to IITs to the Senates of all IITs. It was also decided there that the views of the Senates will be considered by IIT Council (scheduled to meet on 12th May, 2012).

The meeting started with a detailed presentations on the issue by Prof. Sanjeev Sanghi representing the Faculty Forum and Prof. M. Balakrishnan on behalf of a committee constituted earlier by the Director on the issue.



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After detailed deliberations, there was a unanimous agreement on the following:-

- a) The proposed reforms suggested by Ramasami Committee may not serve the purpose of achieving the stated objectives of these reforms, i.e. alleviation of multiple entrance exams related stress on students, restoration of the foundation of school education system and reducing the influence of the coaching institutions.
- b) Students writing class XII exam in 2012 are not aware of the likely policy changes in the admission system to CFTIs and many of them will take entrance exam for IITs in 2013. As such any significant change in the existing advanced system for IITs, including giving weightage in percentile form to class XII marks, would be unfair to them. Further the policy changes should be implemented only after a thorough scientific analysis of related information such as statistics from various State Boards etc. As such any changes in admission system to CFTIs including the IITs should be implemented only from 2014.
- c) Class XII marks (in absolute percentile form) should be considered only as a qualifying criterion. Even now these marks are used as a qualifying requirement for admission to IITs, i.e. a 60% threshold is in place. This threshold can be raised, after careful statistically validated analysis, so that a

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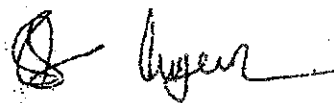
viable admission process to the IITs can be formulated, without undercutting the importance that should be accorded to the Class XII examination. The Class XII examination performance should, however, not be given any weightage while preparing the merit list of students for admission to IITs, for a variety of reasons, academic as well as practical.

d) There should be a two-tier process for entrance to IITs. The main examination (in the proposed reforms) will be the first tier, which will serve the purpose of both a qualifying and a screening examination for the second tier, i.e., advanced examination (as per proposed reforms).

The main examination will be based on Physics, Chemistry, Mathematics and General Aptitude, and may be in MCQ format, so it can be administered to a large number of students nationally.

e) The main examination may be held more than once in a year and a candidate's score in this examination should be valid for two years. A candidate can appear for the main examination multiple times and the best of the candidate's performances will be considered.

f) The top few percentile students (such that the number of qualifying candidates be 5-10 times the number of seats in all IITs) in the merit list of the main examination will be eligible to appear in an advanced examination, which may be of a non-MCQ format, in the subjects of Physics, Chemistry and Mathematics. The responsibility of conducting this examination will rest solely with IITs, as it does in the present IIT JEE. Admission to the IITs shall



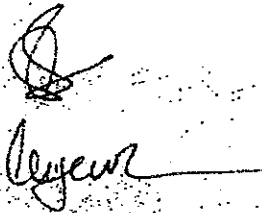
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be based on a merit list prepared solely on the basis of the advanced examination.

The advanced examination will be conducted only once a year and a candidate will be permitted to take the advanced examination a maximum of two times.

The Chairman, Senate was authorized to convey the views of the Senate to the IT Council.

The meeting ended with a vote of thanks to the chair.

A handwritten signature in cursive script, appearing to read "Seymour", written in dark ink.

Indian Institute of Technology Bombay

**Report of the Senate Subcommittee on UG Entrance
(03 May 2012)**

A Senate Subcommittee was constituted by the Chairman, Senate to look at the future model of UG entrance to IITs in view of the Ramasami Committee report and to prepare a report by 30th April 2012, for presentation to the Senate for discussion and for eventually forwarding the view of the Senate to MHRD. The committee members are

Prof. C. V. Tomy, Physics
Prof. K. Narasimhan, MeMS
Prof. A. V. Mahajan, Physics
Prof. Avijit Chatterjee, Aerospace
Prof. Anil Kumar, Chemistry
Prof. S. S. Major, Physics
Prof. A. K. Pani, Mathematics
Prof. D. K. Sharma, Electrical Engg. Dept
Associate Dean AP
Dean AP (Convener)

The Subcommittee held its first meeting on 18th April. After going through the inputs received from the faculty members and the various documents related to the recent proposals on UG admissions, an interim report was prepared, circulated and discussed in IFM. After further deliberations in subsequent four meetings, the recommendations were finalized on 30th April 2012.

Recommendations for UG Entrance to IITs

Admission to IITs is proposed to be carried out through a two-stage process. The proposed National Test for entrance to Engineering Institutions will be used as the first stage for the purpose of screening. For the students selected through this stage, IITs will conduct a separate second stage test for admission to IITs. All eligible students, including, diploma holders and foreign students will go through the same admission process.

A. The First Stage Test

1. The number of candidates selected by the First Stage Test will be about 5 times the total number of available seats in all the IITs.
2. Use of National Test for the purpose of screening will require that the merit list and the database of screened candidates are made available to IITs by the end of April.
3. IITs can provide the required academic support for the proposed National Test.

B. The Second Stage Test - JEE

1. The candidates selected through the First Stage Test will be eligible to appear in the Second Stage Test (JEE) only for that particular academic year, which will be held in May every year.
2. The merit list for admission to IITs will be based solely on the performance in the Second Stage Test.
3. JEE will be conducted by IITs as a subjective type test based on conceptual understanding, analytical thinking and problem solving abilities. It will consist of separate sessions for Physics, Chemistry and Mathematics.

C. Role of Class XII Board Performance in Admission

1. Performance in the Board examination will be used only as an eligibility requirement for admission to IITs.
2. At present, we do not consider it feasible to give weightage to Board performance in the preparation of merit list for admission. This may be reviewed and considered at a later stage.

D. Year of Implementation

Given the changes being proposed in the examination style, the scheme should be implemented from 2014 onwards.

Explanation

1. Preamble

MHRD's concern on multiplicity of entrance examinations for engineering institutions, increasing stress on aspiring students, neglect of school education system and growing dependence on coaching are genuine and timely. It is also heartening to see that efforts are being made to find solutions to these problems, with a national perspective in mind. Though it is not stated explicitly, there is a feeling in certain quarters that the above problems are rooted primarily in the present structure of JEE. This is debatable. Only about 10% of class XII students who appear for JEE cannot be held responsible for all the ills of the school education system. However, this perception has gained credence, especially due to the large increase in JEE aspirants during the last 5-6 years (~500 %), to the current level of over 5 lakhs. Given that there are only 10,000 or so seats available in IITs, this implies a disproportionately large aspiration ratio of 50:1. Many of these aspirants, mostly from urban and semi-urban centres, are engaged in high intensity JEE coaching in various parts of the country at exorbitantly high costs and they visibly appear to neglect school education. It is also felt among certain sections of IIT faculty, that there is a perceptible degradation in the academic quality of students selected through the present JEE system. It is, therefore imperative that IITs take note of these issues and proactively participate in arriving at a workable solution.

At the outset, it may be mentioned that the solution to above problems needs to be two-fold.

- i) IITs being premium educational institutions of the country must be able to select the best available talent in the country.
- ii) The large number of students (currently about five lakhs) competing for the 10,000 IIT seats should be reduced to a much smaller number. This will enable the other students to realize their true potential through alternative endeavours.

2. Feedback on the MHRD Model

2.1 A Common Single Stage Test for IITs and Other CFTIs

Although it is agreed that the ever increasing multiplicity of engineering entrance tests is becoming a national menace, it may be too stressful for all the students of the country, coming from diverse backgrounds, to undergo a 'single' test for admission to nearly all the reputed engineering institutions. Incidental poor performance or a medical problem on a particular day or just an 'off day' can adversely affect the student's prospects for his/her whole life and career. Choice of a few (3-4) entrance tests for differently staked groups of engineering institutions is, therefore, more desirable to give back-up choices to the students.

2.2 Weightage to Class XII Board Performance in Admission

The spirit behind giving weightage to the Board performance of students is to be appreciated. The difficulty in its implementation is the heterogeneity in syllabus, instructions and evaluation process in various Boards in the country which makes normalization across the Boards infeasible. A hasty implementation is likely to have the following negative implications.

- (i) Giving weightage to Board performance for an admission process with high stakes may make the Board exams highly vulnerable to unfair practices, including impersonation, which may not be easy to control with their limited resources.

- (ii) It will encourage proliferation of 'integrated coaching schools' in urban centres, starting as early as class 6-7 level and demanding exorbitantly high fees. This development will not only be further detrimental to the quality of basic school education but will also result in strong negation of inclusivity on all counts.
- (iii) In case a normalization formula is implemented, its procedural viability and legal tenability will be subjected to a stern test, owing to the high stakes in IIT admission. There is a potential danger that due to these procedural reasons, the complete engineering admission process of the country can become chaotic or may even be brought to a halt due to litigations.

3. Justification of the IITB Model

Admission to IITs is proposed to be carried out through a two-stage process. The first stage will facilitate the selection of about 50,000 JEE aspirants who will prepare for the second and final stage JEE. These 50,000 screened candidates will get at least one month or so after Board examinations to prepare for the second stage JEE.

3.1. First Stage Test

A national level test is being proposed for CFTI's. IITs will be happy to provide academic support for this. IITs will use it as their screening test subject to the availability of its results by the end of April.

3.2. Second Stage Test - JEE

The second stage subjective test (JEE) for 50,000 candidates will be conducted by IITs to evaluate the depth of conceptual understanding, analytical thinking and problem solving abilities, and hence, their aptitude and potential for academic engagement at the frontiers of science and technology. It is important to limit the examinees to a reasonable number, so that the conduct of this important stage of IIT entrance examination and its evaluation process can be carried out with diligence and uniformity, given the constraints of available human resources and time.

3.3. Role of Class XII Board Performance

- Performance in board examination will be used as an eligibility requirement for admission to IITs.
- At present, IITs do not consider that it is feasible to give weightage to Board performance in the preparation of merit list for admission. This may be reviewed and considered at a later stage.

3.4. Year of Implementation

Given the changes being proposed in the examination style, IITs will need time for extensive preparation for adopting the new procedure for pre-selection and for the final subjective test. The students also need due notice to prepare for this exam. In view of this, it may not be possible to implement this scheme from 2013. We recommend that the scheme be implemented from 2014.