



## **AGENDA**

**Thirty third (33<sup>rd</sup>) Meeting of SENATE of**

**Indraprastha Institute of Information Technology Delhi**

**Date: 5<sup>th</sup> August, 2016**

**Day: Friday**

**Time: 03.00 PM**

**Venue: Senate Room, B-wing, 5<sup>th</sup> Floor,  
R&D Building, IIT-D Campus,  
Okhla Industrial Estate, Phase-III,  
New Delhi-110020**

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**THIRTY THIRD (33<sup>RD</sup>) MEETING OF SENATE OF IIT-DELHI**  
**AGENDA**

**GENERAL**

**33.1 Opening remarks of the Chairman, Senate**

**33.2 Confirmation of minutes of the 32<sup>nd</sup> meeting of the Senate held on 30.03.2016.**

The minutes of the 32nd meeting of the Senate held on 30.03.2016, placed at [Annexure-I](#), were circulated among the members. No comments have been received so far. The Senate may consider the same for confirmation.

**33.3 To consider nomination of new Senate Members**

The Board of Governors at its 32<sup>nd</sup> meeting held on 14.4.2016, vide item no. 32.8.4, has approved the following composition of the Senate:

- “1. Senate shall consist of no less than 20 and no more than 40 members.  
2. At least half of the members will be full time faculty members of the Institute, and at least one fourth will be members who are not faculty of the Institute.  
3. It will comprise of persons, in the following categories:
- a) The Director, who shall be the Chairman of the Senate
  - b) Academic functionaries of the Institute
  - c) Faculty members from the Institute.
  - d) Academicians from other institutions like IITs / IIITs.
  - e) Experts from Companies or Labs
  - f) Alumni of the institute
  - g) Student representatives (at least two) as special invitees for meetings where students’ inputs are desirable.
  - h) The Registrar as non-voting Secretary of the Senate.
  - i) The senate can also co-opt other members for limited term, or for some meetings where special issues are being discussed.”
4. The quorum for passing resolutions in the Senate will be one-third of the voting members  
5. Tenure of each nominated member shall be 2 years, 50% of which will be changed every year. The retiring member can be re-nominated.  
6. Members in each category shall be nominated by the existing Senate.  
7. The number of members from each category will be decided by the Board. The composition decided will be subject to review every 5years.”

Senate is requested to kindly nominate new members on the Senate for the next term.

**33.4 To consider End of Semester Summary Report (Winter 2016)**

A summary of various activities of academics undertaken in previous semester (Winter 2016 ) including performance of UG/PG/Ph.D. given in [Annexure-II](#) is placed before the Senate for consideration / information.

**33.5 Approval of Academic Calendar for Monsoon Semester 2016**

A copy of the Academic Calendar for Monsoon Semester 2016 is placed at [Annexure-III](#) for approval.

**33.6 Approval from AICTE**

The Institute has received approval for extension of existing programs for the Academic year 2016-17. However, the approval for new programs (1 UG + 2 PG) is awaited.

**33.7 Approval from NBA for Accreditation of PG programs**

The Institute has applied to NBA for accreditation of two PG programs viz. M.Tech.(CSE) and M.Tech.(ECE) and the application is under process.

**33.8 Discussion regarding holding of 5<sup>th</sup> Convocation on 27.8.2016**

Chairman, Senate will apprise the members about the convocation related issues at the time of meeting.

**33.9 Tentative list of students likely to graduate in 2016**

A tentative list of students who completed graduation requirement till May 21, 2016 will be placed on the table.

**33.10 To consider recommendation for various Awards/Medals for the year 2016**

The recommendations are awaited and will be placed on the table.

**33.11 To consider a proposal to institute yearly award to recognize the achievements of graduating students.**

As our student population increases, and as they show achievements in a variety of ways, we need a framework which can recognize more achievements of our students. Currently we have "best" type framework - which is too restrictive and competitive. Broader-based recognitions can be used to respect and recognize the achievements, and also for student motivation.

Therefore, with a view to recognize about top 5-10% of our students for various contributions or achievements, it is proposed to institute yearly award for rewarding students with outstanding performance as per note placed at [Annexure-IV](#)

Senate may kindly consider the above proposal and make appropriate recommendation.

**33.12 To report the students whose names have been struck off from the rolls of the institute in AY2015-16**

The names of the following students have been struck off from the rolls of the institute on account of the reasons mentioned against their names:

Sl.	Roll No.	Program	Name	Reason for leave	With effect from
<b>PhD</b>					
1	PhD15007	PhD(CSE)	Mamta Kumar	Resigned	04.09.2015
2	PhD15111	PhD(ECE)	Mr. Vipin Kumar	Resigned	30.04.2016
3	PhD14112	PhD(ECE)	Mr. Rahul Bajpai	Registration terminated due to poor performance in yearly review	01.08.2016
<b>BTech</b>					
4	2014167	BTech(ECE)	Tanuj Singh Maan	Stopped Attending	28 Oct 2015
5	2014172	BTech(ECE)	Yashank Kumar	Stopped Attending	28 Oct 2015
6	2014135	BTech(ECE)	Aneesh Kala	Stopped Attending	28 Oct 2015
7	2014161	BTech(ECE)	Shivam Kumar	Stopped Attending	28 Oct 2015
8	2014010	BTech(CSE)	Akshit Singh	Stopped Attending	20 Jan 2016
9	2013049	BTech(CSE)	Karlapurdi Nikhil Raj	Stopped Attending	20 Jan 2016
10	2015176	BTech(ECE)	Shiv Soorma	Withdrawal	2 Feb 2016
11	2015191	BTech(ECE)	Vinay Kumar Yadav	Stopped attending	1 March 2016
12	2015173	BTech(ECE)	Saurabh Gupta	Stopped attending	1 March 2016
13	2015166	BTech(ECE)	Sachin Kumar	Stopped attending	1 March 2016
14	2015035	BTech(CSE)	Harsh Ramdasani	Stopped attending	1 March 2016
15	2013034	BTech(CSE)	Divyanshu Sharma	Withdrawal	26 May 2016
16	2015123	BTech(ECE)	Aditya Atri	Withdrawal	12 July 2016

### 33.13 To report the new courses approved during the last year

A list of new courses approved during Academic year 2015-16 is as under:

Stream	Course Name	Credits
BIO	Systems and Synthetic Biology	4
BIO	Data Sciences for Genomics	4
CSE	Software Defined Networking	4
ECE	Solid State Devices	2
ECE	Algorithms to Architecture	2
ECE	Mobile Communication	4
ECE	Computer Architecture and Operating Systems	4
HSS	IT & Governance	4
HSS	Introduction to Poetry	2
MTH	Introduction to Functional Analysis	4
MTH	Topics in Applied Mathematics	4
COM	Scientific Communication	2
BIO	Molecular Mechanics and Biological Physics/Biosimulations	4
BIO	Foundations of Modern Biology	4
CSE	Modern Algorithm Design	4
CSE	Advanced Networks	4
CSE/ECE	Smart Sensing for Internet of Things	4
CSE	Introduction to Spatial Computing	4
CSE	Object Oriented Programming & Design	2
ECE	Communication Networks	4
ECE	Multimedia Compression	2
ECE	Radar Systems	4
HSS	Philosophy of Religion	4
MGT	Effective Supply Chain Management for E-Commerce Businesses	4

### 33.14 To report the release of the UG/PG Regulations and Handbooks

Based on the approval/decisions of the Senate the changes have been incorporated in the following UG/PG regulations and the same are being released for placing on the website:

- Regulations for BTech.Programs
- Regulations for BTech (CSE)
- Regulations for BTech (ECE)
- Regulations for BTech (CSAM)
- Regulations for Dual Degree programs
- Regulations for MTech./Ph.D. Programs
- Regulations for MTech (CSE)

- Regulations for MTech (ECE)
- Regulations for MTech (CB)
- Student Handbook
- MTech Student Handbook
- PhD Student Handbook

Senate may kindly approve the release of above Regulations and Handbooks.

**33.15 To report analysis of performance of students based on data from previous semester**

A summary of analysis of performance of students will be placed on table

**33.16 To consider revision of fee for Indian students registering as a Visiting student a IIIT Delhi**

Senate at its 26<sup>th</sup> meeting held on 25.6.2014, vide item no.26.38, had ratified the guidelines for visiting students, approved by the Director (placed at **Annexure**). Para 3 of the said guidelines provides for the amount of fee to be paid by Indian students registering as Visiting student. It is mentioned that during the last two years there has been upward revision of tuition fee for the regular students of the institute registered at the same level. Hence, it is considered appropriate to revise the fee payable by Visiting student at par with regular students. Accordingly, para 3 of the guidelines is proposed to be revised as under:

<b>Existing provision</b>	<b>Proposed revision</b>
<p><b>Indian national:</b> (i) Fee of Rs.3500/- per credit. A project of 6 months duration will be considered equivalent to 12 credits. The fee for a 6 months project will be charged Rs.42,000/- (to be charged on pro-rata basis); (ii) Security Rs.5000/- (refundable).</p>	<p><b>Indian national:</b> Indian national registered as visiting student will be required to pay an amount equivalent to semester fee at par with regular Indian students. The semester fee for a given semester is for 16 credits. In case registration is required for lesser credits, the fee would be charged on pro-rata basis. A project of 6 months duration will be considered equivalent to 12 credits. A project of lesser duration will be charged on pro-rata basis. (ii) Security deposit Rs.5000/- (refundable).</p>

Senate is requested to kindly consider and approve the above proposal.

## UG ISSUES

### **33.17 To report status of B.Tech. admission for Academic year 2016-17**

Status of B.Tech. admissions made for the academic year 2016-17 through (i) JAC and (ii) DASA; a summary of admissions made will be placed on the table.

### **33.18 To report Branch transfer from B.Tech. ECE to CSE and vice versa**

Based on Merit following students of BTech 2015 batch of have been transferred from ECE to CSE

- 1) Abhinav Khattar - 2015120
- 2) Akhil Goel - 2015126
- 3) Radhika Ghosal -2015160
- 4) Sarthak Jindal - 2015169
- 5) Sarthika Dhawan - 2015170
- 6) Shreyans Mongia - 2015178
- 7) Tushar Kataria - 2015184
- 8) Vanshit Gupta - 2015186

### **33.19 To consider a proposal for making changes in the existing rules for Branch transfer of BTech. Students**

The Senate at its 21<sup>st</sup> meeting held on 13.2.2013 had initially approved the rules for Branch transfer for B.Tech. students from ECE to CSE and vice- versa. Thereafter, the UGC further reviewed the existing eligibility requirement and suggested the revised criteria for branch transfer which was approved by the Senate at its 26<sup>th</sup> meeting held on 25<sup>th</sup> June, 2014. Subsequently, at its 29<sup>th</sup> meeting held on 21.4.2015 and 30<sup>th</sup> meeting held on 18.8.2015 the Senate further made some minor changes and provided clarification.

*Thus the Current Regulation for Branch change is as follows:*

“Branch transfer from CSE to ECE or ECE to CSE is possible only after the grades of the second semester are out. A student must make an explicit request to be considered for branch transfer. Rules for branch transfer are:

- The total number of students permitted branch transfer is limited to the extent of 10% of the existing strength (as on July 1st) in any discipline excluding the repeaters.
- To be eligible for transfer from ECE to CSE: a B- or better grade in DSA and IP and no F in the entire first year.

- To be eligible for transfer from CSE to ECE: a B- or better grade in DC, Basic Electronics, Math1 and PS (Math2), and no F in the entire first year.
- The students eligible for branch transfer will be ordered in a priority list based on CGPA, and will be granted transfer in order as long as the rule about strength given above is not violated.”

With the addition of a new branch, Computer Science and Applied Mathematics (CSAM), the existing rule has been further reviewed and *it is proposed to change the regulations for branch change to:*

Transfer of B.Tech. students from one program to the other is possible only after the grades of the second semester are out. A student must make an explicit request to be considered for program transfer. In his/her request, the student can mention more than one program in the order of preference. Rules for program transfer are:

- Students must have passed all credits specified for the first two semesters of the B.Tech. program. Credits passed in the summer term will not count for the purpose.
- To be eligible for transfer to Computer Science and Engineering (CSE) program, a student must have received a B- or better grade in both CSE courses of the first year, namely, Introduction to Programming, and Data Structures and Algorithms.
- To be eligible for transfer to Electronics and Communication Engineering (ECE) program, a student must have received a B- or better grade in both ECE courses as well as both Mathematics courses of the first year, namely, Digital Circuits, Basic Electronics, Maths 1, and Maths 2.
- To be eligible for transfer to Computer Science and Applied Mathematics (CSAM) program, a student must have received a B- or better grade in both CSE courses as well as both Mathematics courses of the first year, namely, Introduction to Programming, Data Structures and Algorithms, Maths 1 and Maths 2.
- The students eligible for program transfer will be ordered in a priority list based on CGPA, and will be granted transfer in order as long as the strength of each program does not violate the following limits.
- The initial strength of a program will be the number of students enrolled in the program as on July 1st, not counting those who are repeating the first year. The final strength of any program shall not reduce by more than 10% of its initial strength. Also, the final strength of any program shall not increase by more than 10% of its initial strength.

Senate may kindly consider and approve the above changes in the branch transfer regulation.

### **33.20 To consider a proposal to revise the rules for grant of Semester leave**

Our existing BTech Regulation 7.3 (2) dealing with Semester leave provides as under:

“A student may be allowed to take semester leave, with permission, on account of exchange program or medical reasons. (No fee refund is admissible if the student has registered for the semester which is converted to a semester leave later.) Usually, a student shall not be permitted more than two semester leaves in the entire program. Any circumstances leading to more than two semester leave/drop may result in automatic termination of the program (like any termination, the student may appeal.)”

The above rule is too restrictive as it permits semester leave only for medical reason or an academic reason for a maximum period up to two semesters. Considering the requests/cases received in the past the existing rule has been reviewed and it is proposed to revise the above regulation as under:

“A student may be allowed to take semester leave, with permission, for any valid reason, as determined by UGC, including but not limited to ill health, internships, entrepreneurship, family requirements, etc. (No fee refund is admissible if the student has registered for the semester which is converted to a semester leave later.) A student shall not be permitted more than four semester leaves in the entire program. Any circumstances leading to more than four semester leave/drop may result in automatic termination of the program.”

Senate may kindly consider and approve the above proposal.

### **33.21 Recommendation / Report by UGC:**

#### **(i) To consider a proposal to add new members on the UG Committee**

The Senate at its 31<sup>st</sup> meeting held on 1<sup>st</sup> December,2015, had agreed to the recommendation of the UGC after making some minor changes and reconstituted the UG Committee as under:

1. Chair, UGC - Chairperson
2. DOAA
3. Past UGC Chair
4. PGC Chair
5. UG - CSE Coordinator
6. UG- ECE Coordinator
7. Non –CSE/ECE member (currently Prof. Samaresh Chatterji)
8. Students’ Representative (UG-CSE)
9. Students’ Representative (UG-ECE)  
Ms. Sheetu Ahuja- Standing Special Invitee

Ms. Anshu Dureja- Secretary

Chairperson, UG committee has recommended and proposed to add the following additional members on the above UGC:

- UG -CSAM Coordinator
- Prof. KK Biswas
- Dr. Amrit Srinivasan

Senate may kindly consider and approve the above recommendation.

### **M.TECH. ISSUES**

#### **33.22 To report status of M.Tech. admission for Academic year 2016-17**

The details of admissions made to M.Tech. programs for the Academic year 2016-17 are as under:

<b>Programme</b>	<b>Seats</b>	<b>Admission</b>	<b>Current Status</b>
<b>CSE</b>	<b>80</b>	<b>65</b>	<b>61</b>
<b>ECE</b>	<b>60</b>	<b>40</b>	<b>39</b>
<b>CB</b>	<b>20</b>	<b>9</b>	<b>9</b>
<b>Total</b>	<b>160</b>	<b>114</b>	<b>109</b>

#### **33.23 Recommendation / Report by PGC**

## Ph.D ISSUES

### 33.24 To report status of Ph.D. Admissions for Academic year 2016-17

#### Under rolling admission:

Sl. No.	Roll No.	Program/ Discipline	Joining Date	Name	Migrated from
1	PhD16101	ECE	01.07.2016	Shalin Verma	
2	PhD16102	ECE	01.07.2016	Vijay Sharma	
3	PhD16103	ECE	01.08.2016	Himani Joshi	<b>MTech</b>
4	PhD16111	ECE	01.08.2016	Garima Gupta	
5	PhD16114	ECE	01.08.2016	Monika Jain	
6	PhD16004	CSE	01.07.2016	Rahul Gangopadhyay	
7	PhD16005	CSE	08.07.2016	Mayank Malhotra	

#### Under Regular admission:

Sl. No.	Roll No.	Program/ Discipline	Joining Date	Name
1	PhD16104	ECE	01.08.2016	Bhawna Tiwari
2	PhD16105	ECE	01.08.2016	Nishtha
3	PhD16106	ECE	01.08.2016	Akansha Farswan
4	PhD16107	ECE	01.08.2016	Mohd Hamza Naim Shaikh
5	PhD16108	ECE	01.08.2016	Antra Saxena
6	PhD16109	ECE	01.08.2016	Shelly Garg

7	PhD16110	ECE	01.08.2016	Sachin Kumar Yadav
8	PhD16112	ECE	01.08.2016	Priyanka Pandey
9	PhD16113	ECE	01.08.2016	Rizwana Ahmad
10	PhD16001	CSE	01.06.2016	Ramneek Kaur
11	PhD16002	CSE	01.06.2016	Piyush Kumar
12	PhD16003	CSE	01.07.2016	Vibhanshu
13	PhD16301	Mathematics	01.06.2016	Harshdeep Singh
14	PhD16302	Mathematics	01.06.2016	Ritika Gulati
15	PhD15019	CSE	02.05.2016	Jyoti

**33.25 To consider the details and summary of PhD students review held in July 2016**

Annual review of Ph.D. students is still in process. A summary of Ph.D. students' review will be placed before the next meeting of the Senate.

**33.26 To report transfer of credits of Mr.Rahul Gangopadhyay from IIT Guwahati**

Status of credit transfer will be placed on the table.

**33.27 Any other item with permission of the Chair.**



**Minutes of the 32nd Senate meeting of IIIT-D held on 30<sup>th</sup> March, 2016 at 03.30PM in the Senate Room, B-wing, R&D Building, Okhla Industrial Estate, Phase-III, New Delhi-110020**

*Following members were present:*

- |                            |                               |
|----------------------------|-------------------------------|
| • Prof. Pankaj Jalote      | - Chairman                    |
| • Dr. Kaushik Saha         | - External Member             |
| • Prof. Dheeraj Sanghi     | - Ex-Officio Internal Member  |
| • Prof. G.S. Visweswaran   | - Ex-Officio Internal Member  |
| • Dr. Vinayak Nayak        | - Ex-Officio Internal Member  |
| • Dr. Anubha Gupta         | - Ex-Officio Internal Member  |
| • Dr. Angshul Majumdar     | - Internal Member             |
| • Mohd. S. Hashmi          | - Internal Member             |
| • Dr. Sujay Deb            | - Internal Member             |
| • Mr. Ashwani Kumar Kansal | - Secretary                   |
| • Ms. Shreya Singh         | - UG Students' Representative |

*Special Invitees:*

- |                            |                      |
|----------------------------|----------------------|
| • Dr. Pushpendra Singh     | - Faculty-IIITD      |
| • Prof. Anand Srivastava   | - Faculty-IIITD      |
| • Dr. Anuradha Sharma      | - Faculty-IITD       |
| • Dr. Rajiv Raman          | - Faculty-IIITD      |
| • Prof. Samaresh Chatterji | - Faculty-IIITD      |
| • Dr. Puneet Goyal         | - Faculty-IIITD      |
| • Mr. K.P. Singh           | - Incharge, Academic |
| • Ms. Sheetu Ahuja         | - AM -Academics      |
| • Mr. Ashutosh Brahma      | - JM (Academic)      |
| • Ms. Anshu Dureja         | - JM (Academic)      |
| • Ms. Priti Patel          | - JM (Academic)      |

**THITYY SECOND (32<sup>nd</sup>) MEETING OF SENATE OF IIT-DELHI**  
**(held on 30<sup>th</sup> March, 2016)**

**MINUTES OF THE MEETING**

**General**

**32.1 Opening remarks of the Chairman.**

The Chairman welcomed all to the meeting. Thereafter, agenda items were taken up for discussions.

**32.2 Confirmation of minutes of the 31st meeting of the Senate held on 1.12.2015**

Since there were no comments, the minutes of the 31st meeting of the Senate held on 1.12.2015 were confirmed.

**32.3 To consider End of Semester Summary Report (Monsoon 2015)**

Chairman, Senate apprised the members of the various activities of academics undertaken during previous semester as detailed in the semester summary report (Monsoon 2015) placed at [Appendix-I](#). The Senate noted the same with satisfaction with the following observations :

- i) Parents of the students found deficient in academic and attendance should be informed immediately after the mid-semester examination.
- ii) With this data we should be able to track the past records of students' performance in future years
- iii) Measures should be taken to check the lowering performance of the students in consultation with the counsellor subject to maintaining confidentiality rules.
- iv) For M.Tech. students the faculty should be requested to provide the grade after mid-sem examination in order to keep a watch on the weak students. A meeting with M.Tech. Coordinator should be arranged to know the reasons / difficulties being faced by them.
- v) Take measures to support the weak students as well as encourage the excelling students

**32.4 Approval of Academic Calendar for Summer Semester 2016**

The Senate approved the Academic Calendar for Summer Semester 2016 placed at [Appendix-II](#)

### 32.5 Approval from AICTE

Registrar apprised the members of the present status regarding submission of application for extension of existing programs as well as for new programs for the Academic year 2016-17. The details of existing programs as well as new programs are as under:

<b>Already Programs</b>	<b>Approved</b>	<b>Approved Strength</b>	<b>New Programs</b>	<b>Approved Strength</b>
BTech(IT)		100	BTech(ECE)	60
MTech(CSE)		25	MTech(VLSI)	24
MTech(ECE)		24	MTech(Bio Informatics)	24
MTech(IT)		25		
MTech(Mobile Tech)		24		

The Senate noted the above position.

### 32.6 Approval from NBA for Accreditation of PG programs

Registrar informed that we applied for Accreditation of MTech(CSE) and MTech(ECE) programs and the application has been found in order. We have been asked to deposit the fees and the matter is under process.

## **UG ISSUES**

### 32.7 Bonus Marks for BTech Admissions in 2016

Chairman, Senate apprised the members of the background of the proposal for giving bonus marks to the candidates applying for BTech admission 2016. The Senate appreciated the basic principle of making admission criteria more broad based and giving weight to other achievements. After detailed deliberations the Senate agreed to the proposal to add/include some more areas of achievements as per details placed at [Appendix-III](#). It agreed that Chairman Senate, DOAA, and Registrar will revise some of the criteria to make it more precise and then recommend them to the Board of Governors for approval.

### 32.8 To consider increase in intake of B. Tech. programs

Chairman, Senate apprised the members of the proposal to fix/increase the intake of B.Tech. programs for Academic year 2016-17 as under:

<b>Program</b>	<b>Existing 2015-16</b>	<b>Increased intake 2016-17</b>
CSE	110	110
ECE	70	80
CS & Applied Mathematics	-	60
DASA	12	25
KM	1	1
	-----	-----
	193	276

The Senate noted that from next academic year there will be two sections of classes for some of the courses starting at 8.00 a.m.

Internal distribution of seats among SC/ST/OBC/GEN will be as per percentage of reservations already approved by the Board. The reservation for CW (5%) and PH (3%) will be made out of the seats available for various categories mentioned above.

After detailed deliberations the Senate agreed to the above proposal and recommended the same to the Board of Governors for approval.

### 32.9 To consider a proposal to start a new B.Tech. (CS+Maths) program

Chairman, Senate introduced the proposal ([Appendix-IV](#)) for starting a new B.Tech. program (Computer Science & Applied Maths). Thereafter, Dr. Rajiv Raman who coordinated in formulating the program presented the salient features of the new B.Tech. program. During discussions he also answered some of the queries made by the members. After detailed deliberations the Senate agreed to the proposal for starting a new **B.Tech. program in Computer Science and Applied Mathematics**, with an intake of 60. The Senate also authorized the Chairman, Senate to frame/approve regulation for this new program on similar lines as that of existing B.Tech. CSE and report to the next meeting of the Senate for ratification.

### **32.10 To consider recommendation of the UGC to allow a BTech student to do “extra credits”.**

Chairman, Senate apprised the members of the earlier decision of the Senate taken at its 31<sup>st</sup> meeting held on 1.12.2015 to allow a BTech student to do “extra credits” beyond 152 credits required for completion of B.Tech. requirement, and for N extra credits done, allow worst grades in N credits, with a maximum limit of 8 credits, to be not counted towards CGPA computation. Thereafter, Dr. Anubha Gupta, Chairperson, UGC explained the methods recommended by UGC for calculating the CGPA. After detailed deliberations the Senate agreed to the following recommendation of the UGC made at its 5<sup>th</sup> meeting held on 30<sup>th</sup> December, 2015 for calculating the CGPA:

**Method:** (Automatically decide which extra credits to be not counted in CGPA)

- For CGPA computation at the end of 6th semester, baseline credits will be 116 (equal to 29 full courses including OC). If a student has done N credits more than 116, then for CGPA computation the following will be done:
  - The worst grades in courses totaling M credits will be "removed", where  $M = \min\{8, N\}$ .
  - CGPA will be computed based on the remaining credits. It is to be noted that since OC's are with S/X Grades, although they will be included in baseline 116 credits, they will not be counted in CGPA. e.g. If a student has done 120 credits including OC of 4 credits, CGPA will be computed from best grades corresponding to 112 credits.
- For CGPA computation at the end of 7th semester, baseline credits will be 136.

#### **General Rules:**

- SGPA computation will remain the same for each semester.
- CGPA computation will remain the same for first 5 semesters, even if a student has done "extra credits."

### **32.11 To report discontinuation of streams in UG programs**

Chairman, Senate informed that as per decision taken by the Senate at its 31<sup>st</sup> meeting held on 1.12.2015 the streams in UG programs have been discontinued. Accordingly, the streams will not be shown in the Transcript although guidance on streams will be available on the website for information of the students. The Senate noted the same for information.

**32.12 To consider recommendation of the UGC to allow the UG students to repeat (Improvement) of a particular course**

Chairman, Senate apprised the members of the following recommendation of the UGC taken at its 6<sup>th</sup> meeting held on 20.1.2016:

“Chair UGC presented the issue raised by Student Senate regarding repeat of a course completed with pass grade. After detailed discussion, UGC recommended that improvement in a particular course may be allowed, but only the latest Grades (may be lower) in that course will be considered for CGPA computation. Also all attempts in that course will be recorded in the respective semester transcripts. This matter needs approval at the Senate level.”

After detailed deliberations the Senate agreed to the recommendation of allowing the repeat of a course, but agreed that the best grade be counted for CGPA computation. The Senate, however, made it clear that a repeat course will not be permitted to be dropped after mid-semester examination.

**32.13 To consider regulations regarding Engineering Science courses**

Chairman, Senate apprised the members of the observation made by the UGC at its 6<sup>th</sup> meeting held on 20.1.2016 seeking clarification with regard to Engineering Science courses. It was noted that the UG curriculum as approved by Senate has one course slot for Engineering Science course for CSE students in the two semesters in their 2<sup>nd</sup> year. However, UG Regulations do not state requirement for the same.

The following was agreed:

For these slots, a CSE student must do (i) TOC or a Maths course of 200 level or above (e.g. Math III or Math IV), and (ii) must do a CB or ECE course at 200 level or above. CSE regulations may be amended suitably for this, and it should apply starting from the 2015 batch also.

**PG ISSUES**

**32.14 To report the status of Regular and Rolling PhD Admissions**

The Senate noted following Ph.D. admissions:

<b>Students selected through Rolling Admissions</b>			
S.No	Name	Discipline	Date of joining
1	Vijay Gahlawat	ECE	09.10.2015
2	Payal Garg	ECE	01.01.2016
3	Vanika Singhal	ECE	04.01.2016

4	Siddhant Jain	CSE	11.01.2016
5	Naina Gupta	CSE	05.01.2016
6	Nalla Ananda kumar	CSE	04.01.2016

<b>Students selected through Direct Admissions</b>			
1	Prawendra Kumar	ECE	01.01.2016
2	Niharika Agrawal	ECE	01.01.2016
3	Vipin Kumar	ECE	01.01.2016
4	Ravneet Kaur Chawla	ECE	01.01.2016
5	Divya Sachdeva	CSE	01.01.2016
6	Srikanth Baride	CSE	01.01.2016
7	Anupriya Tuli	CSE	01.01.2016
8	Pravin Nagar	CSE	04.01.2016

### **32.15 To consider a proposal to start Ph.D. in Mathematics**

Chairman, Senate introduced the proposal to start Ph.D. program in Mathematics from the Academic Year 2016-17. He informed that regulation for this program will remain the same as for Ph.D. program in general. The eligibility criteria will be same as for Ph.D. in CSE/ECE disciplines with one additional requirement as follow:

"Essential qualification (for Mathematics students)- JRF from either UGC or CSIR or NBHM or GATE qualified."

For special requirements, if any, the details will be worked by the PGC in consultation with the concerned faculty/area experts. Dr. Anuradha Sharma (IITD) who attended the meeting as a special invitee answered the queries made by some of the members. After detailed deliberations the Senate approved the proposal for Ph.D. program in Mathematics. The faculty members of Mathematics will determine the areas in which PhD students are to be selected in each year.

### **32.16 To ratify the approval given by the Director ,Chairman, Senate**

The Senate ratified the approval given by Chairman, Senate for adding the following provision in the 2015 regulation of M.Tech. (CB):

**“In electives, at most 4 credits of “Independent Study/Project” can be taken”.**

### **32.17 Recommendation / Report by PGC:**

The Senate approved the following clarification made by the PGC at its 12<sup>th</sup> meeting held on 13.1.2016 with regard to replacement of courses:

“Arising out of discussions the PGC with respect to its earlier recommendation ( 7<sup>th</sup> meeting held on 1.4.2015 vide item No.5) clarified that replacement up to two courses by PG student (M.Tech. and Ph.D.) will be allowed after publication of result provided it does not result in underload.”

**32.18 To consider a proposal to start PG program in Telecommunications Technology and Management by IIIT-D, IIML, and ALTTC**

Chairman, Senate informed that Prof Anand Srivastava is coordinating the proposal to start a PG program in Telecommunications Technology and Management to be jointly run by IIIT-D, IIML, and ALTTC. The proposal is currently under discussions with the concerned institutions and a detailed proposal will be placed before the Senate for further deliberations in the due course.

**32.19 To consider a proposal on PhD Supervisor change**

Dean of Academic Affairs presented Guidelines for change of Ph.D. He also answered/clarified some of the points raised by the members. A few minor suggestions emerged during the discussions. It was agreed that, the guidelines along with suggested changes will be finalized by DOAA, PGC Chair, and the Director. The final guidelines are given in [Appendix V](#).

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

## SEMESTER SUMMARY REPORT – MONSOON 2015

### 1. Summary of Courses Offered & Registrations

#### 3 Days modules conducted

Batch	Specialization	Module	Performance will count towards	Faculty Coordinator	Date	Enrollments
BTech 2014	ECE	MATLAB	S&S	Dr Sanjit Kaul	27 July - 29 July	58
	CSE & ECE	Java	for CSE- AP, for ECE - ELD	Dr Chetan Arora	30 July - 1 Aug	147
BTech 2013	ECE	EDA Tools	Some Course in Monsoon 2015	Dr Sanjit Kaul	27 July - 29 July	23
		Java		Dr Chetan Arora	30 July - 1 Aug	3
	CSE	SE Workshop	SE (Course is compulsory for students planning to register for SE course in Monsoon 2015)	Mr Manish Sharotiya	29 July - 1 Aug	38
BTech 2012	ECE	Java	Some Course in Monsoon 2015	Dr Chetan Arora	30 July - 1 Aug	NIL
	CSE	SE Workshop	SE (Course is compulsory for students planning to register for SE course in Monsoon 2015)	Mr Manish Sharotiya	29 July - 1 Aug	NIL

#### Courses Offered

Total No. of Courses offered	68	No. of CSE Electives Offered	22
No. of Core Courses Offered	12	No. of ECE Electives Offered	13
No. of Elective Courses Offered	56	No. of HSS Electives Offered	6
No. of New Courses Added	12	No. of BIO Electives Offered	3
No. of 2 Cr Courses Offered	4	No. of MTH Electives Offered	2
	3	No. of ECO or MGT Electives Offered	2
No. of Online Courses Offered	(2-CSE & 1-ECE)	No. of ENT, PHY, DES Electives Offered	3
		No. of Electives Offered in Dual Discipline	5

Maximum Class Size for Elective Courses	162
Average Class Size for Elective Courses	38.5
No. of Elective Courses with 5 students or less	3
No. of Elective Courses with 100 students or more	4
No. of Late Drop applications received	65

### Class strengths in Electives

No. of Students	No. of Courses
1-5	3
6-10	8
11-30	19
31-60	15
61-100	7
>100	4

### List of courses with 5 or less students

Course No.	Course Name	Credit
CSE531	Multiagent Systems	4
CSE749	Network Anonymity and Privacy	4
ECE556S	Multimedia Compression (2 credit - New)	2

### BTech students registration for IP/IS/UR/BTP

No. of students registered for IP	73
No. of students registered for IS	8
No. of students registered for UR	10
No. of students registered for BTP	65

### PhD students registration for IP/IS

PhD Students registered for IS	2
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### MTech Students registration for Project based courses

No. of students registered for Thesis	62
No. of students registered for Scholarly Paper	18
No. of students registered for Industrial Project	8
No. of students registered for Capstone Project	1
No. of students registered for Independent Project	5
No. of students registered for Independent Study	6

## 2. Summary of Attendance in Core Courses

Sno.	Name of the course	Less than 50%	Less than 70%	Less than 75%	Greater than 75%	Total Strength
1	Introduction to programming	15	49	62	149	211
2	Digital Circuits	8	27	49	149	198
3	Maths1	14	45	65	135	200
4	System Management	8	46	68	132	200
5	Communication skills	11	49	88	110	198
6	Discrete Mathematics	17	57	75	63	138
7	Embedded logic design	3	12	15	40	55
8	Advanced Programming	13	57	69	80	149
9	Signals & systems	22	40	47	23	70
10	Linear Circuits	4	11	13	21	34
11	Maths3	8	26	34	66	100
12	Operating Systems	23	52	59	80	139

List of 1st Year students with overall attendance less than equal to 60% and SGPA less than 6.5

Roll. No.	Name	Attendance Percentage for all courses	Sem 1 SGPA
2015059	MOHD AZHAR TAK	48.39	5.2
2015071	PIYUSH CHOUDHARY	59.20	4.5
2015079	ROHIT RAJ	42.74	4
2015110	UTSAV ROHILLA	60.00	5.2
2015111	VAIBHAV KASHYAP	58.87	5.2
2015125	AKASH WAGRATH	50.40	4
2015156	PARTH TIWARI	52.85	6
2015166	SACHIN KUMAR	55.65	2
2015176	SHIV SOORMA	57.60	2.4
2015192	VIVEK RAJORA	48.78	4.8

**List of IInd Year students with overall attendance less than equal to 60% and SGPA less than 6.5**

<b>Roll No</b>	<b>Name</b>	<b>Attendance Percentage for all courses</b>	<b>SGPA</b>
2013002	Aashanvit Sheoran	52.44	3.4
2013003	Abhishek Chaudhary	51.22	5.2
2013037	Gaurav Yadav	57.32	4.4
2013153	Sahil Sahil	33.33	2
2014016	Aniket Kadiyan	37.80	3.4
2014024	Ashutosh Nandan	52.44	3.4
2014034	Darvesh Kumar Punia	54.88	4.2
2014050	Ishan Pandita	37.80	6.4
2014054	Kunal Sharma	57.32	6
2014066	Nickey Kumar	58.54	5.25
2014087	Rishi Mohan	51.22	5.4
2014107	Sudhir Kumar	56.10	4
2014119	Vipin Chaudhary	57.32	5.6
2014123	Yash Mohan Sherry	32.93	6.2
2014151	Paurush Rathi	46.67	5
2014162	Siddhant Gandhi	43.70	4.6

### **3. Examination**

<b>Date of Moderation</b>	7 Dec 2015
<b>Date of Declaration of Results</b>	11 Nov 2015
<b>No. of I-grades at the time of declaration of result s</b>	224
<b>No. of Grade Changes done</b>	12 (Approved:11, Not Approved: 1)
<b>No. of Students who missed Invigilation Duty</b>	2
<b>Unauthorized absence from exams</b>	12

### **4. Student Performance**

#### **BTech**

**Overall BTech student performance for Monsoon 2015**

SGPA Range	2015		2014		2013		2012	
	CSE	ECE	CSE	ECE	CSE	ECE	CSE	ECE
<=5	7	11	11	7	12	3	3	0
>5<=7	36	27	42	13	36	14	26	9
>7<=8	26	17	28	5	34	9	19	7

>8<10	48	18	39	7	35	8	78	22
=10	4	0	3	0	0	0	6	0
Total	121	73	123	32	117	34	132	38
Average	7.6	6.86	7.23	6.34	7.18	7.03	8.25	8.15

#### Students with Backlogs

No. of Back Logs	Ist Year	IIInd Year	IIIrd Year	IVth Year	Vth Year	Total
1	16	12	16	4	1	49
2	3	5	3		1	12
3		3	2			5
4	1		2			3
5	1	1	1	1		4

#### List of students whose SGPA for this sem is 2 or lesser than previous sem SGPA

1	2013133	Farheen Shah
2	2013170	Vishal Ranjan
3	2011103	Shivangi Mehra
4	2012042	Ishita Ahlawat
5	2012087	Rohan Kumar
6	2012113	Tavneet Singh
7	2012091	Shagun Beniwal
8	2012146	Mukul Gupta

#### List of students whose SGPA for this sem is 2 or more than previous sem SGPA

1	2014101	Shubham Maheshwari
2	2014148	Mohd Shoaib Iqbal
3	2014120	Vishisht Khilariwal
4	2014098	Shivam Rustogi
5	2013090	Saransh Nahar
6	2013078	Ritvik Agarwal
7	2013081	Rupam Patir
8	2013126	Aneesh Kumar
9	2013082	Sahil Babbar
10	2013014	Aneesh Dogra
11	2013051	Kartik Maji
12	2013103	Sidhant Tickoo
13	2013048	Karan Grover
14	2013012	Amya Rai
15	2013032	Deepanshu Arora
16	2013059	Mayank Vachher
17	2013100	Shubham Sharma
18	2012149	Prateek Singh
19	2012147	Nikita Singh
20	2012167	Udayan Tandon

#### Warning Letters sent for Attendance

No. of BTech students sent warning because of low attendance and poor performance in first year courses	28
No. of students sent warning because of low attendance and poor performance in second year courses	50

## MTech

### Overall MTech student performance for Monsoon 2015

CGPA Range	M.Tech Batch	
	2014	2015
>=8.00	67	42
6.00-8.00	26	59
<6.00	0	6

### List of students with less than 6 CGPA

S.No	Roll No	Name	CGPA
1	MT15002	AASHISH GROVER	5
2	MT15019	HIMANSHU AGARWAL	5
3	MT15038	NAVEEN KUMAR PATIDAR	5.67
4	MT15047	PRIYANKA GUPTA	5.67
5	MT15053	RICHA GUPTA	5.67
6	MT15130	PARTHA PRATIM SAHA	5.67

### Students on Semester Extension

S No.	Roll No.	Name	Reason
1	MT13003	Amit Semwal	Delayed due to Medical
2	MT13031	Adarsh Kumar Dubey	One Bucket Course Left and Not Yet defended Thesis(Not registered yet)
3	MT13043	Navin Agarwal	Defended Thesis late, will be graduated with 2015 batch
4	MT13046	Prabhat Ranjan	No response from student, Thesis component left
5	MT13047	Prasoon	Registered for Thesis
6	MT13063	Dibyendu Talukder	No response from student, Thesis component left
7	MT13073	Prabhat Mishra	Registered for Scholarly paper.

### No. of MTech Thesis Defended and Industry Project/Capstone Project/Scholarly Paper submitted

S.No.	Course	Defense and Evaluation
1	Thesis	7
2	Scholarly Paper	3
3	Capstone Project	0
4	Industrial Project	8

## PhD

Name of the students who put under warning				
S.No.	Name	When	Reason	Status
1	Monalisa Jena	Aug-15	Due to poor review	Warning revoke w.e.f. Jan 2016
2	Megha Gupta	Sep-15	Due to poor review	Follow up review is scheduled on 8th Feb, 2016
3	Rahul Bajpai	Oct-15	Due to poor review	Warning continue till the end of Winter Sem 2016
4	Shiju S.	Jun-15	Due to low CGPA	CGPA has improved thus , warning revoked in Dec 2015
5	Ankita Deo	Dec-15	Due to low CGPA	Warning continue till the end of Winter Sem 2016

Summary of Yearly Review July 2015		
Rating	No. of Students	Remark
Excellent	6	
Good	50	
Average	7	
Below average	1	Academic Warning has been issued
Poor	2	
<b>Total</b>	<b>66</b>	

SNo.	Item	Aug	Sep	Oct	Nov	Dec	Total
1	No. of Comprehensive done	5			1	10	16
2	No. of Fellowships awarded	14		4			18
3	No. of Thesis Defended	2					2
4	No. of Students who were on semester Leave during the semester	1					1

## Highest Grade Info:

### No. of Students who got A+ grades

Batch--->	2015		2014		2013		2012		Total
Program	Course	No. of Students who got A+	Course	No. of Students who got A+	Course	No. of Students who got A+	Course	No. of Students who got A+	
BTech	IP	7	AP	4	DSP	1	AN	2	
	DC	2	DM	2	DCS	1	CMOS	1	
	SM	1	OS	2			BTP	3	

			Theatre	1			CMP	1	
							CG	1	
							DMG	2	
							VLSI	1	
							SCM	2	
							IEA	1	
							ISC	2	
							LO	1	
							MC	2	
							MAD	1	
							NS	1	
							NLE	1	
							Phy	1	
							PA	1	
							SSIOT	2	
							T&S	1	
	<b>Total</b>	<b>10</b>		<b>9</b>		<b>2</b>		<b>27</b>	<b>48</b>
<b>MTech</b>	OOPD	1							
	<b>Total</b>	<b>1</b>							<b>1</b>
<b>PhD</b>	CMP	1			SSIOT	1			
	SSIOT	1							
	RS	1							
	<b>Total</b>	<b>3</b>				<b>1</b>			<b>4</b>

List of Students who got A+ Grade				
Roll No.	Name	Pogram	Course Name	No. of A+ Grades
2012016	Alakh Dhruv Chopra	BTech/CSE	Linear Optimization, Modern Algorithm Design	2
2012020	Anisha Agrawal	BTech/CSE	Non Linear Editing	1
2012029	Ayush Goel	BTech/CSE	Compilers	1
2012039	Harkirat Singh Lamba	BTech/CSE	Technology and Society, Physics	2
2012044	Juhi Jetwani	BTech/CSE	Introduction To Spatial Computing	1
2012050	Kriti Pandey	BTech/CSE	Effective Supply Chain Management for E-Commerce Businesses	1
2012056	Mansi Vijh	BTech/CSE	Effective Supply Chain Management for E-Commerce Businesses	1
2012059	Megha Arora	BTech/CSE	Data Mining	1

2012062	Mrinal Kachhara	BTech/CSE	Advanced Networks	1
2012064	Neeraj Kumar	BTech/CSE	Network Security	1
2012075	Prasant Chidella	BTech/CSE	Introduction To Spatial Computing, Smart Sensing for Internet of Things	2
2012082	Pulkit Arora	BTech/CSE	Introduction to Economic Analysis, Mobile Computing	2
2012088	Sarthak Ahuja	BTech/CSE	Computer Graphics	1
2012108	Sukrit Kalra	BTech/CSE	Advanced Networks	1
2012122	Abhinav Jadon	BTech/ECE	Smart Sensing for Internet of Things	1
2012131	Ayush Verma	BTech/CSE	Data Mining	1
2012139	Inderdeep Singh	BTech/ECE	BTech Project	1
2012141	Magus Verma	BTech/CSE	Mobile Computing	1
2012155	Rajat Kashyap	BTech/ECE	BTech Project	1
2012160	Shreya Singh	BTech/ECE	Digital VLSI Design, Analog CMOS Design, BTech Project	3
2012163	Shuktika Jain	BTech/CSE	Program Analysis	1
2013146	Parth Shrivastava	BTech/ECE	Digital Signal Processing	1
2013165	Tanay Kabra	BTech/ECE	Digital Communication Systems	1
2014004	Adesh Pandey	BTech/CSE	Advanced Programming	1
2014006	Agam Singh Bajaj	BTech/CSE	Theatre Appreciation	1
2014012	Ambar Pal	BTech/CSE	Discrete Mathematics	1
2014038	Divam Gupta	BTech/CSE	Advanced Programming	1
2014041	Gursimran Singh	BTech/CSE	Advanced Programming	1
2014089	Rounaq Jhunjhunu Wala	BTech/CSE	Advanced Programming	1
2014096	Satyam Kumar	BTech/CSE	Discrete Mathematics	1
2014098	Shivam Rustogi	BTech/CSE	Operating Systems	1
2014099	Shrey Bagroy	BTech/CSE	Operating Systems	1
2015039	Hasan Kamal	BTech/CSE	Introduction to Programming	1
2015050	Lamha Goel	BTech/CSE	Introduction to Programming	1
2015051	Luv Sharma	BTech/CSE	Introduction to Programming	1
2015069	Parth Mittal	BTech/CSE	Introduction to Programming	1
2015076	Rishabh Garg	BTech/CSE	Introduction to Programming	1
2015101	Siddharth Sundar	BTech/CSE	Introduction to Programming, Digital Circuits, System Management	3
2015120	Abhinav	BTech/ECE	Introduction to Programming	1

	Khattar			
2015184	Tushar Kataria	BTech/ECE	Digital Circuits	1
MT15032	MAURYA KAVITA DINESH	MTech (CSE)/IS	Object Oriented Programming and Design	1
PhD1307	Haroon Rashid	PhD/CSE	Smart Sensing for Internet of Things	1
PhD15005	Dhriti Khanna	PhD/CSE	Compilers	1
PhD15102	Gade Narayana Sri Harsha	PhD/ECE	Smart Sensing for Internet of Things	1
PhD15105	Shelly Vishwakarma	PhD/ECE	Radar Systems	1

## 5. Summary of TA/RA Work

### MTech

Sl.No.	Particulars	Numbers
1	Total Number of M.Tech TA	180
2	Total TA with Satisfactory Performance	173
3	Total TA with unsatisfactory Performance	7

### PHD

Month	Total No. of Students	No. of students with Attendance less than 75%	No. approved leaves/ Advisor confirmations	No. of students for whom Fellowship was Deducted
Sep-15	48	8	8	0
Oct-15	48	13	13	0
Nov-15	48	8	6	2

## 6. Admissions PhD

### Rolling Admissions (Aug - Dec 2015)

For the month	No. of students selected through rolling	Date of joining	Name of Student	Remark
Sep-15	3	10/06/2015	Surbhi Arora	
		Jan-16	Vanika Singhal	
		Jan-16	Vijay Ghalawat	Sponsored
Oct-15	1	17/11/2015	Aakarsh Malhotra	

Nov-15	1	Jan-16	Nalla Anadakumar	Sponsored
Dec-15	1	Jan-16	Siddhant Jain	
<b>Total</b>	<b>6</b>			

## 7. Student Interactions & Meetings Conducted

### Interactions with Students

Group of Students	Date of Interaction	Agenda
All Students	3 & 4 Aug 2015	Course Registration Guidance
BTech 2013 Batch	17 & 18 Sep 2015	Guidance on Importance & type of skills that are important
BTech 2014 Batch	7 & 10 Sep 2015	
BTech 2015 Batch	08-Sep-15	
PhD	08-Sep-15	Regular Interaction
MTech CSE	8-Oct-15	Regular Interaction
MTech ECE	9-Oct-15	Regular Interaction

### UGC/PGC Meetings done

Item	Nos.
UGC Meetings	3
PGC Meetings	4

No. of Open House sessions conducted during the semester

## 8. Other Statistics

### No. of International /National conference attended by students

Programme	No. of National Conferences attended	No. of International Conferences attended
BTech	0	0
MTech	10	0
PhD	5	8

### No. of students who have withdrawn from the Programme

Programme	No. of Withdrawals
BTech	5
MTech	10
PhD	1

### No. of Students who were on semester Leave during the semester

Programme	Nos
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BTech	1
MTech	0
PhD	1

**No. of non-degree visiting students**

Sl.No.	Particulars	Nos.
1	Number of Applications	3
2	Number of Selected Applications	0

**Counsellor Visits**

Item Name	Aug	Sep	Oct	Nov	Dec	Total
No. of Visits	6	8	9	8	0	31

**Semester Schedule for Summer Term 2016**

<b>S.No.</b>	<b>Event</b>	<b>From Date</b>	<b>Day</b>	<b>To Date</b>	<b>Day</b>
1	Pre-registration	30/04/2016	Saturday	06/05/2016	Friday
2	Registration	11/05/2016	Wednesday	13/05/2016	Friday
3	Commencement of classes	16/05/2016	Monday		
5	Mid-Semester Examination	06/06/2016	Monday	08/06/2016	Wednesday
6	Last date for Late Drop (for Instructor driven courses)	15/06/2016	Wednesday		
7	End –Sem. Examination	6/07/2016	Wednesday	9/07/2016	Saturday
8	Moderation meeting	12/07/2016	Tuesday		
9	Grades to reach UG/PG Section	13/07/2016	Wednesday		
10	Verification of Grades	14/07/2016	Thursday		
11	Announcement of Grades (tentative)	16/07/2016	Saturday		

**Monsoon Semester 2016**

<b>S.No.</b>	<b>Event</b>	<b>Date</b>	<b>Day</b>
1	3 Day Modules	28/07/2016- 30/07/2016	Thursday-Saturday
2	First Day of the Class	01/08/2016	Monday

<b>Astronomy Olympiad</b>		
<b>Marks</b>	<b>Stages</b>	<b>Numbers</b>
0	Stage 1: Appeared for NSEA 2015 or 2016	
6	Stage 2: Represented your region and appeared for INAO 2015 or 2016 (Hold certificate of INAO merit)	300
10	Stage 3: Selected for attending training camp (OCSC) for selection of Indian team for IAO (INAO Awardees)	30
<b>National Sports Federation</b>		
0	Participated in School Level	
0	Participated in Inter school Level	
6	Represented State in U19 or U17 Category in any of the 25 High priority / priority games as defined by SGFI under the National Sports Federation of India (Certificate should not be issued before 2013)	
<b>INSPIRE Award Scheme</b>		
0	Recipient of Inspire Awards under Scheme for Early Attraction of Talent (SEATS)	
0	Recipient of Inspire Internship under Scheme for Early Attraction of Talent (SEATS)	
0	Recipient of Inspire Scholarship under Scheme for Scholarship for Higher Education (SHE)	
<b>National Level Exhibition &amp; Project Competition (NLEPC) under 'INSPIRE' Programme of DST</b>		
6	Participated in National Level Exhibition & Project Competition (NLEPC) in last 5 Years	1000
10	Recipient of Gold/Silver/Bronze/Consolation Award in National Level Exhibition & Project Competition (NLEPC) in last 5 Years	60 Students
<b>IGNITE Award under National Innovation Foundation</b>		
0	Submitted Idea / Proposal for National IGNITE Awards	
10	Recipient of Award under National IGNITE Awards in last 5 years	30
<b>IRIS National Science Fair</b>		
0	Submitted Idea/Proposal for IRIS National Science Fair	
6	Selected for National Fair(4 Day Fair) in class IX to XII	100
10	Recipient of Grand Award for participation in International Science Eng Fair(ISEF) in class IX to XII	20

# Mathematics and Computing at the IIIT-D

## Background

IIIT Delhi proposes to start an undergraduate degree program in Mathematics and Computing along the lines of a similarly named course at many leading universities. The increasing use of sophisticated mathematical tools and techniques in tandem with computational tools in several areas such as computational finance, biology, e-commerce, weather forecasting, and data science motivates the need for such a program that will produce graduates with computational skills as well as the ability to use sophisticated mathematical concepts and tools in order to tackle these problems.

The Math and Computing program at IIIT-D aims to be a broad-based program with a small set of core courses and many electives, enabling students to build a program most suitable for them. For example, It is possible for a student of this program to complete the requirements necessary to appear for the PhD Mathematics entrance exam conducted by the UGC-CSIR, or build a specialization in Data Science.

This document outlines the post-conditions, syllabus and requirements of the program followed by a detailed description of the courses. The appendix provides a comparison between the BSc Math program at Delhi University, and our BTech program.

## Post-conditions

- 1a. Understanding foundational topics in mathematics.
- 1b. Understanding of theoretical foundations and limits of computing.
2. Ability to abstract and rigorously model and analyse a variety of problems using appropriate mathematical or computational concepts.
- 3a. Ability to design and implement algorithms and data structures for efficiently solving new problems.
- 3b. Ability to use and apply mathematical and statistical techniques and tools to solve problems.
4. Remaining come from the BTech CSE objective.

## Proposed curriculum

The BTech program at IIIT-D follows a philosophy of having a small set of core-courses, allowing students significant flexibility in designing their curriculum and specialization. The curriculum at IIIT-D requires a student to complete 152 credits, equivalent to 38 full courses. Of these 38 courses, about 22 courses are core courses, and the rest are elective courses.

In the BTech in Math and Computing, owing to the larger scope, the required or core courses are larger. We propose a sequence of 26 core courses, with 11 math courses, 8 CS courses, 3 ECE courses and 4 HSS courses. Table 1 gives the list of core courses in the program.

	<b>Math</b>	<b>CS</b>	<b>ECE</b>	<b>HSS</b>
<b>Sem I</b>	Linear Algebra [+matlab]	System Mgmt.  Intro. to Prog.	Digital Circuits	HSS
<b>Sem II</b>	Prob and Stat.	Data Struct & Alg.	Basic Electronics  IED	HSS
<b>Sem III</b>	Multivariate Calc.(separate course?)  Discrete Math (Math Version)	Computer Organization+OS		HSS
<b>Sem IV</b>	ODE/PDE +[numerical methods. ?]  Abstract Algebra I [+magma]	Anal. Des.Algorithms  ToC		HSS
<b>Sem V</b>	Analysis I (earlier)  Probability & Random Processes			
<b>Sem VI</b>	Statistical Inference  Optimization			

**Possible additions to the CS Core curriculum:** Operating Systems, Software Engineering.

## Semester-wise View

- Here **Bold** indicates Core courses. These are required courses for all students in the program.
- The first year courses are common across disciplines.
- The courses are color-coded: **Blue**: Math, **Brown**: CS, **Black**:Other, **Green**: Elective.

Semester I	Semester II
<b>Math I: Linear Algebra</b> <b>System Management.</b> <b>Introduction to Programming</b> <b>Digital Circuits</b> <b>HSS</b>	<b>Math II: Probability and Statistics</b> <b>Data Structures and Algorithms</b> <b>Basic Electronics</b> <b>IED</b> <b>HSS</b>
Semester III	Semester IV
<b>Math III: Mutivariate Calculus</b> <b>Discrete Math</b> <b>Elective 1 [Number Th, AP, Physics,Signals &amp; Sys.] (?)</b> <b>Computer Organization[CO+OS]</b> <b>HSS</b>	<b>Math IV: ODE/PDE</b> <b>Abstract Algebra</b> <b>Analysis and Design of Algorithms</b> <b>Theory of Computing</b> <b>Env. Studies (2cr.)</b> <b>TCOM (2cr.)</b>
Semester V	Semester VI
<b>Elective 2 [Real Analysis, Numerical Methods]</b> <b>Probability and Random Processes</b> Elective 3 Elective 4 Elective 5	<b>Optimization/Linear Optimization</b> <b>Statistical Inference</b> Elective 6 Elective 7 Elective 8
Semester VII	Semester VIII
Elective 9 Elective 10 Elective 11 Elective 12	Elective 13 Elective 14 Elective 15 Elective 16

## Structure of Elective Courses:

The course structure allows a student sufficient flexibility in the choice of elective courses and thus structure the program to their interest. In choosing electives however, the following rules must be followed.

- **Elective 1:** This elective in **Semester III** can be used as a student to get a glimpse into various disciplines that she may choose to pursue in later semesters. It is therefore recommended that this course be one of the following:
  - Elementary Number Theory
  - Advanced Programming
  - Introduction to Physics
  - Signals and Systems

*Note that a choice made in this semester is not an exclusive one. These courses will be available to the student in later semesters.*

- **Elective 2:** This elective in **Semester V** is a choice between
  - Real Analysis
  - Numerical Methods.

*It is strongly advised that a student do both courses. However, a student with an interest in pursuing a position in the industry could choose numerical methods in place of Real Analysis. **One of the reasons for moving Numerical Methods out of ODE/PDE was that faculty teaching the courses felt it was impossible to do justice to both. With a hard limit on the number of core courses, it was felt that making a choice between Real Analysis and Numerical methods was the only reasonable option.***

- A student choosing to do a BTP can register for a minimum of 8 credits and a maximum of 16 credits, i.e., 2-4 courses. This would leave the student with 10-12 elective courses to choose from.
- At most two of the electives can be used for IP/IS.
- Among the elective courses, at most two courses can be *free* electives, i.e., courses outside of Math or CSE.
- Among the remaining CSE/Math electives, a student must ensure that she does at least three courses from either discipline.

## Streams

In order to allow students to make informed choices about elective courses, we propose a set of streams - which is a sequence of at least three courses.

Streams are merely suggestive, and there is no compulsion on the part of the student to follow a sequence. The streams and courses listed below are some possibilities. They may change based on the availability of faculty and student interest.

<b>Stream</b>	<b>Courses</b>
Pure Mathematics	Analysis II, Functional Analysis, Abstract Algebra II, Graph Theory
Algebra and Computation	Algebra II, Coding Theory, Algebra and Computation, Information Theory
Algorithms and Complexity	Modern Algorithm Design, Randomized Algorithms, Approximation algorithms, Complexity Theory, Quantum Computing, Information Theory, Fourier analysis and applications.
Optimization	Linear Optimization, Convex Optimization, Combinatorial Optimization, Game Theory, Algorithmic Game Theory, Supply Chains, Reliability and Performance Analysis
Statistics and Data Science	Statistical Computations, Machine Learning, Pattern Recognition, Random Networks, Big Data Analytics, Statistical Computing, Data Mining, Estimation Theory, Regression, Sampling, Information Theory
Biology	Molecular Biology and Biochemistry, Algorithms in Computational Biology, Systems Biology
Economics	Introduction to Economic Analysis, Applied Econometric Analysis, Game Theory
Applied Mathematics	Mechanics, Physics, Fluid Mechanics and Computational Fluid Dynamics

## Possible Sequences

The tables below give suggested sequences a student might pursue. These are only indicative of some of the possibilities, and are not meant to be prescriptive.

**The tables below need editing.**

## Optimization

Semester V	Semester VI
<b>Analysis I</b> <b>Probability and Random Processes</b> Applied Linear Algebra	<b>Statistical Inference</b> <b>Optimization</b> Graph Theory
Semester VII	Semester VIII
Game Theory Combinatorial Optimization Linear Optimization	Approximation Algorithms Convex Optimization

## Algorithms and Theory

Semester V	Semester VI
<b>Analysis I</b> <b>Probability and Random Processes</b> Modern Algorithm Design Fourier Analysis and applications in CS	Graph Theory <b>Optimization</b> <b>Statistical Inference</b> Complexity Theory
Semester VII	Semester VIII
Combinatorial Optimization Quantum Computation Topics in Modern Cryptography	Coding Theory Approximation Algorithms/Advanced Algorithms Information Theory

## Data Science

Semester V	Semester VI
<b>Analysis I</b> <b>Probability and Random Processes</b> Applied Linear Algebra	Graph Theory <b>Optimization</b> <b>Statistical Inference</b> Statistical Computation
Semester VII	Semester VIII
Graphs and Networks Machine Learning Elective 4 IP/IS/BTP	Big Data Analytics Engineering Optimization Elective 6 Elective 7 IP/IS/BTP

## Pure Mathematics

Semester V	Semester VI
<b>Analysis I</b> <b>Probability and Random Processes</b> Combinatorics	Graph Theory <b>Optimization</b> <b>Statistical Inference</b> Topology
Semester VII	Semester VIII
Abstract Algebra II Complex Analysis	Analysis II Differential Geometry

## Minor in Mathematics

Computer Science and Electrical Engineering require increasingly sophisticated mathematical tools, and a minor in mathematics is a popular choice offered at several universities. A minor at IIIT-D requires students to do 5 courses and a BTech project in the particular topic. For example, IIT Bombay offers a minor in mathematics consisting of the following courses:

Minor in Math:

[Real Analysis](#), [Basic Algebra](#), [Complex Analysis](#), [Topology and Fourier Analysis and Applications](#).

Minor in Statistics:

[Probability Theory](#), [Statistical Inference](#), [Regression Analysis](#), [Applied Stochastic Processes](#), [Introduction to Derivative Pricing](#).

We could consider offering a minor program along these lines.

## Course Descriptions

### Math I:(MTH100) Linear Algebra

**Contents:** This first level math course covers basics of linear algebra including vector spaces, matrix algebra, linear transformations, eigenvalues and eigenvectors, orthogonality, properties of symmetric matrices, positive definite matrices, and SVD. The course is developed with an aim to provide a strong foundation in linear algebra which will be used in the subsequent curriculum by both CS and ECE students. Time permitting, some applications of linear algebra in engineering disciplines will be introduced. The course also attempts to increase the mathematical maturity of students by introducing proofs and mathematical rigour.

**Contents:** Systems of linear equations, row reduction and echelon forms, matrix equation of the form  $Ax = b$ , invertibility of matrices, Vector spaces and subspaces, linear dependence/independence, dimension, span, applications. Fundamental subspaces. Linear transformation, rank. Matrix of linear transformation, effect of change of basis, Similarity transformation. Algebra of linear transformations. Determinants, properties of determinants, Eigenvalues and eigenvectors, diagonalization of a matrix, eigenvectors and linear transformations, complex eigenvalues. Orthogonality and least squares, inner product, length, orthogonal projections, Gram-Schmidt orthogonalization, QR decomposition. Symmetric matrices and Quadratic forms, diagonalization of symmetric matrices, positive definite matrices, SVD, application to image processing.

#### Recommended Textbooks:

1. David Lay: Linear Algebra and Its Application, 3rd (Indian Edition), Pearson.
  2. Strang: Linear Algebra and Its Applications, 4th Edn, Cengage.
  3. Lipschutz: Linear Algebra, Schaum's Outline Series.
  4. Hoffman & Kunze: Linear Algebra, Pearson.
  5. Axler: Linear Algebra Done Right, Springer. (Advanced)
-

## Math II: (MTH201) Probability and Statistics

### Post conditions:

- Will be able to summarize and visualize Data
- Will be able to model simple real world problems in terms of probability and statistics.
- Will be able to analyze relationship between separate datasets
- Will be able to analyze cause-effect relationship for multi-variate data.

**Brief Description:** The course is intended as a balanced introduction to basic probability and statistical applications for a mixed audience of ECE and CS students. The course will start with examples of data collection in various science/engineering areas as motivation and proceed to highlight the role of a) probability models for data and their b) statistical analysis. The mix of probability concepts and data analysis methods will be mediated by use of statistical computation as a-glue.

**Contents:** Presentation of data, Frequency Distributions, Measures of central tendency, Probability Theory, Measures of Dispersion, Set Theory, Permutations, etc., Random Variables, Theoretical Distributions, Correlation and Regression, Parameter Estimation, Sampling Theory, Advanced Topics (classification / multi-variate regression)

### Recommended Textbooks:

1. Sheldon Ross: Introduction to Probability and Statistics for Engineers and Scientists, Elsevier/Acad. Press, 4th Edition.
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## Discrete Mathematics: Math version

This course is meant to be an introduction to discrete mathematics with a focus on fewer topics, and more emphasis on rigour. Topics include Logic, Combinatorics, and Graph Theory and proofs and proof techniques in these areas.

### Recommended Textbooks:

1. Discrete Mathematics, Elementary and Beyond, L. Lovasz, J. Pelikan, K. Vesztergombi
  2. An Invitation to Discrete Mathematics, J. Matousek, J. Nešetřil
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## Math III: Multivariate Calculus

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## Maths IV: (MTH204) ODE/PDE

**Post conditions:** At the end of the course, the student will be able to:

- Solve ordinary and partial differential equations analytically
- Model physical systems using ODEs/PDEs, obtaining an analytical solution where possible
- Interpret results of ODE/PDE models

**Course description:** This is the first course in differential equations (ordinary and partial) to be taken by students in their second year of undergraduate studies. The primary focus of the course will be on learning how to solve linear second order ODEs (homogeneous as well as non-homogeneous) and PDEs (wave, heat and Laplace) using different methods. The course will also extend to systems of linear ordinary differential equations including a discussion on qualitative methods for nonlinear systems.

Weekly schedule:

Week	Topics	Assignments/Labs (6-7 hrs)
1	Review of first order ODEs (self study plus homework with doubts/queries to be addressed during tutorial session), Second order homogeneous linear ODEs with emphasis on equations with constant coefficients.	HW1
2	Modeling (free oscillations), Euler Cauchy equation, Existence and Uniqueness for homogeneous linear equations, Wronskian, Introduction to nonhomogeneous equations.	HW2
3	Solution by undetermined coefficients, solution by variation of parameters, Modeling (forced oscillations, electric circuits).	HW3
4	Series solutions, Legendre's equation, Frobenius method, Bessel's equation.	HW4
5	Sturm-Liouville problems, orthogonal functions, orthogonal eigenfunction expansions.	HW5

6	Laplace transform, transforms of derivatives and integrals, differentiation and integration of transforms, Convolution, Partial fractions.	HW6
7	Introduction to higher order linear differential equations, Systems of differential equations, Phase plane, Critical points, Stability.	HW7
8	Nonhomogeneous linear systems, Qualitative methods for nonlinear systems.	HW8
9	Introduction to partial differential equations, first order PDEs, mathematical classification of second order PDEs, characteristics.	HW9
10	Wave equation (hyperbolic): Using separation of variables and Fourier series, D'Alembert's solution, Two dimensional wave equation: rectangular membrane (double Fourier series), circular membrane (Fourier-Bessel series).	HW10
11	Heat equation (parabolic): Solution by Fourier series, solution by Fourier integrals and transforms.	HW11
12	Laplace equation (elliptics): In cartesian coordinates, In cylindrical and spherical coordinates, Solution using a Fourier-Legendre series.	HW12
13	Applications of ordinary and partial differential equations in Electronics and Communication Engineering (contributions by different faculty members in the stream).	HW13

**Recommended Textbooks:**

1. Advanced Engineering Mathematics” by Erwin Kreyszig.
2. Differential Equations with Applications and Historical Notes” by George F. Simmons.

## Abstract Algebra I

**Contents:** Formal properties of integers, equivalence relations, congruences, rings, homomorphisms, ideals, integral domains, fields; Groups, homomorphisms, subgroups, cosets, Lagrange's theorem, normal subgroups, quotient groups, permutation groups; Groups actions, orbits, stabilizers, Cayley's theorem, conjugacy, class equation, Sylow's theorems and applications; Principal ideal domains, Euclidean domains, unique factorization domains, polynomial rings; Characteristic of a field, field extensions, algebraic extensions, separable extensions, finite fields, algebraically closed field, algebraic closure of a field.

### Recommended Textbooks:

1. I. N. Herstein, Topics in Algebra, Wiley, 2004.
  2. J. B. Fraleigh, A First Course in Abstract Algebra, Addison Wesley, 2002.
  3. Algebra: M. Artin (1991) Prentice Hall
- 

## Analysis I

**Contents:** Real Numbers, least upper bound property, sequences, convergence, suprema and infima, Bolzano-Weierstrass theorem, limsup, liminf, limit points, subsequences, Infinite series, rearrangement of series, tests for convergence, Functions on  $\mathbb{R}$ , continuous functions, intermediate value theorem, Heine Borel Theorem, uniform continuity, Differentiation on  $\mathbb{R}^n$ , definition of total derivative, L'Hospital rule, local maxima and minima, inverse function theorem, implicit function theorem, Riemann integration, basic properties, Riemann integrability of continuous functions, fundamental theorem of Calculus. Pointwise and uniform convergence of sequences of functions, uniform convergence and continuity, Weierstrass approximation theorem, Uniform convergence of series of functions, Weierstrass M-test, convergence of integrals and derivatives of sequences of functions, Introduction to power series and analyticity.

### Recommended Textbooks:

1. Analysis I & II: T. Tao, TRIM Series (2006)
  2. Principles of Mathematical Analysis: W. Rudin (1976)
  3. Mathematical Analysis: T.M. Apostol (1974)
  4. Introduction to Real Analysis: R. G. Bartle and D. R. Sherbert (2011)
  5. Methods of Real Analysis: Goldberg (1976) Wiley
-

## Numerical Methods : Gets added to ODE/PDE

**Contents:** Errors; Iterative methods for nonlinear equations; Polynomial interpolation, spline interpolations; Numerical integration based on interpolation, quadrature methods, Gaussian quadrature; Initial value problems for ordinary differential equations - Euler method, Runge-Kutta methods, multi-step methods, predictor-corrector method, stability and convergence analysis; Finite difference schemes for partial differential equations - Explicit and implicit schemes; Consistency, stability and convergence; Stability analysis (matrix method and von Neumann method), Lax equivalence theorem; Finite difference schemes for initial and boundary value problems (FTCS, Backward Euler and Crank-Nicolson schemes, ADI methods, Lax Wendroff method, upwind scheme).

### Recommended Textbooks:

1. D. Kincaid and W. Cheney, Numerical Analysis: Mathematics of Scientific Computing, 3rd Ed., AMS, 2002.
  2. G. D. Smith, Numerical Solutions of Partial Differential Equations, 3rd Ed., Calrendorn Press, 1985.
  3. K. E. Atkinson, An Introduction to Numerical Analysis, Wiley, 1989.
  4. S. D. Conte and C. de Boor, Elementary Numerical Analysis - An Algorithmic Approach, McGraw-Hill, 1981.
  5. R. Mitchell and S. D. F. Griffiths, The Finite Difference Methods in Partial Differential Equations, Wiley, 1980.
-

## Statistical Inference

**Contents:** Reduction of data, sufficient statistics, minimal sufficient statistics, Neyman factorization theorem, complete statistics, exponential families. Ancillary statistics, Basu's theorem. Estimation of real and vector parameters. Method of moments and maximum likelihood, Bayes' estimation. Methods of evaluating estimators, Cramer-Rao Inequality, Fisher Information, Rao-Blackwell theorem, Lehmann-Scheffe theorem. Testing of hypotheses, likelihood Ratio tests, Bayesian tests, error probabilities, P-values, power function, most powerful tests, Neyman-Pearson lemma, uniformly most powerful tests, monotone likelihood ratio. Confidence intervals, construction of confidence intervals, one-sided confidence intervals and their relation with UMP tests, pivotal quantities, Bayesian intervals. One and two way analysis of variance, F- statistics and their null distributions.

### Recommended Textbooks:

1. Statistical Inference: George Casella, R. L. Berger (2002) Cengage Learning
  2. All of Statistics, A Concise Course in Statistical Inference (Springer Texts in Statistics): Larry Wasserman (2004) Springer
  3. Linear Statistical Inference and its Applications: C. R. Rao (2001) Wiley
  4. Parametric Inference: B. K. Kale (1999) Narosa
  5. An Introduction to Probability and Statistics: V. K. Rohatgi, A. K. Md. Saleh (2000) Wiley
-

## Probability and Random Processes

**Contents:** The Probability Space, Events, properties of probability measures, independence, Bayes' formula, Kolmogorov 0-1 law. Random variable, distribution functions, examples of discrete and continuous distributions, joint distributions, independence of random variables, Borel-Cantelli lemmas. Limit theorems: Weak/Strong Law of Large numbers, Central limit theorem. Conditional probability, Martingales, Stopping time, Azuma's inequality, Doob's inequality. Discrete time discrete space Markov chain, Chapman-Kolmogorov equation, classification of states, and limit theorems.

### Recommended Textbooks:

1. Introduction to Probability Models: S. M. Ross (2014) Academic Press
2. Introduction to the Theory of Probability and its Applications, Vol. 1: W. Feller (2008) Wiley
3. Introduction to Stochastic Processes: P. G. Hoel, S. C. Port and C.J. Stone (1986) Waveland Press Inc.
4. G. R. Grimmett and D. R. Stirzaker, Probability and Random Processes, Oxford University Press, 2001.

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## Optimization: Revisit to make it an optimization rather than OR course

**Prerequisites:** Linear Algebra, Probability and Statistics, Multivariate Calculus

### Post-Conditions:

- The student will be able to model problems as optimization problems and use existing solvers to solve them.
- The student will be able understand the concept of duality.
- The student will understand basic techniques involved in solving discrete as well as continuous optimization problems.
- The student will learn about conditions of optimality in various settings.
- The student will understand basic queueing systems and simulation.

### Course Description:

This is the foundational course in the optimization stream. The course **focuses** on modeling and usage of tools to solve optimization problems arising in several domains with a focus on applications in Computer Science and Electrical Engineering. Topics covered include linear and non-linear programming, discrete optimization including network flows, duality theory, conditions for optimality, queueing theory, dynamic programming and heuristic methods, and using modeling tools such as AMPL, GAMS as well as solvers such as CPLEX, GLPK, CVX, etc. The course is useful to get

a glimpse of the power and utility of optimization methods. A student completing this course could take courses on linear optimization, engineering optimization, etc. that deal more with the geometry and algorithms underlying these tools.

**Recommended Textbooks:**

1. Operations Research, Hamdy A. Taha
  2. Introduction to Operations Research, Hiller, Lieberman
  3. A gentle introduction to Optimization, B. Guenin, J. Konnemann, L. Tuncel
  4. Model Building in Mathematical Programming, H. Paul Williams
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## Elective Courses

### Graph Theory

**Contents:** The Basics: graphs, paths and cycles, connectivity, trees and forests, bipartite graphs, contraction and minors, Euler tours, Hamilton Cycle. Matching and Covers: Maximum bipartite matching algorithms, Konig's Theorem, Independent Set. Cuts and Connectivity: 2-connected Graphs, Menger's theorem; Network Flow: Max-flow Min-cut and the Ford-Fulkerson algorithm. Planar Graphs: drawing, Euler's formula, Kuratowski's theorem, plane duality. Coloring: coloring maps and planar graphs, coloring vertices, coloring edges. Cayley graph, Spectrum of a graph.

Recommended Reading: 1. Introduction to Graph Theory: D.B. West (1996) Prentice Hall

#### **Recommended Textbooks:**

1. Introduction to Graph Theory: D.B. West (1996) Prentice Hall
  2. Graph Theory: F. Harary (1969) Addison-Wesley
  3. Modern Graph Theory: B. Bollobas (2008) Springer
  4. Graph Theory: R. Diestel (2006) Springer
  5. Graphs: C. Berge (1989) North-Holland
  6. Graph Theory and its Applications: J.L. Gross and J. Yellen (2006) CRC Press
  7. A First Course in Graph Theory and Combinatorics: S. M. Cioaba, M. Ram Murty (2009) Hindustan Book Agency
-

## Linear Optimization(LO)

Prerequisites: Optimization, or linear algebra

Post-Conditions:

- Students will be able to model problems as linear optimization problems and use existing solvers to solve them.
- students will understand and the basics of polytopes and the geometry behind linear programming.
- Students understand the concept of duality in the context of linear programming and its applications.
- Students understand algorithms for solving linear programs, such as simplex, interior point, and ellipsoid method, etc.
- Students will understand the use of linear programming in combinatorial optimization.

Course Description:

While the world is inherently non-linear, perhaps the most widely used optimization techniques are linear optimization. This course aims to give students a good understanding of the foundations of linear optimization and its applications in various fields. The focus is on the beautiful geometry and algorithms underlying linear optimization, and its varied applications. Topics include polyhedral theory, duality, algorithmic techniques such as simplex, interior point methods, ellipsoid method and applications in combinatorial problems such as network flows, as well as in integer programming as well as extensions of linear programming such as semi-definite programming.

Books:

- Main: Introduction to Linear Optimization, Bertsimas and Tsitsiklis
  - Reference: Theory of Linear of Integer Programming, Alexander Schrijver
-

## Appendix

A Comparison between the BTech Math and Computing Program, and the requirements of a [BSc Mathematics program at Delhi University](#).

The BSc Mathematics program at Delhi University comprises of the following Core Courses. For each core course, we present the appropriate course in the BTech Math and Computing program. The table below shows that our BTech program provides sufficient coverage compared to the BSc program at Delhi University.

DU BSc. Math	IIIT-D Math and Computing
Calculus	None (background assumed)
Algebra	Contents covered in DM and Math - I
Real Analysis	Real Analysis
Differential Equations	Partly covered in Math IV: ODE/PDE
Theory of Real Functions	Partly covered in Real Analysis
Group Theory - I	Covered in Algebra I
Multivariate Calculus	Multivariate Calculus
Partial Differential Equations	Partly covered in Math IV (ODE/PDE)
Reimann Integration and Series of Functions	Analysis - II
Ring Theory and Linear Algebra - I	Partly covered in Algebra - I and Algebra - II
Metric Spaces	Partly covered in Real Analysis
Group Theory - II	Partly covered in Real Analysis and Analysis - II
Complex Analysis	Complex Analysis
Ring Theory and Linear Algebra - II	Partly covered in Analysis -II

Departmental Electives at DU

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Numerical Methods	Numerical Methods
Mathematical Modeling and Graph Theory	Graph Theory, Linear Optimization, Optimization (except for some applications of differential equations), Probability and Random Processes
C++ Programming	Advanced Programming (and other courses)
Math Finance	
Discrete Mathematics	Discrete Mathematics
Cryptography and Network Security	Several Courses in Cryptography
Probability and Statistics	Probability and Statistics + several courses
Mechanics	
Number Theory	Number Theory
Bio-Mathematics	Several Courses in Biology
Linear Programming and Theory of Games	Linear Optimization, Game Theory
Applications of Algebra	

**33.28 Guidelines for Change of PhD Supervisor at a Late Stage**

Guiding PhD students by a supervisor is one of the longest and strongest associations between a student and faculty. It is based on mutual trust and respect, in which a student expects the supervisor to protect his/her interests, and supervisor expects high quality research work. While change of supervisor at early stages is not uncommon and there is a standard process for it, sometimes, due to various reasons, the student-supervisor relationship is formally terminated even at a late stage. This note aims to provide some guidelines if the change of supervisor happens at a late stage when some research has been already done. The guidelines are based on:

- It will be assumed that all research work done by the student and supervisor before the termination of student-supervisor relationship was being done towards the PhD thesis of the student, unless both agree for some work that it was done for some other purposes and was not meant to be included in the thesis.
- Rights of supervisor and student regarding authorship and publications, and rights of supervisor for using the past-works (e.g. for building upon it, using as project deliverables, having another student work on it, etc) and of student for using the past-works (e.g. towards his/her PhD degree) should be protected.

**Guidelines**

- A. Change of supervisor at a late stage of the student's PhD should be avoided and all attempts should be made to take the relationship to its logical conclusion – namely submission of the thesis. The possibility of having the past supervisor continue as a co-supervisor should also be explored. Change of supervisor at a late stage should happen only as the last resort.
- B. If the student continues in the Institute with some other supervisor and does not want to use previous work (e.g., start on a new problem), then this is like the normal change of supervisor, which can follow existing process.
- C. If the student continues in the Institute with some other supervisor and wishes to use some of the past works in his/her thesis, the following steps will be taken:
  - a. A meeting shall be called between the previous supervisor, new supervisor and the student. They may invite any other faculty member as well. If they can reach an agreement on use of previous work and role of previous supervisor (including, for example, him/her remaining as a co-supervisor without being an examiner for the thesis), that agreement will be recorded and followed.
  - b. If the meeting does not result in any agreement, then in the final thesis certificate, contribution of the previous supervisor will be explicitly recorded (e.g., it may be

stated that Prof. X was supervisor from date1 to date2, and Prof. Y from date2). If the previous work included in the thesis is substantial, the previous supervisor can also ask to be a co-supervisor, without any administrative rights and without being an examiner for the PhD thesis.

- D. If the student leaves the Institute, and wishes to use past work in his/her thesis and continue with some supervisor in another university/institute, he/she may seek permission through the new university/institute for use of these works. Institute will take a view based on IP protection and approval of the previous supervisor.
- E. If the supervisor leaves the Institute, then possibility of him/her continuing as a supervisor or co-supervisor should be explored. If such an arrangement is not possible or fails for any reason, the student can use the previous work in the thesis. In this case, it will be explicitly recorded in the final thesis certificate that the outgoing faculty member was the supervisor from Date1 to Date2.
- F. Other cases not covered by the above, or any exceptions to the above, or any disputes in implementing these guidelines, will be brought to the PGC, which will advise the Senate, which will take the final view.

## SEMESTER SUMMARY REPORT – WINTER 2016

### 1. Summary of Courses Offered & Registrations

#### 3 Days modules conducted

	Specialization	Module	Course towards which performance will be counted in Winter 2016 semester	Faculty Coordinator	TFs/TA coordinators	Enrollments
Btech 2015	CSE & ECE	Introduction to C	Data Structures & Algorithms	Dr Rahul Purandare	Nikita Jain	167
Btech 2014	CSE	Advanced C	Computer Networks	Prof Dheeraj Sanghi	Devika Sondhi	122*
	ECE	SPICE	Integrated Electronics	Dr Hashmi	Anil Gundu, Wazir Singh & Shashwat Malik	28
Btech 2013	CSE	Advanced C		Prof Dheeraj Sanghi	Devika Sondhi	122*
	ECE	FPGA	Digital Hardware Design	Dr Sujay Deb	Akshay Jain	6

\* Figures include for 2nd and 3rd year students

#### Courses Offered

Total No. of Courses offered	66	No. of CSE Electives Offered	15
No. of Core Courses Offered	13	No. of ECE Electives Offered	12
No. of Elective Courses Offered	53	No. of HSS Electives Offered	7
No. of New Courses Added	12	No. of BIO Electives Offered	4
No. of 2 Cr Courses Offered	9	No. of MTH Electives Offered	5
	8	No. of ECO, FINElectives Offered	3
No. of Online Courses Offered	(4-CSE,2-ECE & 2-HSS)	No. of ENT, PHY, COM, DES Electives Offered	4
		No. of Electives Offered in Dual Discipline	3

#### List of Online Courses offered

Course	ERP Course No.	Credit	Course Type
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Front-End JavaScript Frameworks: AngularJS	CSE999B	1	CSE
Nanotechnology: Fundamentals of Nanotransistors	ECE999A	2	ECE
Principles of Electronic Biosensors	ECE999A2	2	ECE
Jazz Appreciation	HSS999B	1	HSS
Online course in musicianship	HSS999B2	1	HSS
Front-End Web UI Frameworks and Tools	CSE999B2	1	CSE
Server-side Development with NodeJS	CSE999B3	1	CSE
Multiplatform Mobile App Development with web technologies	CSE999B4	1	CSE

Maximum Class Size for Elective Courses	147
Average Class Size for Elective Courses	37.35
No. of Elective Courses with 5 students or less	4
No. of Elective Courses with 100 students or more	5
No. of Late Drop applications received	72

### Class strengths in Electives

No. of Students	No. of Courses
1-5	4
6-10	6
11-30	20
31-60	12
61-100	6
>100	5

### List of courses with 5 or less students

Course No.	Course Name	Credit
MTH	Topics in Applied Mathematics	3
MTH302	Algebra	5
ENT402	Entrepreneurship II	5
CSE694F	Multimedia Security	4

### BTech students registration for IP/IS/UR/BTP

No. of students registered for IP	80
No. of students registered for IS	29
No. of students registered for UR	10
No. of students registered for BTP	50

### PhD students registration for IP/IS

PhD Students registered for IS	12
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### MTech Students registration for Project based courses

No. of students registered for Thesis	55
No. of students registered for Scholarly Paper	10
No. of students registered for Industrial Project	8
No. of students registered for Capstone Project	4
No. of students registered for Independent Project	21
No. of students registered for Independent Study	22

## 2. Summary of Attendance in Core Courses

SNo.	Courses	less than 50%	less than 70%	less than 75%	More than 75%	Total
1	BE	16	74	90	100	190
2	IED	37	80	96	94	190
3	DSA	13	43	53	157	210
4	P&S	14	54	78	129	207
5	ADA	24	70	76	68	150
6	CN	12	44	64	59	123
7	IE	4	12	14	19	33
8	F &W	4	12	14	18	33
9	PCS	8	18	21	19	40
10	Maths 4	2	5	7	29	36
11	TCOM	6	33	58	99	157
12	EVS	47	77	106	48	154

### List of 1st Year students with overall attendance less than equal to 60% and SGPA less than 6.5

Sno.	Roll no.	Name	Average Attendance	Sem2 SGPA
1	2015018	Ashutosh Kumar	57.51	4.6
2	2015020	Damini Chauhan	50.57	0
3	2015031	Gaurav Sachdeva	50.84	4.2
4	2015033	Gurek Singh	51.61	6.2
5	2015059	Azhar Tak	54.48	6
6	2015067	Nitin Yadav	53.51	5.6
7	2015071	Piyush Choudhary	50.23	0
8	2015084	Sanidhya Daeeyya	57.78	3.4
9	2015105	Tanishq Chaudhary	46.80	4.4
10	2015109	Umesh	52.48	4.6
11	2015111	Vaibhav Kashyap	56.15	5.6
12	2015121	Abhishek Kashyap	52.56	4.8
13	2015123	Aditya Atri	39.98	2.4
14	2015131	Arijit Panwar	51.94	2
15	2015145	Kunal Sharma	57.72	6.2
16	2015147	Mayank Kumar Pal	56.05	5
17	2015149	Mridul Sharma	38.92	6
18	2015156	Parth Tiwari	51.06	5.4
19	2015162	Rajat Aggarwal	59.69	5.4
20	2015177	Shivam Pal	56.40	4.6
21	2015193	Yogesh Gupta	46.95	4.4

2015059-Azhar, 2015111-Vaibhav Kashyap, 2015156-Parth Tiwari – Last Semester also these students were under the same category .

**List of IInd Year students with overall attendance less than equal to 60% and SGPA less than 6.5**

Roll No.	Name	Average Attendance	SGPA
2014016	Aniket Kadiyan	9.55	4
2014050	Ishan Pandita	31.13	4.63
2014066	Nickey Kumar	53.80	2.8
2014075	Prachi Singh	51.61	5.6
2014125	Aankeet Swain	43.83	6.3
2014151	Paurush Rathi	42.91	5.8
2014155	Robin Singh	38.96	4
2013002	Aashanvit Sheoran	4	55.47
2013003	Abhishek Chaudhary	5.4	58.28
2013008	Akash Gautam	3.4	57.78
2013037	Gaurav Yadav	3.38	52.39
2013054	Kunal Lal	3.4	19.71
2013153	Sahil Sahil	3.17	33.45
2013171	Yogesh Kumar	3.8	50.84
2014019	Ankur Dhaka	5	53.32
2014052	Kshitij Kishor	3.2	16.67
2014117	Vedant	3.8	30.92

2014016-Aniket Kadiyan, 2014050-Ishan Pandita, 2014066-Nickey, 2014151-Paurush Rathi, 2013002-Aashanvit Sheron, 2013003-Abhishek Chaudhary, 2013037-Gaurav Yadav, 2013153-Sahil - Last sem too these students were under the same category

**3. Examination**

<b>Date of Moderation</b>	4 May 2016
<b>Date of Declaration of Results</b>	10 May 2016
<b>No. of I-grades at the time of declaration of result s</b>	257
<b>No. of Grade Changes done</b>	13 As on 27 May 2016
<b>Unauthorized absence from exams</b>	31

## 4. Student Performance

### BTech

#### Overall BTech student performance for Winter 2016

SGPA Range	2015		2014		2013		2012	
	CSE	ECE	CSE	ECE	CSE	ECE	CSE	ECE
<=5	13	15	15	5	11	3	4	1
>5<=7	33	24	33	12	30	16	24	13
>7<=8	26	19	32	4	28	5	27	12
>8<10	44	13	40	157	34	7	65	12
=10	3	0	0	00	0	0	5	0
Total	119	71	120	36	103	31	125	38
Average	7.32	6.48	7.81	7.08	7.23	7.02	8.15	7.39

#### Students with Backlogs

No. of Back Logs	Ist Year	IInd Year	IIIrd Year	IVth Year	Vth Year	Total
1	25	16	14	9	1	65
2	6	11	2			19
3	2	3	2	3		10
4	1	0	1			2
5	1	0	0			1

#### List of students whose SGPA for this sem is 2 or lesser than previous sem SGPA

2015018	Ashutosh Kumar
2015036	Harshit Sharma
2015054	Mayank Bhorla
2015072	Prashant
2015081	Rupal Jain
2015123	Aditya Atri
2015131	Arijit Panwar
2015185	Udhbhav Gupta
2014025	Atul Mathur
2014066	Nickey Kumar
2013046	Kapil Khatri
2013053	Kunal Choudhary
2013059	Mayank Vachher
2013078	Ritvik Agarwal
2013085	Sambhav Satija
2013100	Shubham Sharma

#### List of students whose SGPA for this sem is 2 or more than previous sem SGPA

2014162	Siddhant Gandhi
2013105	Sonali Raichandel

**Warning Letters sent for Attendance**

No. of BTech students sent warning because of low attendance and poor performance in first year courses	38
No. of students sent warning because of low attendance and poor performance in second year courses	44

**MTech****Overall MTech student performance for Winter 2016**

CGPA Range	M.Tech Batch	
	2014	2015
>=8.00	72	47
6.00-8.00	21	58
<6.00	0	2

**List of students with less than 6 CGPA**

S.No	Roll No	Name	CGPA
1	MT15002	AASHISH GROVER	5.14
2	MT15019	HIMANSHU AGARWAL	5.75

\*MT15019 has registered in Summer 2016.

**Students on Semester Extension**

Sl No.	Roll No	Student Name	CGPA	Expected to Complete in
1	2011094	Sahil Mahajan	8.6	Monsoon 2016
2	MT14009	Hitanshu Rakeshkumar Tiwari	8.44	Monsoon 2016
3	MT14011	Kondamadugula Raghunath Reddy	7.26	Summer 2016
4	MT14013	Manisha Agrawal	8.89	Monsoon 2016
5	MT14028	Veronica Sharma	6.87	Monsoon 2016
6	MT14034	Amitesh	6.2	Summer 2016
7	MT14037	Deependra Raghuvanshi	7.83	Monsoon 2016
8	MT14047	Abhishek Mitra	8.67	Monsoon 2016
9	MT14055	Sangeeth K	8.71	Monsoon 2016
10	MT14082	Kavya Gupta	8.75	Monsoon 2016
11	MT14092	Suman Pani	7.5	Monsoon 2016

**No. of MTech Thesis Defended and Industry Project/Capstone Project/Scholarly Paper submitted**

S.No.	Course	Defense and Evaluation
1	Thesis	5
2	Scholarly Paper	5
3	Capstone Project	0
4	Industrial Project	0

**PhD**

Name of the students who put under warning				
S.No.	Name	When	Reason	Status
1	Ankita Deo	Jan – 16	Due to low CGPA	Warning revoke w.e.f. May 2016
2	Rahul Bajpai	Jan-16	Due to poor review	Follow up review is due before the start of Monsoon Semester 2016
3	Niharika Aggarwal	May-16	Due to low CGPA	
4	Payal Garg	Oct-15	Due to low CGPA	
5	Vijay Gahlawat	Jun-15	Due to low CGPA	

SNo.	Item	Dec	Jan	Feb	Mar	Apr	May	Total
1	No. of Comprehensive done	7	-	2	1	1	1	12
2	No. of Fellowships awarded	-	1*	1**	-	-	-	2
3	No. of Thesis Defended	-	-	-	-	2	-	2
4	No. of Students who were on semester Leave during the semester	-	-	-	1	-	-	1

\*TCS fellowship, \*\* IBM fellowship

### Highest Grade Info:

#### No. of Students who got A+ grades

Batch-->	2015		2014		2013		2012		Total
	Course	No. of Students who got A+	Course	No. of Students who got A+	Course	No. of Students who got A+	Course	No. of Students who got A+	
BTech	DSA	4	CN	5	IPO	1	TMC	2	
	IED	2	DBMS	1	A&G	1	NT	1	
	BE	1	EVS	3	IP	1	FF	4	
	P&S	1	TCOM	4			BTP	3	
			NA	1			GT	1	
							IR	6	
							Lit	1	
							AEA	2	
							PCSMA	1	
							SSD	1	
							OCS	1	
							SDN	1	
		<b>Total</b>	<b>8</b>		<b>14</b>		<b>3</b>		<b>24</b>
MTech	IR	3	IR	9					
	DBSI	1							
	<b>Total</b>	<b>4</b>		<b>9</b>					<b>13</b>

List of Students who got A+ Grade				
Roll No.	Name	Program	Course/s	No. of A+ Grades
2012003	Aarushi Goel	BTech/CSE	Theory of Modern Cryptography	1
2012014	Akshima	BTech/CSE	Theory of Modern Cryptography	1
2012016	Alakh Dhruv Chopra	BTech/CSE	Number Theory	1

2012038	Hardik Choudhary	BTech/CSE	Foundations of Finance	1
2012041	Ishan Manjani	BTech/CSE	Foundations of Finance, BTP	2
2012050	Kriti Pandey	BTech/CSE	Software Defined Networking	1
2012062	Mrinal Kachhara	BTech/CSE	Applied Econometric Analysis	1
2012073	Pranav Chadha	BTech/CSE	Information Retrieval	1
2012078	Prateekshit Pandey	BTech/CSE	BTech Project	1
2012082	Pulkit Arora	BTech/CSE	Graph Theory, Information Retrieval	2
2012084	Rishi Baijal	BTech/CSE	Introduction to the study of Literature	1
2012086	Rohan Katyal	BTech/CSE	Information Retrieval	1
2012111	Talha Ahmad Siddiqui	BTech/CSE	Foundations of Finance, Information Retrieval	2
2012131	Ayush Verma	BTech/CSE	Applied Econometric Analysis, Programming Cloud Services for Mobile Applications	2
2012141	Magus Verma	BTech/CSE	Information Retrieval	1
2012155	Rajat Kashyap	BTech/ECE	Solid State Devices	1
2012160	Shreya Singh	BTech/ECE	Optimal Control Systems, BTP	2
2012163	Shuktika Jain	BTech/CSE	Foundations of Finance	1
2012164	Shweta Sood	BTech/CSE	Information Retrieval	1
2013012	Amya Rai	BTech/CSE	Animations and Graphics	1
2013044	Juhi Bhatnagar	BTech/CSE	Independent Project	1
2013081	Rupam Patir	BTech/CSE	Introduction to Poetry	1
2014004	Adesh Pandey	BTech/CSE	Computer Networks	1
2014007	Aishwarya Jaiswal	BTech/CSE	Computer Networks	1
2014011	Alind Khare	BTech/CSE	Fundamentals of Database Systems	1
2014021	Anshuman Suri	BTech/CSE	Environmental Sciences	1
2014041	Gursimran Singh	BTech/CSE	Network Administration	1
2014051	Ishita Verma	BTech/CSE	Technical Communication	1
2014089	Rounaq Jhunjhunu Wala	BTech/CSE	Environmental Sciences	1
2014096	Satyam Kumar	BTech/CSE	Computer Networks	1
2014128	Aditya Dwivedi	BTech/CSE	Technical Communication, Computer Networks	2
2014129	Aditya Jain	BTech/ECE	Environmental Sciences	1
2014143	Harish Fulara	BTech/CSE	Computer Networks	1
2014168	Tarun Verma	BTech/ECE	Technical Communication	1
2014170	Varun Jain	BTech/CSE	Technical Communication	1
2015028	Divyanshu Talwar	BTech/CSE	Introduction to Engineering Design	1
2015049	Kushagra Arora	BTech/CSE	Data Structures and Algorithms	1
2015050	Lamha Goel	BTech/CSE	Probability and Statistics, Basic Eletronics, Intro to Eng Design, Data	4

			Structures and Algorithms	
2015065	Nikhil Hassija	BTech/CSE	Data Structures and Algorithms	1
2015069	Parth Mittal	BTech/CSE	Data Structures and Algorithms	1
MT14002	Anurag Chowdhury	MTech (CSE)/Gen	Information Retrieval	1
MT14005	Deepak Das	MTech (CSE)/Gen	Information Retrieval	1
MT14009	Hitanshu Rakeshkumar Tiwari	MTech (CSE)/Gen	Information Retrieval	1
MT14013	Manisha Agrawal	MTech (CSE)/Gen	Information Retrieval	1
MT14016	Niharika Gupta	MTech (CSE)/Gen	Information Retrieval	1
MT14027	Vasudev Chatterjee	MTech (CSE)/Gen	Information Retrieval	1
MT14036	Ankit Verma	MTech (CSE)/IS	Information Retrieval	1
MT14047	Abhishek Mitra	MTech (CSE)/MC	Information Retrieval	1
MT14049	Himanshu Varshney	MTech (CSE)/MC	Information Retrieval	1
MT15033	MEETIKA ANAND	MTech (CSE)/MC	Database System Implementation	1
MT15045	PRERNA AGARWAL	MTech (CSE)/DE	Information Retrieval	1
MT15054	RICHA VERMA	MTech (CSE)/DE	Information Retrieval	1
MT15056	SAGAR VERMA	MTech (CSE)/IS	Information Retrieval	1

## **5. Summary of TA/RA Work**

### **MTech**

<b>Sl.No.</b>	<b>Particulars</b>	<b>Numbers</b>
1	Total Number of M.Tech TA	169
2	Total TA with Satisfactory Performance	167
3	Total TA with unsatisfactory Performance	2

## PHD

Month	Total No. of Students	No. of students with Attendance less than 75%	No. approved leaves/ Advisor confirmations	No. of students for whom Fellowship was Deducted
Jan-16	53	2	12	-
Feb-16	53	2	6	1
Mar-16	53	5	18	1
Apr-16	52	6	8	2
May-16	52	7	18	2

## 6. Admissions PhD

### Rolling Admissions (Jan – May, 2016)

Number of Students selcted for PhD admissions during Jan - May, 2016						
For the month	No. of students selected	Discipline			From	Name of Student
		CSE	ECE	Mathematics		
Feb 2016 (Through visit of different Institutes)	1	1			IITM, Gwalior	Vishakha Gupta
	6	1	5		AMU	Tarique Anwar Rizwana Ahmad Mohd. Hamza Naim Antra Saxena Sarah Anjum Vibhanshu
March, 2016	1		1		BE, PTU	Shalin Verma
May, 2016	3	2	1		Btech DU	Mayank Malhotra
					Migrated from MTech to Phd	Vijay Sharam
					IIT Guwahati	Rahul Gangopadhyay
<b>Total</b>	<b>11</b>					

### Regular Admission

April 2016 (Regular admissions)	12	4	6	2		Ramneek Kaur Jyoti Anubhav Guleria Piyush Sharma Sachin Kumar Yadav Nishtha Bhawna Tiwari Akanksha Farswan Priyanka Pandey Shelly Garg Harshdeep Singh Ritika Gulati
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## 7. Student Interactions & Meetings Conducted

### Interactions with Students

Group of Students	Date of Interaction	Agenda
All Students(BTech+MTech+PhD)	5-7 Jan 2016	Course Registration Guidance
PhD	17 March 2016	Regular Interaction
MTech CSE	4 Feb 2016	Regular Interaction
MTech ECE	4 Feb 2016	Regular Interaction

### UGC/PGC Meetings done

Item	Nos.
UGC Meetings	4
PGC Meetings	3

No. of Open House sessions conducted during the semester - 1

## 8. Other Statistics

### No. of International /National conference attended by students

Programme	No. of National Conferences attended	No. of International Conferences attended
BTech	2	0
MTech	6	2
PhD	6	13

### No. of students who have withdrawn from the Programme

Programme	No. of Withdrawals
BTech	8
MTech	0
PhD	1

### No. of Students who were on semester Leave during the semester

Programme	Nos
BTech	20
MTech	1
PhD	1

### No. of Students suspended coz of Disciplinary Action

Programme	Nos
BTech	2

**No. of non-degree visiting students**

<b>Sl.No.</b>	<b>Particulars</b>	<b>Nos.</b>
1	Number of Applications	0
2	Number of Selected Applications	0

**Counsellor Visits**

<b>Item Name</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>Total</b>
No. of Visits	8	5	7	6	9	35

**Annexure III**

ACADEMIC CALENDAR (MONSOON SEMESTER 2016)																											
Week 0 (July-August)						Week 1 (August)						Week 2 (August)						Week 3 (August)									
Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat				
25	26	27	28	29	30	1	2	3	4	5	6	8	9	10	11	12	13	15	16	17	18	19	20				
		Semester Begins	3 Days Module for Btech Students			1st Day of Class		Last day for Late Regn.		Last day for course Add/Drop								Independence day					ESYA *				
											H						H	H	H								
Week 4 (August)						Week 5 (August-September)						Week 6 (September)						Week 7 (September)									
Mon	Tue	Wed	Thurs	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat				
22	23	24	25	26	27	29	30	31	1	2	3	5	6	7	8	9	10	12	13	14	15	16	17				
			Janamashtami		Convocation						TT-Mon							Bakrid					H				
			H														H	H	H				H				
Week 8 (September)						Week 9 (September-October)						Week 10 (October)						Week 11 (October)									
Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat				
19	20	21	22	23	24	26	27	28	29	30	1	3	4	5	6	7	8	10	11	12	13	14	15				
Mid-Sem Examinations											Last Date for Late Drop							Mid Recess									
											H						H	Dussehra	Muharram								
Week 12 (October)						Week 13 (October)						Week 14 (October-November)						Week 15 (November)									
Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat				
17	18	19	20	21	22	24	25	26	27	28	29	31	1	2	3	4	5	7	8	9	10	11	12				
					H						H						H					Pre-registration Starts	H				
Week 16 (November)						Week 17 (November)						Week 18 (November-December)						Week 19 (December)									
Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat				
14	15	16	17	18	19	21	22	23	24	25	26	28	29	30	1	2	3	5	6	7	8	9	10				
Guru Nanak's Birthday	TT-Mon	TT-Fri	BTP submission Last Day of the Class	No class day										BTP Presentation			Pre-registration Ends	Moderation Meeting	Winter Vacation Starts			Announcement of Grades (Tentative)					
	H				H	End-Sem Examinations/Labs/Demos/Projects																					
TT: Adjusted Days						GH: Gazetted Holidays																					
3-Sep(Sat): MONDAY's Time Table						15-Aug Independence Day(Monday)						25-Aug Janamashtami (Thursday)						12-Sep Bakrid (Monday)									
15-Nov(Tues): MONDAY's Time Table						2-Oct Mahatma Gandhi's Birthday (Sunday)						11-Oct Dussehra (Tuesday)						12-Oct Muharram (Wednesday)									
16-Nov(Wed): FRIDAY's Time Table						18-Oct Maharshi Vamiki's Birthday (Sunday)						30-Oct Diwali (Sunday)						14-Nov Guru Nanak's Birthday(Monday)									
ESYA: Tech. Fest of IIITD (Date is Tentative)						H: This includes Saturdays/Sundays and GH												* Mid Recess & Winter Vacation - For UG Students only									
TimeTable-Adjustment						Dropped GH						Important Events						Registration Days									

## Rewarding Students with Outstanding Performance

As our student population increases, and as they show achievements in a variety of ways, we need a framework which can recognize more achievements of our students. Currently we have "best" type framework - which is too restrictive and competitive. Broader-based recognitions can be used to respect and recognize the achievements, and also for student motivation.

Overall, we should try to recognize about top 5-10% of our students for various contributions or achievements each year, as well as during the convocation for the graduating batch. This note has some suggestions for these recognition/awards.

### For the Graduating Batches

- Besides the Chancellor's gold medal, we can have the toppers of each program in which we recognize the top three highest CGPA students in each BTech program
- We expand the "best all-rounder" recognition to "top all-rounders" in which we recognize top all-rounder from each discipline, or recognize top 5 all-rounders from the batch.
- Replace the "best" BTP/MTP with "Distinguished Thesis" in each specialization and focus area for BTP (research, engg, ent). Up to about top 10% of the BTPs can be recognized. This can motivate students as they are not competing with others, but can get it based on the quality of their thesis....
- Start all-rounder awards for MTech students also - maybe one from each of the streams

### Award Every Year – open to all batches

- Top 5% of the students based on previous year's CGPA. Alternatively, recognize those who achieve 9.0 or above in the previous year. Maybe special mention of those who got all A (or A-).
- For rewarding improvement, recognize those students whose year's performance (i.e. the cgpa of the two semesters of the year) is better than their cgpa by some amount (say 1.0).
- Start "distinguished projects" awards. These are non-BTP projects (could be from IP, UR, domain study, course project, summer internship, etc....), which may be awarded in categories like - "socially relevant" (solving some social problem), industry facing" (those that are relevant to industry or maybe done with industry), globally connected (those with global collaboration....). Projects will be nominated using a form – initially all nominees will assess other projects (except their own), and based on this assessment a shortlisting will be done, from which a committee will select the projects to be recognized.
- Students with exceptional contribution to the Institute or Society – while projects are technical in nature, these are recognitions for services provided by the students to the Institute or Society

(through the Institute – say through summer programs, through CW, ...). Anyone can nominate a student (students, faculty, staff) stating the contribution of the student in a short form. A committee of staff, students (without conflicts), and faculty can select who should be recognized.

For some of these, particularly the ones given yearly, appreciation letters may be sent to the parents also from the Institute.

### **Template for nominating for “Distinguished Project”**

Project Title:

Name(s) of student:

Roll No(s):

Advisor(s) Name:

Project's origins – IP, UR, course project, .....

Project start dates:

Duration of work on the project:

Deliverables of the project (e.g., system/paper/ software/report):

Summarize the key contributions/innovations/... in the project and its impact.