

भारतीय प्रौद्योगिकी संस्थान मण्डी  
कमांद-175075, हिमाचल प्रदेश

**INDIAN INSTITUTE OF TECHNOLOGY MANDI  
KAMAND – 175075, HIMACHAL PRADESH**



कार्य सूची  
**AGENDA**  
अड़तीसवीं सीनेट बैठक सूची

**AGENDA FOR THE 38<sup>th</sup> SENATE MEETING**

बैठक सं०	:	अड़तीसवीं
MEETING NO.	:	THIRTY EIGHTH
स्थान	:	सभा कक्ष, सी. वी. रमन अतिथि गृह, आई. आई. टी. मण्डी
VENUE	:	CONFERENCE ROOM, C. V. RAMAN GUEST HOUSE, IIT MANDI
दिनांक	:	8 फरवरी, 2023
DATE	:	8 <sup>th</sup> February, 2023
समय	:	10:00 पूर्वाह्न
TIME	:	10:00 A.M.

**INDIAN INSTITUTE OF TECHNOLOGY MANDI  
KAMAND, HIMACHAL PRADESH**



**38<sup>th</sup> SENATE MEETING  
WEDNESDAY, 8<sup>th</sup> FEBRUARY, 2023**

**AGENDA**

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# PART – ‘A’

**Item No. 38.1: To confirm the minutes of the 37<sup>th</sup> Senate meeting held on 7<sup>th</sup> October, 2022.**

The minutes of the 37<sup>th</sup> Senate meeting held on 7<sup>th</sup> October, 2022 at IIT Mandi were circulated to members of the Senate on 4<sup>th</sup> November, 2022 (through email) for comments. No comments have been received on the minutes.

In view of the above, the Senate may consider confirming the minutes of 37<sup>th</sup> Senate meeting of the Institute.

**Item No. 38.2: To receive a report on the actions taken on the decisions taken in the 37<sup>th</sup> Senate meeting held on 7<sup>th</sup> October, 2022.**

Given below are the details of actions taken on the decisions taken in 37<sup>th</sup> Senate meeting held on 7<sup>th</sup> October, 2022.

Item No.	Particulars	Status of Action Taken
37.3	To consider the revision of Teacher Course Feedback (TCF) and Class Committee Meeting (CCM).	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/5435-39 dated 10-01-2023
37.4	To consider the guidelines for JRF to SRF and issues related to monthly scholarship for M.Tech. (By Research) /M.Tech./ I-Ph.D./Ph.D. scholars.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4536-41 dated 16-11-2022
37.5	To consider the proposal of MoU for Joint Ph.D./ M.Tech./M.Sc degrees and early admission in IIT Mandi for students of CFTIs and top 100 overall NIRF ranked Institutes.	The Senate approved the proposal and it was reported to the BoG.
37.6	To consider the revision in the Ordinances & Regulations of the M.Tech. (By Research) /Ph.D. programme.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4542-47 dated 16-11-2022
37.7	To consider revision in the curriculum of I-Ph.D. (Physics) programme.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/5798-5801 dated 27-01-2023
37.8	To consider the recommendations for updating the list of courses for CSE Minor.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4554-57 dated 16-11-2022



37.9	To consider revision in the curriculum of MBA programme and calendar.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4558-61 dated 16-11-2022
37.10	To consider the proposal of Academic Calendar (AY 2022-23) for B.Tech. first year 2022.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4568-73 dated 16-11-2022
37.11	To consider the revision in the B.Tech. curriculum.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4641-45 dated 28-11-2022
37.12	To consider the minor modification in Grading System.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4646-51 dated 28-11-2022
37.13	To consider a policy across the Institute regarding Academic Ethics Policy.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4574-77 dated 16-11-2022
37.14	To consider the proposal for Academic Structure.	The Senate approved the proposal and it was reported to the BoG.
37.15	To consider the proposal of Academic Calendar (AY 2022-23) for Even Semester and (AY 2023-24) Odd semester.	Approved and Notified vide Notification No. IIT Mandi/Acad/Senate/2022/4578-83 dated 16-11-2022
37.16	To consider the proposal for Dual M.Tech. + Ph.D. programme.	The Senate approved the proposal and it was reported to the BoG.

**Item No. 38.3: To consider the proposal of new branch in B.Tech. programme i.e., B.Tech. in Materials Science and Engineering.**

In the 48<sup>th</sup> meeting of the Board of Academics held on 10<sup>th</sup> January, 2023, Dr. Viswanath Balakrishnan, presented a proposal regarding a new branch in B.Tech. programme i.e., B.Tech. in Materials Science and Engineering. After discussions, the BoA recommended the proposal. Dr. Viswanath Balakrishnan will present the proposal to the Senate for consideration and approval.

**Item No. 38.4: To consider the proposal of new branch in B.Tech. programme i.e., B.Tech. in General Engineering.**

In the 48<sup>th</sup> meeting of the Board of Academics held on 10<sup>th</sup> January, 2023, Dr. Satvasheel Powar presented a proposal of new branch in B.Tech. programme i.e., B.Tech. in General Engineering. After discussions, the BoA recommended the proposal. Dr. Satvasheel

Powar will present the proposal to the Senate for consideration and approval.

**Item No. 38.5: To consider the proposal of new BS-MS in Chemical Sciences.**

In the 48<sup>th</sup> meeting of the Board of Academics held on 10<sup>th</sup> January, 2023, Dr. Bhaskar Mondal presented a proposal of new BS-MS in Chemical Sciences. After discussions, the BoA recommended the proposal, as placed at **Annexure – A; Page No. 18 to 27** to the Senate for consideration and approval.

**Item No. 38.6: To consider the proposal of M.Tech./M.A/M.Tech (Research) with Specialization.**

In the 48<sup>th</sup> meeting of the Board of Academics held on 10<sup>th</sup> January, 2023, Dr. P Anil Kishan, Associate Dean (Courses) presented the proposal for award of PG Degrees with Specialization in different areas. After discussions, the BoA recommended the proposal to the Senate for consideration and approval. The proposal is as under:

M.Tech. (by Res.) is presently being offered in areas of science, technology, humanities, and social sciences as per O & R. This program is relatively more popular among engineering disciplines due to its professional name.

Programme	Degree	Requirements
M.Tech (by Research)	Degree can be awarded as it is ( <i>with the thesis dissertation</i> )	15 credits + 1 RM specified by Guide

In order to promote master level research programs, the following research programs are proposed which can be offered by respective Schools/Centre as mentioned below:

Programme	Degree	Requirements
M.Tech (Research)	Degree can be awarded as it is ( <i>with the thesis dissertation</i> )	15 credits + 1 RM specified by Guide
MS (Research)		
MA (Research)		
M.Tech/MS/MA (Research) with specialization in specific areas	Degree can be awarded as M.Tech (Research) in Thermal Engineering ( <i>Along with dissertation title</i> )	15 credits (recommended by APC in the specialization area e.g. thermal courses of 5 level or more) + 1 credit RM ( <i>Along with dissertation with in the same specialization</i> )



**Some of the proposed specializations are as follows:**

M.Tech (Res.) in Engineering Structures/Construction Technology & Management/ Geotechnical Engineering/ Transportation Engineering/ Environmental Engineering/ Remote Sensing & GIS/ Water Resource Engineering, etc.

M.Tech (Res.) in Thermal Engineering/Manufacturing/Automobile Engineering/Manufacturing Engineering/Material Technology/Product Design and Development/ Robotics/Control Systems/Computational Mechanics etc.

M.S.(Res.) in Data Science, Statistics, Computing and Mathematics, Condensed Matter Physics, etc.

Similarly, MA (Res.) can also be awarded in the specialized area of courses and dissertation opted.

***The above-mentioned list is not exhaustive and hence Schools and Centers faculty can decide such specialization based on student's/faculty research interest and based on placement aspects.***

**Item No. 38.7: To consider the proposal of award of B.Tech. degree with Specialization.**

Prof. Rahul Vaish, Dean (Academics) will present a proposal of B.Tech with specialization for consideration and approval of the Senate.

**Item No. 38.8: To consider the proposal for granting permission to extend degree duration (UG/PG).**

In the 48<sup>th</sup> meeting of the Board of Academics held on 10<sup>th</sup> January, 2023, Dr. P Anil Kishan, Associate Dean (Courses) presented the proposal of permission required to extend the degree duration for UG and PG programmes. After discussions, the BoA recommended the proposal, to the Senate for consideration and approval.

Programme	Minimum Duration	Maximum duration
Under graduate (B.Tech.)	4 yrs.	Can be extended maximum up to 2 more years ( <i>after completion of four years from the date of registration</i> ) based on the recommendation of Faculty advisor and School Chairs.  Prior approval of Dean Academics is necessary for continuing registration after 4 yrs.

Postgraduate degrees (course based) (M.Tech, MSc, MBA, MA etc)	2 yrs.	Can be extended maximum up to 1 more year ( <i>after completion of Two years from the date of registration</i> ) based on the recommendation of Faculty advisor/ supervisor and School Chair.  Prior approval of Dean Academics is necessary for continuing registration after 2 yrs.
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**Item No. 38.9: To consider the proposal of modification in the programme M.Tech. in Mechanical Engineering with Specialization in Energy Systems.**

In the 48<sup>th</sup> meeting of the Board of Academics held on 10<sup>th</sup> January, 2023, Dr. Atul Dhar presented the modification in the curriculum of M.Tech. in Mechanical Engineering with Specialization in Energy Systems. After discussions, the BoA recommended the following proposal to the Senate for consideration and approval.

1	<b>Replacing Core Course HS540:</b> Energy: Environment Policy and Law with Open Elective Courses such as: –ME513 Finite Element Method for Engineers –ME601: Advanced Finite Element Methods –HS540 is suggested to be included in the list of electives –Any other course with sufficient out of discipline exposure
2	<b>Replacing ME631:</b> Heat Transfer and Fluid Flow in Energy Systems with ME604: Experimental Methods in Thermal Engineering

The motivation for this change is to effectively handle the teaching load of the faculty of SMME by replacing the course with similar course content.

**Item No. 38.10: To consider the revision in course curriculum of M.Sc. in Applied Mathematics.**

In the 48<sup>th</sup> meeting of the Board of Academics held on 10<sup>th</sup> January, 2023, Dr. Muslim Malik presented the revision in course curriculum of M.Sc. in Applied Mathematics. After discussions, the BoA recommended the proposal, as placed at **Annexure - B; Page No. 28 to 32** to the Senate for consideration and approval. Dr. Rajendra K Ray will present the proposal to the Senate.

**Item No. 38.11: Any other agenda item with the permission of the Chairman, Senate.**



**Item No. 38.12: To report decisions/action taken by the Chairman, Senate.**

- (i) **Re-constitution of Senate Library Committee (in place of Library Advisory Council):** Library Advisory Council renamed as Senate Library Committee is re-constituted. **(Approved on 22<sup>nd</sup> September, 2022)**
- (ii) **Institute Financial Support (OH-31 Recurring Expenditure) for Ph.D. Scholars:** Considering the recommendation of Dean (Academics) & Dean (F & A) Rs. 25000/- for each Ph.D. scholars to promote their research accomplishments and research grant approved by School Chairs. **(Approved on 29<sup>th</sup> September, 2022)**
- (iii) **Requirements of MS/PhD/I-Ph.D. dissertations for evaluation and Institute records:** **(Approved on 10<sup>th</sup> October, 2022)**
- (iv) **Addendum for the Student Award during 10<sup>th</sup> Convocation:** Ms. Kiran Bala Arora Memorial Award awarded to Ms. Sai Sushma P (S19012). **(Approved on 23<sup>rd</sup> November, 2022)**
- (v) **Withdrawal from the programme during (26<sup>th</sup> September, 2022 to 23<sup>rd</sup> January, 2023):**

The following student resigned and requested for withdrawal which was recommended by his Faculty Advisor/School Chair. Consequently, Chairman, Senate approved their withdrawal from the programme.

Sl. No	Roll No.	Student Name	School/Branch	Program	Date of Joining	Date of Resignation Accepted
1	T21289	Ajey Singh	SCENE	M.Tech.	09-08-2021	26-09-2022
2	D21009	Sonalika Singh	SCEE	Ph.D.	09-08-2021	26-09-2022
3	D22079	Arpit Verma	SCENE	Ph.D.	17-08-2022	26-09-2022
4	B21080	Aditya Khandelwal	SCEE	B.Tech.	24-11-2021	06-10-2022
5	V22029	Aaina	SMSS	M.Sc.	10-08-2022	06-10-2022
6	T22452	Meghrem Meena	SCENE	M.Tech.	10-08-2022	10-10-2022
7	T22059	Akshay Mishra	SCEE	M.Tech.	16-08-2022	20-10-2022
8	D20033	Arti Yadav	SCS	Ph.D.	16-09-2020	20-10-2022
9	D22080	Akshay Rai Bansal	SCENE	Ph.D.	17-08-2022	03-11-2022
10	V22130	Barmeda Divya Bhavesh	SPS	M.Sc.	10-08-2022	03-11-2022
11	S21019	Raktim Bhattacharya	SCEE	M.S.	01-02-2018	17-11-2022
12	B20224	Pratigya Baghel	EE	B.Tech.	20-11-2020	23-11-2022

13	D22082	Tarun Singh	SCENE	Ph.D.	17-08-2022	26-12-2022
14	B21092	Chhagan Lal Meena	CSE	B.Tech	24-11-2021	26-12-2022
15	D22074	Kshitij Vashist	SMME	Ph.D.	24-08-2022	03-01-2023
16	D22057	Asrar Rafiq Bhat	SMME	Ph.D.	10-08-2022	03-01-2023
17	T22459	Anurag Kumar	STE	M.Tech	17-08-2022	03-01-2023
18	S21024	Ammu S Bhargav	SCEE	M.S.	15-02-2022	03-01-2023
19	D19038	Jeetendra Chaudhary	SCEE	Ph.D.	18-10-2019	10-01-2023
20	D22109	Suhail Ahmad Baba	SCENE	Ph.D.	26-08-2022	16-01-2023
21	D22093	Vishesh Singh	SMME	Ph.D.	17-08-2022	23-01-2023
22	D22058	Ramandeep Pal	SBB	Ph.D.	10-08-2022	23-01-2023

**(vi) Cancellation of registration/termination from the programme during (23<sup>rd</sup> November, 2022 to 21<sup>st</sup> December, 2022):**

The following students registrations were cancelled/terminated from the programme which was recommended by their Faculty Advisor/Guide/DC/School Chair. Consequently, Chairman, Senate approved their cancellation of registration from the programme.

Sl. No	Roll No.	Student Name	Branch/School	Program	Date of Joining	Date of Cancellation	Reasons for cancellation
1	B16108	Paila Kesave Rao	ME	B.Tech.	01-08-2016	23-11-2022	Not attended the classes, not maintain minimum CGPA, did not respond to the email communication, non-registration and non-payment of fee, completed maximum duration of programme
2	T19174	Vangipuram Lakshmi priya	PED	M.Tech.	01-08-2019	21-12-2022	Not joined the institute, non-registration and non-

							payment of fee, completed maximum duration of programme
3	T19146	Ayan Kr Jana	PED	M.Tech.	01-08-2019	21-12-2022	Not joined the institute, non-registration and non-payment of fee, completed maximum duration of programme
4	T19124	Sachin	VLSI	M.Tech.	01-08-2019	21-12-2022	Not joined the institute, non-registration and non-payment of fee, completed maximum duration of programme
5	T19075	Satvik Rai	EEM	M.Tech.	09-08-2019	21-12-2022	Not joined the institute, non-registration and non-payment of fee, completed maximum duration of programme
6	V18055	Vijay	SCS	M.Sc.	13-08-2018	21-12-2022	Not joined the institute, non-registration and non-payment of fee, completed maximum duration of programme



7	V18021	Kaushal Pinky	SMSS	M.Sc.	13-08-2018	21-12-2022	Not joined the institute, non-registration and non-payment of fee, completed maximum duration of programme
8	V17088	Sanjeev Kumar	SPS	M.Sc.	08-08-2017	21-12-2022	Not joined the institute, non-registration and non-payment of fee, completed maximum duration of programme

**(vii) Provisional Certificate issued to M.S. / Ph.D. scholars (approved during 26<sup>th</sup> September, 2022 – 23<sup>rd</sup> January, 2023):**

On completion of all requirements of M.S./Ph.D., Provisional Degree Certificates have been issued to following students:

Sl. No	Roll No.	Student Name	Programme	School	Date of Joining	Provisional Certificate issued on
1	S18027	Prakash Poudel	M.S.	SMME	01-02-2019	26-09-2022
2	D16013	Priyamedha Sharma K R	Ph.D.	SPS	01-08-2016	26-09-2022
3	D16019	Ankur Kumar	Ph.D.	SBB	01-08-2016	26-09-2022
4	D17004	Ashish Kumar	Ph.D.	SMME	03-08-2017	27-09-2022
5	D16029	Satish Kumar	Ph.D.	SMME	05-08-2016	29-09-2022
6	S20022	Joe Johnson	M.S.	SCEE	01-02-2018	20-10-2022
7	S19015	Jain Pratik Pradip	M.S.	SCEE	01-08-2019	20-10-2022
8	PTD14 01	Shishu Bala	Ph.D.	SHSS	04-08-2014	20-10-2022
9	D16046	Deepu Kumar	Ph.D.	SPS	01-02-2017	20-10-2022
10	D16040	Neelesh Yadav	Ph.D.	SCEE	01-02-2017	20-10-2022
11	D16031	Sneha Das	Ph.D.	SCENE	05-08-2016	20-10-2022
12	D17037	Shamim SK	Ph.D.	SPS	01-02-2018	21-10-2022

13	D16055	Pushpendra Kumar Shukla	Ph.D.	SMME	01-02-2017	21-10-2022
14	D16018	Chandrakant Joshi	Ph.D.	SBB	01-08-2016	21-10-2022
15	S19025	Harshita Arya	M.S.	SCEE	03-02-2020	21-10-2022
16	S19012	Sai Sushma P	M.S.	SCEE	01-08-2019	21-10-2022
17	S19002	Inder Pal Singh	M.S.	SMME	01-08-2019	21-10-2022
18	S19021	Punit Pankaj Dubey	M.S.	SCEE	03-02-2020	28-10-2022
19	D16041	Manoj Kumar Yadav	Ph.D.	SCEE	01-02-2017	03-11-2022
20	D16003	Sanal Gupta	Ph.D.	SHSS	25-07-2016	03-11-2022
21	PTD14 03	Pratik Chaturvedi	Ph.D.	SCEE	01-08-2014	03-11-2022
22	PTD15 01	Munmun Baisantry	Ph.D.	SCEE	08-02-2016	03-11-2022
23	S19020	Harsh Katakwar	M.S.	SCEE	03-02-2020	03-11-2022
24	D16068	Nisha Kumari	Ph.D.	SCS	01-02-2019	14-11-2022
25	D18055	Misbah Bashir	Ph.D.	SCENE	01-02-2019	14-11-2022
26	D16061	Surbhi Dogra	Ph.D.	SBB	01-02-2017	23-11-2022
27	DI1504	Ruchika Mahajan	I-Ph.D.	SPS	17-08-2015	23-11-2022
28	D16084	Sourabh Garg	Ph.D.	SMSS	28-02-2017	25-11-2022
29	D16080	Rajeev Ray	Ph.D.	SPS	06-02-2017	25-11-2022
30	D18024	Shivani Tyagi	Ph.D.	SCENE	01-08-2018	25-11-2022
31	D15046	Amrutha N V	Ph.D.	SHSS	01-02-2016	28-11-2022
32	S19023	Mohsin Asad	M.S.	SCEE	03-02-2020	28-11-2022
33	S19005	Fahed Mohd	M.S.	SMEE	01-08-2019	29-11-2022
34	S18018	Rahul Sharma	M.S.	SCEE	01-02-2019	15-12-2022
35	D17022	Awanish Kumar	Ph.D.	SCEE	01-02-2018	26-12-2022
36	S18025	Arpit Dwivedi	M.S.	SMEE	04-02-2019	26-12-2022
37	DI1603	Antik Sihi	I-Ph.D.	SPS	16-08-2016	03-01-2023
38	T19167	Mrinalkanti Mandal	M.Tech	PED	August, 2019	16-01-2023
39	B18173	Lokesh Bhagwat	B.Tech	EE	August, 2018	16-01-2023
40	D16039	Bulti Pramanick	Ph.D.	SCS	23-01-2017	23-01-2023

**(viii) Conversion from Regular Ph.D. Programme to Part Time Programme (Approved on 10<sup>th</sup> October, 2022):**

On the recommendations of the Guide, School Chair, AD (Research) and Dean (Academics), Chairman Senate has approved the conversion from regular Ph.D. to part-time Ph.D. programme of the given below student:



Sl. No	Roll No.	Student Name	School	Guide	Date of Joining	Date of Conversion
1	D18012	Suryani Sinha Ray	SHSS	Dr. Puran Singh	01-08-2018	10-10-2022

(ix) To report Seat Matrix for Ph.D./M.Tech. (by Rsh) for Feb-June 2023 Semester (AY 2022-23): (Approved on 01-12-2022)

Program	Intake	UR	EWS	OBC (NCL)	SC	ST	PD*	Foreign Nationals
		40.50%	10%	27%	15%	7.50%	5%	10%
PhD SCEE	46	19	5	12	7	3	2	5
PhD SMME	36	14	4	10	5	3	2	4
PhD SCENE	25	10	2	7	4	2	1	2
PHD SMMS	4	2	0	1	1	0	0	0
PhD SCS	14	6	1	4	2	1	1	1
PhD SBB	8	3	1	2	1	1	0	1
PhD SPS	6	2	1	2	1	0	0	1
PhD SHSS	10	4	1	2	2	1	1	1
PhD SoM	20	8	2	5	3	2	1	2
PhD IKSMHA	10	4	1	3	1	1	0	1
M.Tech (by Research) SCEE	41	17	4	11	6	3	2	4
M.Tech (by Research) SMME	20	8	2	5	3	2	1	2
M.Tech (by Research) SCENE	20	8	2	5	3	2	1	2
M.Tech (by Research) IKSMHA	3	2	0	1	0	0	0	0
<b>Total</b>	<b>263</b>	<b>107</b>	<b>26</b>	<b>70</b>	<b>39</b>	<b>21</b>	<b>12</b>	<b>26</b>

\*PD reservations @ 5% will be horizontal (i.e., PD candidates will consume seats from their birth category quota).

(x) To report imposition of Academic Warning/Probation/Termination on the B.Tech. students: Approval for Odd Semester (Aug-Dec 2022): (Approved on 16-01-2023)



Sl. No.	Roll No.	Name	Branch	Earned Credits	SGPA	CGPA	Last Semester Status	Recommendations
1	B19009	KOMBADE MAHESH VISHWANATH	BE	11(116)	4.25	5.97	None	Warning (R grade in DP-399P (9)7)
2	B19202	VADLAMANNATI MADHUMITA	EE	14(137)	4.59	7.19	None	Warning (R grade in DS-404(3)7 & IC-010(2)7)
3	B19210	DIGUMARTHI SAMUEL RAJ	EP	14(124)	4.50	5.36	None	Warning (R grade in HS-591_9(1)7)
4	B20103	HARSHIT KRISHNA	CSE	13(98)	4.83	7.10	None	Warning (R grade in DS-404(3)5)
5	B20108	KANCHAN PURUSHOTTAM PADVI	CSE	10(82)	4.00	5.66	None	Warning (R grade in DS-404(3)5)
6	B20177	ABHIGYA	EE	13(56)	3.41	4.28	None	Warning (R grade in IC-140(4)5, IC-160(3)5 & IC-160P(2)5)
7	B20266	SHARDUL ASHISH MAHAJAN	EP	11(86)	4.15	5.70	None	Warning (R grade in DS-404(3)5)
8	B21258	PRAJWAL ERAPPA K	EP	15(49)	3.27	4.40	None	Warning
9	B18107	ASHOK KUMAR	EE	0(65)	0.00	3.48	Warning	Probation
10	B19082	GAURAV KUMAR	CSE	3(122)	1.71	6.54	None	Probation (R grade in DS-404(3)7)
11	B20262	RAVI SUTHAR	EP	5(81)	1.23	6.08	None	Probation (R grade in DS-404(3)5)
12	B20281	ASHWINI KUMAR	EE	8(86)	2.40	5.85	None	Probation (R grade in DS-404(3)5)
13	B21180	AMIT MEENA	EE	10(40)	2.32	4.25	Warning	Probation (R grade in IC-152(4)3)
14	B21262	SADIQ ALI	EP	12(45)	3.32	4.65	Warning	Probation (R grade in IC-152(4)3)
15	B21278	ANJANI SUNDA	ME	15(43)	4.00	4.21	Warning	Probation
16	B18169	E PRANATHI	ME	3(135)	2.00	5.33	Probation	Termination
17	B19216	MOHAMMED ABDUL TAUFEEQ	EP	14(117)	3.55	5.98	Probation	Termination

# PART – ‘B’

**Item No. 38.13: Issues to be discussed by the Senate without Student Members being present.**

-None-



## Program Proposal Form

**Name of the New Proposed Program: 4-Year BS with optional 1-Year MS (BS-MS) in Chemical Sciences**

**I. General Information:**

Name (s) of prospering schools/centers **School of Chemical Sciences** (in case of an interdisciplinary program, please mention all schools/center's names)

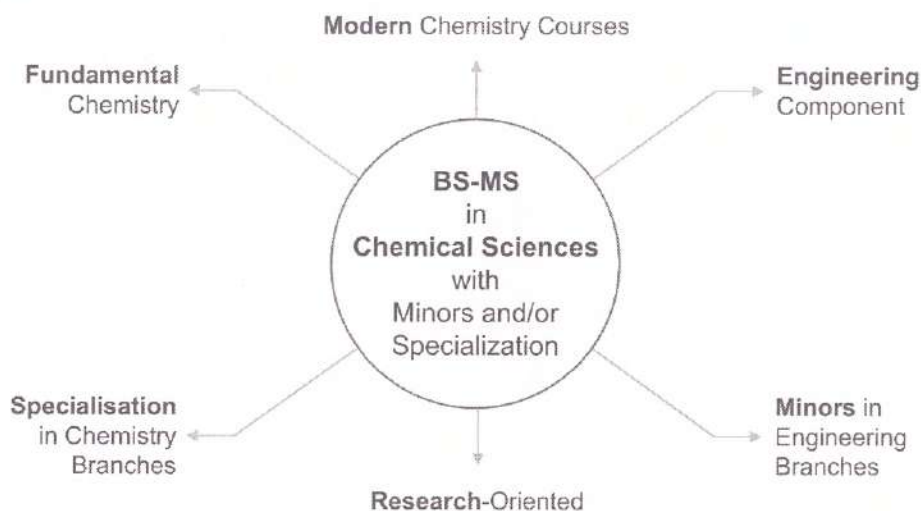
**II. Program Description:**

- A. Provide a justification/rationale for the program. How does the program relate to the mission of the IIT Mandi?

The discipline of Chemical Sciences as an integral part of basic sciences serves as the basis of critical developments for value-added chemicals, pharmaceuticals, novel materials, understanding biological processes, and establishing the theoretical basis of natural phenomena. Therefore, the BS-MS program in Chemical Sciences will create a perfect harmony between chemistry and engineering branches by bridging the gap between chemical, physical, mathematical, computational, data, and engineering sciences. This will create a broad knowledge base through fundamental and applied sciences and engineering for young graduates and produce trained professionals capable of leading endeavors toward innovative product and process development for the Himalayan region and national needs in general. Importantly, with the versatility of the curriculum, the graduates will be exposed to research and development at a very early stage of their education to pursue industrial as well as academic goals. Thus, the program's major objectives align very well with IIT Mandi's mission.

- B. SWOT analysis of the program

**Strength:**



**Weakness:**

- Slightly more emphasis has been given to the engineering courses, which may lead to the dilution of the core Chemistry.

- Currently, the curriculum doesn't have any mandatory industry internship program.

**Opportunities:**

- The holistic nature of the program will offer the BS-MS Chemistry graduates to have job opportunities in a wide range of industries.
- The research-intensive nature of the program will train the students to pursue an academic career (Ph.D.) in renowned national and international institutes.
- BS-MS Chemistry graduates will also have job opportunities in the technology industry.

**Threats:**

- As a considerable component of the curriculum is based on engineering subjects, the students who wish to pursue their career in research may opt for IISER's BS-MS (which has a major focus on science subjects) over this program.
- As there will be an option for branch change, it will result in a decrease in student strength in subsequent years.

C. Justification with respect to New National Education Policy (NEP) mandates

One of the NEP mandates is to provide a more flexible and holistic approach to education, focusing on foundational learning, critical thinking, and life skills. The BS-MS program in Chemical Sciences involves a perfect ratio of fundamental chemistry, specialized chemistry, basic engineering, humanities, hands-on, and research projects, which provide a solid foundation of a holistic and interdisciplinary learning platform. In addition, the minors in engineering branches and specialization in advanced chemistry branches with research experience provide a highly flexible learning environment.

The versatile range of engineering components in the proposed BS-MS program is perfectly aligned with the NEP focusing on using technology in education to make it more accessible and effective.

A large amount of research component in the BS-MS program aligns with one of the key objectives of the NEP to make India a global knowledge superpower by promoting research and innovation. In addition, the BS-MS program will encourage graduates to pursue higher education, which fits the NEP mandate of increasing the gross enrolment ratio (GER) in higher education to 50% by 2035.

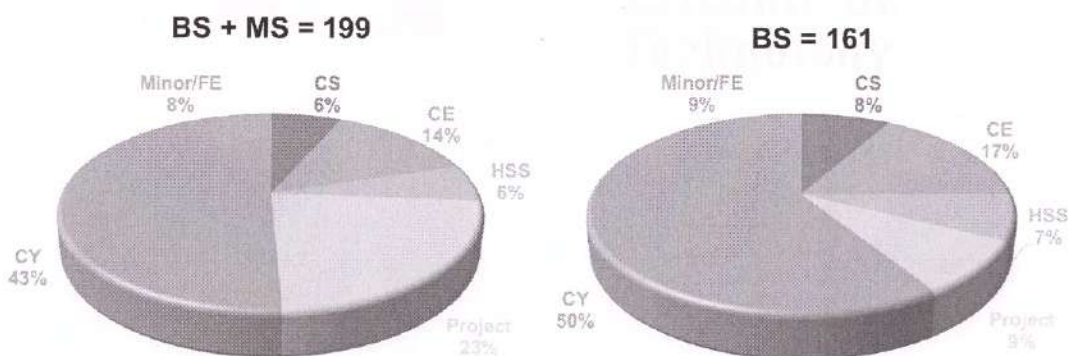
D. Provide a mission statement for the program. Include educational and learning objectives



The 5-year BS-MS program in Chemical Sciences is designed to prepare graduates with a strong foundation in fundamental Chemistry along with Engineering for today's research and technology-driven world. The program creates a perfect harmony between chemistry and engineering branches by bridging the gap between chemical, physical, mathematical, computational, data, and engineering sciences. Particularly, owing to the "true" cross-disciplinary nature of the program, it can help advance the knowledge ranging from atomic-level understating of the chemical and biochemical phenomena to designing and developing new molecules, materials, and devices. As the barrier between basic sciences and engineering is fast disappearing with modern innovations and their applications, the BS-MS program in Chemical Sciences can perfectly inculcate the young minds in academia to develop and deploy chemistry-based technologies for the modern world.

The major objective of this program is to train the graduates with fundamental concepts of both Chemistry and Engineering, thereby, equipping them for taking up diverse roles in industry and academia. The program particularly aims at training young minds to creatively think about research and innovation at a very early stage through a diverse range of hands-on projects. The perfect fusion of chemistry and engineering along with specializations and minors in different branches is the goal that will prepare the students for industry and academia and motivate them toward research and innovation.

#### E. Credit Structure of the program



The overall credit distribution is tabulated below.

Division	Sub-Division	Credit
<b>Institute Core (IC)</b>	IC Compulsory	37
	IC Basket	6
	HSS	9
	IKS	3
<b>Discipline (CY)</b>	Discipline Core	62
	Discipline Elective	15



<b>Electives (E) + Projects</b>	Free Electives	15
	Project	14
<b>BS Total</b>		<b>161</b>
<b>MS Component</b>	<b>Discipline Elective</b>	6
	<b>MS Project</b>	32
<b>BS-MS Total</b>		<b>199</b>

F. List of courses proposed (Course names are tentative and subject to change)

1. CY1XX: General Introduction to Chemistry
2. CY2XX: Principles and Theories of Physical Chemistry
3. CY2XX: Physical Chemistry Laboratory
4. CY2XX: Principles of Organic Chemistry
5. CY2XX: Organic Chemistry Laboratory
6. CY2XX: Introduction to Inorganic Chemistry
7. CY2XX: Inorganic Chemistry Laboratory
8. CY3XX: Fundamental Analytical Chemistry
9. CY3XX: Introduction to Quantum Chemistry and Molecular Spectroscopy
10. CY4XX: Basic Computer Programming, Computation, and Data Analysis (E)
11. CY4XX: Applied Polymer and Materials Chemistry (E)
12. CY5XX: Stereochemistry and Asymmetric Synthesis

G. Provide a list of any current courses that would be cross-listed with the program:

1. IC1XX: Calculus
2. IC1XX: Linear Algebra
3. IC1XX: Graphics for Design
4. IC1XX: Computing and Data Science
5. IC1XX: Complex Variables and Vector Calculus
6. IC161: Applied Electronics
7. IC161P: Applied Electronics Lab
8. IC1XX: Data Science II
9. ICXXX: Foundations of Design Practicum
10. IC222P: Physics Practicum
11. ICXXX: Data Science III
12. IC201P: Design Practicum
13. ICXXX: ODE & Integral Transforms

H. What, if any, new courses will be required for the program? A separate course proposal is required for each new required course.

The new courses proposed in the "List of courses proposed" in Section F will be required. The detailed course curriculum for the courses is attached as a separate document.

- I. Provide a sample academic plan for students completing the academic program being proposed.

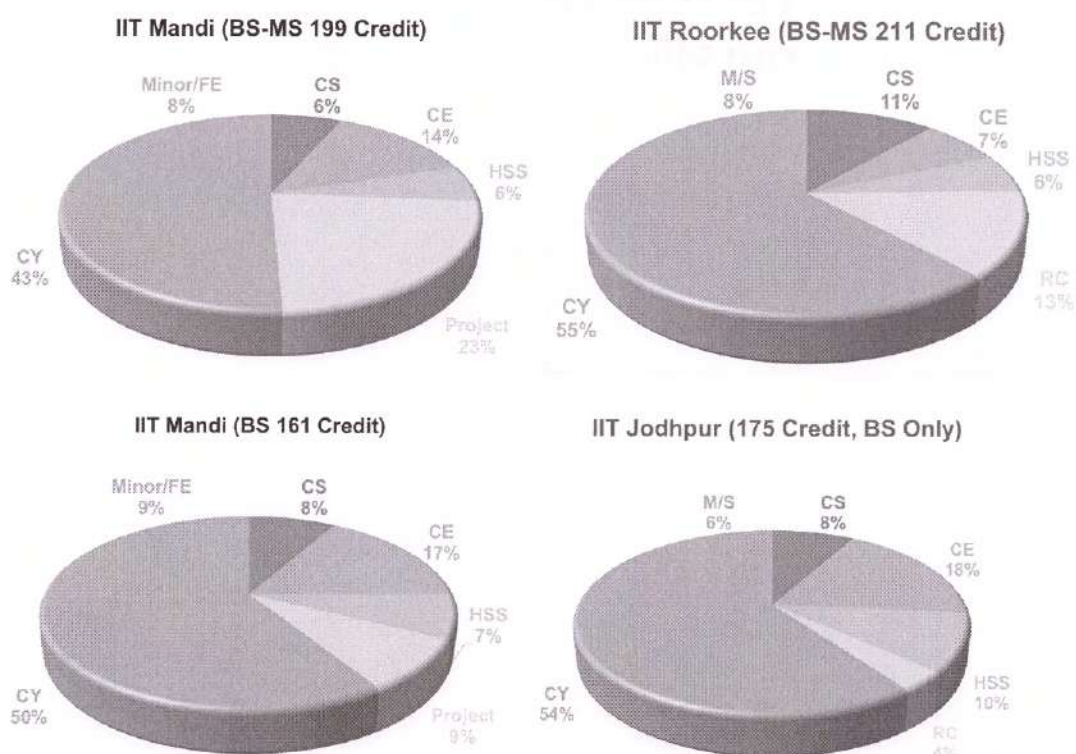
A sample academic plan for students detailing the program description, admission procedure, credit structure, and graduation requirements is attached.

- J. If established at other institutions, please submit sample programs from those institutions.

A 5-year BS-MS program in Chemical Sciences/Chemistry is established at IIT Bombay, IIT Kanpur, and IIT Roorkee, and a 4-year BS program is established at IIT Jodhpur. Available program details from IITB, IITR, and IITJ are attached along with this document.

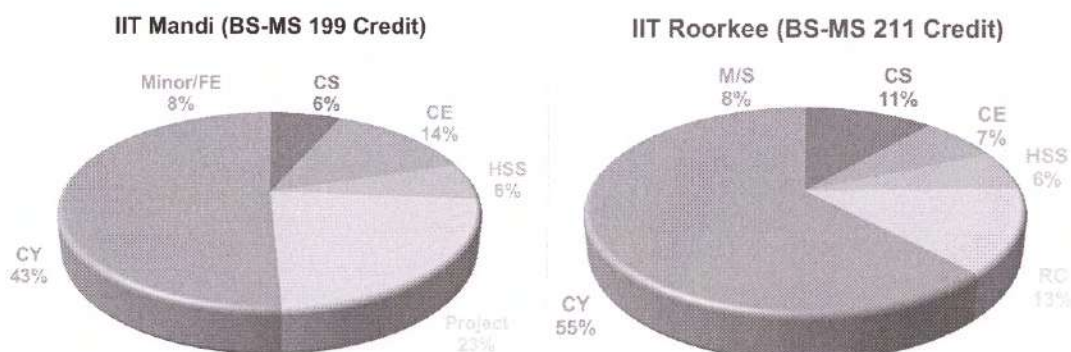
1. In what ways is this proposal consistent with those programs?

The proposal is consistent with the IITR and IITJ program structure in terms of chemistry core (CY), common science (CS), common engineering (CE), humanities (HSS), and free electives (FE) components.

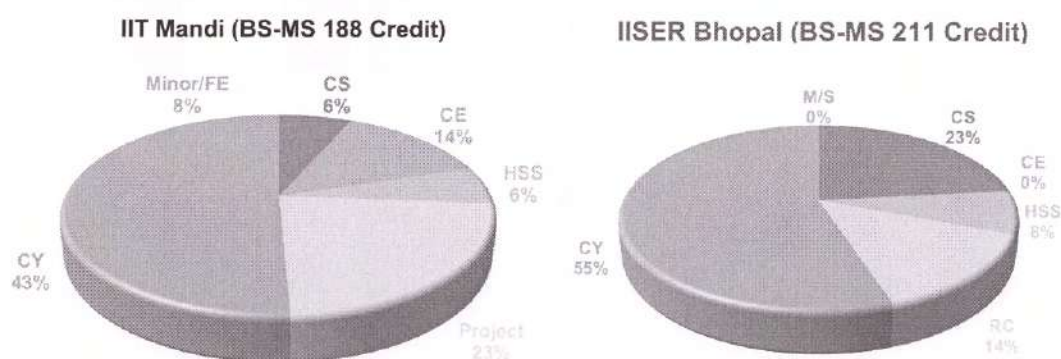




2. In what ways is this proposal different from those programs? Please explain those differences.



The proposed BS-MS program has more research components compared to IITR and IITJ. Moreover, as compared with the traditional BS-MS program offered at one of the IISERs (IISER Bhopal), the IIT Mandi BS-MS program has more research components.



In general, the BS-MS program offers specialization in chemistry branches, minors in engineering and humanities branches, and is highly research-oriented, which makes the program one of its kind. Particularly, it offers,

- Specialization in major chemistry branches, organic, inorganic, physical, and material chemistry through discipline elective courses in the 3rd and 4th year of BS.
- Minors in different branches include Computer Science Engineering, Communication Engineering, Electronics Engineering, Measurement and Instrumentation, Management, German Language, etc.

Due to the research-oriented nature of the program, the graduates get good exposure to research in the desired area as early as in their 4th year of the BS program. In addition, the 5th year of MS is primarily research-focused with



specialized theory courses. Thus, the program presents a unique opportunity for graduates to pursue a research career just after completing the BS.

**III. Faculty and Governance:**

Provide a list of the faculty available to teach courses for this program.

Following is the list of faculties available at the School of Chemical Sciences to teach the proposed courses of the program.

1. Dr. Aditi Halder
2. Dr. Amit B. Pawar
3. Dr. Aniruddha Chakraborty
4. Dr. Bhaskar Mondal
5. Prof. Chayan Kanti Nandi
6. Dr. Garima Agrawal
7. Dr. Moupriya Das
8. Prof. Pradeep C. Parameswaran
9. Prof. Prem Felix Siril
10. Prof. Subrata Ghosh
11. Dr. Venkata Krishnan

In case of interdisciplinary program, mention governances and execution mechanism of the programme:

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**IV. Student interest:**

What measures of student interest in the program are there? How/why are the proposers convinced that students would want to take this program of study? (Attach Career and Placement Cell recommendation or any other)

The discipline of Chemical Sciences as an integral part of basic sciences serves as the basis of critical developments for value-added chemicals, pharmaceuticals, novel materials, understanding biological processes, and establishing the theoretical basis of natural phenomena. The 5-year BS-MS program in Chemical Sciences is designed to prepare graduates with a strong foundation in fundamental Chemistry along with Engineering for today's research and technology-driven world.

The BS-MS Chemical Sciences program graduates will have placement opportunities in various chemical, pharmaceutical, and technology industries. In addition, after completing the MS, they will have the opportunity to pursue a research career in a specialized field.

The following is a list of some of the potential employers for the BS-MS Chemistry Graduates

Chemical and Pharmaceutical Industry:

- Syngene International Ltd.
- Dr. Reddy's Laboratories
- BASF India Ltd.
- Bayer India
- Aurigene Pharmaceutical Services Ltd.
- Sun Pharmaceutical Industries Ltd.
- Ranbaxy Laboratories Ltd.
- Lupin Ltd.
- Hindustan Unilever

Public Sector Undertakings:

- Oil and Natural Gas Corporation Limited (ONGC)
- National Thermal Power Corporation (NTPC)
- Bharat Electronics Limited (BEL)
- Bharat Petroleum Corporation Limited (BPCL)
- Hindustan Petroleum Corporation Limited (HPCL)
- Indian Oil Corporation Limited (IOCL)

**Resources:**

Additional requirements of laboratory space with justification (name of the labs)

Dedicated laboratory space for the BS-MS Chemical Sciences will be required to conduct all planned laboratory courses smoothly.

1. BS-MS Chemical Science Lab
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Additional requirements of laboratory fund (recurring and non-recurring) with justification (name of the labs)

An estimated laboratory fund of 20 Lakhs (recurring: 10 lakhs + non-recurring: 10 lakhs) will be required per academic year for the laboratory courses.

1. BS-MS Chemical Science Lab (20 lakhs)
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Additional requirements of faculty and non-teaching staff (Numbers and justification)

At least 10 faculty members for teaching the fundamental and applied chemistry courses and two laboratory assistants for running and maintaining the laboratory and one office assistant will be required.

1. Faculty (10)
2. Laboratory Assistant (02)
3. Office Attendant (01)
4. \_\_\_\_\_
5. \_\_\_\_\_

**V. Origin and development of the proposal:**

- Please mention the names of the faculty involved in developing this proposal.

A BS-MS program proposal committee was formed with the following members.

1. Dr. Bhaskar Mondal (Committee Chair)
2. Prof. Chayan K. Nandi (Member)
3. Prof. Subrata Ghosh (Member)
4. Dr. Garima Agrawal (Member)
5. Dr. Amit B. Pawar (Member)

- Details of external industry experts and their recommendations (please include their evaluation)

1. Dr. Harish Shinde (BASF India Ltd.)
2. Dr. Sathya Shanker (Syngene International Ltd.)
3. Dr. Archan Dey (Dr. Reddy's Laboratories)
4. Dr. Amalesh Roy (Aurigene Pharmaceutical Services Ltd.)

- Details of external academia experts and their recommendations (please include their evaluation):

1. Prof. Anindya Datta (IIT Bombay)
2. Prof. Pratik Sen (IIT Kanpur)
3. Prof. Kaushik Ghosh (IIT Roorkee)

*\*Comments are yet to be received. Comments received so far along with the response are attached as a separate document.*



- Proposer's faculty name and their signatures:

Name of Faculty members	Signatures
1. Bhaskar Mondal	<i>Bhaskar Mondal</i>
2. Chayan K. Nandi	e-mail approval attached
3. Subrata Ghosh	e-mail approval attached
4. Garima Agrawal	e-mail approval attached
5. Amit B. Pawar	e-mail approval attached

**Recommendations of Chairperson of School/ Centre**

Signature with Date:

**Dean (Students) recommendations on availability of hostels and other requirements**

Signature with Date:

**Associate Dean (Courses) recommendation on classrooms availability and other academic infrastructure requirements**

Signature with Date:

**Dean Finance recommendation on financial aspects (if any)**

Signature with Date:

**Dean Academics recommendations:**

Recommended/Not Recommended

Signature with Date:

*Please enclose additional information if any.*

## Master of Science in Applied Mathematics



Programme Level	Post Graduate
Year of Commencement	2016
Minimum Duration	2 Years (4 Semesters)
Maximum Duration	3 Years (6 Semesters)
Senate Meeting Reference	9.3/18.5/20.4

**Preamble :** M.Sc. in Applied Mathematics programme at IIT Mandi is intended to give the students deep understanding of the principles of Mathematical sciences while expanding their knowledge in the allied areas through elective courses. The curriculum has been designed so as to prepare the students to take up a research career either in academia or in industries on completion of the program. The students will be equally equipped to take up professional career in Industries. The structure of the proposed programme has been designed drastically amended from the conventional M.Sc. (Mathematics) programs across the country by providing a balance among theory, application, and research components. The program is designed in such a way that students will have enough choices to learn their desired subjects by taking number of elective courses from and outside of the discipline. The curriculum focuses on an interdisciplinary approach wherein students learn theory and its applications (through fundamental core courses and engineering open elective courses) those are required for research in applied Mathematics and industry jobs:

- Broad based curriculum by the inclusion of a number of free and discipline electives, without compromising the core subjects.
- Theory and application oriented courses.
- Research oriented curriculum to increase thinking power' and 'Problem solving ability'.
- Adequate blend of theory and research.
- Learning of advanced Mathematical tools to solve engineering and real-life problems.
- Generates enough opportunities for industry jobs.

**Semester-wise credit distribution :**

Semester-I		Semester-II	
Real Analysis(MA-511)	4 Credit	Functional Analysis(MA-521)	4 Credit
Linear Algebra(MA-512)	4 Credit	Partial Differential Equation(MA-522)	4 Credit
Ordinary Differential Equation(MA-513)	4 Credit	Numerical Analysis(MA-523)	4 Credit
Computer Programming(MA-514)	3 Credit	Probability and Statistics(MA-524)	4 Credit
Computer Programming Lab(MA-514P)	2 Credit	Discipline Elective- I	4 Credit
Applied Mathematical Programming(MA-515)	4 Credit	Technical Communication(HS-541)	1 Credit
<b>Total</b>	<b>21 Credit</b>	<b>Total</b>	<b>21 Credit</b>



Semester-III		Semester-IV	
Discipline Elective - II	3 Credit	Discipline Elective - VII	3 Credit
Discipline Elective - III	3 Credit	Elective - VIII	3 Credit
Elective - IV	3 Credit	Elective - IX	3 Credit
Elective - V	3 Credit	Project (Part-2)	8 Credit
Elective - VI	3 Credit		
Project (Part-I)	6 Credit		
<b>Total</b>	<b>21 Credit</b>	<b>Total</b>	<b>17 Credit</b>

- **Credit Structure:** A student, to be awarded M.Sc. degree, must need to earn 80 credits.
- **Open Electives:** Open electives from outside the discipline of program should be at least of 6 credits.
- **Discipline Electives:** Discipline electives will be provided according to the requirement of the students and the availability of the faculties. The list of discipline electives are attached herewith.
- **Discipline Elective Courses:** The following existing senate approved courses can be offered as discipline electives. More elective courses will be added time to time as required.

## List of Discipline Elective Courses

Course Numbers	Course Titles	Credits
MA-549(3)	Abstract Algebra	3
MA-552(3)	Number Theory	3
MA-780 (3)	Topics in Semigroup Theory	3
MA-550(3)	Statistical Data Analysis	3
MA-553(3)	Mathematical Foundations of Financial Engineering	3
MA-565(3)	Numerical Methods in Quantitative Finance	3
MA-608(3)	Computational Fluid Dynamics	3
MA-609(3)	Numerics of Partial Differential Equation	3
MA-651(3)	Optimization Techniques	3
MA-652(3)	Stability Theory of Differential Equations	3
MA-653(3)	Computational Financial Modelling	3
MA-654(3)	Financial Engineering	3
MA-656(3)	Stochastic Calculus for Financial Engineering	3
MA-704(3)	Dynamical System	3
MA-705(3)	Modeling Population Dynamics	3
MA-709(3)	Numerical Linear Algebra	3
MA-765(4)	Fractional Differential Equations	4
MA-516(4)	Topology	4
MA-611(4)	Statistical tools and Computing	4
MA-5XX(4)	Field Theory	4
MA-5XX(4)	Graph Theory	4
MA-528(4)	Measure Theory and Integration	4

**Project:** The project focuses on an interdisciplinary approach wherein students learn theory and its applications, those are required for research in Mathematics and industry jobs. Students need to complete 14 credit project in the third and fourth semester. We offer the research projects on the following topics:

1. Differential Equations
2. Mathematical Control Problems
3. Optimization,
4. Soft Computing
5. Machine Learning
6. Financial Mathematics
7. Dynamical Systems
8. Nonlinear Dynamics
9. Harmonic Analysis

10. Wavelet Analysis
11. Computational Fluid Dynamics
12. Numerical Methods for PDEs
13. Topology and Combinatorics
14. Algebraic Topology
15. Classical K-theory, Commutative Algebra
16. Statistical Time Series Analysis
17. Climate Modelling
18. Ecological Modelling
19. Deep Learning
20. Any Interdisciplinary Topics with applications in Mathematics

In project, students are expected to read research papers, advance mathematical courses and to do literary survey about research problems and their application to the real life problems. Also, some motivated students works on new research topic suggested by their project mentor.

**Project Evaluation:** A continuous evaluation process will be followed to evaluate the project/thesis work progress to award letter grades for the credits assigned to project/thesis component, as mentioned in the institute's Ordinance for M.Sc. programme.

**Changes:** We have reduced the credits of the final year project from 21 credits to 14 credits and have added two more courses as discipline electives. Adding two more courses as discipline elective will give an exposure to students about different areas of applied mathematics as per their interest. These changes will help the students to qualify the national level exams and get the extra knowledge in courses related to applied mathematics. Changes are highlighted in Blue.