

इकत्तीसवीं सिनेट बैठक का कार्यवृत्त

**MINUTES OF THE 31st SENATE MEETING OF
IIT MANDI**

10th JUNE, 2021



भारतीय प्रौद्योगिकी संस्थान मण्डी
कमांद – 175075, हिमाचल प्रदेश

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

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



31st SENATE MEETING OF IIT MANDI

10th JUNE, 2021

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INDIAN INSTITUTE OF TECHNOLOGY MANDI

Minutes of the 31st Senate Meeting of IIT Mandi held on 10th June, 2021 at 04:00 PM in A1 NKN Room, IIT Mandi, Kamand.

The following were present:

In the Chair

Prof. Ajit K. Chaturvedi, Director, IIT Mandi

Members:

Prof. N. Sathyamurthy, Former Director, IISER Mohali & Hon. Prof., JNCASR, Bengaluru
 Prof. Rowena Robinson, Deptt. of HSS, IIT Bombay
 Prof. Subrata Ghosh, Professor, SBS, IIT Mandi
 Prof. Prem Felix Siril, Professor, SBS, Dean (Faculty) & Associate Dean (Faculty), IIT Mandi
 Prof. Suman Kalyan Pal, Professor & Chairperson (SBS), IIT Mandi
 Prof. Chayan K. Nandi, Professor, SBS, & Associate Dean (Research), IIT Mandi
 Prof. Pradeep C. Parameswaran, Professor, SBS, IIT Mandi
 Dr. Rahul Vaish, Dean (Academics), IIT Mandi
 Dr. Vishal Singh Chauhan, Dean (F & A), IIT Mandi
 Dr. Venkata Krishnan, Dean (SRIC & IR), IIT Mandi
 Dr. Bharat Singh Rajpurohit, Dean (I&S), IIT Mandi
 Dr. Manoj Thakur, Dean (Students), IIT Mandi
 Dr. Samar Agnihotri, Chairperson, SCEE, IIT Mandi
 Dr. Viswanath Balakrishnan, Chairperson, SE, IIT Mandi
 Dr. Shyamasree Dasgupta, Chairperson, SHSS, IIT Mandi
 Dr. Prosenjit Mondal, Co-ordinator, BioX Centre, IIT Mandi
 Dr. Satinder K. Sharma, Co-ordinator, C4DFED, IIT Mandi
 Dr. Rik Rani Koner, Co-ordinator, AMRC, IIT Mandi
 Dr. Rajeev Kumar, Associate Professor (SE), IIT Mandi
 Dr. Srikant Srinivasan, Associate Dean (Courses), IIT Mandi
 Dr. Aditi Halder, Associate Professor, SBS, IIT Mandi
 Dr. Sunny Zafar, Assistant Professor, SE, IIT Mandi
 Dr. Puran Singh, Assistant Professor, SHSS, IIT Mandi
 Dr. Qaiser Jahan, Assistant Professor, SBS, IIT Mandi
 Dr. Gopi Shrikanth Reddy, Assistant Professor, SCEE, IIT Mandi
 Dr. Amit Jaiswal, Chief Warden, IIT Mandi
 Dr. Astrid Kiehn, Chair, Library Advisory Committee (LAC), IIT Mandi
 Mr. Naresh Singh Bhandari, Deputy Librarian, IIT Mandi
 Shri K. K. Bajre, Registrar & Secretary-Senate, IIT Mandi

Invitees:

Dr. Arnav Bhavsar, Associate Dean (SRIC), IIT Mandi
 Dr. Kaustav Sarkar, Associate Dean (Infrastructure), IIT Mandi
 Dr. Devika Sethi, Associate Dean (International Relations), IIT Mandi
 Dr. Kala V. Uday, Chair, CPC, IIT Mandi
 Dr. Anil Kumar Sao, Associate Professor, SCEE, IIT Mandi
 Dr. Dileep A. D., Associate Professor, SCEE, IIT Mandi

Dr. Ajay Soni, Associate Professor, SBS, IIT Mandi
Dr. Varun Dutt, Associate Professor, SCEE & SHSS, IIT Mandi
Dr. Arpan Gupta, Associate Professor, SE, IIT Mandi
Dr. Hitesh Shrimali, Associate Professor, SCEE, IIT Mandi
Dr. Shubhajit Roy Chowdhury, Associate Professor, SCEE, IIT Mandi
Dr. C. S. Yadav, Associate Professor, SBS, IIT Mandi
Dr. Nitu Kumari, Associate Professor, SBS, IIT Mandi
Dr. Muslim Malik, Associate Professor, SBS, IIT Mandi
Dr. Tulika Srivastava, Associate Professor, SBS, IIT Mandi
Dr. Rajendra Kr. Ray, Associate Professor, SBS, IIT Mandi
Dr. Atul Dhar, Associate Professor, SE, IIT Mandi
Dr. Dericks Praise Shukla, Associate Professor, SE, IIT Mandi
Dr. Shyam Kumar Masakapalli, Associate Professor, SBS, IIT Mandi
Dr. Trayambak Basak, Assistant Professor, SBS, IIT Mandi
Dr. Bhaskar Mondal, Assistant Professor, SBS, IIT Mandi
Dr. Amit Prasad, Assistant Professor, SBS, IIT Mandi
Dr. Rahul Shrestha, Assistant Professor, SCEE, IIT Mandi
Dr. Narsa Reddy Tumuru, Assistant Professor, SCEE, IIT Mandi
Dr. Manas Thakur, Assistant Professor, SCEE, IIT Mandi
Dr. Adarsh Patel, Assistant Professor, SCEE, IIT Mandi
Dr. Ashutosh Kumar, Assistant Professor, SE, IIT Mandi
Dr. Rajeshwari Dutt, Assistant Professor, SHSS, IIT Mandi
Dr. Tushar Jain, Assistant Professor, SCEE, IIT Mandi
Dr. Swati Sharma, Assistant Professor, SE, IIT Mandi
Dr. Sayantan Sarkar, Assistant Professor, SE, IIT Mandi
Dr. Sandip Kumar Saha, Assistant Professor, SE, IIT Mandi
Dr. Neha Kaushik, Assistant Professor, SHSS, IIT Mandi
Dr. Garima Agrawal, Assistant Professor, SBS, IIT Mandi
Dr. Sriram Kailasam, Assistant Professor, SCEE, IIT Mandi
Dr. Rameshwar Pratap, Assistant Professor, SCEE, IIT Mandi
Dr. Moumita Das, Assistant Professor, SCEE, IIT Mandi
Dr. Himanshu Misra, Assistant Professor, SCEE, IIT Mandi
Dr. Baskar Bakthavachalu, Assistant Professor, SBS, IIT Mandi
Dr. Pratim Kundu, Assistant Professor, SCEE, IIT Mandi
Dr. Satyajit Thakor, Assistant Professor, SCEE, IIT Mandi
Dr. Prasad Kasturi, Assistant Professor, SBS, IIT Mandi
Dr. Pradeep Kumar, Assistant Professor, SE, IIT Mandi
Dr. Pradeep Kumar, Assistant Professor, SBS, IIT Mandi
Dr. Srikanth Sugavanam, Assistant Professor, SCEE, IIT Mandi
Dr. Prateek Saxena, Visiting Assistant Professor, SE, IIT Mandi
Mr. Arnav Prasad, Student Academic Affairs Secretary, IIT Mandi (Special Invitee)
Mr. Sachit Yadav, Student General Secretary, IIT Mandi (Special Invitee)
Mr. Pawan Kumar Mandal, Student Research Affairs Secretary, IIT Mandi (Special Invitee)
Shri Vivek Tiwari, Assistant Registrar (Academics), IIT Mandi also attended the meeting.

Following Senate members/invitees could not attend the meeting due to prior commitments:

Prof. Ramesh Oruganti, Adjunct Professor, SCEE, IIT Mandi
Prof. Sunil R. Kale, Professor, Department of Mechanical Engineering, IIT Delhi

Prof. Rajan Kapur, Adjunct Professor, SCEE, IIT Mandi
 Prof. Yvonne Ditrrih, Adjunct Professor, SCEE, IIT Mandi
 Prof. Ajit Padmakar Annachattre, Visiting Professor, SE, IIT Mandi
 Prof. Ing. Balthasar Novak, Adjunct Professor, SE, IIT Mandi
 Prof. Sumant Nigam, Visiting Distinguished Professor, SE, IIT Mandi
 Prof. Kenneth E. Gonsalves, Distinguished Visiting Professor, SBS, IIT Mandi
 Prof. Subrata Ray, Distinguished Visiting Professor, SE, IIT Mandi
 Prof. Tarun Kant, Visiting Distinguished Professor, SE, IIT Mandi
 Prof. S. C. Jain, Emeritus Professor, SE, IIT Mandi
 Dr. Nadeem Akhtar, M/s Arista Networks

The Chairman Senate extended a warm welcome to all the Senate members and Invitees attending the 31st Senate meeting of the Institute.

Thereafter, following agenda items were taken up.

Item No. 31.1: To confirm the minutes of the 30th Senate meeting held on 3rd February, 2021.

The minutes of the 30th Senate meeting held on 3rd February, 2021 at IIT Mandi Kamand Campus were circulated to members of the Senate on 19th March, 2021 (through email) for comments.

Three comments were received on the minutes of the 30th Senate meeting about:

- i) Inclusion of ME504 in the curriculum of M.Tech. (Fluid and Thermal Engineering):

It was noted that this did not figure in the agenda.

- ii) Inclusion of Academic Internship: For semester long internship:

The Faculty Advisor for Career and Placement Cell presented the revised proposal for semester long internship for students of B.Tech./B.Tech.- M.Tech. Integrated Dual Degree programme, incorporating the suggestions made during senate meeting held on 10.06.2021, placed as Annexure A, Page No. 9 to 13.

With revised scheme for semester long internship, the Senate confirmed the minutes of the 30th meeting.

Item No. 31.2: To receive report on the actions taken for the decisions taken in the 30th Senate meeting held on 3rd February, 2021.

The Senate noted the actions on the decisions taken in its 30th meeting held on 3rd February, 2021.

Item No. 31.3: To consider the modification of course execution during the remainder of the Feb-June 2021 semester, upcoming summer (June-Aug 2021/AS3), grade change exams., and to declare Aug – Dec 2021 as online semester.

Dr. Srikant Srinivasan, Associate Dean (Courses), presented the

updated plan for conduction of courses and exams, in view of recently increased impact of COVID-19. The Senate noted that due to the ten (10) days halt in academic activities from May 7 – 16, 2021 six working days were lost. These lost days were compensated by utilizing two subsequent Saturdays and extending the semester by 4 days. After detailed deliberations, the Senate approved the following:

- i) The summer term 'AS3' and the subsequent Aug-Dec 2021 semester are declared as online semesters and the courses to be offered should be planned accordingly, to ensure that they can be successfully executed in online mode.
- ii) Hands-on activity that was earlier proposed during summer term is deferred and be replaced by short courses (e.g. 1-credit) or used for the completion of pending portions of earlier courses. PFG chairs and/or course instructors shall communicate the plan to the Academics office and take prior approval.
- iii) During the current semester, several students residing in different part of the nation are facing COVID related challenges at different times. As the students often end up taking a break of 1 – 2 weeks, the attendance shall not have any contribution towards the grade. Further, students will be provided an opportunity to make up for their missed exams. through grade-change exam during the summer term.
- iv) The execution of the summer term shall be as follows:
 - Students will have the opportunity to avail 'grade-change' exams. from July 15 to July 30, 2021.
 - Earlier, Senate notifications permitted the students to attempt the grade-change exams. in person. However, as the return of the students seems uncertain in near future and the courses eligible for grade-change exams. have been accumulating over 3 semesters, it is decided to complete all the pending grade-change exams in online mode.
 - One month duration from June 16-July 15, 2021 will be available for students to prepare for the subjects for grade-change. After availing the online grade-change exam., no further grade-change exam. related to the same course will be permitted.
 - The format of the grade-change exam. (written/ viva/ other online means) and syllabus will be determined by the course instructor and informed to the students.
 - Grade-change exam. can be used to replace any one or more exam components of the course at the discretion of the instructor (e.g. some students may have missed or have had internet connectivity issues with quiz 1, others with quiz 2 or the final exam). The weightage given to grade-change exam. should be between 25% to 50% of overall course marks. In rare cases, where an exception is required due to the course format, the AD (courses) may be approached by the course instructor.
 - The branch change for the B.Tech. first year students will be processed after taking into account the results of the

grade-change exam.

- v) For the graduating batch of students, the grade-change exams. will be conducted in online mode from June 22 to June 24, 2021. The grade obtained therein will be considered as the final grade.

Item No. 31.4: To consider the provision of making curricular internship optional for the B.Tech. 2018 / M.Tech 2020 students and the concomitant relaxation in credit requirements for B.Tech. 2018 (and B.Tech. 2017) and/M.Tech 2020 (and M.Tech 2019) batches of students.

Dr. Srikant Srinivasan, Associate Dean (Courses), presented the proposal of making the curricular internship optional for the B.Tech. 2018 students and M.Tech. 2020 students due to the COVID-19 situation. It was noted that a similar option was provided to students of B.Tech. 2017 and M.Tech. 2019 students.

After due deliberations, the Senate resolved to approve the proposal to keep internship optional for the B.Tech. 2018 students and M.Tech. 2020, where students have not been able to complete internship. Accordingly, the credit requirements for graduation stands reduced to account for the waived internship credits in such cases, as given below:

Programme	Existing Credit Requirements	Revised Credit Requirements
UG (B.Tech.)	160-162	158-160
PG (M.Tech.)	70-72	69-71

Item No. 31.5: To consider the modification in Core Course list for B.Tech. Data Science and Engineering.

Dr. Manoj Thakur, Course Coordinator for B.Tech. in Data Science and Engineering, presented the proposal for modification in the Core Course list of Data Science and Engineering. After due deliberation, the Senate approved the proposal, placed as Annexure B, Page No. 14.

Item No. 31.6: To record the closure of M.Tech. in Electrical Engineering with specialization in VLSI programme.

Dr. Hitesh Shrimali, programme coordinator for M.Tech. in VLSI programme presented the proposal to record closure of 'M.Tech. in Electrical Engineering with specialization in VLSI' programme with the institution of the 'M.Tech. in VLSI' programme in August, 2018.

The Senate noted.

Item No. 31.7: To consider the revised proposal for Independent Study Course.

Dr. Sandip Kumar Saha, coordinator of the Committee constituted to formulate Independent Study course presented the proposal.

After due deliberations, the Senate resolved to approve the proposal with minor modifications. The Chairman, Senate suggested that the academic section should develop a common mechanism for approval of pass/fail courses, including Independent Study course, placed as **Annexure-C, Page No. 15 to 16.**

Item No. 31.8: To consider revision in the curriculum for B.Tech.- M.Tech. Integrated Dual Degree in Bio-Engineering programme.

Dr. Shubhajit Roy Chowdhury, course coordinator for B.Tech.-M.Tech. Integrated Dual Degree in Bio-Engineering programme presented a proposal regarding revision in the curriculum for the IDD (Bio-engineering) programme.

After deliberations, the Senate approved the proposal with minor modifications, placed as **Annexure-D, Page No. 17 to 18.**

Item No. 31.9: To consider procedure and norms for approval of the courses.

Dr. Uday V. Kala, Chair – Course Proposal Committee (CPC) presented the proposal regarding Course Proposal Process. After detailed discussion, the Senate approved the proposal with minor modifications, placed as **Annexure-E, Page No. 19 to 21.**

Further, the Senate decided that henceforth, all the courses shall be approved through revised process only.

Item No. 31.10: To consider the modification in M.Tech. in Computer Science and Engineering (CSE) programme.

Dr. Sriram Kailasam, programme Coordinator for M.Tech. in Computer Science and Engineering (CSE) programme presented the proposal to amend the Eligibility criteria for the M.Tech. in CSE.

After detailed discussion, the Senate resolved to approve the following revision in the eligibility criteria:

'Candidates who have qualified for the award of a Bachelor's degree in Engineering (B.E.) / Technology (B.Tech.) or equivalent from a recognized University/Institute with minimum 60% (or 6.0 CGPA), and who have qualified and have a valid score in Graduate Aptitude Test in Engineering (GATE) in Computer Science and Engineering are eligible to apply for admission to this program.'

Item No. 31.11: To consider relaxation in norms regarding minimum residential requirement for MS/PhD (Part-Time/ERP) Scholars due to COVID-19.

Prof. Chayan Kanti Nandi, Associate Dean (Research) presented the proposal regarding relaxation in the Residential requirements for Part-

Time/ ERP scholars registered under MS/PhD programme due to Covid-19 pandemic.

Following a brief discussion, the Senate resolved to approve relaxation in norms as follows:

'MS/PhD (Part Time/ERP) scholars who have already completed minimum course work requirements during online semesters between February 2020 - June 2021, the requirement for residential semester be waived.

However, starting Aug 2021, the Part Time/ERP scholars need to complete the residential semester requirement in single or multiple visits adding up to at least 16 weeks on campus (i.e. equivalent to one semester).'

Item No. 31.12: Any other agenda item with the permission of the Chairman, Senate.

None.

Item No. 31.13: To report decisions/action taken by the Chairman, Senate.

The Senate ratified the decisions taken by the Chairman, Senate on behalf of the Senate, as given in the agenda.

Item No. 31.14: Issues to be discussed by the Senate without Student Members being present.

None.

The meeting concluded with a vote of thanks to the Chair and to the Members.

Chairman, Senate

Chaturvedi
9/7/21

08/07/21
Registrar & Secretary-Senate

Semester Internship Proposal

1. Preamble

The Institute as a part of its mission wants to provide exposure to students to cutting edge and commercially-viable technologies. Many organizations that offer internships in core branch profiles require an internship having a semester-long duration. This proposal has been created to tap these opportunities. This will enable the undergraduate B.Tech. students and B.Tech.+ M.Tech. (Integrated Dual Degree) students to do a semester-long internship and gain experience. The learning outcome derived from semester-long internship is expected to be far greater than those provided by other shorter duration internships.

2. Background

In the 37th Board of Academics(BoA) meeting, a committee was formed on the recommendation of the Chair, Prof. Pradeep C. Parameswaran which included the following members:

- a. Dr. SunnyZafar (Chair), Advisor(CnPCell)
- b. Dr. Kunal Ghosh
- c. Dr. Varun Dutt
- d. StudentAcademic Affairs Secretary, Mr.Arn timerPrasad

The BoA subcommittee was assigned the responsibility of formulating a proposal, to make provisions for semester internship (formerly known as "6-month internship") at IIT Mandi. After 2 formal meetings (on 11 November 2020 and 24 December 2020) and detailed deliberations, the committee successfully formulated a proposal.

3. Recommendations of the committee:

The provision of semester internship shall be applicable with effect from the **undergraduate batch admitted in 2018**. This semester internship will be optional for the students. The internship can be done in recognized and reputed industries/companies, R&D institutions or academic institutions in India or Abroad following the conditions mentioned in Prerequisites below.

3.1. Valid semesters to go on a semester internship

- B.Tech.students will be allowed to go on semester internship after the completion of 5th semester (excluding the final semester).
- B.Tech. + M.Tech. (Integrated Dual Degree) students will be allowed to go on a semester internship after the completion of 6th semester (excluding the final semester).

- The minimum duration for this internship should be at least 14-16 weeks

3.2. Prerequisites

The approval procedure for different modes of semester internship are as follows:

1. For academia: FA as the recommending authority and Associate Dean (Courses) as the approving authority.

2. For industry and R&D organizations: CnP Advisor and FA as the recommending authority, with the approval to be given by Associate Dean (Courses).

Note: The students should give the Faculty Advisor, Advisor (CnP Cell), Associate Dean (Courses) and Academic section adequate time to process their application request.

3.3. Course and Credit distribution

3.3.1. A "Semester Internship" course of 9 credits shall be introduced.

3.3.2. The distribution of these 9 credits (to Discipline Elective and Free Elective baskets) will be as per the distribution mentioned in the course proposal document for Semester Internship, and that is as follows:

3.3.2.1. For students pursuing Honors program: 6 credits to the Discipline Elective basket and 3 credits to the Free Elective basket.

3.3.2.2. For other students: 3 credits to the Discipline Elective basket and 6 credits to the Free Elective basket.

- 3.3.3. The above distribution of credits may be changed depending on any subsequent changes being made to the Pass/Fail notification or the course proposal for Semester Internship.

3.4 Accommodating a semester internship without having to opt for a semester break

3.4.1. If a student holds a semester internship offer, he/she may be allowed to do at most 9 credits of Pass/Fail in one semester (hence relaxing the previously 6 Pass/Fail credits-per-semester limit).

3.4.2. For any particular semester in which a student is doing their semester internship, the minimum 12 credits-per-semester limit, as mentioned in B.Tech. Ordinances & Regulations (R.3.5) will be relaxed to 9 credits.

3.4.3. Applicable fee for the semester must be paid.

3.5. Evaluation

The student must intimate the name and contact details of a mentor from the organization where the internship is to be carried out, within 2 weeks of starting the internship to their FA and/or CnP Cell as applicable.

A report on the work done during internship should be submitted by the student to their Faculty Advisor. The student needs to include a duly signed certificate of internship completion from the mentor in the report submitted to the FA. A presentation on the work done during the semester internship shall also be given to the FA. Any further requirement for evaluation if deemed necessary by the Faculty Advisor may be included in the evaluation pattern. The evaluation outcomes can be either Satisfactory (P grade) or Unsatisfactory (F grade).

3.6. Important Note

Ideally, all students are expected to complete their semester internship. Dropping the semester internship is highly discouraged and would only be allowed in very exceptional

circumstances at the discretion of the Faculty Advisor and Advisor (CnP Cell), for which the barrier would be high. No credits will be awarded for any partially completed semester internship.

IIT Mandi Proposal for a New Course

1 Course information

Course Name: Semester Internship

Course Number: DP399_XX (where XX is the branch code)

Credits: 0-0-18-9

Prerequisites : Consent of the Advisor (CnP Cell) for industry internship, Faculty Advisor, and Associate Dean (Courses).

Intended for : B.Tech. and B.Tech. + M.Tech. (Integrated Dual Degree)

Elective or Compulsory : Elective

Semester :

After the completion of 5th semester (excluding the final semester) for B.Tech. and after the completion of 6th semester (excluding the final semester) for B.Tech. + M.Tech. (Integrated Dual Degree).

2 Preamble

The Institute as a part of its mission wants to provide exposure to students to cutting edge and commercially-viable technologies. Many organizations that offer internships in core branch profiles require an internship having a semester-long duration. This proposal has been created to tap these opportunities. This will enable the undergraduate B.Tech. students and B.Tech.+ M.Tech. (Integrated Dual Degree) students to do a semester-long internship and gain experience. The learning outcome derived from semester-long internship is expected to be far greater than those provided by other shorter duration internships.

3 Evaluation

The student must intimate the name and contact details of a mentor from the organization where the internship is to be carried out, within 2 weeks of starting the internship to their Faculty Advisor (FA) and CnP Cell.

A report on the work done during internship should be submitted by the student to their Faculty Advisor. The student needs to include a duly signed certificate of internship completion from the mentor in the report submitted to the FA. A presentation on the work done during the semester internship shall also be given to the FA. Any further requirement for evaluation if deemed necessary by the Faculty Advisor may be included in the evaluation pattern. The evaluation outcomes can be either Satisfactory (P grade) or Unsatisfactory (F grade).

4 Distribution of credits to baskets

The distribution of the aforementioned 9 credits shall be as follows:

- For students pursuing Honours program: 6 credits to the Discipline Elective basket and 3 credits of the Free Elective basket.
- For other students: 3 credits to the Discipline Elective basket and 6 credits to the Free Elective basket.

5 Important Note

The students should give the Advisor (CnP Cell), Faculty Advisor, Associate Dean (Courses) and Academic section adequate time to process their application request. It is important to note that dropping this course is highly discouraged and would only be allowed in very exceptional

circumstances at the discretion of the Faculty Advisor and/or Advisor (CnP Cell), for which the barrier would be high.

**Revised List of Core Courses in
B. Tech. Data Science and Engineering Program at IIT Mandi.**

The following changes are made in the Core Courses for B.Tech. Data Science and Engineering Program.

1. Mathematical foundations of Data Science-I (3-0-0-3) is replaced with CS208 Mathematical Foundations of Computer Science (3-1-0-4).
2. Introduction to Data Structure and Algorithms (2-0-2-3) is replaced with CS202 Data Structures and Algorithms (3-1-0-4).
3. One credit tutorial is added in Mathematical Foundations of Data Science-II (3-0-0-3) and the course is renamed as Mathematical Foundations of Data Science (3-0-1-4).

**List of Core courses for Data Science and Engineering Program
(Total Credits for discipline core = 33)**

S. No.	Course Title	Lecture	Tutorial	Practical	Total Credit	Tentative Semester
1	Mathematical Foundations of Computer Science (CS208)	3	1	0	4	III
2	Data Structures and Algorithms (CS202)	3	1	0	4	III
3	Data handling and visualization	2	0	2	3	IV
4	Statistical Foundations of Data Science	3	0	0	3	IV
5	Mathematical Foundations of Data Science	3	1	0	4	V
6	Matrix Computations for Data Science	2	0	2	3	V
7	Information Security and Privacy	3	0	0	3	V
8	Computing Systems for Data Processing	2	0	2	3	VI
9	Introduction to Statistical Learning	2	0	2	3	VI
10	Optimization for Data Science	3	0	0	3	VI

Independent Study Course

Need:

A student willing to learn a specific topic in greater depth, which otherwise is not covered in any other regular courses being offered at IIT Mandi.

Primary Objective:

To complete certain number of credits completely in self-study mode under the supervision of a faculty related to the subject area of the study. The associated faculty will be called as Independent Study Supervisor (ISS).

Course Code, Credits and Distribution:

- Course Code: XX599I – Independent Study, *XX as per most relevant branch/specialization for the study area.*
- Credit: 3 (0-0-0-3)
- No discipline/institute core course credits can be substituted by independent study course(s).
- A student can credit maximum one independent study course (3 credits) during the entire program.
- The distribution of the credits, whether under discipline elective or under free/outside-discipline elective, will be decided by the PFG Chair based on the recommendation from the course ISS.

Proposal submission and approval:

- Academic office will announce a last date of submission of independent study course proposal for the students. Preferably, it can be marked/ in the academic calendar for each semester and winter/summer breaks. For regular semester it may start with pre-registration of the regular courses.
- Interested student(s) should initiate the proposal and approach suitable faculty/faculties (ISS) for guidance.
- Once the topic and supervisor(s) are decided, a detailed proposal in a prescribed format (Annexure-I) is to be prepared. The proposal of the independent study course is to be formulated together by the student and the supervising faculty as a 500-level course.
- The student will submit the proposal, duly signed by Independent Study Supervisor, for approval to the concerned school office.
- The school office will coordinate to get the comments from the concerned PFG Chair (of the program in which the student is registered) for recommendation. The Faculty Advisor of the student and the School Chair of the Independent Study Supervisor will also be intimated by the school office.
- The PFG Chair will ascertain the suitability of the content to be categorised under the proposed distribution (i.e., DE/ ODE/ FE). The contents of any pre-approved course of IIT Mandi may also be taken as independent study course. However, if the pre-approved course is already running at a regular interval, then it is expected to complete the course credit as a regular course. The PFG chair may take appropriate call during the approval process.
- The PFG Chair may also seek inputs from other PFG Chair(s) if the course content is relevant to other disciplines. S/he may provide suitable comments and recommendation, including but not limited to credit distribution and evaluation plan, on the proposal to facilitate the final

- approval/rejection by the competent authority.
- Upon receiving the consent from the FA and the PFG chair, the school office will forward it to the Academic Section for final approval and notification. Thereafter, the list of approved independent study courses will be notified by the academic office with a link to the approved course content.
 - The decision on accepting the proposal should be made available well before the registration for the regular courses starts (when the course is to be credited during regular semester) or the last date of teaching (when the course is to be completed during the summer/winter break).

Registration:

- Once the approval process is completed, the course can be registered for credit.
- This course can be registered during regular semesters or during the summer/winter term.
- Registration process (offline/ online) can be decided by the academic office time to time.
- Not more than four students should generally be allowed to register for same topic as independent study course concurrently.

Evaluation:

- The independent study supervisor(s) may choose her/his/their own evaluation policy appropriate for a 500-level course and must mention that in the course proposal.
- The evaluation will be done as PASS/FAIL and will be counted towards total pass/fail credits as per the notification no.: IITMandi/Acad/Senate/2020/13441-45.

Eligibility:

- B.Tech./Dual Degree students (4th semester completed), and M.A./M.Sc./M.Tech. students (1st semester completed) can register for an independent study course.
- Minimum CGPA should be 7.5 at the time of applying for independent study course.
- The independent study course should not be allowed to merely reduce the expected challenge, e.g., literature review, of the Major Technical Project (U.G.), Postgraduate Project (M.A./M.Sc./M.Tech.).
- This course, in general, is not to be recommended for M.S. or Ph.D. students. An M.S. or Ph.D. student may take an independent study course which will reflect in the transcript, however the credits earned through independent study course will not be counted towards minimum course work requirements.

Other Guidelines:

- No classroom teaching or tutorial is admissible, the student is expected to be in self-learning mode.
- No teaching load will be considered for the faculty member associated with the course.
- Class Committee Meeting (CCM) is not required for this course.

Revision in curriculum of B.Tech M.Tech Integrated Dual Degree Programme in Bioengineering.

The Programme Faculty Group (PFG) of B.Tech M.Tech Integrated Dual Degree Programme (IDD) in Bioengineering met with the Associate Dean (Courses) and Dean (Academics) on February 10, 2021 to discuss and deliberate on the revision of curriculum of B.Tech M.Tech Integrated Dual Degree Programme in Bioengineering. The following members attended the meeting:

1. Dr. Anil Kr. Sao, AD (Courses)
2. Dr. Arnav V. Bhavsar, PFG Member
3. Dr. Erwin Fuhrer, PFG Member
4. Dr. Garima Agrawal, PFG Member
5. Dr. Pradeep Parameswaran, Dean (A)
6. Dr. Prasad Kasturi, PFG Member
7. Dr. Prosenjit Mondal, PFG Member
8. Dr. Rajesh Ghosh, PFG Member
9. Dr. Shubhajit Roy Chowdhury, PFG Chair
10. Dr. Shyam Kr. Masakapalli, PFG Member
11. Dr. Srikanth Sugavanam, PFG Member
12. Dr. Trayambak Basak, PFG Member

The following observations were made:

1. It was recognized that several courses were placeholders with content keeping in view the major body of knowledge these will be covering.
2. The PFG has been entrusted to ensure the placeholder courses gets due approval from CPC and BoA, and has been practicing due process of deliberations and filling the placeholders with suitable Course number and Name (with minor changes if any are sent for CPC process with the minutes of the PFG meeting being enclosed for records and communicated to the CPC as well).
3. It was recognized as well as advised by Dean (Academics) that course names as well as content shouldn't be deviating much from senate approved structure. In case, under unavoidable circumstances PFG deems it is necessary, then proper process must be followed as per IIT Mandi practice leading to get revised approval from Senate.

Accordingly, the PFG (Bioengineering) met on March 05, March 17 and April 22, 2021 to duly deliberate on the curriculum and course content of B.Tech (core) courses on IDD (Bioengineering)

The following changes are proposed:

Course Code	Course title (Old title as approved by Senate)	Proposed title	Reason of change
BE201	Biology I	Cell Biology	To make the course title more meaningful with its contents
BE202	Biology II	Molecular Biology and Biochemistry	To make the course title more meaningful with

			its contents
BE203	Biology III	Enzymology and Bioprocessing	To make the course title more meaningful with its contents
BE303	Biostatistics	Applied Biostatistics	Course content has undergone major revision in view of content of IC252 and IC272. The course has also gone through CPC process.
BE304	Computational Biology	Bioinformatics	Course has undergone revision because the course content was getting too heavy as per discussions in PFG. The course has also gone through CPC process.
BE3XX	Physics and Modeling of Biological Systems	Bioelectric Systems Modeling	Course content has undergone major change as per feedback received from external reviewers. Had detailed discussion and deliberation in the PFG. The course is currently under CPC process.

Course Proposal Process

Preamble: It is desirable to have every new course proposal vetted by experts other than the proposers, as well as reviewed by a wider academic audience. The Course Proposal Committee (CPC) has been constituted at the institute level to facilitate the entire process of course development and approval, including courses that bridge schools and academic programs of the institute. The Committee will report to the Dean Academics through the AD (Courses).

The process to be followed from the initiation of a course proposal to its final acceptance is listed below:

1. Any proposal for a new course or modification to an existing course is initiated by a faculty member and submitted in the *prescribed format* to the relevant PFG chair. The format is available on the IIT Mandi intranet. (Note: In the case where the course doesn't fit into one specific program, it may be submitted directly to the AD courses through the CPC chair)
2. The PFG chair discusses the proposal within the PFG. If the PFG (with adequate quorum) finds that the proposal can be taken forward, then the PFG identifies the corresponding reviewers for detailed feedback on the course content, and the PFG chair sends this information along with the PFG discussion minutes/ recommendations to the CPC Chair.
3. The CPC chair identifies a coordinator within the CPC to guide the course proposal process. The coordinator posts the course proposal on an IIT Mandi platform (faculty discussion board/mail to faculty local/ or other means) to make the course proposal available for a sufficient time duration to all faculty for their feedback.
4. After obtaining feedback from the internal faculty, if any, the coordinator in consultation with PFG chair will choose at least two subject experts for review. These experts should be from reputed institutions in India or abroad. In rare cases, they may be internal members of IIT Mandi.
 - When course proposals are sent to outside experts, the experts shall also be given relevant documentation related to the programme curriculum and the syllabi of related courses (or links to these documents/courses) so that they can provide their comments in the context of the IIT Mandi curriculum.
5. On receipt of the review comments from the experts, the CPC coordinator will send the same to the course proposers for their consideration and action. The course proposer will modify the course proposal as appropriate and prepare a point-wise response to the reviewers' comments. These comments should be accepted by the PFG and then sent back to the CPC coordinator through the PFG chair.

6. The CPC coordinator will send the modified course proposal along with the reviewers' comments and point-wise response, along with the recommendation of the PFG to the CPC chair.
7. The CPC chair conducts one final inspection to ensure that due diligence has been carried out (checking for format, prerequisites, exclusions and other such issues) and asks the coordinator to post the final version on the IIT Mandi internal forum (as mentioned earlier). Normally, a few days' time will be given to the faculty members to post their comments on the forum.
8. The CPC Chair will then present the course proposals to the Board of Academics (BoA). If required, the BoA may invite the CPC coordinator and/or course proposer to the respective BoA meeting for assisting the board in its deliberations. The BoA will decide whether or not to provide the final approval to the course. The board may also require the course proposer to make changes to the proposal and resubmit the same.
9. The finalized course proposals will be compiled and submitted to the AD (Courses) and Dean Academics by the CPC Chair after approval by the BoA. The approval of the course will then be included as a reporting item in the subsequent senate meeting.
10. In case of any issues in the above process, an appeal can be made by the course proposer/any other person to Dean Academics. Further, the Chairperson Senate, on the recommendation of the Dean Academics, or otherwise may relax any of the above processes, as the chairperson deems fit.
11. Modification in the content of existing courses that amounts to $\geq 25\%$ change, in terms of course hours, will follow the same process as detailed in points 1-10. In such cases, the CPC chair may recommend the creation of a new course and the retirement of the earlier course.
12. Modification in the content of existing courses that amount to $< 25\%$ change, in terms of course hours, may be sent directly to BoA through the CPC Chair, without involving any external reviewers. Such modification requires due deliberation within the respective PFG, and such deliberations of the PFG and justification for changing the content shall also be sent along with the proposed course modification. The BoA will then take the decision on whether to accept the course modification. The BoA may also recommend sending the proposal to external reviewers.

Guidelines for Course Proposer

- The course proposer should ensure that the correct format is used for the course proposal.
- It is expected and preferred that course proposer should discuss the proposed course with relevant faculty colleagues before sending it to PFG.
- All approved courses will be visible on the Institute website. They will remain so for a long period of time. Hence, utmost care is to be taken to ensure that a good quality course proposal is prepared and submitted.

- The issues raised by the external experts, other faculty members and the BoA are to be appropriately addressed by the proposer and the proposal modified accordingly, if needed.
- The proposer shall be responsible for satisfactory defense in case of deliberations in the BoA.
- Normally, a course can be offered only after final approval from the BoA.

Guidelines for PFG

- The PFG hold a prominent role in the internal review and rebuttal process, because they are most closely related to the subject area.
- All the discussions on the course content, relevance to the program, course level, credit distribution, books and standard references, similarity content (as per lecture hours), suggested internal/external reviewers shall be done at the PFG level.
- It is suggested to have consensus on the acceptance of the proposal by the PFG quorum before sending for external review.
- The reviewer comments and pointwise responses to the same are also discussed and should be accepted by the PFG quorum before forwarding to the CPC Chair.

Guidelines for the CPC coordinator

- The CPC coordinator ensures that the due processes have been adhered to for course proposals, including course format.
- The CPC coordinator serves as the interface to the external reviewer's and ensures that the course proposal meets adequate standards before being sent out for review.

Tentative split-up of the work load, per above course proposal process

- ✓ PFG = 60% (Technical content and suitability)
- ✓ CPC = 20% (Administrative)
- ✓ BoA = 20% (validation and approval)