IIT Mandi

ACADEMIC HANDBOOK

Undergraduate Programmes

2022-23

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Introduction

1.1 | Background

IIT Mandi is the first IIT in the Himalayas. IIT Mandi's 530 acre campus is located on the banks of River Uhl, a tributary of the River Beas, 18 km away from the historic town of Mandi in Himachal Pradesh. Surrounded by forested hills far from the hustle and bustle of cities and highways, this scenic campus provides an excellent environment for the highest quality academic pursuits –research, teaching, and learning. IIT Mandi has evolved curricula at the undergraduate and postgraduate levels. The curriculum offers flexibility for students to tailor their studies to their interests.

1.2 | Schools & Centers

Various degree programs at IIT Mandi are offered under the umbrella of four schools, namely: (i) School of Computing and Electrical Engineering (SCEE), (ii) School of Engineering (SE), (iii) School of Basic Sciences (SBS) and (ii) School of Humanities and Social Sciences (SHSS). Each school hosts multiple interconnected specialisations recognizing the interdisciplinary nature of modern world's engineering needs. In addition, there are three centres namely (i) Advanced Materials Research Centre (AMRC), (ii) BioX Centre and (iii) Centre for Design and Fabrication of Electronic Device (C4FED).

1.3 | Organisation Structure

- Senate: The academic programmes of the Institute are governed by Rules and Regulations approved by the Senate from time to time. The Senate is a statutory and supreme body that governs all academic matters of the Institute, and the rulings of Senate Chairperson (Director of The Institute) are final in regard to all academic issues.

- BoA: The Board of Academics (BOA) of IIT Mandi is an official academic body to consider proposals on policy matters related to Academics, both teaching and research. Proposals that are found to have merit will be forwarded to the Senate with the BoA's recommendations. The BoA is chaired by the Dean (Academics), and its members include the associate deans, Chairman of the course proposal committee, course coordinators, nominees from each school, and two student members.

- Program Faculty Group: PFG is an official academic body to develop, monitor and execute the curriculum of a program/part of a program. This will also provide a good platform to review the curriculum from time to time and propose revisions as and when required.

- FA: To help the students in planning their courses of study and for getting general advice on the academic program, the concerned School will assign students branch-wise to a faculty member who will be called their Faculty Adviser. Generally, a Faculty Adviser shall have responsibility for a particular batch of students from their first year until graduation

- Class Committee: The Class Committee is a body consisting of faculty and students to monitor the conduct and progress of a set of courses in a semester. There will be one Class Committee for each set of courses being offered in a semester. One faculty member as the Chair who is not associated with the teaching activities of the courses listed under that Class Committee, instructors of the courses listed under that Class Committee and 1 or 2 student representatives for each course.

1.4 | Programmes Offered

IIT Mandi offers the following degree programs hosted by various schools:

S. No.	Program Name
1	Bachelor of Technology (B.Tech.)
2	Master of Technology (M.Tech.)
3	Master of Science (M.Sc.)
4	Master of Arts (M.A.)
5	Master of Science (by Research) [MS(R)]
6	Doctor of Philosophy (Ph.D.)
7	Integrated-Doctor of Philosophy (I-Ph.D.)

1.4.1 | BTech Programs

IIT Mandi offers a variety of B.Tech programmes for students with a wide range of backgrounds. Admission to these programmes are based on performance in national level JEE examinations.

S. No.	Program Name	School	Code
1	Civil Engineering	SE	CE
2	Computer Science and Engineering	SCEE	CSE
3	Electrical Engineering	SCEE	EE
4	Mechanical Engineering	SE	ME
5	Data Science and Engineering	SBS jointly with SCEE	DSE
6	Engineering Physics	SBS jointly with SE	EP
7	Integrated Dual Degree in Bio-Engineering	SBS jointly with SCEE	BE

1.5 | Student Roll Number

Each student is provided with a six digit unique alphanumeric roll number upon admission to any program at IIT Mandi. Following example describes various parts of the roll number.
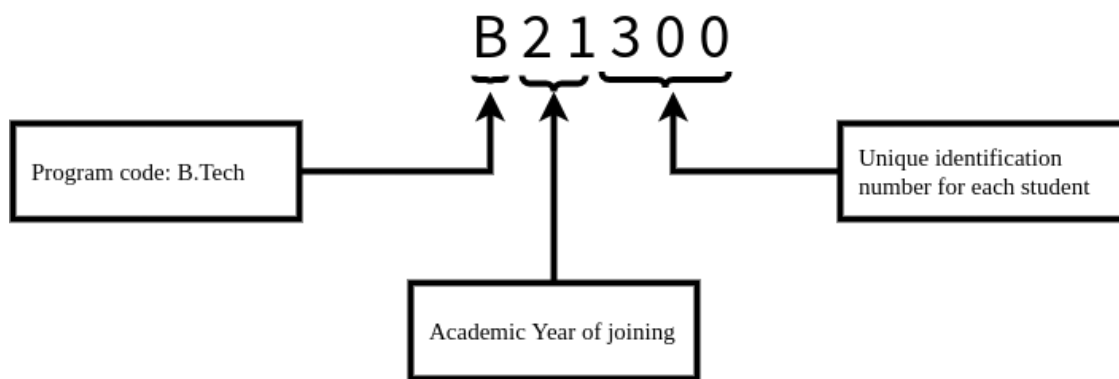
Course Structure, Credit System & Evaluation

2.1 | Courses

2.1.1 | Course numbering Scheme

Each course is referred to by a course code and title. Course code for each course is a five alpha-numeric characters consisting of two alphabets followed by three numerals. An example numbering is shown below.

ME401

Code of the discipline/
category of course

Unique identification code of
the course

Level of the course
1 to 4: UG Course
5-7: PG Course
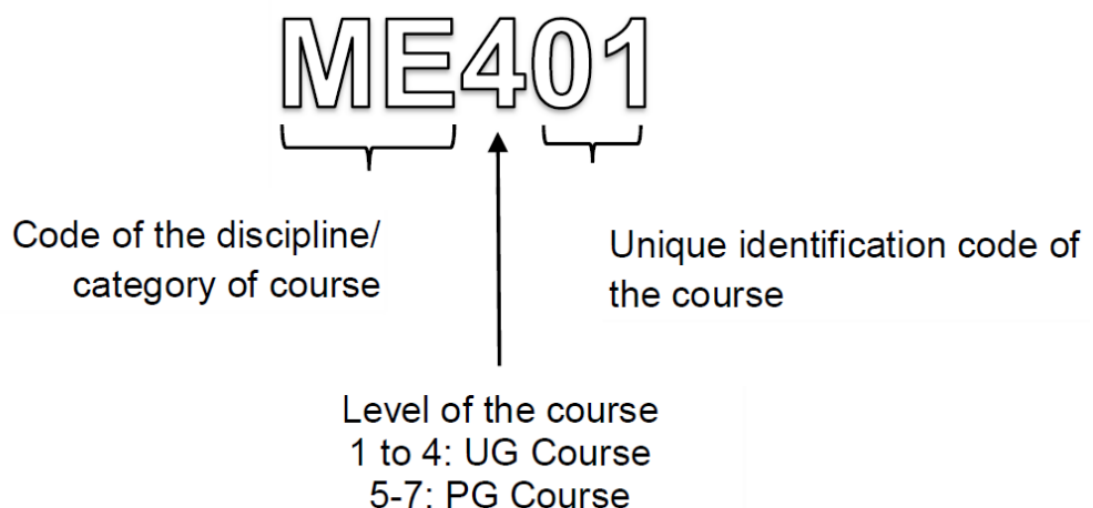
2.1.2 | Description of Course Content

Course content description consists of following components: (i) Course number (ii) Course name (iii) Credits (LTPC) (iv) Prerequisites (v) Intended for (vi) Distribution (vii) Semester (viii) Preamble (ix) Course Modules (x) Textbooks and Reference books (xi) Similarity content with existing courses
An example of course description is as follows -

Course number : CS514

Course name : Data Structures and Algorithms-II

Credits : 3-0-2-4

Prerequisites : CS-202 (DSA) or equivalent for UG students, None for PG students

Intended for : BTech (Semester 5 or 6) who have not taken CS403, MTech (CSE), MS, PhD

Distribution : Discipline Core for MTech CSE, Elective for UG CSE/DS, MS/PhD

Semester : Odd/Even

1. Preamble

The proposed elective course, building on top of the course on Data Structures and Algorithms (CS202), offers formal introduction to various common algorithm design techniques, methods for analyzing the performance of corresponding algorithms and improving their efficiency, and to provide performance guarantees.

The theoretical aspects of this course are going to be supplemented by comprehensive practice exercises and weekly programming labs worth one lab credit.

2. Course modules

1. Review of Data Structures from CS202: Asymptotic Notations, Solving recurrences, Insertion Sort, Merge Sort, QuickSort   (3 H)
2. Advanced topics in Sorting and Searching:- Randomized Data Structures Treaps, Hashing, AVL Trees, Bucket Sort.   (6 H)
3. Dynamic Programming   (3 H)
4. Amortized analysis: aggregate analysis, accounting, potential method   (3 H)
5. Graph Algorithms: Single-Source Shortest Paths Bellman Ford, All-Pairs Shortest Paths using Floyd Warshall, Maximum Flow (Ford Fulkerson)   (6 H)
6. Advanced Data Structures: Quake heaps, van Emde BoasTrees, Union Find Data structures (6 H)
7. Computational complexity: Problem classes: P, NP, NP-complete, NP-hard. Reduction. Cook's theorem. Examples of NP-complete problems.   (6 H)
8. Approximation Algorithms:- Greedy and Local Search algorithms, DP Algorithms   (3 H)

2.1.3 | Course Coordinator

Every course is usually coordinated by a member of the teaching staff of a Department/Centre/School in a given semester. This faculty member is designated as the Course Coordinator. He/she has the full responsibility for conducting the course, coordinating the work of other members of the faculty and teaching assistants involved in that course, administering assignments, conducting the tests as well as moderating and awarding the grades. For any difficulty related to a course, the student is expected to approach the respective course coordinator for advice and clarification. The distribution of the weightage for tests, quizzes, assignments, laboratory work, workshop and drawing assignment, term paper, etc. that will be the basis for award of grade in a course will be decided by the course coordinator of that course, in consultation with other teachers involved, and announced at the beginning of the semester.

2.2 | Credit System

Each course has a certain number of credit(s) assigned to it depending upon its lecture, tutorial and laboratory/practical contact hours in a week. This weightage is also indicative of the academic expectation that includes in-class contact and self-study outside class hours.

Lectures and Tutorials:

- 1 credit indicates an effort of 50 minutes (1 contact-hour) per working week (14 contact-hours per semester).

- A student is expected to spend 2-3 hours outside the class for every contact hour. This time is devoted to self-study, assignments and so on.

Laboratory:

1 credit	1-2 hour lab session per week
2 credits	3-4 hour lab session per week
3 credits	5-6 hour lab session per week
4 credits	7-8 hour lab session per week

- A student is expected to spend 1 hour outside the lab per lab hour, for preparation, self-study etc.

Credit structure of each course is given in L-T-P-C form (e.g. 2–1–0–3). The numbers corresponding to L, T and P denote the contact hours per week for Lecture, Tutorial and Practical/Practicum respectively, and that of C denotes the total number of credits for that course in a semester.

L - T - P - C

Lecture

Credits (total)

Tutorial   Practicum/Practicals
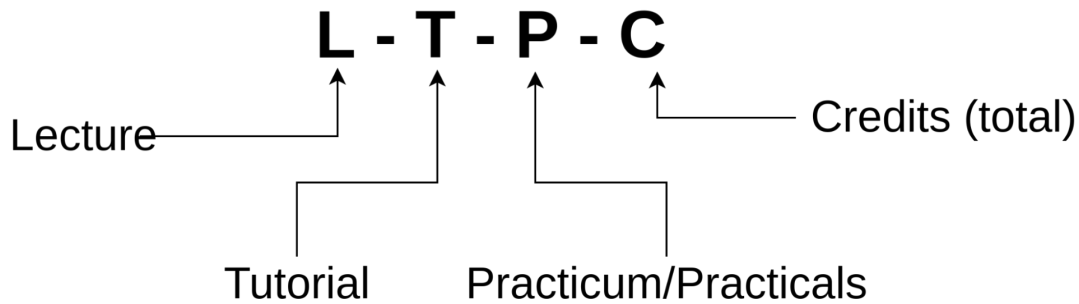
Examples -

- CE511 (3-0-0-3) – This course has a total of three credits and all are to be delivered through 3 lectures (50 min each) per week.

- CE556P (0-0-4-2) - This course has a total of two credits and all are to be delivered through 4 laboratory/practical sessions (50 min each) or one session of about 3-3.5 hours per week etc.

- ME513 (3-0-2-4) - This course has a total of four credits and they are to be delivered through 3 lectures (50 min each) and about 2 hours of laboratory/practical sessions per week.

- ME517 (3-1-0-4) - This course has a total of four credits and they are to be delivered through 3 lectures and 1 tutorial session (50 min each) per week

The above examples are very generic and there could be combinations of credit types to form 1, 2, 3, 4 or more credit courses.

2.3 | Assessment Procedure

2.3.1 | Tests & Examinations

The system of assessment procedure may vary from course to course. However, the general practice of tests and examination consist the following components:

Mid-term tests	In lecture based courses, generally two quiz tests of approximately 50 minute duration shall be held.
End-semester examination	there shall be one end-semester examination, generally of three hours duration, in each lecture based course.

In addition, there may be other components as part of the assessment procedure such as surprise quizzes, assignments, projects, practical tests, viva voce etc. as per the requirements of a course.

The details of the weightage of marks for various components of the assessment procedure have to be announced and recorded in the first Class Committee meeting. The Dean (Academics) should be informed about the scheme of evaluation of a course after the first Class Committee meeting.

2.3.2 | Make-up Exams

Students who have missed the regular quizzes or end-semester examination for valid reasons may request for a make-up examination to the respective course instructor within ten days from the date of the examination missed, explaining the reasons for absence. Applications received after this period shall not be entertained. If the course instructor is satisfied with the explanation provided by the student, he/she may conduct the make-up exam either during the make-up exam slots mentioned in the Academic Calendar or as per the convenience of both the parties. If the instructor is not satisfied with the explanation, he/she may reject the application.

In case of any grievance, the student may appeal to the Dean (Academics).

2.4 | Grading System

The performance of a student in a course is denoted by a letter grade. The letter grades, their interpretation and the corresponding grade points are given below:

Letter Grade	Grade Point Value	Interpretation
O	10	Outstanding
A	9	Very Good
B	8	Good
C	7	Average
D	6	Below Average
E	4	Pass
F	0	Fail
I	0	Incomplete; subsequently be changed into a letter grade in the first month of the subsequent regular semester.
P	0	Passed the course; however, the credits earned will not be counted for the SGPA/CGPA calculations.

I Grade: The I-grade indicates a temporary grade and that a small part of the total requirement of the course remains to be completed and that the student has done satisfactory work in all other aspects of the course. The student is required to complete this small part within a prescribed date, generally within one month of the start of the following regular semester, and the course the instructor will amend the I-grade to a regular grade within this period. If the conversion to a regular grade is not done within one month of the start of the following regular semester, the I-grade will be automatically converted to an F grade.

P Grade: see section 4.4

2.5 | Evaluation of Performance

2.5.1 | SGPA

The performance of a student in a semester is indicated by SGPA, which is a weighted average of the grades in all the courses done by the student in the given semester. The SGPA is calculated as follows:

Where,

c_i = credits in a course i

$$SGPA = \frac{\sum\limits_{i=1}^{n} c_i g_i}{\sum\limits_{i=1}^{n} c_i}$$

g_i = grade point obtained in course i

n = all registered courses in the semester

The Semester GPA calculation shall include 'F' grade.

2.5.2 | CGPA

The performance up to any time in the course of the student's program is indicated by the student's CGPA, which is also calculated by the formula used for SGPA calculation, except that the averaging is done over all of the courses and credits that the student has taken during his/her entire program up to that point.

The intermediate CGPA calculation (i.e. CGPA calculated during the course of the program before completion) shall also include 'F' grade, except for those cases where the course has been successfully cleared in a subsequent attempt or has been replaced by an equivalent course that has been successfully completed.

Note: courses registered under P/F category are not included while calculating the SGPA and CGPA.

2.5.3 | Grade Sheet (semester)

The grade sheet issued at the end of a semester to each student will contain the following:

- The course number, course name and the credits for each course registered in that semester.

- The letter grade obtained in each course

- The total number of credits earned by the student upto the end of that semester

- The Semester Grade Point Average (SGPA, see 2.f.i) for that particular semester

- The Cumulative Grade Point Average (CGPA, see 2.f.ii) of all the courses taken from the first semester

At the end of the program, a final Transcript containing details of all the courses taken by the student mentioning the overall CGPA will be issued along with the Degree certificate.

The record of the F grade(s) obtained for a course will be retained in the Grade Sheets and final Transcript.

2.5.4 | Final CGPA on degree

The final CGPA, calculated upon the completion of all credit requirements towards the fulfillment of a degree, shall include all credits earned against a letter grade, including those credits that are in excess of the minimum requirements.
The final CGPA calculation shall not include any 'F' grade once all the earned credit requirements are completed, (including the minimum credit requirement per basket such as IC/ DC/ DE/ FE/ ODE etc), in continuation of the existing provision

2.6 | Results & Re-evaluation

2.6.1 | Method of Awarding Grades

A final meeting of the Class Committee without the student representatives will be convened within seven days after the last day of the end semester examination. The letter grades to be awarded to the students for different courses will be finalised in such meetings.

2.6.2 | Declaring the results

After finalisation by the Class Committee, the course instructor will submit the letter-grades awarded to the students in a course to the academic office in prescribed format. The academic office will compile all the results and announce the same to the student through E-mail or through the OAS portal of the institute.

2.6.3 | Re-evaluation of Answer Papers

If a student has grievances about the result of a particular course, he/she can contact the concerned course instructor within one week from the commencement of the regular semester immediately following the announcement of the results. If the course instructor feels that the case is genuine, he/she may re-examine the case and submit a revised grade, if applicable. Any request to reconsider the grade after one week of the start of the subsequent regular semester will not be considered.

The course instructor will return answer scripts to the students after evaluation, as part of the learning process. If any student does not collect his/her answer script by the 1st week of the subsequent regular semester, the course instructor may discard it.

2.7 | Supplementary Examination

- A student who earns an F grade in a Core course must secure a pass grade in that course.

- A student who gets "F" grade in a Core course is eligible to seek a Supplementary Examination in a subsequent semester to clear the backlog, provided he/she satisfies the minimum attendance criteria of the course. For taking such Supplementary Examination, the student need not attend classes of that course again.

- A student is eligible for only one Supplementary Examination in a course to clear the backlog. In case a student fails in the Supplementary Examination, he/she has to register for that course again in a regular semester/vacation semester and repeat the course by attending regular classes and exams.

- The Supplementary Examination may be offered by the same instructor who offered the course earlier or the instructor who offers the course in the current semester.

- The Supplementary Examination can be held along with the regular students of the subsequent semesters or during the make-up exam slots of the subsequent semesters or at the convenience of the course instructor.

- Generally, the end semester exam alone is given as the Supplementary Examination and the sessional marks (i.e. quiz marks etc.) earned by the student in the original semester will be taken into account for calculating the final marks. The grade cut-off used in the original semester shall be used for finalising the grade.

- A student securing an F grade in an Elective course may also attempt the Supplementary Examination option as per the conditions <(R.21.2–R.21.6)> mentioned above in the case of a Core course to get a successful grade in that course. However, a student may replace a failed Elective course with an Equivalent course approved by the Faculty Adviser. In such cases, the student has to declare in advance that a particular course he/she doing in a particular semester is an Equivalent course in place of a failed Elective course taken in a previous semester. This declaration has to be done before the course drop deadline of that semester given in the Academic Calendar by submitting the relevant form.

- A course successfully completed cannot be repeated/improved. In case a student passed all the required Core and Elective courses but failed to earn the 20 required minimum CGPA of 5.0 for graduation, the student may be permitted to repeat the Core or Elective courses to earn the minimum CGPA required to pass the program.

3

Semesters & Registration

3.1 | Academic Calendar and Semester system

Each academic session is divided into two regular semesters of approximately eighteen weeks duration (with at least seventy working days for classes in each semester): an Odd Semester (normally August-November) and an Even Semester (normally February-June). Further, there are two vacation semesters (Winter & Summer) of nearly 8-10 weeks duration as well.

3.2 | Enrolment

- From the second semester onwards, all students will have to report and register/enroll on a day specified in the Academic Calendar at the beginning of the semester. A student will be eligible for enrolment only if he/she satisfies the conditions under <R.11> and will be permitted to enroll only if he/she has cleared all dues to the institute up to the end of the previous semester, provided he/she is not debarred from enrolment, on disciplinary grounds.

- If a student fails to report on the specified date, he/she may be allowed by the Dean (Academics) to enroll within one week from the reporting date with a fine. The amount of fine will be specified from time to time.

- Under exceptional circumstances, a student may be allowed to enroll after one week of enrollment date with permission from Chairperson, Senate through Faculty Adviser and Dean (Academics).

3.3 | Registration (Pre-registration)

- Except for the first semester, course pre-registration for other semesters will be done during a specified week before the end-semester examination of the previous semester. Pre-registration is to be done through an online portal of the office automation system (OAS) of the institute. Students should have successfully completed the courses of (n-4)th semester to register for courses in nth semester. For example, to register for courses in 5th, 6th, 7th & 8 th semesters of B. Tech. program, the student should have successfully completed all the courses of 1st, 2nd, 3rd and 4th semesters respectively, as prescribed in the curriculum of the concerned branch of study.

- Students who have backlog courses under (n-4) rule; the registration of courses shall be restricted to the average credit clearance capacity in the last two semesters. The student must register for the backlog courses first giving priority to the oldest backlogs.

- The semester used by a student to clear only the backlog course(s), will not be treated as effective for reckoning the number of semesters spent by the student with respect to the maximum permissible limit (R.12)

3.4 | Course Add/Drop

If a student wants to modify the pre-registered courses, he/she may do so by adding or dropping courses after the start of the semester within the course add or drop deadline mentioned in the Academic Calendar with the approval of Faculty Adviser and the concerned course instructors. However, the student should ensure that the total number of credits registered in any semester should enable him/her to earn the minimum number of credit requirements as specified under R.3.5 and R.11.1.

3.5 | Summer/Winter Vacation Semesters

- The summer/winter vacation semester courses will be offered to clear the backlog courses of the students and for students who wish to spend a semester off-campus based on the availability of the course instructors.

- No student should register for more than three vacation semester courses during a particular vacation semester.

- A student has to pay a fee for each credit registered in the vacation semester.

- The assessment procedure for a course will be similar to that of a regular semester course. Withdrawal from a vacation semester course is not permitted.

3.6 | Semester Break/Temporary Withdrawal

A student may be permitted by the Dean (Academics) to obtain semester break or temporary withdrawal from the program for a semester or longer duration for reasons of ill health or other valid reasons. Normally, a student will be permitted to withdraw from the program only for a maximum continuous or intermittent period of two semesters during the whole program duration.

3.7 | Attendance

- Generally, the minimum attendance requirement of a course is 70%. However, a course instructor can have a different criterion for his/her course. In such a case, the changed criteria should be announced to the students at the beginning of the course. It should also be announced in the 1st Class Committee meeting and recorded in the minutes.

  The percentage of attendance in a course will be indicated in the grade sheet by a letter code as below:

Attendance Rounded to	Remarks	Code
92 to 100 %	Very Good	VG
80 to 92 %	Good	G
70 to 80 %	Satisfactory	S
< 70 %	Poor	P

- A student who has an attendance lower than the required minimum attendance in a course, whatsoever the reason for the shortfall in attendance, will not be permitted to appear in the end-semester examination of the course. His/her registration for that course will be treated as cancelled, and he/she shall be awarded 'F' grade in that course.

- The instructor of a course must finalise the attendance on the last instructional day of the semester. The instructor must announce the particulars of all students who have attendance less than the required minimum in the class.

4

Undergraduate Curriculum

4.1 | Overall structure

4.1.1 | B.Tech./B.Tech. (Honours) Program

The curriculum of any branch of the B.Tech. program is designed to have a minimum credit requirement of 160 credits. For B.Tech. (Honours), the minimum credit requirement is 172 credits. The curriculum consists of courses mainly in the following categories:

- Institute Core Courses (IC)

- Discipline Core Courses (DC)

- Discipline Elective Courses (DE)

- HSS elective courses

- Free Elective Courses (FE)

Division	Sub-division	Credits	Remarks
Institute Core	IC Compulsory	54	Common to all disciplines
	IC Baskets	9	Common to all disciplines (with a few exceptions as described in section)
Discipline	Discipline Core	33	Discipline specific, as decided by PFG
	Discipline Electives	12	
Electives	Free Electives*	27	Open to student's choice
	MTP+ISTP or Equivalent	12	
	HSS Elective	13	Any HSS course
	TOTAL	160	

*In addition to the credits of the courses classified as Free Electives, extra credits earned in any other course basket can also be considered for satisfying the credit requirement of Free Elective basket.

4.1.2 | BTech-MTech Integrated Dual Degree Program

Division		Credits	Credits Sum
IC Core	BTech Core & Elective	54	136
IC Basket		9	
HSS Electives		13	
Discipline Core		33	
Free Electives		27	
M.Tech. Discipline Electives	MTech Core & Elective	21	70
M.Tech. Core		9	
Technical Communication		1	
Bioethics and Regulatory Affairs		1	
Mini Project, Term Paper and Seminar		4	
M.Tech. Dissertation		34	
TOTAL		206	206

A student needs to complete 160 credits for B.Tech in 4 years and 70 credits for M.Tech in two years. The integrated dual degree programme allows the students to go through a rigorous framework of core courses at Bachelors and Masters level and a comprehensive and detailed project and dissertation work which allows a student to graduate in 5 years with a B.Tech-M.Tech integrated dual degree earning 206 credits.

4.2 | NSO/NSS/HnT Requirements

- All students admitted to the B.Tech. program will have to take either NSO or NSS or H&T as a non-credit extra-curricular program.

- The NSO/NSS/H&T requirement should be completed within the first two semesters of the program.

- As there are no tests/exams for these programs, the attendance requirement is 90%.

- If a student falls short of the attendance requirement of this program, he/she should make up the deficiency as below:

    – If the absence is on valid grounds, the deficiency shall be made up through extra sessions.

    – If the absence is unauthorised, the deficiency will have to be made up during the following year.

    – The deficiency in NSO/NSS/H&T sessions will have to be made up at the rate of two classes for each class missed.

    Dean (Students) will maintain the record of NSO/NSS/H&T activities of

- students and convey the results to the academic office

4.3 | Internship Requirements

- As part of the B.Tech. curriculum, the students are required to do an industrial internship in India for a minimum period of 6 weeks, during the winter vacation following the 5th semester or any subsequent vacation before the final semester. Only in exceptional situations and only with approval from the respective Faculty Adviser, a student will be allowed to do this internship at other time periods.

- The internship must be done in a technology oriented public/private sector company/industry or in reputed research organisations, such as CSIR, DRDO or BARC. Internships in IIT Mandi or other educational institutions will not be considered for this purpose.

- Internships with start-up companies, which are not registered yet, will not be considered.

- On successful completion of the Internship, two credits will be awarded to the student for the same. These credits will not be counted towards SGPA/CGPA calculations.

4.4 | Pass/Fail courses

Students can also take a few course credits as Pass/Fail grade towards the degree requirements of the students. Such courses can be independent study courses, research based academic or industrial projects and courses offered by on-line platforms supported through Government of India initiatives like SWAYAM/NPTEL etc. A Pass (P) or Fail (F) grade will be awarded for such courses. These courses will not count towards the SGPA/CGPA calculations.

The above credits under the P/F category shall be optional and any P/F credits taken by students beyond the prescribed limit (see the table below) will not contribute towards their degree requirements. However, it would reflect on their transcripts. As a consequence of these changes, the semester internship of UG/dual degree students will also count as 9 credits of Free Elective.

Program	Maximum prescribed limit of the number of credits
BTech	9 credits (FE)
BTech with Honors	9 credits (FE)
Integrated BTech-MTech Dual Degree	12 credits (FE)
M.Tech/MSc/MA/IPhD	3 credits (towards DE/ODE/FE)

Courses that can be considered under P/F credits:

- Courses offered through various platforms supported through Government of India initiatives such as NPTEL, SWAYAM etc. It will be considered as per the guidelines already approved by the Senate.

- Self study/ Independent study course.

- Research based project work done with an instructor at IIT Mandi or at Industry.

- Any course offered at IIT Mandi. Here the student has to declare at the beginning of the semester whether the given course(s) will be credited as P/F category or not. Here, if marks obtained by the student is more than the cut-off of 'E' grade, then 'P' grade will be awarded.

4.5 | Minimum & Maximum duration of the Program

The minimum duration of the B.Tech. and B.Tech. (Honours) programs are 8 semesters. However, a student may complete the program at a slower pace, but in any case not more than 12 semesters, excluding semesters withdrawn on medical grounds, etc. as per R.13. However, the students will have to satisfy R.11.1 every semester, failing which their registration will be cancelled.

Program	Minimum number of registered semesters*	Maximum numbers of registered semesters*
BTech/ BTech (Honours)	8	12
Dual Degree	10	14

excluding semesters withdrawn on medical grounds, etc. as per R.13

4.6 | Minimum Requirements to continue the Program

4.6.1 | Unsatisfactory academic performance - Academic Warning and Probation

- A student is in good academic standing if he/she stays abreast of the credit requirement at any particular stage of his/her academic program and if his/her CGPA is at least the minimum required for graduation (5.0). Any student who is

not in good academic standing is performing unsatisfactorily. Seriously unsatisfactory academic performance will attract strictures such as "Academic Warning" and "Academic Probation", accompanied by conditions laid down by the Senate. If the student fails to meet these conditions, his/her program at IIT Mandi may be terminated prematurely.

■ **Academic Warning:** A student will be placed on Academic Warning if, in any semester, any two of the following conditions hold:

– he/she fails to secure at least 15 credits

– his/her SGPA is less than 5.0

– his/her CGPA is less than 5.0

During the term of the Academic Warning, a student will not run for or hold any office concerning any student activity.

■ **Academic Probation:** A student will be placed on Academic Probation if, at the conclusion of any semester, he/she attracts a second consecutive Academic Warning or if any two of the following conditions hold:

– he/she fails to secure at least 12 credits

– his/her SGPA is less than 4.0

– his/her CGPA is less than 4.0

A student on Academic Probation should sign an undertaking, countersigned by his/her parent, to the effect that his/her academic program will be terminated and he/she will cease to be a student of IIT Mandi if he/she fails to fulfil the terms of the probation.
The terms of the probation shall be that, in the following semester,

– he/she shall secure at least 15 credits

– his/her SGPA should be at least 5.0

– any other special condition(s) laid down by the Senate

4.6.2 | Incomplete NSO/NSS/HnT requirements

A student who has not completed the NSO/NSS/Hiking & Trekking requirements in time as per the n-4 rule given in R.8.2 will not be permitted to continue the B.Tech. program.

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4.7 | Termination of the program and readmission

- The academic program of a student will be automatically terminated if he/she fails to graduate within the maximum permissible duration of the program. For B.Tech. and B.Tech. (Honours), the maximum permissible duration is 12 semesters, not counting semester withdrawal(s) for medical reasons or academic reasons (e.g. special internship). The semester used by a student to clear only the backlog course(s), will not be treated as effective for reckoning the number of semesters spent by the student with respect to the maximum permissible limit (vide R.12). If a student is suspended for any semester, or withdraws voluntarily from any semester, that semester will be counted.

- The academic program of a student will be terminated if he/she fails to fulfil the terms of Academic Probation. A student's academic program will also be automatically terminated if he/she fails to register, on the scheduled registration date, in any given semester or fails to sit for the end-semester examinations without clear and specific permission, or if he/she is absent from classes for a significant part of the semester, normally three weeks.

- A student's academic program may also be terminated on grounds of unacceptable conduct. In such instances, the Students' Welfare & Discipline Committee (SWDC), or a similar committee empowered by the Senate, will deliberate on the violation and make a recommendation to the Senate.

- **Readmission:** A student whose academic program is terminated under any of the above conditions may appeal to the Chairperson, Senate through Faculty Adviser and Dean (Academics) for mercy and a second chance to re-enrol in the program. The Chairperson, Senate may take appropriate decisions on such applications on behalf of the Senate and the same shall be reported to the Senate.

Rules governing Change or Addition to the Programme

5.1 | Branch Change

The guidelines for change of branch are as follows:

- To be considered for a branch change, a student needs to submit the application before the end of the second semester of the programme, with choices in order of preference, of the branch or branches desired to be changed to

- Branch change applications will be considered strictly in order of merit as established by the CGPA of first-year courses (excluding HSS elective) to the extent of the applicant's choices in the order of the preference. If a seat opens up at any later stage in the process, it be offered to the applicant with the highest CGPA by going back up the list

- In granting the change of branch of a student, the strength of a branch/class shall not exceed the sanctioned strength by more than 25% and shall not fall below the existing strength by more than 20%. (Any fraction will be rounded off to the nearest whole number)

- The student should have no backlog and should not have been found guilty of any severe academic or disciplinary misconduct

- During the branch change process, if any tie of CGPA scores, the affected students will be treated equally and will be jointly given the branch change subject to condition (iii) above

5.2 | Honours

B.Tech. (Honours) students can register for additional courses from the Discipline Elective basket over and above the courses prescribed in the regular B.Tech. curriculum from the 5th semester onwards in consultation with the Faculty Adviser. Students who have registered for B.Tech. (Honours) are permitted to register for more than 22 credits in a semester.

5.3 | Minor

- A minor is intended for a student to gain expertise in an area outside his/her major B.Tech. discipline. A specialist basket of at least 3 courses is identified for each Minor. Such course baskets may rest on one or more foundation courses. A basket may have sequences within it, i.e. advanced courses may rest on basic courses in the basket. In order to successfully complete a Minor, a student needs to take at least 9 credits with a CGPA of 7.0 out of the courses defined in that Minor basket.

- The area of the Minor must be different from the Major discipline of the student; the courses that are part of the Common Core (including HSS), or the Discipline Core/Electives cannot be counted towards a Minor. However, the 5 credits earned under Humanities Electives (see R.3.7) may be counted for Minor requirements if needed.

- A student is allowed to take any number of Minors, but a particular course cannot be counted for more than 1 Minors.

- The name of the Minor will appear on the Transcript and the degree certificate of the student

5.4 | Semester exchange

IIT Mandi has memorandum of understanding (MoU) for semester exchange visits with some eminent academic institutions in India and abroad. Selection of candidates for such exchange visits will be done through a competitive process.

- Selected students can go on exchange visit for one or two semesters. If the student goes on semester exchange visits for two semesters, these two semesters can be contiguous.

- No student exchange visit will be allowed during the final (normally eighth) semester.

- Some of the signature courses of IIT Mandi (Reverse Engineering, Design Practicum, ISTP, and any others that are notified from time to time) must be completed at IIT Mandi. This is so as to preserve the character of IIT Mandi B.Tech. degree

- The semester exchange programs can only be undertaken with those institutes with whom IIT Mandi has an MoU for such visits.

- Credits and grades earned during semester exchange visits will be converted to IIT Mandi equivalent credits and grades as per the Senate approved conversion criteria in each case.

5.5 | Double Major

Under this option, the student will be able to major in a secondary branch, along with a BTech (or dual degree – BTech+MTech) in their primary branch (which the student got during selection at IIT Mandi / after branch change). For this the student will be required to complete additional coursework, which will include core and elective courses, in the secondary discipline. An additional one year, typically, will be permitted for the student to complete these additional requirements. A degree certificate stating B.Tech. (or Btech+MTech) in <ABC> with second Major in <XYZ> shall be awarded. This is practised at three other IITs as of date, including IIT Kanpur, IIT Gandhinagar and IIT Hyderabad. The double major program can be termed as a 5-year program just as usual BTech is termed as a 4-year program.

Note:

- A double major is not a dual degree (BTech + MTech).

- double major is not a double degree (two BTechs). This is because the requirements of a second BTech degree (53 credits) would also include a second B.Tech. project, and is much more than that of the proposed second major (36-40 credits).

5.5.1 | Application

- Eligibility criteria: CGPA 7.0, not more than one F grade. If someone is struggling with the parent branch, a double major will be an added pressure.

- Application period:

  - At the end of 4th and 6th semester for four-year BTech programs. Applications will be considered subject to the availability of seats in the program.

  - At the end of 6th and 8th semester for five-year BTech+MTech dual degree programs. Applications will be considered subject to the availability of seats in the program.

- In case the number of applicants exceeds the number of available vacancies, the process of selection into the second major shall be determined by a faculty committee constituted by the Dean academics for this purpose.

- The Dean (Academics) shall decide a cap on the maximum number of students who can avail this option for any particular (second) discipline, based on the advice tendered by the respective Schools/PFG Chairs.

- Student applications must be recommended by the Faculty Advisor.

- The PFG chair of the second major will have to approve the student's request for entry and the application can be denied in case the seats are full, the student has any F grade in any core/elective course of the second major or some other valid reason.

5.5.2 | Courses/Baskets

- A basket of courses that contribute towards the second major is identified by the PFG of each (second) discipline, that may comprise some combination of discipline core and discipline elective courses from the second discipline. The PFG of the (second) discipline may also list an additional set of prerequisite courses in some cases. A minimum number of core credits may be decided for all second majors.

- Between 36 and 40 credits from this basket need to be completed by the student.

- For the purpose of completion of the 36-40 credits required for the second major, a maximum of 12 FE credits may be used from the parent program. The remaining

FE credits from the parent program should be applied towards courses that do not count towards the second major basket requirement.

- Students may start accumulating course credits in the form of additional courses (even before they officially enrol into a Double Major program) and convert them to be counted in favour of Double Major requirements at the time of enrolling into this program. This will help them learn the disciplines gradually over the five years and also reduce load on the administration while offering courses to the students without clashes.

- Courses that are a part of the common core (including HSS)/Discipline Core/Discipline Elective for a student's parent discipline cannot count towards their second Major requirement.

- If a core/foundation course of second discipline Y is a part of parent program X's discipline core/elective:

    - Eg:- DSE student wants to second major in CSE.
    - "CS202 - Data Structures & Algorithm" is a discipline core for both CSE and DSE.
    - Solution: Compensation of such credits can be done through:
        * Possible replacements (from a pool of courses), suggested by PFG of the second discipline
        * Courses that count as DE for the second discipline Y

5.5.3 | Pass/Fail rules

The enrollment into a second major shall not influence the Pass/Fail credit requirements of the parent discipline. However, it may be noted that none of the courses that count towards the second major may be taken under the Pass/Fail category

5.5.4 | Completing the program

Only one CGPA will be reported on all official documents, calculated upon the performance of the student in all courses credited, including the requirement of BTech and second major. The overall grade report, in addition to the primary discipline courses, will also display the discipline of the second Major and courses done to complete the second Major along with the grades awarded.

Voluntary opting-out from the program is not allowed.

5.5.5 | Termination of the program

- After enrolling into a double major program, if a student gets an "F" grade in two or more than two courses, his/her enrollment to the double major program will be terminated.

- The second Major part of the program will be automatically discontinued at the end of the tenth semester for BTechs and 12th semester for BTech+MTech Dual degree students if the student is not able to complete the requirements of double major. Special requests can be considered by the Dean Academics on the recommendation of the PFG chair of the Second major discipline.

- In the case of termination, the courses which were credited for completion of the second major basket can be counted towards the Free Electives (if required).

5.5.6 | Felicitation and Awards

The double major program is a 5-year UG program. Hence, the following is proposed:

Foundation Day A program-wise award for outstanding academic excellence will be given at the 4th year for the students seeking Double Major in addition to a 4-year BTech degree, based on their parent program.

Convocation Four-year BTech students enrolled in the Double major program admitted into the institute in year x compete with 4-year BTech students admitted in year x + 1 for the following medals:

- President of India Gold Medal

- Institute Silver Medals

- Rani Gonsalves Memorial Medal

- Balasundaram Endowment Prize in German

- Director's Gold medal

5.5.7 | CnP rules

BTech students doing double major will be allowed to sit for placements in the 5th year, not 4th. BTech + MTech dual degree students will be allowed to sit in the placements in the 6th year, not 5th. CnP will have the final say in any case.

5.5.8 | Implementation

The following types of programs can be taken as second major:

- All engineering programs (CE, ME, CSE etc.)

- Science programs (Maths, Physics, Chemistry etc.)

- Engineering science (EP)

5.5.9 | Other important notes

- The B.Tech. (Honours) program will only be applicable to the parent Major discipline, and not the second Major discipline. Furthermore, no waiver of Free Elective credits shall be provided to the student, in order to remain consistent with the pre-existing B.Tech. (Honours) requirement.

- A student cannot undertake a second Major and minor in the same discipline.

- Internship rules (including the time of internship) shall be the same as that for the regular B.Tech. program.

- Timely completion of the course and credit requirements will solely be the students' responsibility.

- For students doing Double Major with BTech Honours, the R.29.4 of BTech Ordinances and Regulations would apply only to 172-174 credits done from the parent discipline and not on the 36-40 credits counting towards the second major, i.e. it's the GPA of Parent programme courses which needs to be 8.5 or more and not the overall CGPA.

5.6 | Dual Degree

The provision of B. Tech (Honours) to B. Tech - M. Tech Dual Degree encloses the following:

- To be at par with <>R 29.1<> students need to do extra 12 credits of discipline electives. This means they have to earn 218 instead of 206 credits for the award of the B.Tech (Hons.) degree.

■ Since an IDD student is required to do 25-35 credits of PGP, the requirement of 8 credits of MTP is waived off. However, to earn a B.Tech (Honours) they are still required to do DP-301P: Interactive Socio-Technical Practicum (ISTP) and obtain a minimum grade of 'B' in it. These 4 credits of Interactive Socio-Technical Practicum (ISTP) can come from 22 credits of free electives contributing to 4 out of 22 credits allotted for free electives. Also, the students have to earn a minimum of 'B' grade in the PGP.

■ Students should not have received 'F' grade throughout the IDD program.

■ Students should secure an overall CGPA of 8.5 or more out of 218-220 credits

5.7 | Semester Internship

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.

5.7.1 | 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.

5.7.2 | 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.

5.7.3 | Course and Credit distribution

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

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:

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

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

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.

5.7.4 | Accommodating a semester internship without having to opt for a semester break

■ 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).

■ 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.

■ Applicable fee for the semester must be paid.

5.7.5 | 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

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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)

5.7.6 | 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

Scholarships, Awards and Medals

6.1 | Scholarships

The details of various scholarships available for students shall be displayed on Institute Website from time to time.
Currently IIT Mandi provides the following scholarship[s for the students -

6.1.1 | MCM Scholarship

■ The number of Merit Cum Means (MCM) scholarships for each year and each branch will be limited to 25% of the strength of students in that particular branch in that year.

■ The eligibility criteria and other conditions for MCM scholarship shall be notified subject to terms and conditions and at the rates approved by the Government of India from time to time.

■ The students who receive MCM scholarship are exempted from paying tuition fee and will receive a monthly scholarship as specified from time to time.

■ In the cases of scholarships provided by private organisations, the rates and terms and conditions for the award of such scholarships shall be as approved by the Senate. In the case of the SC/ST candidates, all are exempted from payment of tuition fees. The award of scholarships and other benefits will be in accordance with the rules framed or amended by the Government of India from time to time.

6.2 | Medals and Awards for BTech Degree

6.2.1 | President of India Gold Medal

The President of India Gold Medal and Institute Silver Medals shall be awarded to the graduating students with the best record of academic excellence, preferably B. Tech. (Honours) students.

6.2.2 | Institute Silver Medal

Institute Silver Medals shall be awarded to the graduating students with the best record of academic excellence, preferably B. Tech. (Honours) students.

6.2.3 | Director's Gold Medal

Director's Gold Medal is for outstanding all-round proficiency from among the batch of B.Tech students graduating. It shall be awarded to the graduating student with a good academic record and proven leadership and excellence in extracurricular activities in all the four years of the B.Tech program.

6.2.4 | Rani Gonsalves Memorial Medal

The female B.Tech. student who through her leadership and her exemplary accomplishments and Extra-curricular activities, consistently throughout her B.Tech., has advanced the status of women in B.Tech.

6.2.5 | Balasundaram Endowment Prize in German

This award is for outstanding performance in the Minor in German language from among the batch B.Tech. students graduating and opting for the said minor. It shall be awarded to the graduating B.Tech. student with Minor in German Language and having the best Grade Point Average in the course comprising the minor.

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Conduct and Discipline

Every student is required to observe discipline and decorous behaviour both inside and outside the campus and not to indulge in any activity which will bring down the prestige of the Institute.

Any act of indiscipline by a student shall be referred to a **Students' Welfare & Discipline Committee (SWDC)**. The Committee shall enquire into the charges and recommend suitable punishment if the charges are substantiated. Dean (Academics) will consider the recommendations for minor punishments and warnings and take appropriate action accordingly. In case of major punishment, the Senate will take appropriate decisions.

Appeal: The student may appeal against the disciplinary action to the Chairperson, Senate, whose decision will be final in such matters.

Ragging of any dimension is a criminal and non-bailable offence in our country. The current State and Central legislations provide for stringent punishment, including imprisonment. Once the involvement of a student is established in ragging, the offending student will be dismissed from the institute and will not be readmitted. Avenues also exist for collective punishment, if individuals cannot be identified in this inhuman act. Every student of the institute, along with his/her parents, shall give an undertaking at the time of admission in this regard.

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