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Courses of Study Academics Handbook

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1. INTRODUCTION

1.1 Background

Inventions and innovations are keywords on which the foundation of IIT Hyderabad is based. These are also key drivers for the vision of IIT Hyderabad. Our endeavour is to create an institute that will provide a space for free and uninhibited thinking, a space where faculty and students can experiment with novel ideas without the fear of failure. It is our firm belief that such an ambience will foster the highest level of research: blue sky research as well as developmental research leading to proof of concepts and prototypes.

1.2 Departments

The Institute is organised into the following departments:

Department	Abbreviation	Course prefix
Department of Artificial Intelligence	AI	AI
Department of Biomedical Engineering	BM	BM
Department of Biotechnology	BO	BO
Department of Chemical Engineering	CHE	CH
Department of Chemistry	CY	CY
Department of Civil Engineering	CE	CE
Department of Climate Change	CC	CC
Department of Computer Science and Engineering	CSE	CS
Department of Design	DS	DS
Department of Electrical Engineering	EE	EE
Department of Engineering Science	ES	ES
Department of Liberal Arts	LA	LA/CA
Department of Materials Science and Metallurgical Engineering	MSME	MS
Department of Mathematics	MA	MA
Department of Mechanical & Aerospace Engineering	MAE	ME/AE
Department of Physics	PH	PH/EP

Amongst the above, some of the departments like Department of Artificial Intelligence, the Department of Climate Change and the Department of Engineering Science are interdisciplinary departments, meaning they are comprised of adjunct faculty from multiple departments.

1.3 Programs offered

Currently, the Institute is running the following Degree Programs:

- Undergraduate
 - Bachelor of Design (BDes)
 - Bachelor of Technology (BTech)
 - Master of Arts (MA)
 - Master of Science (MSc)
- Postgraduate
 - Master of Design (MDes)
 - Master of Technology (MTech): 2-Year & 3-Year
 - MTech by Course Work (MCW)
- PhD
- Multiple degree programs

1.3.1 Bachelor of Design (BDes)

Department	Program
Design	Bachelor in Design

1.3.2 Bachelor of Technology (BTech)

Department	Program
Artificial Intelligence	BTech in Artificial Intelligence
Chemical Engineering	BTech in Chemical Engineering
Civil Engineering	BTech in Civil Engineering
Computer Science and Engineering	BTech in Computer Science and Engineering
Electrical Engineering	BTech in Electrical Engineering
Engineering Science	BTech in Engineering Science
Materials Science & Metallurgical Engineering	BTech in Materials Science & Metallurgical Engineering
Mathematics	BTech in Mathematics and Computing
Mechanical & Aerospace Engineering	BTech in Mechanical Engineering
Physics	BTech in Engineering Physics

1.3.3 Master of Arts (MA)

Department	Program
Liberal Arts	MA in Development Studies

1.3.4 Master of Science (MSc)

Department	Program
Chemistry	MSc in Chemistry
Mathematics	MSc in Mathematics
	MSc in Mathematics and Computing
Physics	MSc in Physics

1.3.5 Master of Design (MDes)

Department	Program
Design	Master of Design

1.3.6 Master of Technology (MTech): 2-Year & 3-Year

Department	Program	
Artificial Intelligence	MTech in Artificial Intelligence	
Biomedical Engineering	MTech in Biomedical Engineering	
Biotechnology	MTech in Biotechnology	
Chemical Engineering	MTech in Chemical Engineering	
Civil Engineering	MTech in Civil Engineering	Environmental & Water Resources Engineering
		Geotechnical Engineering
		Structural Engineering
Climate Change	MTech in Climate Change	
Computer Science and Engineering	MTech in Computer Science and Engineering	
	Executive MTech. in Data Science	

Electrical Engineering	MTech in Electrical Engineering	Communications and Signal Processing (CSP)
		Microelectronics (Micro)
		Power Electronics and Power Systems (PEPS)
		Systems & Control (SysCon)
Materials Science & Metallurgical Engineering	MTech in Materials Science & Metallurgical Engineering	
Mechanical & Aerospace Engineering	MTech in Mechanical Engineering	Integrated Design and Manufacturing
		Mechanics & Design
		Thermo-Fluids
	MTech in Aerospace Engineering	

1.3.7 Master of Technology: MTech by Course Work (MCW)

Department	Program	
Artificial Intelligence	MTech in Artificial Intelligence	
Biomedical Engineering	MTech in Biomedical Engineering	
Chemical Engineering	MTech in Chemical Engineering	
Civil Engineering	MTech in Civil Engineering	Environmental & Water Resources Engineering
		Geotechnical Engineering
		Structural Engineering
Electrical Engineering	MTech in Electrical Engineering	Communications and Signal Processing (CSP)
		Microelectronics (Micro)
		Power Electronics and Power Systems (PEPS)
		Systems & Control (SysCon)
Materials Science & Metallurgical Engineering	MTech in Materials Science & Metallurgical Engineering	
Mechanical & Aerospace Engineering	MTech in Mechanical Engineering	Integrated Design and Manufacturing
		Mechanics & Design
		Thermo-Fluids
	MTech in Aerospace Engineering	

1.3.8 Doctor of Philosophy (PhD)

Most of the departments offer the Ph.D. program in their respective departments. IITH also has joint PhD programs with some reputed universities. Students may visit the IITH admissions page for more information.

1.3.9 Multiple Degree Programs

In addition to above listed program, there is also scope for students to convert to combination degree programs, like BTech+MTech, MTech+PhD, Double Major etc.

1.4 Organizational Structures of Academics

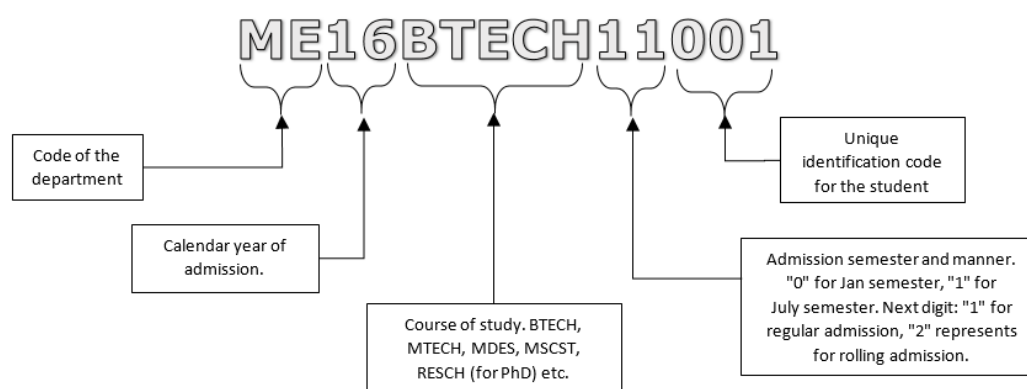
The academic programs of the Institute are governed by Rules and Regulations approved by the Senate from time to time. The Senate is chaired by the Senate Chairman (Director of the Institute) and comprises various faculty of the Institute. The Dean of Academic Programs (Dean Academics) oversees the implementation of academic programs and handles all related matters. The Senate may also form various sub-committees from time to time for specific purposes. Administrative support is provided by the Academic Office, with a Deputy Registrar (AP) in charge.

At the department level, the Head of the Department (HoD) together with DUGC (Department Under-Graduate Convener) and DPGC (Department Post-Graduate Convener) oversee the academic progress of the students. They are aided by faculty advisors who are envisioned as the primary and first contact point of students for all academic matters. If on any academic matter a student would like to approach this administrative structure, it is suggested that he/she may do so through the HoD with advice and recommendations from Faculty Advisor and DUGC/DPGC.

1.5 Roll Number Scheme

Each student is given a roll number at the time of admission into a program. This roll number will have to be used by the student consistently throughout his/her duration of studies at the Institute in that program. Students who joined under one program and have converted to another program (example: joined as BTech, later converted to BTech+MTech dual degree) will be assigned a separate roll number at the time of such conversion.

This roll number is also the default email ID for the students in the form of <rollnumber@iith.ac.in>. The following is the denotation/meaning of the various parts of this roll number:



1.6 Code of Conduct for Students

Students are expected to conduct themselves with integrity and proper consideration for others at all times. They are expected to exhibit proper respect for others in their personal behaviour and interpersonal interactions, both within and outside the campus. The Institute strictly prohibits ragging and sexual harassment; any instance of either should be reported immediately and will be dealt with as a serious offense. Students are expected to respect Institute property and follow all Institute rules and regulations at all times.

The student must also adhere to the hostel rules and regulations; details of the same can be found on the Gymkhana website: <http://gymkhana.iith.ac.in>

If students feel victimized by the conduct, academic or personal, of any other member of the Institute, they may register a complaint with statutory bodies such as the Women's Cell, SC/ST Cell, Grievance cell, etc. Please see the section on mentoring & statutory support for students for more details.

1.7 Glossary of Terms

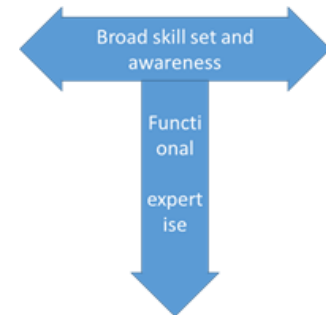
- *Additional Course*: An additional course taken by the student over and above the minimum credit requirements of the degree.
- *Audit*: Additional course above the degree requirements which can be registered by the student. But no letter grade will be given; if successfully completed, only an "AU" grade will appear in the transcript.
- *Core Elective*: A course of the student's choice, to be selected from the same department (or offered by a different department, but identified as "core" by one's department).
- *Credit*: The quantitative measure of recognition given to a course, stated in semester hours. Typically, a theory course running for a full semester with three contact hours per week would be 3 credits. Similarly, a lab course with the same number of contact hours would be 2 credits.
- *Departmental Elective*: Elective courses offered by the same department
- *Double Major*: Coursework pertaining to two departments/disciplines and leading to a degree with two departments listed.
- *Elective*: Course chosen by the student and which would form part of his/her degree requirements.
- *Fractal Segment*: The part or duration of a semester in which a particular course is offered.
- *Free Elective*: A course of the student's choice, to be selected from any department (subject to meeting the pre-requisites).
- *Honors*: Additional basket of coursework done in the same discipline as the student's original discipline (and would also find mention in the final degree).
- *LA/CA Elective*: A course of the student's choice, to be selected from the Liberal Arts and Creative Arts category.
- *Major*: The primary set of discipline-specific coursework pertaining to the student's department/discipline.
- *Minor*: Additional basket of coursework done from a discipline different from the student's original discipline (and would also find mention in the final degree).
- *Pre-requisite*: The preliminary requirement, usually successful completion of another course, that must be met before a course can be taken.
- *Self-study Course*: Any course where learning happens in a series of interactions, self-reading of text books, video lectures and regular exams instead of scheduled classes (typically meant for higher level courses offered in summer vacation).
- *Science Elective*: A course of the student's choice, to be selected from the Mathematics, Physics & Chemistry list of courses.

2. FRACTAL ACADEMICS

Key Ingredients of an Effective Curriculum:

The following are a few points that can be said to be key ingredients needed for an effective curriculum:

- Program should capture both breadth and depth (T-model of education).
- Should foster interdisciplinary understanding
- It should be flexible enough to cater to the interests of different students.
- Should have a wider choice of electives
- Should foster research at the undergraduate level
- Should have synergy in projects – hopefully leading to products
- Should allow students can pace their program
- Create greater choice for knowledge acquisition and specialization
- Encourage creativity [Ex. Bouquet of courses in Creative Arts (music, movie making, fine arts)]



Fractal Academics at IITH

A fractal is a never-ending pattern that are self-similar across different scales. They are created by repeating a simple process over and over in an ongoing feedback loop. Fractals are easily found in nature; these objects display self-similar structure over an extended, but finite, scale range. Examples include clouds, snow flakes, mountains, river networks, cauliflower or broccoli, and systems of blood vessels.



Illustration of a fractal geometry at various levels

Fractal academics also follows such a multi-scale approach. In this, a subject is offered as a set of two courses: a 1-credit giving an overview of the subject and a higher level course (often 2-3 credits) giving functional expertise of the subject. For example, a student may enrol for introductory parts of say, Digital Signal Processing, IC Engines and Machine Learning. S/he will thus gain a broad understanding on these wide range of topics. Subsequently, based on the interest of the student, one may also enrol for the advanced version of one of those courses for a deeper grip of the subject. This model, thus makes it possible for both breadth and depth in learning. It may be noted that both the introductory and the advanced courses attempt to cover the same range of topics, but in varying degree of details, hence, the name fractal academics.

This was a result of initial attempts at IITH with *Fractional* Credit Courses. A typical 3-credit course has 42 contact hours; IITH developed courses with 0.5, 1.0, 1.5, 2.0, 2.5, and 3 credits having 7, 14, 21, and 28, 35 and 42 contact hours. The motivation was to atomize the teaching program and also involve industry partners in some aspects of academics. The student enthusiasm, their commitment, and their output was very high in these courses. Based on the overall success of fractional credit courses, we developed a complete 4-year curriculum, referred to as Fractal Academics. The core of fractal academics is that breadth courses are of 1 credit, while depth courses are typically of 1.5 to 2.5 credits. In essence, we are atomizing the academic program, providing a more holistic education, and in the long run giving students the choice to design their curriculum.

The fractal academics at IITH, apart from changing the manner in which the courses are structured also offer a wide range of advantages, a few being:

- Help interdisciplinary education
- Open to all students – allows for greater breadth
- Students have the option of greater number of interesting courses

- Allow students to better tailor their coursework and choose across Departments
- Large basket of non-technical courses (Liberal Arts + Creative Arts)
- Better access to a wide variety of courses increases exposure and preparedness for research
- Synergy in projects - foundation for product development
- A balance is sought between technical and non-technical courses to reduce stress when students enter IIT Hyderabad
- The first two semesters expose students to all the basic tools required for the rest of their Bachelor program
- The curriculum potentially makes students ready for internship right after the first year

Fractal Academics is constantly evolving based on feedback from students and faculty. We believe that it should evolve continuously and keep pace with changing times and changing aspirations of the students.

3. GENERAL ACADEMIC RULES & PROCEDURES

3.1 Course Structure and Credit System

3.1.1 Curriculum

With medium of instruction as English, every Department has a prescribed course structure which, in general terms, is known as the Curriculum or the Courses of Study. It prescribes all the courses / labs / other requirements for the degree and sets out the nominal sequence semester wise. It also gives the syllabus for each course. The Courses of Study details are updated every semester and are made available at IITH Website under the categories (a) Courses of Study: Bachelors (b) Courses of Study: Masters & PhD.

3.1.2 Credits

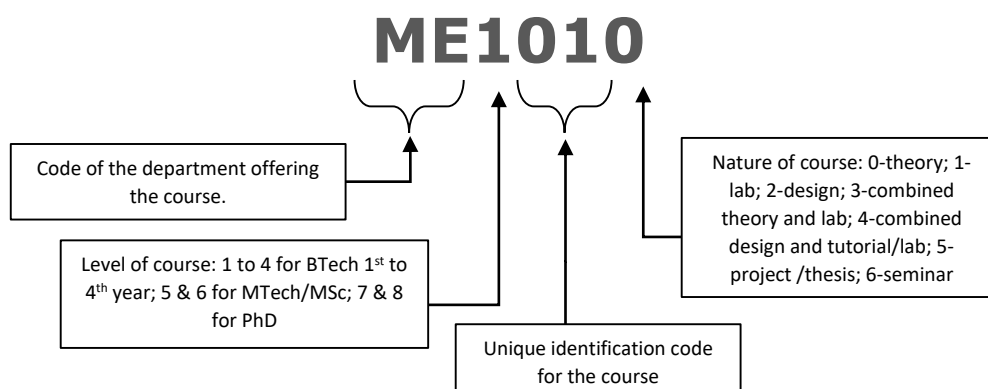
A credit is a measure of the teacher-student interaction in a classroom. In general, a certain quantum of academic work measured in terms of credits is laid down as the requirement for a particular degree. A student's performance/progress is measured by the number of credits that he/she has earned, i.e., completed satisfactorily. Based on the course credits and grades obtained by the student, grade point average is calculated. A minimum grade point average is required to be maintained for satisfactory progress and continuation in the Program. Further, a minimum number of earned credits and a minimum grade point average should be acquired in order to qualify for the degree. All Programs are defined by the total credit requirement and a pattern of credit distribution over courses of different categories.

The credits associated with a course are dependent upon the number of hours of instruction per week in that course and also on the number of fractal segments the course spans. Typically, a theory course running for full semester has three hours of instruction in a week and is equivalent to 3-credits. Similarly, a full semester lab course will have one 3- hours lab session in a week and is equivalent to 2-credits. In a fractal system, depending on the number of segments the course spans, the proportion of credits will change accordingly. The credits of some courses with tutorial sessions or project courses or thesis credits will vary from curriculum to curriculum and are defined based on the course structure.

A student is allowed to attend classes in a course and earn credit for it, only if he/she has registered for that course. At the end of every course, a letter grade is awarded in each course for which a student had registered. On obtaining a pass grade, the student accumulates the course credits as earned credits. Students also have the option of auditing few courses. Grades obtained in audit courses are not counted for computation of grade point average. However, a pass grade is essential for earning credits from an audit course. If the instructor permits, students can also "sit-through" the course without any formal registration; however, there will be no formal mention of such a sit-through or any retrospective consideration of such participation. If a student does not want to officially audit a course but wants a certificate stating she/he attended the course, it is up to the instructor's judgment of the student's participation in the course.

3.1.3 Course Numbering Scheme

Each course is denoted by a course number consisting of two alphabets followed by four numerals:



3.1.4 Course Coordinator/Instructor

Every course is usually coordinated by a member of the teaching staff of a Department in a given semester. This faculty member is designated as the Course Coordinator or Instructor. 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, 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 and announced at the start of the course.

3.2 Academic Calendar

3.2.1 Semesters

The academic session normally runs from the end of July in one year to the middle of July in the next year. It is divided into three parts:

- Semester I: From the fourth week of July to the last week of November
- Semester II: From the last week of December to the last week of April
- Summer Term (not a regular semester): From the middle of May to the middle of July
- Winter Term (not a regular semester): From the first week of December to third week of December

Each of the two regular semesters consists of a mid-semester recess. There are also three exam slots provisioned in a semester for conducting exams. Considering the fractal and continuous evaluation system, these exam slots are optional, i.e., the instructor may or may not schedule an exam during this time. If an instructor wishes to conduct the exam, he/she can do so in the same teaching slot (the same should be informed to students). If the exam needs longer duration, an alternate time feasible to all may be explored. It may be noted that during the exam days, there will be no classes (for both fractal and non-fractal courses).

The dates of all academic activities including those of registration, late registration, first and the last days of classes, examinations, make-up examination, deadline for final grade submission, mid-semester recess, and vacation are published in the Academic Calendar every year. The academic calendar for each year will be available on the academics website.

As a convention, convocation is tentatively scheduled on the 3rd Saturday of July every year. Senate meetings will be held on 3rd Wednesday of July, October, January and April.

3.2.2 Fractal Segments

In the fractal system, a semester is divided into six segments. Each segment is approximately 2.5 to 3 weeks in duration. Every fractal course is accompanied by a two-digit segment number indicating the duration of the course. The first number denotes the segment in which a course will begin and the second number the segment in which it will be completed. For example, Segment 34 means, a particular course will begin in segments-3 and finish at the end of segment-4. Typically, a course running for full the semester (i.e., all six segments) would be 3-credits; so each segment will be equivalent to 0.5 credit. Accordingly, the credit of a course will be decided, based on its segment data. For example, if the segment of a course is 56, it implies that the course will be running in two segments (5 & 6). Hence, it will be $0.5 * 2 = 1$ credit.



	SEMESTER					
SEG → CREDITS	1	2	3	4	5	6
0.5	11	22	33	44	55	66
1.0	12		34		56	
1.5	13			46		
2.0	14					
2.0			36			
3.0	16					

3.2.3 Class Timings

The classes are usually scheduled between 9:00 to 17:30 with a lunch break from 13:00 to 14:30. Some additional classes may also be scheduled in the evening hours. The classes in the forenoon are of 55 minute duration with a 5 minute recess in between; the afternoon classes are of 85 minute duration. While the regular classes are scheduled in a 5-day week, from Monday to Friday, the institute presumes a residential ecosystem and the instructors may schedule some additional classes/exams/activities in the weekends too.

3.3 Registration

Each admitted student is required to register before the commencement of each semester to study during that period in the Institute. Registration is a very important procedural part of the academic system. The registration procedure ensures that the student's name is on the roll list of each course that he / she wants to study. No credit is given if the student attends a course for which he/she has not registered.

The student can register for courses he/she intends to take during a given semester on the basis of the Program for each discipline as given in the Courses of Study and as per the advice given by his/her Faculty Adviser. The Faculty Adviser is expected to discuss with the student his/her academic performance during the previous semester and then decide the number and nature of the courses for which he/she can register during the semester within the framework of the guidelines as approved by the Senate.

Registration for courses has to be done through the web based system within the prescribed dates announced in the Academic Calendar. The submitted registration will be considered auto approved and no formal approval of faculty advisor will be needed; hence students are advised to carefully complete the registration process and feel free to discuss the details with the faculty advisor before submission.

It must also be ensured that there is no time-table conflict between the courses for which the student has registered. Students must also pay attention to the category under which a particular course is being registered (eg: Departmental Core, Core-Elective, LA/CA Elective including categories such as Regular, Backlog, Improvement etc). As mentioned earlier, the responsibility for completing the registration process correctly and timely rests with the students; he/she may approach the faculty advisor for any clarifications.

In addition to academic registration, it is also essential for the student to pay all the relevant fee and complete the financial procedures for the registration process to be complete.

3.3.1 Pre-Registration

Every student must pre-register for the next semester at the time specified in the Academic Calendar. Pre-registration is done entirely online. It may be noted that pre-registration is an expression of interest in the next semester and the student has time till add-drop date to make any changes in the list of courses selected during the pre-registration.

3.3.2 Final Registration

Before the commencement of classes of each semester, on a date specified in the Semester Schedule, every student is required to be present on campus and validate his/her registration by logging into the portal. In exceptional circumstances they may be allowed to complete the process after the due date of registration by paying the late registration fee. The student is also expected to pay his/her fees before the beginning of the semester.

3.3.3 Add/Drop of Courses

Students may add or drop courses using the online registration system during the period specified for this purpose in the Academic Calendar. Each add/drop request needs to be accepted by the concerned faculty advisor. The following are some rules regarding add/drop of courses (note: these timelines are relative to the start of that course in the fractal setup)

- Adding of a course can be done upto one week of starting date of the course.
- In rare situations late registration to a course is permitted till the course drop deadline upon payment of late registration penalty.
- Dropping a course can be done within three weeks of start-date of the fractal segment in which the course is running.
- Dropping of the course after 3 weeks is not possible and even if the student does not participate in the classes/exams, it may reflect in the transcript in the form of FS/FR.

3.3.4 Type of Courses/Electives

During the registration, the student is also expected to select under which category she/he is registering for that course. The following is a list of possible course types and their description:

Course/Elective Type	Description	Nature of Course
Basic Engineering Skills	Courses of other Engineering departments	Mandatory/Compulsory
Basic Sciences	Courses of Science departments	Mandatory/Compulsory
Departmental core theory	Theory courses offered by same department	Mandatory/Compulsory
Departmental core laboratory	Lab courses offered by same department	Mandatory/Compulsory
Departmental elective	Elective courses offered by the same department	Elective
Free elective	Any course offered by any department	Elective
Creative Arts elective	Any course offered under Creative Arts	Elective
Liberal Arts elective	Any course offered by LA department	Elective
Additional	Essential/optional courses beyond the department wise curriculum.	Clean India: Mandatory NSO/NSS: Mandatory Any other courses: optional
Professional Ethics	Ethics and Values	Mandatory/Compulsory
Self-study course	Any course where learning happens in a series of interactions, self-reading of text books, video lectures and regular exams instead of scheduled classes (typically meant for higher level courses offered in summer vacation)	Additional courses/ electives/ backlog courses/ summer courses

In addition, for each course the student is expected to select if the course is a (a) regular course or (b) backlog course or (c) improvement course. These categories once selected cannot be edited freely by the student subsequently. Hence, she/he is advised to pay careful attention to these categories and approach the faculty advisor for further assistance if required.

3.3.5 Change of Course-Type

BTech students, at the end of the sixth semester, can avail a one-time option of change of course type (example: converting electives to additional courses or vice versa) provided they satisfy the course type definitions mentioned in the previous section. This one-time conversion is not applicable for audit courses. Also, it may be kept in mind that this is a one-time, irreversible step and cannot be undone later.

3.4 Attendance & Leave Rules

3.4.1 Attendance

Although it is expected that students attend all the classes, the Senate does not mandate any minimum percentage of attendance for passing a course. However, the course instructor can assign upto 10% of the weightage for attendance. This attendance policy will be announced by the course instructor at the beginning of the semester. It may also be noted that with continuous evaluation and regular tests (occasionally during the class timings) the cost of missing classes may be much higher.

3.4.2 Vacation

The institute has two semesters (Jul, Jan) and two vacations (winter, summer) in a year. Undergraduate students can avail the winter and summer vacations as specified in the Academic Calendar without seeking any permission. This Vacation gap is not applicable for postgraduate students and they are guided by respective leave rules. Also, the other regular activities of the institute will continue as usual even during vacation time. Infact, semester time and vacation time can more appropriately be termed as class/course time and no-class time (with more emphasis on research work during that time).

3.4.3 Short Leaves & Semester Withdrawal

Leave of absence during the semester is discouraged for all registered students. However, for bona fide reasons, a student may apply for leave during the semester. For medical reasons, a student can avail Medical leave of maximum one-third of the course duration or less number of continuous days. Also, the student may be advised to take the semester drop, if the duration of medical leave is much longer. If the student goes on medical leave, information needs to be given to Institute authority within one week about the medical leave through email/letter by him/her or his/her parents (or first order of family members).

A student may be allowed a long leave of absence for a whole semester for bona fide reasons. The following are the rules regarding such semester withdrawal:

- Semester withdrawal and absence for a semester can be under different conditions (i) medical (ii) acute personal problems, on the recommendation by the DUGC/DPGC.
- Semester Withdrawal (SW) is proposed to reflect the condition in which a student is forced to withdraw from all courses in the semester for medical conditions or for an external student when he/she is sent for an outstation assignment by his/her employer. A student can apply for semester withdrawal if he /she has missed at least 20 teaching days on these grounds. Under no circumstances, an application for semester withdrawal will be acceptable after the commencement of major exams. A student is not permitted to request for withdrawal with retrospective effect.
- In case the period of absence on medical grounds is more than twenty working days during the semester, a student may apply for withdrawal from the semester, if he/she so desires.
- Semester Leave (SL) is proposed to indicate the situation in which a student is permitted to take one or more semesters off for industrial internship or any other assignment with prior approval and planning. The application is to be routed through his/her advisor / Program coordinator and HOD and the final approving authority will be Dean Academics. All such applications must be processed before the beginning of the semester in which the leave will be taken.
- At present, JEE-entry (BTech, dual degree and double major) students are allowed one extra semester for completion of the Program for every semester leave for industrial internship. Such students are permitted a maximum of two semesters of leave.

- The full-time 2 year MTech/MSc students be permitted a maximum of one semester leave for industrial internship or other assignment as approved by the Dean. These semesters will not be counted towards the maximum permitted time period for completion of the degree similar to the provision of JEE entry students.
- When a student (UG or PG) registers at another academic institution in India or abroad with the expectation of credit transfer or research work through a pre-approved arrangement including MoU, the student should be considered as being on a Semester Exchange (SE). The SE period will be counted towards the total period permitted for the degree.

The following is the application procedure for such semester leaves:

- Any application on medical grounds shall be accompanied with a medical certificate from Institute Medical Officer. A certificate from a registered medical practitioner containing the registration number may also be accepted in those cases where a student is normally residing off-campus or becomes ill while away from the Institute. Upon reporting back to the institute, the student is also expected to produce fitness certificate stating that the student is fit to continue studies.
- A Ph.D student may apply for withdrawal after the consent from the supervisor and the case may be considered by the DPGC on case to case basis.
- The student applies to the Institute within 15 days of commencement of the semester or from the date last attended the classes, stating fully the reasons for such withdrawal together with supporting documents (and endorsement of the parent/guardian for Bachelor students).
- The Institute should be satisfied that, inclusive of the period of withdrawal, the student is likely to complete all the requirements for the degree within the maximum allowed years of admission to the program.
- There should be no outstanding dues.
- The period of authorized absence in the semester should not be less than three weeks in a Semester, for which withdrawal is to be granted. Regularity in attending the classes/ department and satisfactory performance in research/ the mid-term examinations, if any, held prior to the date of application for withdrawal are the factors which would be taken into account while recommending/granting withdrawal.

3.5 Teaching and Evaluation

3.5.1 Conduct of Courses

The list of courses to be offered by a department in the next semester is finalised by the department before the pre-registration period in the current semester. For the summer term, this list is finalised before the registration date for the summer term would also need an additional approval from the Director. The courses to be offered are decided by taking into consideration all the requirements of the Program templates. For offering elective courses, it is expected that at least 5 students are registered for a course.

Each course is conducted by the Instructor with the assistance of the required number of instructors, tutors, and teaching assistants; the instructor has the overall responsibility for the successful completion of the course.

For floating a new course, any faculty member can put a proposal to the Senate with the details of the syllabus and reference books. All courses (and any changes to them) in the institute must be approved by the Senate and are identified by their unique course number. Departments may however, float a new advanced level elective (not core-course) using the generic course number XX8999 (eg: EE8999, ME8999 etc). The course may be run on trial basis for 2 years with regular credits after which the matter may be placed before the Senate for operating regular course with regular credits. This will apply to new subjects that may include Advanced Lab/Theory. If the primary instructor is from IITH, there is no need for approval of the Senate. If the primary instructor is not from IITH, prior approval of the Senate should be obtained before operating the course.

3.5.2 Modes of Evaluation

Semester-wise performance assessment of every registered student is done through various modes of examinations. The Instructor will announce the modes of evaluation and distribution of weightage for each of the assessments at the beginning of the course.

Various modes of assessment used for rating students performance in a theory course include quizzes, class tests, home assignments, group assignments, viva voce, and end-semester examination. Makeup for any absence from in-semester evaluations like midsem/tests/quizzes will be at the discretion of the Instructor. Instructor needs to be convinced that the reasons for absence are genuine.

The assessment in a laboratory course will be based on turn-to-turn supervision of the student's work, her/his performance in viva-voce examinations and group discussions, the quality of their work as prescribed through laboratory journals and an end-semester test that contains an experiment or a written examination.

Projects are supervised, and need regular interaction (at least once a week) with the supervisor. Student has to submit a project report and defend it in front of a panel of examiners, upon which the final grade is awarded. The dates for submission of reports, the dates for presentations, and details of mode of assessment are decided by the individual departments.

Sufficient care is taken while evaluation of answer scripts. Any re-evaluation of evaluated answer scripts before the grade submission is the discretion of the instructor. The instructor will allow students to see the evaluated answer scripts before finalization of grades. The instructor is expected to preserve the evaluated answer scripts for one additional semester.

3.5.3 Academic Malpractice / Plagiarism

Any academic malpractices are severely dealt with at IITH. In the case of malpractice during any of the valuations like assignments, quizzes, tests, and examinations, the instructor can award a fail grade in the course immediately on occurrence and report the matter to the academic office. If the Dean (AP) finds that the offence is serious enough, s/he may further refer the matter to the Disciplinary Action Committee. Students may also note that carrying cell phones to the exam hall is strictly prohibited.

In every other respect also, students are expected to do their academic work with integrity, with proper acknowledgement if material from other sources is included in their own work. Plagiarism, whether intended or not, is an act of academic dishonesty and will be penalized as such. If there is any doubt about what constitutes plagiarism, students should consult their instructors to ensure the maintenance of academic honesty in their work. Any case of cheating will be dealt with strictly by the Institute.

3.5.4 Assessment Rubric: Course grades

The grading in IITH is relative and is based on the Instructor's perception of what an average performance is. At the end of the course, based on continual evaluation throughout the course (in the form of assignments, pop quizzes and examinations), a student is given one of eight passing letter grades, namely, A+, A, A-, B, B-, C, C-, and D carrying credit points of 10, 10, 9, 8, 7, 6, 5, and 4, respectively, or one of the two failing grades, namely, FS and FR, each carrying zero credit points. Upon obtaining any of the above pass grades, the student is deemed to 'earn' those course credits.

If a student gets an FS or FR grade, no credits are earned for that course. An FS grade entitles the student to take a supplementary examination while an FR grade implies that the student has to go through the entire course again, if the course is a core course. If the student gets an FR in an elective course (core-elective, free-elective, LA-elective, CA-elective etc), then the student can take repeat the same course or take a different course satisfying the equivalent credit requirements of that earlier course. If a candidate gets FS, subsequently on writing the supplementary then he/she can be awarded the highest grade of "B".

An 'I' grade is usually used to denote incomplete status and is followed by a regular grade (for a theory course, the 'I' grade needs to be replaced with the regular grade before the conduct of supplementary exams; for a project course, conversion from 'I' grade to regular grade should happen within one semester). Further, grades of AU, S and U stands for Audit, Satisfactory and Unsatisfactory grades, respectively.

The grades of a course are expected to be submitted by the course instructor within one week of the end of that course. All the course grades are announced to the student at the end of that semester.

3.5.5 SGPA/CGPA calculation

The academic performance of a student is calculated using two parameters viz., Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA). The SGPA is the weighted average of the grade points

obtained in all the courses registered by the student during the semester. For example, if a student passes five courses (Theory/Labs/Projects/ Seminar etc.) in a semester with credits C1, C2, C3, C4 and C5 and her/his grade points in these courses are g1, g2, g3, g4 and g5 respectively, then her/his SGPA is equal to:

$$SGPA = \frac{(C1 * g1) + (C2 * g2) + (C3 * g3) + (C4 * g4) + (C5 * g5)}{(C1 + C2 + C3 + C4 + C5)}$$

The CGPA indicates the overall academic performance of a student. It is computed to two decimal places, in the same manner as the SGPA, except that here we consider all the courses registered up to and including the latest completed semester. The CGPA will reflect the failed status in case of FR grade(s), till the course(s) is/are cleared. When the course(s) is/are cleared by obtaining a pass grade on subsequent registration(s) the CGPA will only reflect the new grade and not the fail grades earned earlier (however, as SGPA transcripts refer to an activity in a given semester, they will continue to show the FR grade for that particular semester). Similarly, whenever a student is permitted to repeat or substitute a course, the new letter grade replaces the old letter grade in the computation of the CGPA. The courses which are registered as additional courses and which do not form the minimum requirement of the degrees they will not be considered for calculation of the CGPA. Such additional courses undertaken and the grades earned by the student will be shown separately.

3.5.6 Grade Improvement

A student is allowed to re-register for a course again in subsequent academic semesters if she/he aims to improve the grade in that course. The following are the rules concerning registration for course improvement:

- The moment a student registers for Grade improvement, then he/she completely disowns the previous grade. The previous grade and credits associated will be nullified and the outcome of the new registration will prevail. Whatever is the grade the student obtains in the repeat-registration will be final, irrespective of this grade being higher or lower than the earlier. Even if the student discontinues the course midway, it will be shown as incomplete or fail depending on whether done before or after the add/drop deadline.
- Grade improvement is not allowed if student wishes to “attend only for exams”. Registration will be allowed only if the student is free during that slot.
- Grade improvement is allowed only if exactly the same course is offered in the subsequent semesters. Department is not obliged to offer a course just for the sake of credit improvement. Equivalent courses cannot be considered.
- Grade improvement is not permitted during summer term.
- Grade improvement is not permitted for project-only courses, i.e., courses like independent project, elective project etc.

Grade improvement will be gradually phased out. So improvement will be allowed for any course that a student has already registered so far and has completed the course and got a grade (must have completed the course by the end of Jul-Nov 2019 semester). But it will not be allowed for any future new course that the student will be registering.

3.5.7 Semester wise grade card of Academic Performance

At the end of each semester, the student is given a semester wise grade card. This is a consolidated list of courses registered and grades obtained in that particular semester along with the appropriate SGPA calculation. In addition to reporting the grades obtained in that semester, it also serves as an indicator of the academic track of the student.

3.5.8 Transcript: Consolidated Statement of Academic Performance

Transcript is the consolidated statement of the Academic Performance of a student for all the semesters since joining the Program and is given to a student on successful completion of the Program along with the degree certificate. For those students who have taken multiple attempts to clear a course, the transcript given on successful completion of the Program will only contain earned pass grade; the course will however be shown in the semester in which the student has finally cleared the course. The transcript will show only the overall CGPA based on all the courses taken by the student. Additional courses will be shown separately, indicating also the minor/ honors, if any,

earned by the student. Students who have not yet completed the Program can obtain an Interim Transcript, if needed, on request. The Interim Transcript includes failed courses which have not been cleared at the time of issue.

3.5.9 Course Feedback

On the completion of the course, the student is requested to give feedback on the conduct of the course. These feedbacks are formally documented in an anonymous manner and help in improving the quality of teaching at IITH. Hence, although voluntary, the students are strongly encouraged to fill the course feedback.

3.6 Awards & Medals

To promote and recognize academic excellence and overall growth and development of students, the Senate awards a number of prizes and medals. The following are some of the medals awarded at the time of graduation, during the convocation:

- President of India Gold Medal for securing highest overall CGPA in BTech
- Institute Gold Medal for securing highest overall CGPA in MSc
- Institute Gold Medal for securing highest overall CGPA in MTech
- Institute Gold Medal for Excellence in Academics and Co-Curricular Activities
- Institute Silver Medals for securing highest overall CGPA in each Branch/Course of Study

For the above medals, the student(s) with the highest total grade points and no academic irregularities during the Program shall be considered. In case of a tie, the performance of (a) student(s) with a larger number of A+ grades, would be deemed to be superior. In case of a tie even then, the performance in the additional courses, including Honors/Minor would be deemed superior.

In addition to the above medals, the following awards are also given to the students in the course of their study, on the eve of Foundation Day of the Institute (typically in the month of March of every year):

- Excellence in Academics: This will be awarded to students who excel in Academics and is based on the Grade Point Average of two semesters in the preceding calendar year (or just one semester for the first year students). In case of a tie, the performance of (a) student(s) with a larger number of A+ grades, would be deemed to be superior. In case of a tie even then, the performance in the additional courses, including Honors/Minor would be deemed superior. These awards are given as follows:
 - BTech: 1st year, 2nd year, 3rd year & 4th year batches
 - MSc/MDes/MA: 1st year & 2nd year batches
 - MTech (2-year): 1st year January Batch, 1st year July batch, 2nd year (Jan & Jul) batches
 - MTech (3-year): July batch (the CGPA of 3 consecutive semesters of the preceding calendar years will be considered) and Jan batch (the CGPA of 2 semesters of the preceding calendar year will be considered).
 - Thesis / Project Grades are not considered for MTech/ MDes/ MPhil/ MA students.
 - Excellence in Research: This will be awarded to PhD students who have their publication(s) in reputed journals/conferences during the preceding calendar year.
- Appreciation in Research: This will be awarded to the students who have their publication(s) in reputed journals/conferences during the preceding calendar year (even if the student is a recipient of research/ Academic excellence award in the preceding year). Hence, this appreciation may be given every year.

The students who received the excellence in Academics award last year are not considered for the subsequent year. For 3 year MTech students, they will be considered only once in their tenure. PhD candidates are eligible to receive the research excellence awards a maximum of two times in the total PhD duration.

In addition to the above list of awards to the students, "Excellence in Teaching" awards will be given to faculty members based on the student's feedback. A faculty member who receives the award will not be considered for the same for the next three years.

3.7 Scholarships

A number of Merit-cum-Means (MCM) scholarships/ fellowships are awarded to the students by the Institute according to the rules and procedures of IITH, overseen by the academic office. The following are some such scholarships:

- MCM Scholarship:
 - General and OBC students of BTech and MSc.
 - 25% of the students are proposed for grant of awards.
 - The other economically backward students (whose family income is between Rs. 1 lakh to Rs. 5 lakh per annum) who avail 2/3rd remission of the tuition fee will be eligible for 1/3rd reimbursement of tuition fee per semester + pocket money of Rs. 1000/- per month.
 - Parental income not to exceed Rs. 5 Lakhs for General Students and Rs. 8 Lakhs for OBC Students
 - CGPA of 6.0 or higher should be maintained.
- Institute SC/ST Scholarship:
 - All SC and ST students of BTech and MSc are included
 - Free mess and boarding (to the extent collected), pocket money of Rs. 250/- p.m. being given
 - Parental income not to exceed Rs. 6 Lakhs.
 - CGPA of 6.0 or higher should be maintained.
- Institute Free Studentship Scholarship:
 - 10% of the students of BTech are proposed for grant of Free Studentship.
 - Parental income not to exceed Rs. 5 Lakhs for Gen Students and Rs. 8 Lakhs for OBC Students
 - The other economically backward students (whose family income is between Rs. 1 lakh to Rs. 5 lakh per annum) who avail 2/3rd remission of the tuition fee will be eligible for further reimbursement of remaining 1/3rd tuition fee per semester.
 - CGPA of 6.0 or higher should be maintained.

In addition to the above Institute scholarships, the students are encouraged to apply the following Government of India scholarships:

- Top Class Scholarships: The SC/ ST students can avail Top Class Scholarships from Ministry of Social Justice & Empowerment and Ministry of Tribal Affairs respectively. Basic eligibility requirement:
 - Should belong to SC/ST Category
 - Should be admitted through JEE Advanced
 - Parental income should be \leq 6 lakhs
 - Upper ceiling of 12 slots for MSJE whereas no upper ceiling of slots for MTA scholarship
 - Scholarship shall be awarded for 4 years
 - Fresh and Renewal online applications are sought annually.

Detailed guidelines can be accessed at:

MSJE: https://scholarships.gov.in/public/schemeGuidelines/Top_Class_Education_Scheme_2018.pdf

MTA : <https://scholarships.gov.in/public/schemeGuidelines/tribalfellowshipguideline.pdf>

- National Fellowship: Ministry of Tribal Affairs is offering National Fellowship and Scholarship for Higher Education of ST students for students pursuing Ph.D/ M.Phil. The detailed guidelines can be accessed at: <https://scholarships.gov.in/public/schemeGuidelines/tribalfellowshipguideline.pdf>
- Other Ministry Scholarships/ State Government Scholarships: Institute approves the scholarship application of student who desires to take scholarships from other Ministries or the scholarships which are being offered by his / her own State Government.
- Other Sponsored Scholarships: Institute also approves and forwards the scholarship application of student who desires to take scholarships from any Private Agencies / Sponsoring Authority.

At any given time only one scholarship (opted by the student) can be availed by any student. More information on the scholarships available can be obtained from the Academics website or Academic section.

3.8 Mentoring & Statutory Support for Students

3.8.1 Faculty Advisor, DUGC, DPGC

IITH runs a system of faculty advisors where a faculty member is assigned at the time of joining to look after the general welfare of a set of students. The faculty advisors offer all the necessary guidance and help in academic matters, and, if need be, in personal matters. Students are expected to consult the Faculty Advisor on any matter relating to their academic performance and the courses they may take in various semesters. Faculty Advisor guides the students to complete their courses of study for the required degree in a smooth and satisfactory manner. The following are some of the roles and responsibilities of a faculty advisor:

- Faculty Advisor is expected to introduce herself/ himself to all the concerned students in the department, preferably at the time of department orientation.
- Discuss what the student already knows about the IIT system and give him/her relevant information, especially in the beginning of the student's academic program.
- Review courses already taken and those offered in the upcoming semester.
- Faculty Advisor serves as a guide to the students in their course selection.
- Faculty Advisor serves as a liaison between students and course instructors on many academic matters including learning disabilities, language barriers, etc.
- Review students' academic progress at least once a semester
- Identify cases where the students' performance is deteriorating. Discuss with the student and suggest avenues for improvement/ support.
- Coordinate with other academic bodies, if needed.

In addition to the faculty advisor, each department may also have a Departmental Under-Graduate Convener (DUGC) and Departmental Post-Graduate Convener (DPGC) whose roles and responsibilities are as follows:

Departmental Under-Graduate Convener (DUGC):

- Oversee BTech/ BDes curriculum implementation keeping track of changes/updates if any.
- Coordinating the floating of necessary courses/ electives to meet the curriculum requirements for BTech, Minor, Honors etc.
- Assisting Faculty Advisors (particularly in special cases like branch change, double major, long leaves etc) and ensuring timely execution of duties by FAs.
- Assigning duties to BTech TAs.

Departmental Post-Graduate Convener (DPGC):

- Oversee Masters and PhD curriculum implementation keeping track of changes/ updates if any.
- Coordinating the floating of necessary courses/ electives to meet the curriculum requirements for Masters/ PhD students.
- Assigning duties to the TA category students.
- Coordinating the guide selection and allotment exercise.
- Coordinating the admissions for Masters and PhD programs (with the help of admission incharge if any).
- Handling all the conversion requests (BTech to BTech+MTech, MTech to MTech+PhD, BTech to BTech+PhD).
- Act as a first contact point/ mediator for any guide-student issues.

3.8.2 Early Intervention Committee

Early Intervention Committee (EIC) is responsible to provide an extra support to the students to prevent them to suffer academically, socially and emotionally due to any reason.

Structure of EIC:

- A faculty member is assigned to a group of 20 new students when they join IITH. This faculty member is expected to play the role of a friend to these students
- Weekly or fortnightly group meetings can be held to discuss various issues both academic and non-academic
- A group will typically contain one permanent faculty member of IITH and a group of 20 students from various departments.

- Concentration of one type of students (students speaking the same language or students from the same branch) in a single group is discouraged.

Role and responsibilities of EIC faculty member:

- The faculty is expected to interact with the group informally and identify students who might need more attention.
- Such meetings are expected to take place either weekly or fortnightly depending on the convenience of the group members
- EIC faculty member is expected to keep track of the academic performance of the members in the group.
- If necessary, the EIC faculty member can contact the faculty advisor or course coordinators for special assistance.

3.8.3 Sunshine & Counselling cell

IITH has a dedicated guidance and counselling unit and student mentors who can help and offer advice in all kinds of matters. Since its inception on January 12, 2012, Sunshine- the counselling cell at IITH, has been committed to helping the student community. The dedicated team of Sunshine comprises of a faculty in-charge, psychological counsellors, faculty representatives, student heads, management team members and student mentors.

The Sunshine cell also runs the Student Mentorship Program. This program is aimed at offering the incoming students, an interface to understand and interact with the diverse student community at IITH. With the institute having a strict anti-ragging policy, the program also doubles up as an excellent ice-breaker. The objectives of the student mentor program include:

- Welcoming and orienting the new students of IITH.
- Guiding the new students about life at IITH campus, the Student Gymkhana and its activities, college fests, etc.
- Providing academic guidance to the students.
- Enforcing the anti-ragging rule.

On the whole, the program aims to provide the incoming students with a cordial environment to make their transition to the IITH way of life as smooth and fun-filled as possible. For more information you can visit www.sunshine.iith.ac.in

3.8.4 Grievance Cell

IIT Hyderabad has a Student Grievance Committee for students to approach in the event of academic as well as non-academic grievances. It can be contacted at the following email id: sgc@iith.ac.in

3.8.5 Women's Cell

Women's Cell, IIT Hyderabad is established to ensure a safe and secure working/ studying environment for women in IIT Hyderabad. All female students, faculty and staff of IIT Hyderabad are members of Women's cell. More information about the same can be accessed at the following link: <http://womencell.iith.ac.in/>

3.8.6 SC/ST Cell

To safeguard the rights and privileges of SC/ST, a SC/ST Cell headed by a Liaison Officer and 3 members of faculty/staff is operative at IIT Hyderabad. In addition to acting as a statutory body, the SC/ST Cell also informs the students about the various scholarships and fellowships and encourages them to apply relevant ones. It can be contacted at the following email id: sc_stcell@iith.ac.in

4. REGULATIONS AND PROCEDURES: BACHELORS (BTECH & BDES)

4.1 Admission & Branch Change

Admission for the BTech program is through the JEE (Advanced) examination and the corresponding branch allocation as part of the counselling process.

After admission into the BTech program, it is possible for a student to opt for branch change internally in the same institute based on the performance in the first semester. The following are the rules and regulations regarding the same:

1. Branch change is effected at the end of the first semester.
2. Based on the CGPA at the end of the first semester of all those who seek branch change.
3. In case of a tie, the person with a higher JEE rank will be given allotment.
4. The student strength of a department cannot decrease by more than 20% due to branch change.
5. Each department can take 10% of new students from branch change.
6. Once the allotment is made, there is no possibility of a further change either to a new branch or the original branch.
7. There is no cap on CGPA.
8. To ensure points 4 & 5, any student applying for branch change should also notify both the departments.

A branch change student can convert courses upto 3 credits of first department from the first semester into free electives of new department at the time of branch change.

4.2 Overall Degree Requirements

4.2.1 Credit Requirements

For a BTech degree, it is necessary to earn a minimum of 125-130 credits (will vary in that range for each branch) and also fulfil the category-wise credit requirement such as core courses, core electives, LA/CA electives, etc. In addition, satisfactory completion of NSS/NSO activities and Clean India course is mandatory. Amongst the LA/CA electives, a minimum of 60% of those credits should be from LA; the CA credits should not exceed 40% (this rule of 60-40% is applicable from 2018 and subsequent batches only). For a typical BTech degree Program, around one-fifth of the credits are for common courses, about three-fifths are for the core courses in the discipline of the student and the rest are set aside for the student to choose in terms of core electives, liberal arts electives, and free electives. There is scope for a student to take additional academic load in the form of additional courses, minor, honors etc.

4.2.2 Duration of Study

Generally, a student is expected to complete the requirements for the BTech in four years (five years for Dual Degree students). The maximum permissible time of the BTech is six years, within which the student is expected to complete all the credit requirements (seven years for Dual Degree and Double Major students). The students may not be eligible for hostel accommodation beyond their scheduled course period (four years for BTech, five years for Dual Degree and Double Major students).

4.2.3 Graduation Requirements

A student is deemed to have completed the requirements for graduation if s/he has:

- Cleared all courses as per the respective Program template, satisfying the minimum credit requirement in each course category
- Satisfactorily completed NSS/NSO and Clean India course.
- Met the minimum/maximum duration and academic requirements
- Satisfied additional requirements, if any, of the concerned department
- Paid all dues to the Institute and the Halls of Residence
- No case of indiscipline is pending against her/him

4.2.4 Termination from Program

The enrolment of a student to the institute will lapse after the maximum permissible semesters. Hence, a student who is not able to complete the graduation requirements within the maximum permissible time will be deemed to be automatically terminated from the program. Students facing disciplinary action for any serious offence (example

ragging) may also face premature termination from the program, if so recommended by the disciplinary action committee.

A student whose Program is terminated may appeal to the Chairperson, Senate, for reinstatement in the Program. In cases of termination due to inadequate academic performance, the student should clearly explain causes for the poor performance, including how those causes will not adversely affect her/his performance in the future. The Senate shall take a final decision about reconsideration of termination after considering all available inputs; the termination of the student remains in effect till otherwise recommended by the senate.

4.3 Additional Options for Academically Motivated Students

4.3.1 Additional and Audit Courses

On top of the prescribed curriculum a student can also opt for doing additional courses. These courses and their grades will also be mentioned in the transcript of the student (but will not be considered in the CGPA calculation). Similarly, a student can also Audit a course; audit is similar to additional course except for that the grade will be shown as AU in the transcript.

4.3.2 BTech TA'ship

Interested senior undergraduate students with a CGPA of 8.0 and above, can act as Teaching Assistants for beginner courses. Usually, the students are expected to put in six hours of work every week for this. They will also be eligible for some stipend for the Teaching Assistantship.

4.3.3 Honor/ Minor

We always have a passion or some fascination for a particular subject or a line of thinking or study. However, there may not be much scope for exploring it formally within the context of the engineering discipline that one is pursuing. The Minor option enables one to nurture this interest without compromising on the major engineering branch Program that one is already committed to. It comes into force from the third year onwards, i.e., after a student has spent a couple of years at IITH and has taken several courses in the major discipline. At this stage, i.e., towards the end of the second year (and not right at the beginning of the BTech Program), an interested student may opt to take up one of the available minor streams by registering for one from a basket of courses associated with the minor stream. After successful completion, he/she may continue in the minor stream by taking additional set of credits each semester.

The Honors Program is also similar in nature, except that it is in the same parent department of the student. Thus, in order to earn the Honors in the major field of engineering, a student has to earn 12 additional credits through course work and project work in topics related to the major discipline.

It should be kept in mind that taking up a minor/honor is optional; a student can always opt out of a minor/honor, if he/she finds the additional load too heavy or is not interested in pursuing it any more. The following are some rules and regulations related to the same:

- In order to earn a minor, a student has to earn a minimum of 12 extra credits from a basket of courses prescribed for each minor stream (if a student has already done some of the required courses as free electives before, he may approach DUGC/ Concerned Department for equivalent credits).
- In order to earn honors, a student has to earn a minimum of 12 extra credits in the student's major department out of which six credits will be from project.
- A student can enrol for Honor/ Minor in fifth or sixth semester, depending on the policy of the department.
- A student can also enrol for both Minor & Honors or for two Minors.
- Student can also start accumulating course credits in the form of additional courses and convert them to be counted in favour of Double Major requirements at the time of enrolling into this program.
- A student must have cleared all outstanding backlogs by the time of enrolment into Minor/ Honors.
- After enrolling into Honor/ Minor, if a student gets FS/ FR grade in more than 3 credits his/ her enrollment to the same will be terminated.
- The final transcript will only show the basic CGPA corresponding to the minimum requirement for the degree. The Minors/ Honors courses will be listed separately in the manuscript and will be indicated by a separate CGPA.

- Honors will be reflected in the degree certificate as "BTech in XYZ Engineering (Honors)". Similarly, Minor as "BTech in XYZ Engineering with Minor in ABC". If a student has done both honors & minor, it will be acknowledged as "BTech in XYZ Engineering (Honors) with Minor in ABC". Two minors will be reflected as ""BTech in XYZ Engineering with Minor in ABC and Minor in DEF".
- CGPA criterion for Honors can be set by the respective Departments. Also, a student must have cleared all outstanding backlogs by the time of enrolment into Minor/ Honors.
- To avoid overloading, Departments offering Minors can put an upper limit on the number of Minor students they wish to take. The students have to understand that since the number of seats available for each of the Minor will always be limited, one has to compete for a place; he/ she thus cannot ignore the basic CGPA.
- If a student drops from the Minor/ Honors program, they cannot convert the earned credits into free or core electives; they will remain extra. These additional courses will find mention in the transcript (but not in the degree certificate). In such cases, the student may choose between any of the three following options (a) show the actual grade (b) show the course with just a "pass" grade (c) omit the mentioning of the course.

4.3.4 Double Major

Double major means a student can get BTech degree mentioning two different departments at the same time. A student may join the IITH in any particular discipline. S/he may then do required additional courses in a different discipline to earn separate BTech degrees from each of those disciplines. This program is based on the premise that there are a fair amount of fundamental and common subjects amongst engineering curriculum and a reasonable amount of additional work can also make the student eligible for degree requirements of two departments. An additional one year is permitted for the student to complete these additional requirements. The following are some of the rules related to this program:

- An additional 24 credits as listed by the second-department needs to be completed by the student. the second-department may also list an additional set of prerequisite courses in some cases.
- The student can apply for this program starting from 4th Semester.
- Student can also start accumulating course credits in the form of additional courses and convert them to be counted in favour of Double Major requirements at the time of enrolling into this program.
- No minimum CGPA requirement for registration. However, the student should not have any backlogs.
- Each (second) department can set a cap on the maximum number of students who can avail this option.
- A student cannot do double-major and minor in the same department.
- After enrolling into double-major, if a student gets FS/ FR grade in more than 3 credits his/ her enrolment to the same will be terminated.
- Similar to Minor/ Honors rules, if a student opts out of Double Major program, they cannot convert the earned credits into free or core electives; they will remain extra. These additional courses will find mention in the transcript (but not in the degree certificate). In such cases, at the time of this opting out, the student may choose between any of the three following options (a) show the actual grade (b) show the course with just a "pass" grade (c) omit the mentioning of the course.

4.3.5 Dual Degree (BTech + MTech; BTech + PhD)

After joining for the BTech program, a student can choose to continue for higher programs by converting to Dual Degree. A student can either convert from BTech to BTech + MTech or BTech + PhD. The following are the rules in this regard:

Conversion from BTech to BTech.+MTech:

- The option to convert may be given at the end of 6th semester. No conversion related request will be allowed after add/drop date of the eighth semester.
- A formal application must be submitted through the Head of the Department.
- The candidate will appear for a technical interview with a panel of at least 3 faculty members nominated by the HoD.
- $CGPA \geq 7.0$ for general category and 6.0 for SC/ST/OBC.
- Only students with no backlogs or no incomplete grades are eligible.
- The duration of the dual degree program is one year extra to the BTech program (minimum 5 years, maximum 7 years).
- MTech Fellowship will be paid after 8th semester.

- BTech fees will be paid up to the 8th semester.
- Post 4 Years duration, and subject to fulfilling BTech credit requirements, the student may be awarded a BTech degree.
- In case, the student decides to leave dual degree program after the end of fourth year, he/she may be awarded only a BTech provided all the appropriate credit requirements of BTech are completed. MTech courses if any, will be shown as additional courses in the transcript.
- Fifth year later, he/she may be awarded an MTech degree provided all the appropriate credit requirements are complete.

Conversion from BTech to BTech+PhD:

- Applying for conversion should be allowed from 6th semester until the end of the final semester.
- A formal application must be submitted through the Head of the Department.
- For General Merit students with $CGPA \geq 7.0$ and 6.0 for SC/ST/OBC.
- For General Merit students with $6.0 \leq CGPA < 7.0$ and SC/ST/OBC students with $5 \leq CGPA < 6$ at the end of the sixth or seventh semesters:
 - Must pass the MTech (3 year) written test.
 - Must appear for a technical interview.
 - It is recommended that students qualify in GATE to become eligible for MHRD scholarship.
- The panel for the technical interview should comprise of at least 3 faculty members nominated by the HoD.
- The total number of credits required to be completed after conversion is 24-27.
- BTech fees will be paid up to the 8th semester.
- MTech stipend shall be paid till the defence of PhD proposal.
- PhD stipend should be paid after the PhD proposal defence.
- Proposal Defence will be conducted within 24 months of conversion.

4.3.6 Internship

Internship is not a mandatory part of the degree requirement. However, students are encouraged to pursue internships in various research and industrial setups during the vacation periods. Such internships may be obtained through placement office or through the self-endeavour of the students. If done during vacation periods, without clashing with the academic calendar of the institute, no permission from academic administration will be needed for such internships.

5. REGULATIONS AND PROCEDURES: MASTERS (MTECH, MA, MDES, MSc) & PHD

5.1 Admission/Conversion

5.1.1 MTech

The Institute admits fresh MTech candidates under the following categories:

1. Teaching Assistantship (TA)
2. Research Assistantship (RA)/ Research Assistantship through Project (RAP)
3. Sponsored Candidates (SPS)
4. MTech by Course Work (MCW)
5. Executive MTech (EM)

Admissions under TA are for 2-year Program while those under RA, RAP are for 3-year Program. Admission under SPS category are available 2-year as well as 3-year Programs. Admissions to all categories are subject to availability of seats. The continuation of the financial support and the registration for the selected Program will be subject to satisfactory performance of the duties assigned by the Academic Unit as well as satisfactory academic performance and fulfillment of the other academic and non-academic requirements, as per rules.

Students with a valid GATE score or having a BTech degree from any IIT with a CGPA greater than 8.0 are eligible for admission without any essential written test (however, some departments may choose to have any additional written test / interview). For students with no valid GATE score or a BTech-IIT degree (8.0+ CGPA), a written test is mandatory at the time of admission. This may be followed by additional rounds of interview, if needed. A registration on the COAP (Common Offer Acceptance Portal) is also necessary as part of the application process for some categories, as updated on the admission portal from time to time.

Various differences exist among these categories in terms of stipend/ fellowship disbursed, fee structure, eligibility for hostel accommodation etc. The following table summarize these requirements for different categories.

Rules pertaining to TA/RA/RAP/SPS are listed in the following sections. Procedures associated with the MCW and EM are listed separately in the section under special programs.

		Valid GATE Score	Written Test ³ for admission	Stipend	Hostel Accommodation	Fee Structure	Degree obtained
TA: Teaching Assistantship (2-Year) - MHRD Funded		Essential ⁴	Optional ¹	Funded-MHRD	Eligible	Regular	Regular
RA: Research Assistantship (3-Year) - MHRD Funded		Essential ⁴	Optional ¹	Funded-MHRD	Eligible	Regular	Regular
RAP: Research Assistantship (3-Year) - Project Funded	No Experience	Essential ⁴	Optional ¹	Funded-Project	if available	Regular	Regular
	6-month+ experience at IITH	Optional	Essential	Funded-Project	if available	Regular	Regular
SPS: Sponsored MTech (2 or 3 year): Industry Sponsored		Optional	Essential	Not eligible	if available	Non-Subsidized	Regular
MCW: MTech by Course Work	Regular/Non-Thesis Option	Optional	Essential	Not eligible	if available	Non-Subsidized	Specific
	Converts to Thesis Option later	Optional	Essential	Not eligible	if available	Non-Subsidized	Regular
Executive MTech		Optional	Essential	Not eligible	Not eligible	Non-Subsidized	Specific

¹Optional from the perspective of the department, not student; need for additional written test and/or interview will be decided by the respective department.

²Written test is mandatory if the student does not have a valid GATE score.

³The written test may be followed by additional rounds of interview if needed.

⁴For students with a BTech degree from any of the IITs and a CGPA of greater than 8.0, valid GATE score is not essential

5.1.2 MSc

IITH offers MSc program in (1) Chemistry (2) Mathematics / Mathematics and Computing (3) Physics. Admission to all the programs are through JAM.

The candidates who have qualified in JAM will have to fulfill the following eligibility requirements for admission into the institute:

- All candidates admitted through JAM should have a Bachelor's degree.
- In the qualifying degree, the aggregate marks or CGPA/CPI without rounding-off (taking into account all subjects, including languages and subsidiaries, all years combined) should be at least 55% or 5.5 out of 10 for General/OBC (NCL)/EWS category candidates, and 50% or 5.0 out of 10 for SC/ST and PwD category candidates.

If CGPA/CPI is on a different scale, it would be linearly mapped to a scale on 10.

For Candidates with letter grades/ CGPA (instead of percentage of marks), the equivalence in percentage of marks will be decided by the institute.

5.1.3 MA

IITH offers a full-time Masters in Arts (MA) in Development Studies. The admission into this program, the applicant must have a Bachelor's degree or equivalent from a recognized University, with a minimum of either 55% marks or 5.5 CPI in a 10-point scale (50%, 5.0 for SC/ST/PwD candidates). Shortlisted candidates must pass a written test and/ or interview conducted by the Department of Liberal Arts.

5.1.4 MDes

MDes in Visual Design is a two year full time Program which aims to provide broad-based understanding of design along with student-driven specialization in varied domains like visual communication, moving images, interaction design and photography. For admission, the candidates should have a valid CEED score and a minimum of 55% marks (50% marks in case of SC/ST) or equivalent grades in the qualifying examination, which are:

- Bachelor's degree in Engineering/Architecture/Design/Interior Design or equivalent (4year duration after 10+2)
- Professional Diploma in Design (NID/CEPT or equivalent of 4 years duration after 10+2)
- BFA (4 year professional program, after 10+2)
- Masters degree in Arts / Science / Computer Applications (2 year Program after 10+2+3)

The selection is based on a Design Aptitude Test and the shortlisted candidates will have to appear for personal interview.

5.1.5 PhD

The Status of the students admitted to the Ph.D. Program shall be classified under any one of the following categories:

- Full Time Research Scholar
 - Teaching Assistantship (TA)
 - Teaching Assistantship through Project (TAP)
 - Govt./ Semi Govt. Fellowship Award - FA (QIP, CSIR, UGC, DAE, DST, DBT, NBHM, etc.)
- External Research Scholar
 - External candidates, sponsored by recognized R & D organizations

Students admitted to PhD should have completed the required Masters degree in the relevant discipline. For students admitted without a Masters degree, under direct-PhD after Bachelors or Dual (Masters+PhD) would follow the separate admission procedures, in line with the Masters admissions process elaborated in the earlier sections.

Students admitted under TA category are eligible for hostel accommodation; for students of other categories hostel accommodation is not assured and can be provided only if available.

Admission process for MHRD-funded students happen twice a year for July and Jan semesters. Application process for external funded students is open throughout the year.

5.1.6 MTech to PhD Conversion

- Option to convert will be given any time after the completion of the first year with a CGPA requirement of 8.0 for General and 7.0 for SC/ST/OBC and before course add/drop in the final semester (final semester referring to fourth semester for two year MTech and sixth semester for three year MTech).
- A formal application must be submitted through the Head of the Department.
- The candidates will appear for a technical interview with a panel of at least three faculty members nominated by the head of the department.
- For getting an MTech degree, the student will have to complete M.Tech course credits (except thesis credits). They can apply for M.Tech degree certificate after completing two years.
- Ph.D stipend to commence after the date of conversion. PhD fees to be paid from the date of conversion
- Credit waiver can be given by DC for up to 6 credits.
- Minimum 6 credits are mandatory and the remaining is left to the department. The DPGC can decide which 6 credits to take. The 8.0 point CGPA requirement for PhD will be based on the minimum required 6 credits.
- PhD Proposal defence to be completed within 13 months from the date of conversion

5.1.7 MSc to PhD Conversion

The option for conversion from MSc to PhD is available to the students at two different stages, elaborated below. The students can apply for conversion at either of the stages subject to meeting the requirements listed against them.

Stage 1: Before the Course Add / Drop in the 4th Semester

- Option to convert will be given to a student any time after the completion of the first year and before the course add/drop in the fourth semester of the 2 year MSc Program.
- The student must have a CGPA of 8.0 or above to be eligible for conversion.
- A formal application with a supporting letter from the advisor must be made.
- The candidates will appear for a technical interview with a panel of at least three faculty members nominated by the head of the department.
- PhD stipend will commence from the fifth semester onwards.
- Similarly, the PhD fee has to be paid from the fifth semester onwards.
- MSc degree will be given to a student if he/she does finish all the credit requirements under the appropriate course category of the M.Sc. Program, outside of the mandatory credits accrued towards his/ her doctoral Program.

Stage 2: After the Course Add / Drop in the 4th Semester/ Completion of the Program

- MSc students can also apply for the PhD Program after the end of the course add/ drop of their fourth semester of the Master's Program or even after the completion of the Program.
- MSc students whose CGPA is greater than or equal to 8.0 at the end of their third semester will be allowed to participate in the Ph.D. admission process.
- In other words, this can be seen as a relaxation of the eligibility criteria for the internal (IITH) students of MSc for admission into PhD Program, after all the credit requirements towards the M.Sc. degree have been met. Such students will be eligible for an M.Sc. degree in their respective streams.
- Note that the students will have to participate in every subsequent stage of the rigorous admission process as stipulated by the department.
- For any such student admitted into the PhD program, his or her admission is valid only if he or she maintains the required CGPA of 8.0 at the end of 4th semester.

5.2 General Regulations & Procedures

5.2.1 Operational Details of Teaching & Research Assistantships

The stipend given to Masters/ Ph.D students is called Teaching Assistantship. Students receiving Teaching Assistantship are called Teaching Assistants (TAs). This TA'ship is mandatory for all funded students.

The typical number is one TA for every 15 students in Theory courses and one TA for every 10 students in Lab courses. But department can allot the work appropriately considering the unique features of each course and lab.

Each TA will be assigned to work with a faculty member by their respective department. The concerned faculty member is responsible for monitoring TA's work. This typically involves the TA maintaining a work schedule and signed and approved by the concerned faculty to ensure this average is maintained; the respective department and the responsible faculty can decide on the format. If a TA feels overworked, she/ he can approach any DPGC member regarding this.

The following are some set of duties a TA can be asked to perform

- Conducting Tutorials
- Maintaining software and hardware and information related to academic activities in the department.
- Grading answer sheets, assignments and assisting in conducting vivas, seminars.
- Help students with difficulties: TA's should be available during regular office hours to clear doubts about the course. Limit should be Two hours per week.
- Arranging instrument/ reagents/ chemicals/ softwares/ hardwares related to course or labs.
- Attending Classes: If the TA is asked to attend classes by the instructor, then attending one hour of class accounts for one hour of TA.

The following are the working hours expected of a TA

- On an average the TA must work for eight hours per week (six days).
- Student's own research work (for thesis) or research with a faculty in his lab does not count in TAship hours.
- If a TA works less than average in some month then the work has to be compensated later. Overall average should be monitored over a semester rather than over a month.
- The provision to stop scholarship should be taken in case the work done during the entire semester is below the average. Renewal of assistantship every semester is subject to a good performance during the preceding semester.
- If the TA works in the vacations, then the average should be monitored over a month. TA's work in the vacations can't be counted towards the total work done in the next semester.
- AIMS can be used for approving/ disapproving the stipend of the TAs

In the case of Research Assistant (RA), the rules and procedures are similar, except that the expected working hours per week may be higher than 8 hours per week.

5.2.2 Rules and Regulations Concerning Scholarship Students

The following are the rules and regulations guiding the students receiving MHRD funded scholarships (rephrasing the relevant parts from the MHRD circular F.NO.17-2/2014-TS.I, dated 18th February, 2015)

- Eligibility:
 - For MTech/ MDes: BE/ BTech/ BS/ BDes and GATE/ GPAT / CEED qualified
 - For PhD Programs (Junior Research Fellow (JRF)/Senior Research Fellow (SRF):Post Graduate Degree in Basic Science OR Graduate / Post Graduate Degree in Professional Course selected through a process described through any one of the following: (a) Scholars who are selected through National Eligibility Tests - UGC NET including lectureship (Assistant Professorship) and GATE (b) The selection process through National level examination conducted by MHRD and its Agencies and Institutions such as UGC/IIT/Isc/IISER/IIIT etc.
- Sponsored and Self-Financed Category of students including those in receipt of any other similar assistantship/ scholarship/ fellowship would not be eligible for assistantship/ scholarship/ fellowship. Further, the assistantship/ scholarship/ fellowship would be provided to the scholars on the basis of GATE scores above the prescribed cut-off level. BTech Graduates from the IITs getting a CGPA score of 8 or above (on a scale of 10) would also be entitled to the assistantship without having to appear in GATE.
- The stipend of research fellow/ associate is exempted from the payment of income tax under Section 10(16) of the Income Tax Act, 1961.
- DA and CCA: JRFs, SRFs and ME/ MTech/ MS/ MDes will not be entitled to these allowances.

- House Rent Allowance (HRA): All research fellows and ME/ MTech/ MS/ MDes may be provided hostel accommodation wherever available and those residing in accommodation provided by the Institute will not be eligible for drawing HRA. Wherever the provision of hostel accommodation is not possible, HRA may be allowed to JRF, SRF as per Central Government norms applicable in the city/ location where they are working. The fellowship amount may be taken as basic pay for calculating the HRA.
- Leave and other entitlement benefits: The JRFs, SRFs and ME/ MTech/ MS/ MDes are eligible only for casual leave (for MHRD students it is 8 days in an academic year, while for other funding agencies, it is as per the guidelines of the funding agency). Participation of any of these categories in any scientific event/ workshop in India or abroad will be treated as 'Duty'. The travel entitlement for JRF /SRF / ME/ MTech/ MS/ MDes for participation in scientific events/ workshops in India will continue to be the same as earlier, i.e. 2nd AC by rail. Maternity Leave as per Government of India instructions issued from time to time would be available to female candidates in all categories.
- Bonus and Leave Travel Concessions: JRFs and SRFs and ME/ MTech/ MS/ MDes will not be entitled to these allowances.
- Retirement Benefits: JRFs, SRFs and ME/ MTech/ MS/ MDes will not be entitled to these benefits.
- Publication/ Patent: The results of JRF /SRF/ ME/ MTech/ MS/ MDes research work may be published in standard referred journals at the discretion of the Fellow or his Guide. It should be ensured by the Fellow that the assistance provided by the funding agency of Government of India is acknowledged in all such publications.
- Encouragement for pursuing higher degrees: Students selected as JRF/ SRF may be encouraged to register for higher degrees and the tuition fees to undertake these studies may be reimbursed to the students from the contingency grant sanctioned under the project grant, if required.

5.2.3 Guide Allocation Procedure

Each student will have a Project/ Research Supervisor, referred as Guide from the faculty of the parent Department to which he/she is admitted. In addition, co-guide from the same or other Department may be co-opted by the guide (in some special cases like external PhD students, the co-guide can also be from outside IITH).

The procedure for the selection of guide for thesis varies departmentally. In general, guide allocation happens after the student finishes his/her first semester in the institute engaged in the coursework. To the extent possible, the preferences of the student in the area of research interest are taken into account and the student is given a freedom to choose his/her guide based on the area of research interest. Once the student joins, they are advised to consult their faculty advisors regarding the same.

A student may request for a change of guide only once in entire tenure. Such change may come into practice on the recommendation of HoD/ doctoral committee. The student will have to defend her/ his new proposal. No extension of fellowship and duration due to change in the guide will be permissible.

5.3 Overall Degree Requirements for MTech/MSc/MDes/MA

5.3.1 Credit Requirements

MTech: For an MTech degree, it is necessary to earn a minimum of the course credits 48-54 (will vary in that range for each branch) of which 50-55% will be course credits and the remaining thesis credits. While these credits are structured in a definite manner for 2-year TA students, 3-year RA program has more flexibility in the way these credits are distributed across semesters. A small portion of the credit requirements may also be electives where students can choose courses of their choice within the parameters defined (the MTech/ PhD students are also permitted to register for UG level courses provided they are approved by DPGC. For MTech students maximum up to six credits of UG level courses are allowed).

MSc: For an MSc degree, it is necessary to earn a minimum of the course credits 66 - 72 (as stipulated by the respective science departments) of which 9 - 15 are thesis credits. A small portion of the credit requirements are usually electives.

MDes: For an MDes degree, it is necessary to earn a minimum of the course credits 59-62 of which 50-55% will be course credits and the remaining are project based credits including thesis credits. A small portion of the credit requirements may also be electives where students can choose courses of their choice from other departments

with the approval of the concerned faculty supervisors. The students will take one project course for 3 credits for the first three semesters. In the final semester, students have to do a thesis project with a dissertation work.

MA: The Masters program in Development Studies is a two-year full time program with a total of 60 credits spread over four semesters. In addition to the coursework and Dissertation, a two-month internship is also mandatory for the students. Internships will be of a duration of two months during the summer after the second semester (May-July). Internships carry a worth of 6 credits. The grading will be based on the inputs received by the concerned person within the organization, under whose supervision the student has interned.

5.3.2 Thesis/Dissertation

MTech: At the end of the first semester, after the allocation of guide, the student in consultation with the guide will choose a project topic for thesis. In the second semester, he/she is expected to pick courses relevant to this thesis. The full time work on thesis will commence soon after the completion of the second semester (after first semester itself for RA students). This thesis work carries credits and evaluation at the end of each semester is done by a committee of at least two members beyond the guide/co-guide. This committee is selected from amongst faculty of IITH or scientists from reputed outside Organizations/Institutes. A faculty member of IITH outside the parent department will act as Chairman of the committee. At the end of project work, a dissertation is to be submitted to the institute to meet the graduation requirements. This dissertation needs to be accompanied by a plagiarism check report.

MSc: The thesis credits may be spread over 2 or 3 semesters and is pursued along with other courses. An evaluation at the end of each semester is done by a committee of at least two members beyond the guide/co-guide. This committee is selected from amongst the faculty of IITH or scientists from reputed outside Organizations/Institutes. At the end of project work, a dissertation is to be submitted to the institute to meet the graduation requirements. This dissertation needs to be accompanied by a plagiarism check report.

MDes: The students will take one project course for 3 credits for the first three semesters. In the final semester, students have to do a thesis project with a dissertation work. Thesis is 12 credits, dissertation is 3 credits.

MA: Students will typically begin working on their dissertation in the second year of the program, although they can begin thinking about it from earlier as well. For an MA dissertation, it is generally expected that students would select a specific topic, and engage with an extensive review of the literature on the topic, or analysis of related data (either primary or secondary). The thesis is typically prepared in consultation with the thesis supervisor. The supervisor will constitute the MA Dissertation Committee, which will consist of the supervisor and one faculty member within the department as the subject expert. The MA dissertation should not be less than 8000 words. There is no upper limit for the dissertation. Prior to submission of the dissertation, the student is required to make a pre-submission seminar in the department on a mutually agreeable date. This will be an open seminar presided by the MA Dissertation Committee. Comments and remarks coming from the Committee need to be incorporated into the thesis. One hard copy and one soft copy in a document format must be submitted to the Committee.

5.3.3 Maximum Duration

Generally, a student is expected to complete the requirements for the Masters degree in two years (3 years for MTech-RA category). A maximum of one additional year is allowed to the student for completing these requirements. The following are some rules guiding the duration of study:

- The students may not be eligible for hostel accommodation beyond their scheduled course period (2-years for all Masters programs except MTech RA; 3-years for MTech RA)
- The summer semester will not be considered as a registered semester.
- A semester when a student has been granted a semester withdrawal or granted leave will not be considered as a registered semester.
- When a student is suspended for one or more semesters on disciplinary grounds, the student status should be called Disciplinary Withdrawal period (DW). Time spent in DW status will be counted towards the total period permitted for completion of the degree.

5.3.4 Termination

The enrolment of a student to the institute will lapse after the maximum permissible semesters. Hence, a student who is not able to complete the graduation requirements within the maximum permissible time will deem to be automatically terminated from the program. Students facing disciplinary action for any serious offences (example ragging) may also face premature termination from the program if so recommended by the disciplinary action committee.

A student whose Program is terminated may appeal to the Chairperson, Senate, for re-reinstatement in the Program. In cases of termination due to inadequate academic performance, the student should clearly explain causes for the poor performance, including how those causes will not adversely affect her/his performance in the future. The Senate shall take a final decision about reconsideration of termination after considering all available inputs; the termination of the student remains in effect till otherwise recommended by the senate.

5.4 Overall Degree Requirements for PhD

5.4.1 Template for PhD Degree

The following is the template for a regular PhD program at IITH:

- Completion of the following set of credits with a minimum CGPA of 7.0 within the first year of admission. The Doctoral Committee may recommend up to two additional courses and/or may allow an extra semester to complete the course work:
 - 12 credits for regular PhD admissions with Masters degree
 - 6 credits for students with a masters degree in IIT/ IISc
- A research proposal to be defended within thirteen months of registration. In case of unsatisfactory performance, a second attempt is allowed within one month, failing which registration will lapse.
- Original work should be carried out at least partly under the supervision of a research guide from among the faculty members of IIT Hyderabad and defended in the form of a thesis. A co-guide, if needed, may be co-opted from IITH, industry or another institute of repute.
- Publication of at least two research papers in reputed journals or refereed conferences.
- A minimum of two years of registration for the PhD Program at IITH.
- A guide will be allotted at the end of the first semester based on the choices given by the student. The guide will constitute a Doctoral Committee (DC) comprising himself/ herself and at least two members of his/ her choice selected from amongst faculty of IITH or scientists from reputed outside Organizations/ Institutes. A faculty member of IITH outside the parent department will act as Chairman of the committee.
- The DC would conduct progress seminar atleast once a year for the first 3-years (from the date of registration) to evaluate the progress of the work. After 3-years, these progress seminars should be held every six months.
- If the research progress is unsatisfactory, supervisor will call for Doctoral Committee (DC) to evaluate the progress. If DC finds the progress unsatisfactory, appropriate time interval (minimum of 3 months) will be set to improve the performance. If DC finds that the progress still remains unsatisfactory, registration will stand terminated. However, DC may recommend for award of MS degree.
- An MHRD funded PhD student is eligible to convert to SRF (senior research fellow) after two years as a JRF (Junior Research Fellow). This JRF to SRF conversion assessment should be done by committee having an external examiner also. This external examiner can be a part of regular Doctoral Committee and can be a faculty from the other department also. In addition, if a faculty member wishes, he/she may also involve an examiner from outside IITH. For students supported by other funding agencies, their respective norms prescribed for JRF to SRF conversion will be followed.

For the external/ sponsored PhD the following rules, in addition to the above mentioned are applicable:

- The Program is aimed at candidates from national research laboratories/ reputed industrial organizations where research work can be carried out.
- The guide may be allotted at the beginning. Nevertheless, it is recommended that the procedure outlined above for regular PhD students should be followed.
- No stipend will be paid to the student; however, he/ she may be employed in a project, full or part time.
- Candidates from reputed research organizations may have a co-guide from their research organization.
- External PhD students do not have a residency requirement to take their courses; with the permission of advisor and DPGC, they also have the option of taking video and self study based coursework.

- External PhD students should complete the proposal defence within 18 months from the time of joining. In case of unsatisfactory performance, a second attempt is allowed within three month, failing which registration will lapse.

5.4.2 Thesis Submission and Evaluation Guidelines

- *Pre-requisite for submission of PhD thesis:* The student must have two scopus indexed publications (accepted or publications) to be eligible for the submission of doctoral thesis. Out of the two publications, atleast one should be in a Journal (exception for CSE department: two conference papers from their list of standard conferences are also permitted). Departments are given the freedom to define the parameters/stature expected of the journals/conferences to be acceptable. .
- *Open colloquium:* On completion of the doctoral research the student has to give an open colloquium. As the name implies it is open to the entire institute. The doctoral committee (as many members as possible of DC) and the guide will have to be present in the colloquium. The requirement for open colloquium is a thesis draft and the guide's approval and the first page of the publications. The draft will be sent to the doctoral committee at least two weeks before the colloquium. The student will have to incorporate the suggestions that come from the open colloquium. The revised thesis meant for sending to the examiners should be submitted within one months of the successful completion of open colloquium.
- *Extended synopsis:* The student will have to submit an extended synopsis (8-10 pages) that will be sent to external examiners.
- *External examiners/ reviewer's:* The guide will have to submit a list of 8 external experts to the Dean Academic's Office forwarded through the HOD after approval from DPGC.
- *Opting for examiner's/ reviewer's from Abroad:* The guide may opt for examiners/ reviewers from abroad, however, this is not mandatory.
- *Choosing the examiners:* The dean academic in consultation with the chairman senate will choose the two examiners (for A) or three reviewers (for B) from the list provided by the thesis supervisor.
- *Defence pattern and examination committee:* The defense will be open to all followed by closed door Q&A. Two patterns are suggested for the conduction of thesis defense:
 - (A) The viva voce will be held within two months of submitting the thesis to the external examiners. The extended synopsis will be sent to two external examiners. After reading through the extended synopsis if they agree to be in the examination committee and to be present during the defense in person, the thesis will be sent to both. If any of them refuses to be in the examination committee after reading the extended synopsis, the dean academic will contact other examiners from the list submitted by the thesis supervisor. The thesis will be sent to the examiner as and when one agrees to be in the examination committee. The examiners will not be asked to submit written report. The supervisor will schedule the defense date in consultation with the examination committee. In this case the final examination committee will consist of the thesis supervisor(s), both the external examiners who agreed to review the thesis, one internal examiner, and Chairman who is from outside the department.
 - (B) The extended synopsis will be sent to three external reviewers. After reading through the extended synopsis if they agree to review the thesis, then the thesis will be sent to all (3 reviewers). If any of them refuses to review the thesis, the dean academic will contact other examiners from the list submitted by the thesis supervisor. The thesis will be sent to the reviewer as and when one agrees to review the thesis. The reviewers will be given 2 months time to submit a report. Once two positive reports are received, one of the reviewers (nominated by the Dean, Acad) will be invited in person to attend the thesis defense. Subsequently, the defense date can be scheduled by the guide in consultation with the reviewer. The report submitted by the other reviewer will be given to the external examiner and the external examiner may even ask questions based on the reviewer's report. In this case, the final examination committee will

consist of the supervisor(s), one external examiner, one internal examiner, and Chairman who is from outside the department.

- *Choosing the exam pattern:* The choice of selecting the exam pattern remains with the student. The student 'may' consult with the thesis supervisor for making a choice.
- *Preparing the thesis:* The thesis must be prepared in a format prescribed by the institute and a soft copy of the thesis must be submitted to the library for archiving. Plagiarism check/ similarity index mandatory to be submitted along with Thesis submission.
- *Chairman:* Any Faculty of IITH outside the parent department of the candidate may be appointed as Chairman.

5.4.3 Maximum Duration

For a PhD student enrolled after completing a masters degree, the maximum permissible time for completing the PhD requirements is six years from the time of registration. Students admitted to PhD directly after BTech or external PhD students or students from reserved category get one additional year.

No stipend will be paid to the student after five years; however, he/she may be employed in a project, full or part time.

5.4.4 Termination & Exit Options

The enrolment of a student to the institute will lapse after the maximum permissible duration. Hence, a student who is not able to complete the graduation requirements within the maximum permissible time will deem to be automatically terminated from the program. The Senate may approve an extension of duration on a case by case basis. However, the termination of the student remains in effect until such extension is approved by the senate. If extension is approved, the student is expected to complete the registration and fee related formalities till the completion of the program. Continuation of hostel accommodation in the case of such extension is not assured and subject to availability.

In addition, the following conditions will also warrant termination of a student from PhD program:

- If the student obtains CGPA below 6.5 for unreserved category, below 6.0 for reserved category, at the end of the first two semesters.
- If the CGPA falls between 6.5 and 7.0 for unreserved category, and 6.0 and 6.5 for reserved category at the end of the first year of coursework, the student will be allowed to take courses in the third semester to meet CGPA of 7.0. In this case, the research proposal defense should be extended by one more semester; if already completed, the research proposal defense will be considered only provisional subject to the subsequent increase in the CGPA. If CGPA of 7.0 cannot be met at the end of the third semester for both unreserved and reserved category, registration will stand terminated.
- If the student accumulates two or more FR/FS grades during the course work.
- If the student does not clear the research proposal defense in two attempts (the second attempt for proposal defense should be within two months of the first attempt).
- If the research progress is unsatisfactory, supervisor will call for Doctoral Committee (DC) to evaluate the progress. If DC finds the progress unsatisfactory, appropriate time interval (minimum of three months) will be set to improve the performance. If DC finds that the progress still remains unsatisfactory, registration will stand terminated. However, DC may recommend for award of MS degree.

As an exit option, the student can be recommended for a MS degree by the DC committee (only MS, not MTech degree). In such cases, the student must have completed a minimum of 24 credits and enrolled for a minimum duration of 2.5 years. MS Thesis submission is mandatory. The award of MS degree is subjected to acceptance of the thesis by the MS evaluation committee of the respective department and after the successful completion of the viva-voce examination.

6. SPECIALIZED PROGRAMS

6.1 MTech by Course Work (MCW)

1. The program is open for candidates with recognized BTech/ BE degree in appropriate branch/s with minimum first class. The candidates will be selected through initial shortlisting followed by written test and/or interview. GATE qualification will be an added advantage but not mandatory however GATE qualified students will not be entitled for any fellowship. Shortlisting criteria could be higher than the minimum qualification criteria.
2. On successful completion of the program, the student (those students who do not opt for thesis option) will receive Degree as title "Master of Technology (by course work)"
3. The student will be eligible to sit for placement through IIT Hyderabad after completion of the program (i.e. a student registered for program in August 2017 will be able to sit for IITH placements in December 2018 provided she/he completes the credit requirements by that time)
4. The student will have to earn total 36 - 39 credits as prescribed by the department. Compared to regular MTech program, course work based MTech students will do credits through theory/lab courses in lieu of 2nd year thesis credits.
5. The course based MTech is a non-subsidized cost sharing program wherein the student will pay tuition fees on per-credit basis. The fee may be revised annually. At present, the fees is 25,000/- per credit+ Administrative fees of 1,000,00/- per year.
6. A student needs to pay the tuition fee for the first 36-40 credits only (equivalent to the credit requirement of the Course Based Option), beyond which he/she can register free for the additional credits.
7. The courses will be conducted along with regular MTech courses and in summer and / or winter break as well.
8. The grading policy of the course based MTech program will be on par with regular MTech program (2 and 3 year MTech programs).
9. The students will not conduct research, thereby need not to write a thesis. However, the students may carry out a mini project as a part of the course with the guidance of the course instructor. This is let to respective department and course instructor.
10. If a student gets FR grade in a course and has to repeat it for completing the minimum compulsory credit requirement, he/she will have to re-register for the course and pay the fee again based on the number of credits.
11. The program is non-residential type (i.e., the students will not be eligible for hostel accommodation). However, they may be provided accommodation on chargeable basis provided that extra rooms are available. In any case hostel accommodation will not be provided for more than one-year duration.
12. The student from course based MTech program will not be eligible for institute medals based on CGPA given during the convocation program for regular students.
13. The maximum time for completion of the course is 2 (two) years in case the student had to take a break for any medical reason.
14. IIT Hyderabad reserves the right to change the policy and the fee structure without any prior notice.
15. At the end of two semesters, the students have the option of converting to Thesis option:
 - This option is available only to those students whose CGPA is 7.0 or above at the end of the first two semesters, consisting of a minimum of 30 course credits. A student should not have received an FR grade in any of the courses in the first two semesters.
 - A student satisfying this criterion can apply to the respective Department to be considered to do for "optional thesis".
 - The department constitutes a committee to evaluate the suitability of the candidate to pursue the thesis. If the committee recommends, a student can register for thesis credits. The number of thesis credits is exactly the same as that of the regular 2-Yr MTech counterpart in that particular discipline. Thesis evaluation criteria will be exactly the same as the regular 2Yr MTech thesis evaluation.
 - No extra fee will be charged for this option. The fee will be the same as the MCW guidelines, i.e., the fee will be charged for 36-40 course credits depending on the specialization.
 - If there are extra course credits from the first two semesters, they will be shown in the transcript as "Additional Courses."
 - Maximum time for the completion of the program under thesis-based option is three years.

6.2 MTech in Data Sciences (MDS)

Since August 2018 semester, CSE department has been offering a new MTech Program known as MTech in Data Science (MDS). It is a self-paced program of 48 credits that can be completed over 3-5 years. It is equivalent to regular MTech Programs, and upon completion, the student will get the degree "MTech in Data Science" from the CSE department of IITH.

However, the MDS graduates are not eligible for campus placements, because the Program is meant for working professionals who are already in the industry. We expect that they contribute to the Data Science team of their current organization after completing the Program.

Coursework and how classes are held: A student enrolled in the MDS Program will do 24 credits of coursework in the first two years. In the third year, they would do two Capstone projects of 12 credits each.

Students also have the option of varying the number of courses in different semesters and completing the course requirement in 2-4 years (with one additional year for projects).

The classes will be held over the weekends or other timings suitable for working professionals. Typically there will be two classes per week, each of 3 hour duration. Currently we use Vidyo video conferencing system to conduct online (live) classes over the weekends. As a backup, we also provide polycom service where students can join using our toll-free telephone number.

Exit option (Executive MTech in Data Science):

If a student is not interested in doing the 24 credits of Capstone projects, then he/she can graduate with the Executive MTech in Data Science (EMDS) degree by completing the coursework only. Note that unlike MDS, the EMDS degree is not equivalent to a regular MTech degree.

Eligibility, Admission Process, and Fee structure:

- **Eligibility:** The candidate must have a minimum 2 years of work experience in Industry and be employed in Industry at the time of applying. The candidate must have a BTech /BE/ AMIE degree in CS/ EE/ IT/ ECE, or an MCA, an MSc/ MS degree in CS/ IT, and have an excellent academic record.
- **Selection Procedure:** Candidates must fill an online application. Shortlisted candidates will have to give written test and/ or interview. Prior research exposure and/or industry experience in areas related to data science will be considered a plus. The final selection of the candidate will be based on performance in the written test and/ or interview, and any other criteria deemed suitable by the admission committee.
- **Program Fee:** The fee for applying to the program is ₹500/- (Irrespective of Caste & Gender). There is a registration fee of ₹15,000 per semester the student enrolls for one or more courses. The course fee is ₹25,000 per credit for the courses. For the Capstone project, the fee is ₹12,500 per credit. For all the 48 credits the total fee is ₹9 Lakhs.

More information can be found on the website of the CSE department.

6.3 Joint PhD Program with Swinburne

Who can apply:

The following students are eligible to apply for this program:

- Students who are already enrolled in a MTech or PhD program at IITH.
- Postgraduate and undergraduate students at any University in India (including IITH) interested in doing a PhD in specified areas of collaboration with IITH. Students have to meet the entry requirements of both Swinburne and IITH as described below.

Selection of candidates

Students will be required to meet the academic and English language entry requirements for HDR programs at both IITH and Swinburne. For Swinburne, the minimum entry requirements are:

<http://www.swinburne.edu.au/research/research-degrees/degrees-programs/phd-doctor-of-philosophy/>

Additionally, an interview will be conducted to determine the suitability of the candidate for admission and for scholarship. The Interview Panel will be comprised of the PVC IRE&D and an ADRD from Swinburne, the two IITH

equivalents, and one supervisory team member from each institution. The interview can take place through Skype or other electronic means.

Supervision

The supervision team will include at least one supervisor from each institution. Supervisors must be accredited to supervise at the appropriate level by their institution according to their current regulations.

Progress reviews

Student progress reviews will be performed in accordance with applicable academic policies, procedures, rules and regulations of Swinburne and IITH. Current regulations are described in the attached documents:

- For Swinburne: Research Training Statement of Practice (subject to change);
- For IITH: Doctoral Program at Indian Institute of Technology Hyderabad (subject to change).

Annual progress reviews will be conducted by the institution where the student has spent the majority of time in that year. The regulations of that institution will be applicable and the Progress Review Report will be sent to the partner institution for noting by the appropriate committees. For Swinburne the appropriate committee is the HDRC.

Additionally, milestone reviews will take place at confirmation of candidature, mid-candidature and pre-submission stages for HDR students, as detailed in Swinburne's Research Training Statement of Practice.

Termination

A student who is found to be making unsatisfactory progress or has not passed two consecutive progress reviews, irrespective of which institution has or had conducted the review, will be proposed for termination. If a student is not progressing satisfactorily the supervisory team may request an early progress review.

Swinburne's At Risk process will be followed for terminating the student's candidature at Swinburne. The details are described in the attached Research Training Statement of Practice.

Scholarship extension

The scholarship duration for PhD is four years. In exceptional circumstances an extension to this period may be granted. The extension is for up to six months.

For requesting scholarship extension, the student has to make an application to Swinburne and IITH on a prescribed form and obtain support from the supervisory panel.

Student visit to Swinburne

Students enrolled in the joint PhD will visit Swinburne for up to 12 months in total.

Students are responsible for obtaining the required visas for travel and the compulsory Overseas Student Health Cover (OSHC) required for students studying in Australia.

Examinations

The student's PhD thesis will be evaluated according to the applicable regulations in both universities. The evaluation at Swinburne is by written examiner reports. Please refer to the attached copy of the Research Training Statement of Practice document (subject to change). The evaluation at IITH involves an oral defence (see the attached document, Doctoral Research at Indian Institute of Technology).

The composition of the examination committee will be determined by both universities based on the recommendation from the supervisors at IITH and Swinburne, and approval by the relevant university committees. The nominated examiners will complete the examination processes and requirements of both universities.

Testamur

Successful Partnered HDR program students will receive a double badged degree testamur from Swinburne and IITH. The words to be included on the Swinburne mark sheet will include:

"conferred as a single degree under a Partnered HDR program between Swinburne University of Technology and Indian Institute of Technology, Hyderabad"

Publication of Thesis

Student thesis is to be deposited at both institutions in accordance with the regulations of both Swinburne and IITH for the degree of Doctor of Philosophy.

Graduation Ceremony

Swinburne and IITH will hold a joint graduation ceremony in India for students who pass the examination and are eligible for the joint award. This ceremony will be part of the normal IITH Graduation Ceremony and will be attended by the Swinburne Chancellor and Vice Chancellor (or their nominees).

6.4 MTech Program for Foreign Nationals

IIT Hyderabad offers 2 years MTech/MDes Program for foreign nationals in some selected departments. The following are some of the salient features of this program:

- The Foreign Nationals Candidates who are NOT citizens of India (by birth or naturalized), do not belong to PIO/OCI category, and whose parents are not citizens of India and do not come under PIO/OCI category at the time of applying - can seek admission under the following categories
 - (A) Self-financing Students
 - (B) Visiting students: A Foreign National student who has registered at a recognized Institute/ University in India or abroad and officially recommended by the Institute/University where he/she is studying and wishes to carry out research or to avail academic facilities or credit a set of courses, for a maximum period of 6 months.
- Seats allotted to foreign nationals are supernumerary with a cap of 10% of total number of seats in every course.
- For admission eligibility, the candidate may exercise one of the following options:
 - (A) Qualifying Degree from India (except from IITs) / Abroad and with valid GATE score. (as per the MTech Admission Brochure of IIT Hyderabad). For details and submission of online application visit: <http://www.iith.ac.in/index.php/admission/mtech-admission>
or
 - (B) Qualifying Degree from IITs with CGPA is 8.0 and Above (as per the MTech Admission Brochure of IIT Hyderabad). For details and submission of online application portal of IITH.
or
 - (C) Qualifying Degree from Universities abroad along with GRE.
 - GRE requirement is not applicable to visiting students
 - The candidate should not be more than 25 years of age on 1st July of the corresponding year of application.
 - Each year the senate of IITH will decide the number of number of foreign nationals to be admitted per year in various specializations in each M. Tech./M.Des. program.
 - Merely fulfilling the minimum eligibility criteria does not guarantee the selection of a candidate into any program.

More information about the program can be obtained from the following link: https://www.iith.ac.in/wp-content/uploads/forms/FNA_guidelines%20.docx



INDIAN INSTITUTE OF TECHNOLOGY HYDERABAD

Kandi, Sangareddy, 502285, Telangana, INDIA

Photo

BACHELOR OF TECHNOLOGY in Computer Science & Engineering (HONORS)

CONSOLIDATED GRADE REPORT

Name :

NAD ID :

Roll No.

Year of Study 2015-2019

Course No.	Course Name	Grade	Credits	Course No.	Course Name	Grade	Credits
CS1000	A Gentle Introduction to CS	A+	1.00	PH2117	Photonics	A+	1.00
CS1310	Discrete Structures-I	A	2.00	CS2410	Theory of Computation	A	2.00
CY1017	Environmental Chemistry -I	A+	1.00	CS2420	Introduction to Complexity Theory	A	1.00
CY1031	Chemistry Laboratory	A+	2.00	CS2433	Principle of Programming Languages-II	A	1.00
EE1110	Boolean Algebra	A+	1.00	CS2443	Algorithms	A	3.00
ID1035	Independent Project		1.00	CS3320	Compilers-I	A	1.00
ID1054	Digital Fabrication	A+	2.00	CS3523	Operating Systems-II	A+	3.00
ID1300	Introduction to Programming	A	1.00	MA2130	Complex Variables	A+	1.00
ID1301	Introduction to Programming Lab	A	1.00	MA2140	Statistics	A+	1.00
LA1010	Introduction to International Finance	A+	1.00	BI1060	Introduction to the Brain and Neuroscience	A+	1.00
LA1170	Japanese Conversation I	A	1.00	CS3035	Mini Project	A	3.00
MA1110	Elements of Basic Calculus-I	A	1.00	CS3423	Compilers-II	A+	3.00
MA1220	Elements of Basic Calculus-II	A	2.00	CS3530	Computer Networks I	A	1.00
PH1017	Classical Physics	A+	1.00	CS3550	DBMS		1.00
BO1010	Introduction to Life Sciences	A+	1.00	CS6383	Introduction to Compiler Engineering	A	2.00
CS1330	Programming in C/C++	A	1.00	CS6403	Constraint Solving	A	2.00
CS1331	Programming in C/C++ Lab	A+	2.00	CS6510	Applied Machine Learning	A	3.00
CS1340	Discrete Structure - II	A	2.00	LA5010	Macroeconomics	A+	3.00
CS1350	Introduction to Data Structures	A	2.00	CS3055	Mini Project	A	3.00
CS1351	Introduction to Data Structures Lab	A	2.00	CS3543	Computer Networks II	A	3.00
CY1027	Dynamics of Chemical Systems	A	1.00	CS3563	Introduction to DBMS II	A+	3.00
LA1210	Spoken Japanese Basics	A	1.00	CS5260	Compiler Optimizations	A+	3.00
MA1130	Vector Calculus	A+	1.00	CS5480	Deep Learning	A+	3.00
MA1140	Elementary Linear Algebra	A	1.00	CS5523	Programming GPUs & Accelerators: A Principled, Quantitative Approach	A	1.00
PH1027	Electro Magnetism & Maxwell Equations	A	1.00	CS6200	Advanced Topics in Formal Methods	A	3.00
CS2233	Data Structures	A	3.00	CS5120	Probability in Computing	A	3.00
CS2323	Computer Architecture	A	2.00	CS5570	Algebra for Computer Science	A	3.00
CS2400	Principles of Programming Languages - I	A	1.00	CS6250	Advanced Compiler Optimizations	A	3.00
CS3510	Operating Systems I	A	1.00	CS6440	Special Topics in Machine Learning	A	3.00
EE1120	Digital System Design	A	1.00	LA1440	Risk Perceptions, Decision and Prevention	A	1.00
LA1030	Introductory Economics	A	1.00	LA1450	Personality Psychology	A	1.00
LA1260	Fundamentals of Organizational Structure	A+	1.00	CS4443	Software Engineering	A-	3.00
MA2110	Probability	A+	1.00	CS6300	Topics in Compiler Optimizations	A	3.00
MA2120	Transform Techniques	A	1.00	CS6470	Topics in Vision and Learning	A	3.00
PH1031	Physics Laboratory	A-	2.00	CS6490	Hardware Architecture for Deep Learning	A	3.00

Joint Registrar (A.P)

Course No.	Course Name	Grade	Credits	Course No.	Course Name	Grade	Credits
ID4006	Ethics and Values	A-	1.00	MA6040	Fuzzy Logic Connectives: Theory And Applications	A	3.00
LA1430	Understanding Resilience	A	1.00	CS5410	Advanced Memory Systems Architecture	A	1.00

Total Credits Earned

:

Honors Program			
Course No.	Course Name	Grade	Credits
CS6230	Optimization Methods in Machine Learning	A+	3.00
CS6410	Software Verification	A-	3.00
CS4025	Honors Project (Stage I)	A	3.00
CS4045	Honors Project (Stage-II)	A	3.00

Cumulative Grade Point Average (Out of 10.00)		
B.Tech	Honors	B.Tech & Honors
.....

Additional Courses			
Course No.	Course Name	Grade	Credits
DS1024	Action Drawing	A-	1.00
MA1150	Differential Equations	A-	1.00
CS2205	Research Internship I	A	1.00
NS1002	National Service Scheme	S	0.00
CS2305	Research Internship	A	1.00
CS5470	Theory of Learning and Kernel Methods	AU	3.00
CS5110	Computational Complexity	A-	3.00
CI101	Clean India	S	1.00
CS5560	Probabilistic Models for Machine Learning	B	3.00
CS6370	Information Retrieval	A-	3.00

Grading System:

Grade	A+	A	A-	B	B-	C	C-	D	AU	S	U	FS	FR
Points	10	10	9	8	7	6	5	4	0	0	0	0	0

Note: **A+** (Outstanding Performance in the Course, typically in the top 2% of the Class), **AU** (Audit), **S** (Satisfactory), **U** (Unsatisfactory), **FS** [Fail (Supplementary)] and **FR** [Fail (Repeat)]

The Institute awards no rank or class.

BM: Biomedical, **BO:** Biotechnology, **CA:** Creative Arts, **CS:** Computer Science, **CY:** Chemistry, **EE:** Electrical Engineering, **FC:** Fractional Credit, **ID:** Instrumentation Design, **LA:** Liberal Arts, **MA:** Mathematics, **ME:** Mechanical Engineering, **MS:** Materials Science and **PH:** Physics

Prepared by:

Checked by:

Date of Issue:

Joint Registrar (A.P.)



INDIAN INSTITUTE OF TECHNOLOGY HYDERABAD

Kandi, Sangareddy - 502 285, Telangana, INDIA

Student
Photo

MASTER OF TECHNOLOGY

MECHANICAL ENGINEERING with specialization in MECHANICS AND DESIGN

CONSOLIDATED GRADE REPORT

Name :

NAD ID :

Roll No. :

Year of Study : 2017-2019

Course No.	Course Name	Grade	Credits
ME5130	Finite Element Method	A-	3.00
ME5260	Continuum Mechanics	C	3.00
ME5110	Advanced Mechanics of Solids	A	1.50
ME5120	Dynamics and Vibration	A-	3.00
ME5360	Planar Multibody Dynamics	A+	1.50
ME5010	Mathematical Methods for Engineers	A+	3.00
ME5451	Computational Mathematics Lab	A-	1.00
ME5650	Engineering Noise Control	A	3.00
ME5723	Experimental Solid Mechanics	A+	3.00
ME5911	Design Engineering Core Lab II	A-	2.00
ME7100	Advanced Topics in Mathematical Tools	A	3.00
ME5670	Vehicle Dynamics & Modeling	A-	3.00
ME6106	Seminar	A+	1.00
ME6005	M.Tech. Project (Stage-1)	A	12.00
ME6505	M.Tech. Project (Stage-2)	A	12.00

Total Credits Earned : **60.00**

Cumulative Grade Point Average (out of 10) : **6.82**

Additional Courses			
Course No.	Course Name	Grade	Credits
CI 101	Clean India	S	1.00
BM5150	Digital Signal Processing	C	2.00

Grading System

Grade	A+	A	A-	B	B-	C	C-	D	AU	S	U	FS	FR
Points	10	9	8	7	6	5	4	3	0	0	0	0	0

Note: **A+** (Outstanding Performance in the Course, typically in the top 2% of the Class), **AU** (Audit), **S** (Satisfactory), **U** (Unsatisfactory), **FS** [Fail (Supplementary)] and **FR** [Fail (Repeat)], **BM**: Biomedical Engineering.

The Institute Awards No Rank or Class

Prepared By:

Checked By:

Date of issue:

Joint Registrar (A.P.)



Roll No.

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
कंप्यूटर विज्ञान एवं अभियांत्रिकी
में
प्रौद्योगिकी स्नातक
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of

Bachelor of Technology

in

Computer Science & Engineering

on

NAME

with all its rights, privileges, and responsibilities.
Granted under the seal of the Institute on
the Tenth day of
August, Two Thousand and Nineteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors





ROLL NO.

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
कंप्यूटर विज्ञान एवं अभियांत्रिकी (ऑनर्स)
में
प्रौद्योगिकी स्नातक
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of

Bachelor of Technology

in

Computer Science & Engineering (HONORS)

on

NAME

with all its rights, privileges, and responsibilities.
Granted under the seal of the Institute on
the Tenth day of
August, Two Thousand and Nineteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors





ROLL NO.

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
कंप्यूटर विज्ञान एवं अभियांत्रिकी (ऑनर्स)
गौण विषय: अर्थ शास्त्र
में
प्रौद्योगिकी स्नातक
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of
Bachelor of Technology

in
Computer Science & Engineering (HONORS)
with Minor in Economics

on

NAME

with all its rights, privileges, and responsibilities.
Granted under the seal of the Institute on
the Tenth day of
August, Two Thousand and Nineteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors





Roll No

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
विद्युत अभियांत्रिकी में प्रौद्योगिकी स्नातक
एवं
कंप्यूटर विज्ञान एवं अभियांत्रिकी में प्रौद्योगिकी स्नातक – सैकंड मेजर
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of

Bachelor of Technology
in Electrical Engineering
and

Bachelor of Technology
in Computer Science & Engineering as Second Major
on

NAME

with all its rights, privileges, and responsibilities.
Granted under the seal of the Institute on
the Tenth day of
August, Two Thousand and Nineteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors



ROLL NO.

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
विद्युत अभियांत्रिकी एवं अभियांत्रिकी विज्ञान
में
प्रौद्योगिकी स्नातक
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of
Bachelor of Technology

in
Electrical Engineering and Engineering Science

on

NAME

with all its rights, privileges, and responsibilities.
Granted under the seal of the Institute on
the Tenth day of
August, Two Thousand and Nineteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors





ROLL NO.

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
कंप्यूटर विज्ञान एवं अभियांत्रिकी में प्रौद्योगिकी स्नातक
अभियांत्रिकी विज्ञान में प्रौद्योगिकी स्नातक
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक पांच अगस्त दो हजार अठारह को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of

Bachelor of Technology
in Computer Science & Engineering

Bachelor of Technology
in Engineering Science

on

NAME

with all its rights, privileges, and responsibilities.
Granted under the seal of the Institute on
the Fifth day of
August, Two Thousand and Eighteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors





Roll No.

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
कंप्यूटर विज्ञान एवं अभियांत्रिकी
में
प्रौद्योगिकी निष्णात
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of

Master of Technology

in

Computer Science & Engineering

on

NAME

with all its rights, privileges, and responsibilities.
Granted under the seal of the Institute on
the Tenth day of
August, Two Thousand and Nineteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors





भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Roll No

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
जैवचिकित्सा अभियांत्रिकी
में
प्रौद्योगिकी निष्णात
(पाठ्यक्रम के अनुसार)
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of

Master of Technology
(By Course Work)

in

Biomedical Engineering

on

NAME

with all its rights, privileges, and responsibilities.

Granted under the seal of the Institute on

the Tenth day of

August, Two Thousand and Nineteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors



भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Roll No

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर
कंप्यूटर विज्ञान एवं अभियांत्रिकी
में
कार्यकारी प्रौद्योगिकी निष्णात में डाटा विज्ञान
की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of
Executive Master of Technology *in* **Data Sciences**

in
Computer Science & Engineering
on

NAME

with all its rights, privileges, and responsibilities.
Granted under the seal of the Institute on
the Tenth day of
August, Two Thousand and Nineteen.

कुलसचिव
Registrar

निदेशक
Director

अध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors



ROLL NO.

भारतीय प्रौद्योगिकी संस्थान हैदराबाद

अभिषद की अनुशंसा पर

विद्या वाचस्पति

जिसके लिए सभी निर्धारित अपेक्षाओं को पूर्ण करने पर तथा शोध-प्रबंध के सफल पक्षपोषण के उपरान्त:

इनफार्मेशन डिफ्यूजन एंड सम्माराइज़ेशन इन सोशल नेटवर्क्स

की उपाधि

NAME

को अपने सभी अधिकारों, विशेषाधिकारों तथा उत्तरदायित्वों के साथ एतद्वारा प्रदान करता है।
दिनांक दस अगस्त दो हजार उन्नीस को संस्थान की मुद्रा अंकित यह उपाधि दी गई।

Indian Institute of Technology Hyderabad

Upon the recommendation of the Senate, hereby confers the degree of

Doctor of Philosophy

for fulfilling all prescribed requirements for the degree and
successfully defending the thesis titled:**Information Diffusion and Summarization in Social Networks**

on

NAME


with all its rights, privileges, and responsibilities.

Granted under the seal of the Institute on
the Tenth day of August, Two Thousand and Nineteen.कुलसचिव
Registrarनिदेशक
Directorअध्यक्ष, अभिशासक परिषद
Chairman, Board of Governors

List of Modifications for Academic Handbook

Date	Section	Old	Modified	Remarks
14-01-2020	4.3.5 Dual Degree (BTech + MTech; BTech + PhD)	<ul style="list-style-type: none"> CGPA \geq 8.0 for general category and 7.0 for SC/ST/OBC. 	<ul style="list-style-type: none"> CGPA \geq 7.0 for general category and 6.0 for SC/ST/OBC. 	Reverted to the old Senate rule. Will be updated once the 34 th Senate minutes are accepted.
-do-	-do-	<ul style="list-style-type: none"> For General Merit students with CGPA \geq 8.0 and 7.0 for SC/ST/OBC. 	<ul style="list-style-type: none"> For General Merit students with CGPA \geq 7.0 and 6.0 for SC/ST/OBC. 	-do-
-do-	-do-	<ul style="list-style-type: none"> For General Merit students with $7.0 \leq \text{CGPA} < 8.0$ and SC/ST/OBC students with $6 \leq \text{CGPA} < 7$ at the end of the sixth or seventh semesters: 	<ul style="list-style-type: none"> For General Merit students with $6.0 \leq \text{CGPA} < 7.0$ and SC/ST/OBC students with $5 \leq \text{CGPA} < 6$ at the end of the sixth or seventh semesters: 	-do-
-do-	4.3.3 Honor/ Minor	<ul style="list-style-type: none"> If a student drops from the Minor/ Honors program, they cannot convert the earned credits into free or core electives; they will remain extra (with the one time exception of option for conversion at the end of sixth semester, mentioned in section 3.3.5). These additional courses will find mention in the transcript (but not in the degree certificate). In such cases, the student may choose between any of the three following options (a) show the actual grade (b) show the course with just a "pass" grade (c) omit the mentioning of the course. 	<ul style="list-style-type: none"> If a student drops from the Minor/ Honors program, they cannot convert the earned credits into free or core electives; they will remain extra. These additional courses will find mention in the transcript (but not in the degree certificate). In such cases, the student may choose between any of the three following options (a) show the actual grade (b) show the course with just a "pass" grade (c) omit the mentioning of the course. 	Acad office email dated 2 nd Jan 2020.
-do-	4.3.4 Double Major	<ul style="list-style-type: none"> Similar to Minor/ Honors rules, if a student opts out of Double Major program, they cannot convert the earned credits into free or core electives; they will remain extra (with the one time exception of option for conversion at the end of sixth semester, mentioned in section 3.3.5). These additional courses will find mention in the transcript (but not in the degree certificate). In such cases, at the time of this opting out, the student may choose between any of the three following options (a) show the actual grade (b) show the course with just a "pass" grade (c) omit the mentioning of the course. 	<ul style="list-style-type: none"> Similar to Minor/ Honors rules, if a student opts out of Double Major program, they cannot convert the earned credits into free or core electives; they will remain extra. These additional courses will find mention in the transcript (but not in the degree certificate). In such cases, at the time of this opting out, the student may choose between any of the three following options (a) show the actual grade (b) show the course with just a "pass" grade (c) omit the mentioning of the course. 	-do-
-do-	3.5.4 Assessment Rubric: Course grades	If a student gets an FS or FR grade, no credits are earned for that course. An FS grade entitles the student to take a supplementary examination while an FR grade implies that the student has to go through the entire course again, if the course is a core course. If a candidate gets FS, subsequently on writing the supplementary then he/she can be awarded the highest grade of "B".	If a student gets an FS or FR grade, no credits are earned for that course. An FS grade entitles the student to take a supplementary examination while an FR grade implies that the student has to go through the entire course again, if the course is a core course. If the student gets an FR in an elective course (core-elective, free-	Refined based on 19.5 senate minutes & Email from Acad dated 10 th Jan 2020.

			elective, LA-elective, CA-elective etc), then the student can take repeat the same course or take a different course satisfying the equivalent credit requirements of that earlier course. If a candidate gets FS, subsequently on writing the supplementary then he/she can be awarded the highest grade of "B".									
-do-	4.2.1 Credit Requirements	For a BTech degree, it is necessary to earn a minimum of 125-130 credits (will vary in that range for each branch) and also fulfil the category-wise credit requirement such as core courses, core electives, LA/CA electives, etc. In addition, satisfactory completion of NSS/NSO activities and Clean India course is mandatory. Amongst the LA/CA electives, a minimum of 60% of those credits should be from LA; the CA credits should not exceed 40%. For a typical BTech degree Program, around one-fifth of the credits are for common courses, about three-fifths are for the core courses in the discipline of the student and the rest are set aside for the student to choose in terms of core electives, liberal arts electives, and free electives. There is scope for a student to take additional academic load in the form of additional courses, minor, honors etc.	For a BTech degree, it is necessary to earn a minimum of 125-130 credits (will vary in that range for each branch) and also fulfil the category-wise credit requirement such as core courses, core electives, LA/CA electives, etc. In addition, satisfactory completion of NSS/NSO activities and Clean India course is mandatory. Amongst the LA/CA electives, a minimum of 60% of those credits should be from LA; the CA credits should not exceed 40% (this rule of 60-40% is applicable from 2018 and subsequent batches only) . For a typical BTech degree Program, around one-fifth of the credits are for common courses, about three-fifths are for the core courses in the discipline of the student and the rest are set aside for the student to choose in terms of core electives, liberal arts electives, and free electives. There is scope for a student to take additional academic load in the form of additional courses, minor, honors etc.	Email of Dean_AP dated 7 th Jan, 2020								
06-03-2020	5.1.1 MTech	Table Summarizing admission requirements in various categories. The following row is deleted: <table><tr><td>RAP: Research Assistantship (3-Year) - Project Funded</td><td>2-year+ relevant external experience</td><td>Optional</td><td>Essential</td><td>Funded-Project</td><td>if available</td><td>Regular</td><td>Regular</td></tr></table>	RAP: Research Assistantship (3-Year) - Project Funded	2-year+ relevant external experience	Optional	Essential	Funded-Project	if available	Regular	Regular	The row is fully deleted. Remaining parts of the table stay intact without modification.	As instructed by Dean Academics, citing the lack of any earlier Senate rule/reference to this category of admission.
RAP: Research Assistantship (3-Year) - Project Funded	2-year+ relevant external experience	Optional	Essential	Funded-Project	if available	Regular	Regular					
-do-	Table of contents		Addendum of Modifications added to the table of Contents. Document (this table) added to the booklet at the end.	Rationale: (1) for easy identification of rule changes. (2) for tracking of any modifications to booklet in a transparent manner.								



Cover: The Fractal Academics at IIT Hyderabad is inspired by the fractal patterns that are self-similar across different scales. They are formed when similar patterns recur at progressively smaller & larger scales. The IITH logo seen on the cover is one such fractal curve formed through Hilbert filling of the space with variable densities.