



Indian Institute of Technology Bombay

**Rules and Regulations
Booklet for
B. Tech., Dual Degree and
Integrated M. Sc.
Programmes**

2011-2012

**Applicable to the B.Tech., Dual Degree and Integrated M.Sc. students
admitted from the Academic year 2007-08**

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PREFACE

The Indian Institute of Technology, Bombay (IITB) is one of the Indian Institutes of Technology in the country, set up with the objective of making available facilities for higher education, research and training in various fields of Science and Technology. The Institute is now recognized as a leader in science and engineering education not only in India, but world-wide. It has established a firm foundation for education and research with a high-quality faculty base and having a vision to be the fountainhead of new ideas and innovations in technology and science. The mission of IIT Bombay is to create an ambiance in which new ideas, research and scholarship flourish and from which the leaders and innovators of tomorrow emerge.

IIT Bombay on an average annually admits around 600 candidates for the undergraduate programmes (*B.Tech./Dual Degree and 5 year Integrated M.Sc.*) through Joint Entrance Examination (JEE), around **180** candidates for 2-year M.Sc. programmes, over 700 candidates for different postgraduate programmes and **around 200 candidates** for various Ph.D programmes. IIT Bombay follows a specialized credit based semester system. There are two Semesters in an academic year (**Autumn** – July-Nov; and **Spring** - January-April) during which all courses specified for various degree programmes are offered. There is one additional Semester during summer, called the Summer Semester, for summer courses. The students are required to follow certain procedures and meet specified academic requirements each semester.

This booklet gives comprehensive information on the existing Rules and Regulations for B.Tech., Dual Degree and Integrated M.Sc. Programmes.

IIT Bombay gives freedom to its various Departments /Centers / IDPs to tailor their academic programmes as per their specific needs, within the frame work of the Rules and Regulations approved by the Senate from time to time. Keeping in view, the ever growing challenges and new developments, IIT Bombay revised its Undergraduate Programme (*w.e.f.*

the Academic year 2007) to address the specific needs of the country. The revised programme, provide additional opportunities and flexibilities for students to optimize their learning experience. This needs continuous and meticulous planning of the academic profile on the part of each student to fully utilize the opportunities. The students, and parents/guardians, are therefore, advised in their own interest to get fully familiar with the Academic system of the Institute, since in many ways it is different from what they would have come across earlier. Student's attention is brought particularly to the assessment procedures and the specific rules governing the grading system, academic performance requirements, etc.

IIT Bombay is a very student-oriented place and our endeavor is always to ensure that our students offered the best opportunities that are needed to create outstanding scientists and engineers.

Thank you for your interest in IIT Bombay. We wish all our students a very bright future and successful career.

January 2009

Dean of Academic Programmes

1. INTRODUCTION

B.Tech./ Dual Degree / Integrated M.Sc. programmes consists of courses in basic sciences, humanities and social sciences, engineering and technology and other related topics. The sequence of studies broadly consists of three phases.

The first phase is an intense study of sciences, mathematics and humanities for deeper understanding of concepts than what was done in school. This is common for all UG programmes.

The second phase is the study of engineering sciences and technical arts (*such as workshop, engineering graphics, etc.*). This emphasizes a broad based knowledge in general engineering, and engineering methodologies, and enables the students to appreciate the links between science and engineering. This phase is also, by and large, common for all UG programmes, and overlaps with the first phase.

In the third phase, the students are exposed to subjects in their chosen areas of study, designed to train them in the methodologies of analysis of problems and synthesis of solutions. The courses dwell on the principles governing systems and processes, and develop in them the ability for physical and analytical modeling, design and development. They are also introduced to engineering practice through laboratory courses, works visits, practical training, projects etc., and these may vary from discipline to discipline.

In parallel with the third phase, students can strive to broaden their perspectives through two open electives where s/he can take courses drawn from across the Institute.

Integrated M.Sc. students in addition, work independently on a project, wherein they investigate natural and abstract problems and produce mathematical, computational and/or experimental results.

Dual Degree students do additional courses to get in-depth knowledge in their chosen disciplines, often with specializations. In addition, they work on a research and development project during their final year.

At various stages of the programme, students are initiated into research methodologies, library reference work, use of engineering and scientific equipments / instruments, learning of modern computational techniques, writing of technical and scientific reports and effective communication.

Apart from the minimum credit requirements for the award of the degree, opportunities exists for supplementing the learning experience by crediting additional courses, in diverse areas. These additional credits when they are in focused areas can earn the students credentials like Minor / Honors.

The requirements for degree programmes run by the Institute are broadly classified as:

- **Institute Requirements** (*further divided into Compulsory courses, Elective courses and other requirements.*)
- **Departmental Requirements** (*further divided into Compulsory courses, Elective courses and other requirements.*)

Syllabus of various programmes are given in the courses of study Bulletin (CSB) available on the Institute website: <http://asc.iitb.ac.in/>

1.1 Organizational Structure for Academic Administration

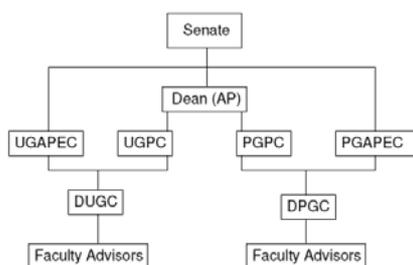
The academic programmes of the Institute are governed by Rules and Regulations approved by the Senate from time to time. The Senate is a statutory and supreme body that governs all academic matters of the Institute, and the rulings of Senate Chairman (Director of The Institute) are final in regard to all academic issues. A definite time schedule is set by the Senate for various academic activities, through an Academic Calendar issued in the beginning of each academic year. The Senate continuously assesses the academic programmes and makes appropriate revisions/modifications/improvements as and when required through two Institute level Senate sub-committees: The Under-Graduate Programmes Committee (UGPC) for undergraduate programmes and a Post-Graduate Programmes Committee (PGPC) for post-graduate programmes. Dean of Academic Programmes (Dean, AP) is the convener for both these committees. Similarly,

performance of each student is monitored by the Senate through two Institute level committees: Under-Graduate Performance Evaluation Committee (UGAPEC) and Post-Graduate Performance Evaluation Committee (PGAPEC). Conveners for these committees are designated from among Senate members. These four committees make recommendations to the Senate, and, in turn seek/receive opinions/recommendations, when required, from the two Department level committees in each department, Department Undergraduate Committee (DUGC) and Department Post-Graduate Committee (DPGC). The DUGCs and DPGCs handle all academic matters, related to both academic programmes as well as performance of individual students. The Head of the Department is the convener for both these Departmental committees. The Senate as well as its sub-committees has student representatives. Administrative back-up for all

academic matters is provided by the Academic Office, with a Deputy Registrar (Academic) as in-charge.

On joining the Institute, a student or a group of students is/are assigned to a Faculty Advisor from his/her Department. 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 / summer terms. The idea of a Faculty Advisor has been evolved to extend guidance to the students enabling them to complete their courses of study for the required degree in a smooth and satisfactory manner.

All academic issues connected with the B.Tech., Dual degree and Integrated M.Sc. programmes are handled by DUGC, UGAPEC and UGPC. If on any academic matter a student would like to approach this administrative structure, it is always through the DUGC with advice and recommendations from her /his Faculty Advisor.



Organizational structure for academic matters

1.2 Academic Calendar

The academic activities of the Institute are regulated by Academic Calendar approved by the Senate, and released at the beginning of each academic year. It is mandatory for students / faculty to strictly adhere to the academic calendar for completion of academic activities. Academic Calendar can be seen at the Academic Office homepage on Institute website.(<http://www.iitb.ac.in/>)

2. CURRICULUM / PROGRAMME OF STUDY

2.1 Curriculum

Every Department has a prescribed course structure which in general terms is known as the Curriculum or the Courses of Study (COS).

It prescribes all the courses / labs / other requirements for the degree and sets out the nominal sequence semester-wise. It also gives the syllabus and a list of text / reference books for each course. The Courses of Study details are updated every semester and are made available on the Institute's web site : <http://www.iitb.ac.in/acad>

2.2 Semester – Autumn, Spring, Summer

The Institute follows a specialized credit-based semester system. There are two regular semesters in a year. The semester that begins in July (*July to Nov.*) is known as the *Autumn Semester* or *Semester 1* and the semester that begins in January (*Jan. to April*) is known as the *Spring Semester* or *Semester 2*.

During the summer vacation, i.e., (May-June), there is one additional semester for summer courses known as the *Summer Term*. Only a few courses run in summer (Sec.3.8) and are utilized by students, when offered, to clear failed/dropped courses, or courses towards the requirement of Minor/Honors (Sec. 2.5), etc.

2.3 Course Credit Structure

In general a certain quantum of academic work measured in terms of credits is laid down as the requirements for a particular degree. A student earns credits by satisfactorily clearing courses/other academic activities every semester. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly the credit associated with any of the other activities is dependent upon the quantum of work expected to be put in for each of the other activity per week.

2.3.1 Theory and Laboratory Courses:

Courses are broadly classified as *Theory courses* and *Laboratory Courses*. Theory courses consist of lecture (**L**) and tutorial (**T**) hours, but may have attached practical (**P**) hours in special cases. Laboratory courses consist of practical hours, but may have attached tutorial hours in special cases. Credit (**C**) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of two (**2**) for lecture and tutorial hours, and a multiplier of one (**1**) for laboratory hours. Thus, for example, a theory course having two lectures and one tutorial per week throughout the semester carries a credit of 6. Similarly, a laboratory course having one tutorial and three laboratory hours per week throughout semester carries a credit of 5. For example -

Theory course	Laboratory course																
<table border="1" style="border-collapse: collapse; width: 100%;"> <tr><td style="padding: 2px;">L</td><td style="padding: 2px;">T</td><td style="padding: 2px;">P</td><td style="padding: 2px;">C</td></tr> <tr><td style="padding: 2px;">2</td><td style="padding: 2px;">1</td><td style="padding: 2px;">0</td><td style="padding: 2px;">6</td></tr> </table>	L	T	P	C	2	1	0	6	<table border="1" style="border-collapse: collapse; width: 100%;"> <tr><td style="padding: 2px;">L</td><td style="padding: 2px;">T</td><td style="padding: 2px;">P</td><td style="padding: 2px;">C</td></tr> <tr><td style="padding: 2px;">0</td><td style="padding: 2px;">1</td><td style="padding: 2px;">3</td><td style="padding: 2px;">5</td></tr> </table>	L	T	P	C	0	1	3	5
L	T	P	C														
2	1	0	6														
L	T	P	C														
0	1	3	5														

In the Courses of Study bulletin, if a course is shown as, say, **CE304 Soil Mechanics II** :

2106, it indicates the following :

Theory course	
Course detail	Indicates the following
CE	Alphabetic code for Civil Engg. Department course.
3	Year / Level code (This indicates that the course is offered in the Third year)
04	Serial Number and the Semester indicator (<i>last digit indicates even or odd semester. Even = Spring Semester; Odd = Autumn Semester</i>)
Soil Mechanics II	Title of the course

2106	L T P C (credit structure)
Laboratory Course	-(CE 218 : Hydraulic Design Lab. : 0135)
Course detail	Indicates the following
CE	Alphabetic code for Civil Engg. Department course.
2	Year / Level code (This indicates that the course is offered in the Second year)
18	Serial Number and the Semester indicator (<i>last digit indicates even or odd semester. Even = Spring Semester; Odd = Autumn Semester</i>)
Hydraulic Design Lab	Title of the course
0135	L T P C (credit structure)

Lab courses usually have either a 1 or a 6 as the middle digit in the course number.

Other academic activities consist of Seminar and Projects, Practical Training, Works Visit and NSO/NSS/NCC. These are credit as well as non-credit requirements. Seminars, Projects are credit requirements, whereas NSO / NSS / NCC, Practical Training (PT), Works Visit etc. are non-credit requirements.

2.3.2. Seminars

Some departments may prescribe Seminar as a requirement for the B.Tech./Int.M.Sc. or the Dual Degree. Seminar is a course wherein under the guidance of a faculty member a student is expected to do an in-depth study in a specialized area by doing survey of published technical literature, understanding different aspects of the problem and arriving at a status report. While doing a seminar, the student is expected to critically analyze works of various

authors/researchers, learn the investigation methodologies, study concepts, techniques and the results presented in these papers, and present a seminar report. It is mandatory to give a seminar presentation before a panel constituted for the purpose. Seminars typically carry 3 credits.

2.3.3 Projects

2.3.3.1 B.Tech. Projects (BTP I and BTP II) :

Some departments may prescribe a Project as a requirement for the B.Tech. degree, or as a requirement for Honors (see Sec.2.5.2), wherein under the guidance of a faculty member a student in the sixth semester, or later, is required to do some innovative work with the application of knowledge gained while undergoing various courses in the earlier years. The student is expected to do a survey of literature in the subject, work out a project plan and carry it out through experimentation and/or modeling / computation. Through the project work the student has to exhibit skills for both analysis and synthesis. These projects (BTPs) may be offered as a single unit of 12 credits (BTP) or two modules of 6 credits each (BTP-I and BTP-II). Departments may also prescribe a minimum performance in BTP-I for being eligible for BTP-II (See Sec.5.5.1).

Even when it is not prescribed as a minimum requirement for the degree or when not being interested in Honours, a student can opt to do a BTP as an additional learning, if s/he so desires and can find suitable supervisor (s) to guide her/him.

2.3.3.2 Integrated M.Sc. Project:

Project is mandatory for Integrated M.Sc. The project is normally done during both the semesters of the final year, wherein the students work independently and investigate natural and abstract problems and produce mathematical, computational and/or experimental results. Integrated M.Sc. Project carries a total credit of 30.

2.3.3.3 Dual Degree Project (DDP):

Dual Degree Project is a mandatory requirement in the Dual Degree Programmes. The project consists of two stages, spread over fourteen months of duration, normally starting

from the summer after the eighth semester and ending with the summer after the tenth semester. These are essentially research and development projects, where a student trains him/herself, under the guidance of supervisor/s, in in-depth analysis of an engineering problem and attempts synthesis of a solution. Literature survey, problem analysis and problem definition, extensive experimental/modeling work, and analysis of results typically form various components of the project work. DDP carries a total of 72 credits.

2.3.4 Non-Credit Requirements:

2.3.4.1 NCC / NSO / NSS

One of the three activities, National Cadet Corps (NCC) or National Sports Organization (NSO) or National Social Service (NSS) is a mandatory requirement for all students for the award of degree. These are normally conducted during evenings of week days and are designed for character building and to sensitize the students to social / national issues. These activities carry no credits and are evaluated as Pass(PP) / Not Pass (NP).

2.3.4.2 Practical Training (PT)

Some departments may prescribe eight (8) weeks of practical training as a part of the minimum requirement for the award of the degree. In such a case a student is required to undergo Practical Training (PT) in an approved enterprise, factory or work-site in India. Practical Trainings are designed to familiarize students with the way in which an enterprise is organized and how the science and engineering principles that they study in the Institute are used to deliver goods and services to the society. Practical Training is done during the vacation. It can be done either (i) in one spell of 8 weeks in the summer vacation after the sixth semester or (ii) in one spell of 4 weeks after the fourth semester and another spell of 4 weeks any time after the 5th semester. Practical Training carries no credits and is evaluated as Pass (PP)/ Not Pass (NP)

2.3.4.3 Works Visit:

Some departments may prescribe works visit as part of the degree requirement. Students are taken on conducted tours through industrial works to expose them to various technologies employed in the industry. The visits are

arranged, once a week, to a local industry, and take place during the semester. (For registration see rule 3.3.3). Works visit carries no credits and is evaluated as Pass (PP) / Not Pass (NP).

2.4 Minimum Credit Requirements and Planning of Individual Academic Programme

Depending on the discipline, the minimum credit required for award of a B.Tech. degree is between 252 and 264. This is nominally divided into 108 credits as Institute requirements and 144 -156 credits as Departmental requirements. Similarly the minimum credit requirement for Int. M.Sc. is 340 and for the Dual Degree, it is between 278 to 390 (250-264 B.Tech. + 30 Honors + 96 M.Tech.) The credits are distributed semester-wise as shown in the Courses of Study bulletin for each department. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the students. Some courses do, in addition, specify passing in courses offered earlier in the programmes as pre-requisites. Students are expected to follow the semester-wise schedule of courses given in the Courses of Study bulletin; they do, however, have a freedom to follow alternative schedules to optimize their academic profile with additional courses, keeping the requirements for each course in mind. For students with backlog courses, such rescheduling may even become necessary. Such departures from suggested schedules need to be done very carefully, and always with advice from the Faculty Advisor.

2.5 Opportunities for Additional Learning: MINOR, HONOURS, ETC. :

The B.Tech./Dual Degree/Integrated M.Sc. programmes recognize the fact that students' aspirations, on one hand, and the demands of the work place, on the other, have become highly diverse. Every student has specific abilities, interests and career goals. Employers too look for people with different combinations of competencies and flavours.

Each of the programmes prescribes a minimum of credits, and courses that would qualify a candidate for the award of the Degree in a particular discipline. The total credits for the B.Tech. programme for example varies

between 252-264 depending on the discipline, as mentioned earlier. This approximately converts itself into about four theory courses and one or two laboratory courses or other activities like seminar, project, etc., every semester. Every student in that discipline undergoes this programme. This minimum content may not have much flexibility.

The Dual Degree programme will have an additional master's level component of 96 credits which includes 24 credits of post-graduate level courses and a Master's thesis. The programme also prescribes a mandatory honours component of 30 credits. This approximately converts itself into about five theory courses and one or two laboratory courses or other activities like seminar, projects etc., every semester.

Normal load during a semester permits B.Tech. and Int.M.Sc. students, who are not identified as academically weak (see Sec. 5.1-5.2), to optionally take an additional course (about 6 credits). This surplus quality time (equivalent to a total of about 36 credits, about six credits every semester after the first year) available beyond the minimum programme permits a student to tailor her/his curriculum vitae to satisfy her/his widely varying interests /abilities /aspirations and to suit multifarious competencies that the employers desire. (Options available to Dual Degree students are limited, see Sec.2.5.4)

It is expected that all students with reasonably good academic standing, utilize this surplus time for enhancing their academic learning experience, though the initiative is left entirely to them. They can use it to credit an assortment of courses/projects anywhere in the Institute, (subject to requirements of each of these courses being met), to gain a wide exposure. These additional academic accomplishments will find a separate mention in the transcript (Sec.4.6.4). They can also credit focused activities which can qualify as a minor/honours (details below). They may alternatively devote part or all of the additional time for extra-curricular activities (including social work) if they so desire, and gain hands-on administrative/managerial/aesthetic skills or sensitivity towards social issues.

Since seats available in such courses will always be limited, and competition severe,

students aspiring to do these additional courses have to maintain high academic standing to register in these courses. Sustained hard work and diligence throughout the duration of the programme is necessary to maintain the academic standing and gain entry to courses of one's choice. This additional time will be used by students with back-logs (failed or dropped courses) to clear them with proper classroom learning. They may not be able to take the courses towards additional accomplishments mentioned above, if any of her/his backlog courses is running in a particular semester, or s/he does not have adequate academic standing (see Sec.5.1-5.4).

2.5.1. Minor

Minor is an additional credential a student will earn if s/he does 30 credits worth of additional learning in a discipline other than her/his major discipline of B.Tech. degree. All academic units in the Institute will offer minors in their disciplines, and will prescribe what set of courses and/or other activities like projects is necessary for earning a minor in that discipline.

A student **does not pre-register** for a minor. S/he accumulates credits by registering for the required courses, and if the requirements for a particular minor is met within the prescribed minimum time limit for the course, the minor will be awarded. This will be mentioned in the Degree Certificate as "Bachelor of Technology in xxx with Minor in yyy." The fact will also be reflected in the transcript, along with the list of courses taken.

Since the number of seats available for each of the courses will always be limited, one has to compete for a place in every course. Maintaining a high academic standing therefore is essential for completing all the requirements for a minor as mentioned earlier. Even if one specified course cannot be earned during the course of the programme, that minor will not be awarded (See registration rules in Sec.3.1.5). The individual course credits earned, however, will be reflected in the transcript.

For the award of the minor, all requirements towards the basic degree and the minor have to be completed within the stipulated period of the programme one is registered for.

Minor option is not available to Dual Degree students unless they have excellent academic standing (Category I, Sec.5.1-5.2)

2.5.2 Honours

Honours is an additional credential a student will earn if s/he opts for the extra 30 credits needed for this in **her/his own discipline**. The concerned department specifies the credit requirements for earning the Honours.

Honours is not indicative of class.

As in the case of minors, a student **does not register for Honours**. S/he accumulates credits by registering for the required courses. On successful accumulation of credits at the end of the programme, this will be mentioned in the Degree Certificate as " Bachelor of Technology in xxx, with Honours." The fact will also be reflected in the transcript, along with the list of courses taken.

For the award of the honours to B.Tech. and Integrated M.Sc. students, all requirements towards the basic degree and the honours have to be completed within the stipulated period of the programme one is registered for.

2.5.3. Two Minors etc. for Students with Excellent Academic Standing

Students with excellent standing (Category I, CPl^e8.0, no backlogs, See. Sec.5.1) can opt for earning an additional minor (i.e., an Honours and a minor, OR if time table permits, two minors), by overloading themselves (See Sec.5.2). Students should however take care to see that they are not overstretching themselves by opting for such overloads over extended periods.

2.5.4. Dual Degree Students

Dual degrees of BTech and MTech intrinsically demands a deeper expertise in the major discipline of the student, and therefore Dual Degree students are required to complete the requirements for Honours, as prescribed by the department. **They do not generally have the option of minors**. The requirements for Honours for a Dual Degree student may be different from those prescribed for a BTech student. This requirement is over and above the basic requirements for the dual degrees as prescribed by each department. The total credit requirement is therefore 252-264(B.Tech.) + 30

(Honours) + 96 (M.Tech.). This Honours will find a mention in the degree certificate as mentioned earlier ('Bachelor of technology in xxx with Honours, and Master of Technology in xxx').

(Students with excellent academic standing (Category I, CPI > 8.0, no backlogs, see Sec.5.1) who are permitted to overload themselves, may be able to earn a minor apart from the mandatory Honours. Rules for overloading apply (Sec.5.4).

3. REGISTRATION

IIT Bombay follows a specialized credit based semester system, therefore registration at the beginning of each semester on the prescribed dates announced in the Academic Calendar, is mandatory for every student till s/he completes her/his programme. If a student do not register in a particular semester without prior permission of the UGAPEC, her/his studentship is liable to be cancelled. Students are not permitted to re-register for course/(s), which they have already passed. Without registration, any academic activity (course / seminar / project etc) undergone by a student will not be counted towards the requirements of her/his degree.

3.1 Semester-wise registration

On joining the Institute, each student is assigned to a Faculty Advisor or an Advisory group (Sec.9.2). The student can register for courses s/he intends to take during a given semester or summer term on the basis of the programme for each discipline as given in the Courses of Study bulletin and as per the advice given by his/her Faculty Advisor. The Faculty Advisor 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 s/he can register during the semester within the framework of the guidelines as approved by the Senate. The Faculty Advisor may advise the student to drop one or more courses/activities based on his/her academic performance (Sec. 4.1-4.4). In fact the Faculty Advisor may even advise a reduced load programme over several semesters for students with poor performance at the end of the first semester/year.

3.2 Procedure for Registration

The Institute generally has an online registration system and the registration is

normally done on the first two days of each semester and the summer term. The registration schedule is announced in the Academic Calendar. In all circumstances, registration must be completed on or before the prescribed last date for registration. Students having outstanding dues to the Institute or a hostel shall not be permitted to register.

3.2.1 Online Registration

On-line registration process involves filling up of an online Course Registration Form (CRF) stating the courses and project / seminar etc., that the student proposes to complete during that semester as per the prescribed curriculum. This should be done in consultation with the Faculty Advisor, who finally approves the registration. Unless this procedure is completed, registration will be considered invalid. All students without backlogs will do online registration.

3.2.2 Manual Registration

Students' having backlog course /(s) is/are required to do manual registration by filling up the Course Registration Form (CRF) which will be made available to them by the Academic Office, through their Faculty Advisor. The student should duly complete the CRF, stating the courses and project / seminar etc. that s/he proposes to complete during that semester as per the prescribed curriculum, in consultation with the Faculty Advisor, get it approved by him/her and then submit the same to the Academic Office within the stipulated date for registration.

Students belonging to Category V (See Sec.4.1) and those with four or more backlogs should additionally submit, along with the course registration form, a revised schedule for the succeeding semesters stating how the backlog courses will be cleared, in consultation with the Faculty Advisor.

3.2.3 Late Registration

Only for valid reasons, late registration may be permitted till the date specified in the Academic Calendar, on payment of a late registration fee.

3.2.4 Registration for the first two semesters

In each of the first two semesters, courses common to all branches are generally offered.

A student is normally required to register for all the courses listed in the curriculum for these two semesters. (In fact, all students are automatically registered for the first semester. In the second semester, as for subsequent semesters, students themselves have to complete the registration formalities. Students, who are identified as academically weak at the end of first semester, may be prescribed a reduced load. Such students are required to do manual registration only.

3.2.5 Registration for third and subsequent semesters

From third semester onwards, registration is dependent on the academic standing of the student (Sec.4.1). A student with an academic standing of Category I, II or III registers for the academic load specified for that semester by the Department. In addition s/he may add one more course (6/8 credits) towards additional learning or to clear backlog courses, without this being considered an overload (Sec.4.5).

Students with poor academic standing (Category IV or V) are advised not to attempt full load. Faculty Advisors after careful scrutiny will advise reduced loads depending on previous performance. Every student however is required to register for a minimum of 18 credits in any semester, (Sec.4.3)

3.3 Registration for Non-credit courses

3.3.1 Registrations for NCC/ NSO / NSS

One of the activities, NCC, NSO or NSS, is a mandatory requirement (Ref.2.3.4.1). Students are expected to complete these requirements during the first year (first two semesters). Formal registration for any one of these activities must be done along with other courses, at the beginning in the first two semesters. The choice of the activity will be done on the basis of the aptitude of the student for any one of these activities and will be decided by a committee constituted for the purpose. Once registered for one of these activities, no change will be permitted at a later stage. In case of award of a NP (not passed) grade, students are required to re-register for these activities in the subsequent semesters. This requirement must be completed before the

end of the second year. In case valid reasons exist, a student may be given special permission for completion of this requirement beyond second year.

In addition to the above mandatory requirements, the students are permitted to take NSS/NSO/NCC in subsequent years too, if they have special interest. This will be mentioned in the transcript (Sec.5.10.4)

3.3.2 Registration for Practical Training (PT)

The practical training will be arranged for each student by the respective coordinator of the Department to which the student belongs. Independent arrangements by students for practical training should get the prior approval of coordinator/DUGC.

The students who have completed their 8 weeks of Practical Training (Ref. 2.3.4.2) are required to register for Practical Training in the semester following the completion of the Practical Training.

After the Practical Training, each student has to submit a written report, along with completion certificate from the organization where s/he received the training, within a week of the commencement of the semester following the completion of the PT. The PT coordinator will evaluate the PT and submit the grade as per the academic calendar.

3.3.3 Registration for Works Visit

If a Department specifies works visit as a mandatory requirement for the degree, the student registers for the same in the appropriate semester. Since works visit involves logistics like permission from enterprises for the visit, transport arrangements etc., a student can only register for works visit in the semester (autumn or spring) specified.

3.4 Registration for Projects

3.4.1 Registration for B.Tech. Projects (BTPs)

Registration for B.Tech. Projects (BTPs) as specified in the curriculum, is similar to that for any other course. The details of allotment of topics, faculty supervisors etc., is specified by the concerned Department before the commencement of the semester.

3.4.2 Registration for Dual Degree Projects (DDPs)

- i. The total duration for the DDP is fourteen months. DDP consists of two stages. Registration for Stage I (30-36 credits) is normally at the beginning of the summer after the 8th semester and for stage II (36-42 credits) in the beginning of the succeeding spring semester (10th semester). The duration of Stage I include both the summer and the succeeding autumn semester, and that for Stage II includes the spring and the succeeding summer semester. In case of deferment due to backlogs etc., the registration for the two stages will be in the beginning of the spring and autumn semesters. The durations are correspondingly spring and summer, and autumn and till the end of February of the succeeding spring semester, respectively. Special cases if any will be taken up on a case-to-case basis by the UGAPEC, upon the recommendation of the DUGC.
- ii. Each Dual Degree student registering in the summer after the eighth semester shall be given a topic for the project work by the end of the eighth semester. Similarly for those registering in spring, the topic will be given by the end of the preceding autumn semester.
- iii. Each Dual Degree student should have a member of the faculty as a supervisor. In addition, Co-supervisor/(s) from the same Department/ other Department / IDP Group / Centre / School may be co-opted by the supervisor with the approval of the DUGC. If the supervisor is not from the same department as the student, a co-supervisor from the Department is necessary.
- iv. Whenever a supervisor leaves the Institute permanently / temporarily, the DUGC shall make alternative arrangements for guidance during the supervisor's absence.

Requirements for the DDP and the evaluation procedures are given in Sec.5.5.2

3.4.3 Registration for 5year Integrated M.Sc. Project

The 5 year Integrated M.Sc. project consists of two stages. Registration for Stage I (12 credits) is done in the 9th semester (Autumn) and Stage II (18) credits) is done in the 10th semester (Spring). The duration of the project is spread over a semester. In case of deferment due to backlogs etc., the registration can be done in the succeeding semesters on recommendation of the DUGC and approval of the Dean of Academic Programmes. The topics for the project work will normally be assigned towards the end of the pre-final year by the Project Coordinator of the Department and the work is done during both the semesters of the final year. Students are assigned project work as per the schedule mentioned in the Academic Calendar after its approval by their respective Faculty Advisor/ DUGC. At the end of the first stage, the student is required to submit a preliminary report of his work by a prescribed date (*as per academic calendar*) to the Co-coordinator and present it to a Panel of Examiners. Registration for second stage is subject to satisfactory completion of the first stage.

3.5 Course Adjustment/Dropping of courses

- 1 The Academic Calendar sets a date, normally two weeks after the commencement of the semester, for Course Adjustment. On or before this date, a student is permitted to make adjustments in her/his academic load by addition or deletion of one or more courses, projects etc., provided the total credits do not exceed the overload rule (Sec.4.5) or fall below 18 credits, by such adjustments. Course adjustment has to be done in consultation with the Faculty Advisor. When the need for course adjustment through addition, substitution or dropping of course/s arises, the student without any backlog should do online course adjustment and students with backlog course/s should do it manually by filling a Course Adjustment Form (CAF). CAF has to be signed by both the student and the Faculty Advisor and submitted to the Academic Office.
- 2 If in the second or any of the subsequent semesters, a student finds her/his academic

load too heavy, s/he may drop one or two courses out of the registered ones on advice from the Faculty Advisor, provided the minimum credit requirements (*18 credits*) is fulfilled. The last date for such drops is typically 10 days after the end of the mid-semester examination, and is set in the Academic Calendar. It is expected that the results of the mid-semester examination will be known within seven days of the end of the examination.

3 Course/s dropped by a student may be taken during a subsequent semester or during the summer term (*if offered*).

3.6 Dropping of a Semester:

1. A student may opt/be advised to drop an entire semester, with prior approval of DUGC/UGAPEC due to the following reasons:

- i. During a registered semester, if a student finds that s/he is unable to cope up with the studies and/or does not have sufficient exposure to most of the courses registered in that semester due to severe health problem or some other valid reasons beyond her/his control, s/he can opt to drop the entire semester, on advice from the Faculty Advisor and with permission from the DUGC/UGAPEC (Sec.3.5).
- ii. A student may seek a semester drop, due to severe personal health problem, unavoidable family commitments or other valid reasons beyond her/his control, on advice from the Faculty Advisor and with permission from the DUGC/UGAPEC, prior to the commencement of the semester itself.
- iii. A student wants to work in an industry, an enterprise or a social service organization to gain valuable work experience.

2. In all cases of severe health problems, medical certificate issued by IIT Hospital is essential. If however, the medical certificate is issued by other hospitals/private practitioners, the certificates should be duly authenticated by the SMO, IIT Hospital. In all other cases, requests for dropping the semester should be accompanied by supporting documents as required.

3. A student will be not permitted to drop a semester after the award of XX /II grade/(s) and / or semester end examination.

4. If a student drops the semester after commencement of the semester, the fees paid will not be refunded and/or adjusted in the subsequent semester. If the student drops the semester prior to the commencement of the semester, s/he has to pay a semester continuation fee prescribed from time to time.

5. Such break from studies is normally not permitted for a continuous period in excess of one year.

6. Not registering for any semester before the last date for registration without prior approval of the UGAPEC will result in the UGAPEC recommending termination of the studentship (See Sec.7.3)

7. Hostel accommodation and other institutional facilities will not be extended in any semester for which the student has not registered.

3.7 Registration for Additional Courses: (M i n o r , Honors, etc.)

As mentioned in Sec. 2.5, opportunities are provided for students to enhance their learning experience through earning additional credits. Extra credits (30 credits) earned in specified focused areas can also lead to earning an Honors (in ones own discipline) or a Minor (in other disciplines).

Starting from the third semester, students who are not academically weak (see Sec.5.1, 5.2) are permitted to take one course equivalent every semester in addition to the prescribed courses for their degree, as mentioned earlier, subject to availability of seats in the course. A student has to pre-register for the course s/ he intends to take towards the end of the previous semester and seats will be allotted based on the academic performance of the student towards the basic requirement of his/ her degree. A student has to enter this extra course too in the course registration form, when permitted.

One should note that there is no specific registration for either the Honours or the Minor. One accumulates the required credits during the course of the programme, and the additional credential is awarded if the criteria

set for them are met when the student graduates.

In any semester, a student cannot register for only those courses which form part of her/his additional learning component. There should at least be one course component that is specified as the minimum requirement of the degree. Moreover, a student cannot overstay in the programme once the minimum requirements prescribed for the degree are completed.

3.8 Summer course registration

Students can register for courses during summer (See Sec.5.8) up to a maximum 18 credits depending on their academic standing, on payment of registration fee at prescribed rates. A course will run during summer provided a faculty member is available for running the course and a minimum of 5 students are registered for the course. The Summer Semester typically runs for 8 weeks, during May-July. The total number of contact hours for the courses remains the same as that during the regular semesters, and therefore the courses run at accelerated pace. The evaluation and grading patterns also remain the same as during the regular semesters.

3.9 Role of the Faculty Advisor in Registration

On joining the Institute, a student or a group of students is/are assigned to a Faculty Advisor. The 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 / summer terms. The idea of a Faculty Advisor has been evolved to extend guidance to the students enabling them to complete their courses of study for the required degree in a smooth and satisfactory manner. With the introduction of the opportunities for additional academic accomplishments, planning of the individual' academic journey needs careful consideration and constant consultation with the Faculty Advisors is imperative. Thus, the role of the Faculty Advisor is of immense importance. **The Faculty Advisor is the person whom the parents/guardians should contact for performance related issues of their ward.**

(For more details please refer page No. 31)

4. SPECIAL FEATURES IN REGISTRATION

The curriculum has special features that a student must be aware of while registering for courses. These include institute core courses, department core and elective courses, non-departmental courses, minor and honours options. Registration for courses depend on the academic standing of the student, as explained in this section. The registration for backlog courses and audit courses are also explained in this section.

4.1 Academic Standing :

Depending on the overall academic performance of a student till date, especially in the two preceding regular semesters (Autumn and Spring) registered, academic standing of the student is decided. **The performance in courses registered in addition to the prescribed minimum requirement for the degree is not taken into consideration while determining the academic standing.** (Here, failed courses refer to courses in which a FR or a XX grade has been awarded. A NP (not passed) grade is not counted towards failed courses in the context of determining the academic standing)

Categorization of the academic standing of a student is as follows :

Category I : Excellent Standing : A student who has no backlog courses (failed courses which have not been cleared subsequently or dropped courses), and has a CPI equal to or greater than 8.0, subject to having cleared the total number of credits prescribed upto that semester in his/her discipline..

Category II : Satisfactory Standing : A student who has registered for at least 18 credits in each of the two preceding regular registered semesters and not failed in any course in these two semesters.

Category III : A student who has not failed in more than one course in the two preceding regular registered semesters, subject to having earned at least 18 credits in each of the semesters.

Category IV : A student who has failed in more than one course in the two preceding regular registered semesters, but has earned at least 18 credits in each of the semesters.

Category V : A student who has not earned at least 18 credits in either one of the previous two regular registered semesters.

Only students of standing of Category I, II or III are permitted to register for normal load described below (Sec.4.2). Category IV and Category V students should register for lower credits as described in Sec.4.3.

4.2 Normal load

The total requirement of credits for the B. Tech. is between 252 and 264, depending on the discipline. The average prescribed credits per semester is therefore around 33 credits. Similar semester credits are prescribed for Integrated M.Sc. students too.

In the first semester of the first year, the normal semester load is 33 or 34 credits depending upon whether a student has registered for ME 119 (5 credits) or ME 113 (4 credits). Every student registers for all the prescribed courses.

In the second semester of the first year, a student of Category III, and category IV (if not recommended for termination, see Sec.7.3) as a special case, will be permitted to take one backlog course in addition to the prescribed minimum, with the specific recommendation of the Faculty Advisor. No student will be allowed to take courses from later years in this semester. Category V students will register for reduced load as advised by the Faculty Advisor (See Sec. 4.3)

In subsequent semesters, every student must register for a minimum of 18 credits each semester. In case a student with backlogs has completed most of the minimum credit requirements, she/he may register for the remaining courses which are available in that semester, which may be less than 18 credits.

In these semesters, normal load for a **B.Tech. or an Integrated M.Sc.** student is defined as the prescribed load for the minimum requirement of the degree for that semester **and credits for an additional course (6-8 credits), subject to**

* **total credit not exceeding 42 credits (44 credits in case the additional course is of 8 credits), and**

* **theory courses not exceeding 6.**

For example, the prescribed credits in semester 3 for a particular discipline may be 33. The normal load for that discipline in the semester is 39-41. This load is calculated by adding the prescribed credits and credits for an additional course (6 or 8 credits). The normal loads for other semesters are to be computed along similar lines. **Students with academic standing of Category I, II or III are permitted to take normal load.**

Those with excellent academic standing (Category I) can, in addition, overload themselves to the extent of one theory course equivalent (6 or 8 credits). That is, they can register for two courses in addition to the prescribed load, subject to

* **total credit not exceeding 48 credits (50 credits in case the additional course is of 8 credits), and**

* **theory courses not exceeding 6.**

Students belonging to excellent (Category I) and satisfactory academic standing (Category II) therefore can reasonably aspire to utilize the additional learning opportunities to the fullest extent.

Category III students should use the additional course permitted to clear the backlog courses if available in the semester. If backlog courses are not available, they can also use the opportunity for additional learning in that semester.

Students belonging to Category IV and V can only register for reduced loads as described in Sec. 4.3 below.

A summary of normal load for **B.Tech. and Int.M.Sc students** in different semesters is given below. The symbol X_j denotes the credits prescribed for the semester j , $3 \leq j \leq 10$ in her/his branch; and C is the maximum credits assigned to any course.

Permissible academic loads for B.Tech./Int.M.Sc students of various academic standing.			
Semester	1	2	3 to 10
Reduced load (Category V, Sec5.3))	33 or 34	33 or 34, less one theory course	X_j , less one theory course
Prescribed Credits (For Category I,II,III,IV)	33 or 34	33 or 34	X_j
Normal load (For Category I,II,III,IV)	33 or 34	33 or 34 41 or 42 Only for Cat.III and IV for clearing backlog	$X_j + C$ (subject to :see text)
Overload (Category I only) (Sec. 4.4)	33 or 34	33 or 34	$X_j + 2C$

Dual Degree students are typically prescribed an additional theory course every semester towards the mandatory honours and dual degree requirements. Therefore the normal load for these students will be the prescribed load itself. Category II and III students from the dual degree cannot therefore register for courses towards additional learning.

However, from the 5th semester onwards Dual Degree students belonging to Category II and III and a CPI >6.5 may be allowed to take one additional course in a semester, only for the purpose of clearing backlog courses. This is done in consultation with the faculty advisor and prior approval of the UGAPEC.

Students belonging to Category IV and V can only register for reduced loads as described in Sec. 5.3 below.

Category I students can take one course extra as an over load towards additional learning (Sec.5.5)

A summary of normal load for **Dual Degree** students in different semesters is given below. The symbol Y_j denotes the credits prescribed for the semester j , $3 \leq j \leq 10$ in her/his branch; and C is the maximum credits assigned to any course.

Permissible academic loads for Dual Degree students of various academic standing.

Semester	1	2	3 to 10
Reduced load (Category V, Sec5.3))	33 or 34	33 or 34, one theory course	Y_j , less two theory less courses
Prescribed Credits (For Category I,II,III,IV)	33 or 34	33 or 34	Y_j , less one theory course
Normal load (For Category I, II, III IV)	33 or 34	33 or 34 41 or 42 Only for Cat.III and IV for clearing backlog	Y_j (Category II and III permitted to register for 1 backlog course)
Overload (Category I only) (Sec4.4)	33 or 34	33 or 34	$Y_j + C$

4.3. Reduced Load for Category IV and Category V students

B.Tech. and Int.M.Sc. students belonging to category IV status can only register for a total of credits equivalent to the prescribed credits for that semester in her/his discipline (X_j in the table above). (This normally would mean four theory courses and one or two labs. etc.). They cannot register for the additional 6-8 credits permitted for students with Category I, II and III standing.

Students belonging to category V status can only register for those many credits which are at least one theory course equivalent less than the credits prescribed for that semester in her/his discipline, subject to a minimum of 18 credits. (This normally would mean three theory courses and one or two labs. etc.).

Dual degree students of Category IV and Category V are advised to register for one and two theory courses, respectively, less than their prescribed load, and as advised by the faculty advisor.

All students in Category V should submit a revised schedule along with the course registration form, in consultation with the Faculty Advisor, for the succeeding semesters stating how the backlog courses will be cleared.

Students have to register for the backlog courses before registering for other courses, if those courses are available in that semester. However, Faculty Advisor can recommend exceptions to avoid cascading effects due to prerequisites for other courses.

All students in Category III, IV and V will do manual registration.

4.4 Overload

Student with Excellent Academic Standing (Category I) may be permitted to take one course per semester, in addition to the normal load, as overload, subject to a maximum of 6 theory courses. There shall be no relaxation of the CPI criterion for the additional overload. A change of status from Credit to Audit in respect of such courses may be allowed up to the mid-semester examination with the prior approval of the UGAPEC. Overloading of courses is subject to time-table constraints.

Since this overloading can lead to poor overall performance in terms of SPI, CPI etc., this should be done after careful consideration and discussion with the Faculty Advisor.

4.5 Carrying backlogs forward

Attempts are made in the programme to give an early opportunity to register for the backlog course for students who fail a course in a given semester. This is provided in the new curriculum in two ways.

4.5.1 Offering of core courses in both semesters

The Institute core courses are expected to be offered in both the semesters, so that a student can register for a backlog course in the immediate next semester. For department level core courses, particularly those that form prerequisites for courses which follow, the procedure of offering the course in both semesters, is to be adopted. This gives a student a second attempt to clear a backlog core course in the immediate succeeding semester.

4.5.2 Summer courses

Some courses may be offered in summer (Sec.4.10) and students can register for these to clear backlogs.

4.5.3 Normal load accommodates credits for an additional course

As mentioned in Section 4.1, B.Tech./Int.M.Sc. students with standing Category I,II or III can register for an additional course every semester as part of their normal load. Students of Category III therefore can clear backlog courses at the earliest opportunity, without dropping courses.

For department core courses that are not possible to be offered in both semesters, the Faculty Advisor may advise the students appropriately for dropping the backlog course in favor of some other course in order to avoid a cascading effect in subsequent semesters. The Faculty Advisors and DUGCs would exercise special care and assist the students in this regard.

4.6 Audit course

A student wanting just an exposure to a course, without the rigors of obtaining a good grade,

'audits' a course. The minimum requirement is normally 80% attendance, with any additional requirements as set by the instructor such as submission of assignments and minimum performance in some of the in-sem evaluations. The grade awarded is 'AU' which does not carry any grade points and therefore does not figure in SPI/CPI calculations. However, this would be restricted to a maximum of two (2) courses in the entire period of the programme. Auditing of courses during a regular semesters and summer term is permitted under the following conditions:

- i. Students in Category I and II with $CPI \geq 6.0$ will be permitted to 'Audit' a course. A course can be audited provided the course is offered in the semester as a credit course for others, and there is no slot clash. Prior permission of the Instructor is required.
- ii. The students have to enter the courses to be audited in the Course Registration Form while registering for the semester. The course will not carry any credits. The word "Audit" would be specially mentioned in the remarks column of the student's course registration form.
- iii. The 'AU' grade would be awarded by the instructor, if the attendance is satisfactory and additional requirements as set out by the instructor are met. If the attendance and performance is not satisfactory, the instructor will award a NP grade.
- iv. The course successfully completed in Audit mode will not be considered towards the requirement of Minor/Honors.
- v. The course successfully completed in Audit mode will be reflected in the Semester Grade Report and the Transcript as Audit Course.

4.7 Registration for Postgraduate level courses

B.Tech. students belonging to category I and II with a $CPI \geq 6.5$ may be permitted to register for some post-graduate level courses as credit/audit course from fifth semester onwards, if they are specifically offered to them. Prior permission of the Instructor concerned is required for registration for these courses. However, no relaxation in the CPI criterion is allowed.

The students of Dual Degree and the 5 year integrated M.Sc. Programmes, from the fifth semester onwards, are permitted to register for PG level elective courses without any restrictions.

4.8 Guided Study

Guided Study is doing courses out side the curriculum in the self-study like mode, during a regular semester. A student belonging to the standing category I may be provided the option of Guided study to acquire proficiency in an area of his/her choice, on recommendation of the Faculty Advisor / project guide, DUGC and approval of UGAPEC. Guided Study will be available to the extent of a maximum of one course per semester with effect from the third semester, subject to a maximum of four courses in the entire programme. This option is strictly subject to the availability and willingness of the instructor offering the course. Guided Study and URA (Sec.8) will not run concurrently, and the rules that govern overloading apply strictly even for these courses. These courses can be considered towards Minor / Honors, if so specified by the concerned academic unit. Registration, Examination / Evaluation and submission of grade etc. in case of guided study will also be governed in the similar way as other courses of the curriculum.

The option of guided study may also be made available, by the UGAPEC, in the following situations, on a case-by-case basis:

- (a) Students who miss the 'Departmental Introductory Course' due to a change of branch obtained at the end of First year,
- (b) Students who are transferred from other IITs and as a result have to do certain additional courses.

4.9 Course Substitution

In case a student obtains FR/XX grades or drops courses due to valid reason, s/he may like to substitute courses in order to complete the requirements within the stipulated duration. Following is the guideline for course substitution. :

- i. Course substitution is not permitted for Core Courses, may it be an institute core course or departmental core course. The student has to re-register the same course and complete.

- ii. An Institute elective course may be substituted by another Institute elective course from the same group.
- iii. A departmental elective course may be substituted by another departmental elective course from the same group.

4.10 Summer Course/(s)

The summer term is not a regular semester. However, during a summer term, an academic entity may offer a summer course to enable the students to clear their backlog courses and/or regular credit courses, subject to strict adherence to the following guidelines.

- i. The course instructor/(s) / faculty/(ies) should be willing to offer the course. The DUGC should recommend offering of such a summer course for consideration and approval of the Dean of Academic Programmes. The course is offered on approval of the Dean of Academic Programmes.
- ii. The course is offered with adequate rigor and in the same manner as a regular semester course is offered.
- iii. The duration of the course is eight to ten weeks. The registration, examination and assessment and grading etc. are done in the same way as is done for regular semester courses. The total number of contact hours for the courses remains the same as that during the regular semesters, and therefore, the courses run at accelerated pace. (*for example 6 hours of instructions per week is expected for a 3-0-0 course*) The Academic Calendar in this connection are strictly followed.
- iv. 80 % attendance is compulsory. In absence of which the instructor has to offer FR grade.
- v. Minimum 5 students should register for a particular summer course to be offered.
- vi. At the most, a student is permitted to register upto 18 credits during any one summer term.
- vii. Courses offered in a summer term will be treated as equivalent to a regular semester courses for all accounting purposes.

5. EXAMINATION / ASSESSMENT

Semester wise performance assessment of every registered student is done through various modes of examinations. These include quizzes, class tests, home assignments, group assignments, viva-voce, Mid-Semester Examination and Semester-End Examination. **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 for theory and laboratory courses along with the recommended relative weightage of various components are given in this section. A large departure from the recommended modes of assessments and weightage will require prior approval from the Dean of Academic Programmes.

5.1 Attendance

Attendance in the class is compulsory and is monitored. The Institute expects 100% attendance. However, due to ill-health or other emergency situations, absence up to 20% is considered on case to case basis on production of documentary proof. A student not having 80% attendance is debarred from appearing in the semester-end examination and given a "XX" grade. Such a student is required to re-register for the same course in subsequent semesters. The attendance requirement is applicable to summer courses too.

5.2 Modes of Evaluation for Theory Courses

1. Various modes of assessment used for rating students' performance in a theory course include quizzes, class tests, home assignments, group assignments, viva-voce, mid-semester test and semester-end examination. Relative weightage for in-semester evaluations is typically between 50 and 60 per cent. This will consist of one mid-semester test of two hours duration, of about 25-30 per cent weightage, to be held as per the schedule fixed in the Academic Calendar. Two quizzes *or one quiz and one test* along with assignments and viva-voce shall make up the rest of the in-semester assessment. The Instructor may also set aside up to a maximum of 10 per cent of the in-semester marks for active participation in the class and the initiatives shown by the student. Make-up 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.

2. The semester – end examination will be held as per the Academic Calendar and the relative weightage for this would be 40 to 50 per cent. It is normally of 3 hours duration and will cover the full syllabus of the course. **The semester-end examination is mandatory. The instructor awards an “II” grade for those students** not appearing for the Semester-end examination, if they have sufficient attendance and satisfactory in-semester performance. Such students are eligible for a Semester-end re-examination only on medical grounds/valid reasons (Sec. 5.8), AND on production of medical certificate issued / authenticated by SMO, IIT Bombay Hospital, or other supporting documents as the case requires. The application must be submitted to the Academic Office before the last date for registration for such re-examination announced in the Academic Calendar. (See also Sec. 5.7(V).

5.3 Modes of Evaluation for Laboratory Courses

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 a semester-end test that contains an experiment or a written examination. In-semester work will normally carry 75% and the semester-end test 25% weightage respectively. It is obligatory to maintain a laboratory journal as prescribed by the course instructor. Final examination for laboratory courses will normally be held a week before the final theory examinations. In case of absence from Semester-end examination, the same rule as those for theory courses is applicable.

5.4 Modes of Evaluation for Seminars

Seminars are evaluated based on a written report, and an oral presentation before a panel of examiners appointed by the DUGC/ Department. The supervisor /co-supervisor, when involved, are part of the panel. Grades

carrying grade points are awarded as in the case of theory and laboratory courses based on the quality of the report and performance in the presentation. The evaluation of the seminars is completed and the grades submitted to the academic office (one-week) before the commencement of the end-semester examination.

5.5 Modes of Evaluation for Projects

As described in section 2, B.Tech project is not an Institute requirement. However, some departments may make it as the department requirement for the degree, and some might make it only as a component of the Honors requirement. Whereas for Dual Degree Programme and the Integrated M.Sc. programme, the project is the required component for the award of degree. As the case may be the separate modes of assessment are mentioned hereunder.

5.5.1 B.Tech Project :

B.Tech. Project may be offered as one unit as BTP, or two independent units as BTP-I and BTP-II. Wherever it is split into two units, BTP-II builds on BTP-I, and BTP-I becomes a pre-requisite for BTP-II. Departments may prescribe a minimum performance in BTP-I (which may be higher than the pass grade 'DD') for being eligible for BTP-II. BTP-I and BTP-II are separately graded, at the end of the respective semesters.

These 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. The dates for submission of reports, the dates for presentations, and details of mode of assessment are decided by the individual departments. The grades are sent to the Academic office before the last date for submission of grades.

In case of irregularity of interactions, the supervisor may award an “XX” grade before the last date for submission of the report. An “II” grade may be awarded if the student misses the presentation. S/he is granted a second chance for presentation, if the basis for absence is valid and the conditions specified in Sec.5.2 are complied with.

5.5.2 Dual Degree Projects :

a) The following is the schedule for the DDP assessments:

- b) For evaluation of DDP stage-I, the student has to submit a report (two or three copies as required) to the respective department on or just before one week from the date of assessment as specified in the Academic calendar. Evaluation will be done, by a panel appointed by the DUGC, based on the report and (i) either an across-the-table discussion and viva-voce or (ii) seminar presentation. The panel shall consist of the supervisor(s) and at least one more faculty member, to act as examiners.
- c) For evaluation of DDP stage-II, the student has to submit 4 or 5 (one for co-supervisor) soft bound Dissertation reports to the respective departments on or before one week from the date specified in the Academic Calendar. The evaluation will be done by a Board of Examiners based on the report and a viva-voce. The viva-voce will be conducted by the parent department. Final Grade reports are to be sent by the Department to the Academic Section on completion of the viva-voce, as per the date specified in the Academic Calendar.
- 4. An External Examiner chosen from the panel approved by the DUGC, or an additional Internal Examiner.
- e) The minimum passing grade in each stage of the project assessment shall be "CC".
- f) In case a student gets a fail grade (below CC) in any of the project assessment, s/he should carry out additional work / modification etc., as suggested by the panel and appear for assessment within one month from the date of previous assessments. At this assessments he should not be given a grade higher than "CC".
- g) When a student is unable to submit the report by the required date due to valid reasons, it is necessary for him/her to **make a specific request to the UGAPEC for extension, through the supervisor and DUGC, stating (i) the reasons for delay, (ii) the expected date of submission (iii) pay the institute fee for the next semester and (iv) formally register for that semester if not done so in the normal**

Registration for Dual Degree Project is at the beginning of Spring Semester (January):

Stage I Assessment (30-36 Credits) - - - First September to 31st October.

Stage II Assessment (36 Credits) - - - 30 April to 30 June.

The project reports need to be submitted 7-15 days before the date of evaluation, but not earlier.

Special cases not covered by the above schedules will be taken up by UGAPEC on case-by-case basis, upon the recommendations of DUGC.

- d) The Board of Examiners for DDP stage-II assessment is appointed by the Convener, DUGC, and will consist of the following:
 - 1. A Professor or an Associate Professor of the Institute as Chairperson. The Chairperson should be from a Department/IDP Group/ Center/School other than the parent department of the student.
 - 2. The supervisor(s) or in their absence another faculty member of the department conversant with the subject.
 - 3. A Faculty Member from the Institute conversant with the subject as Internal Examiner.
- course.** The maximum grade awarded will be restricted to "BC" for such cases, unless extension had been granted by Convener, UGAPEC.
- h) After registering for DDP (either of the stages), a student should not take up any other assignment (paid or unpaid) before submitting her/his dissertation.
- i) After the Dissertation is assessed, a hard bound copy of the final Dissertation along with duly completed forms is to be submitted to the Academic office. Soft copies of the Synopsis and the final Dissertation proper are to be submitted to the Central Library.
- j) When the student neither drops the project in time and does not submits the project

report for assessment by the due date nor request extension from the UGAPEC, s/he will be temporarily awarded 'II' grade at the time of finalization of grades for all the other students. The 'II' grade will be converted to a performance grade not higher than BC when such a student submits her/his report, though late, and undergo the oral examination. Thus students submitting their project reports late will only be entitled to the grades BC,CC,CD,DD and FR after the oral assessment. Further, if such late reports are not submitted within a reasonable period of time (by the end of the Summer Semester), the 'II' grade will be automatically converted to 'FR'. Students who obtain FR in the final (second stage) assessment will be required to re-register for the second stage in the subsequent semester.

5.5.3 Integrated M.Sc. Project

Integrated M.Sc. project work is normally done in two stages, each spread over a semester. At the end of the first stage, the student is required to submit a preliminary report of his work by a prescribed due date to the coordinator and present it to a Panel of Examiners. The second stage of the work is continued in the following semester.

Submission of the integrated M.Sc. project cannot be postponed beyond the date specified in the calendar. If the project cannot be completed due to ill-health or other bonafide reasons, the course can be dropped in consultation with the Faculty Advisor, the project coordinator and the guide on or before the last date for dropping of courses. A re-registration for the same is required in the following semester in which it should be completed.

When a student is unable to submit the report for assessment by the prescribed date due to valid reasons, it is necessary for him/her to **make a specific request to the UGAPEC for extension, through the project guide and DUGC, stating (i) the reasons for delay, (ii) the expected date of submission (iii) pay the institute fee for the next semester and (iv) formally register for that semester if not done so in the normal course.** The maximum grade awarded will be restricted to "BC" for

such cases, unless extension had been granted by Convener, UGAPEC.

When the student neither drops the project in time and does not submit the project report for assessment by the due date nor request extension from the UGAPEC, s/he will be temporarily awarded 'II' grade at the time of finalization of grades for all the other students. The 'II' grade will be converted to a performance grade not higher than BC when such a student submits her/his report, though late, and undergo the oral examination. Thus students submitting their project reports late will only be entitled to the grades BC,CC,CD,DD and FR after the oral assessment. Further, if such late reports are not submitted within a reasonable period of time (by the end of the Summer Semester), the 'II' grade will be automatically converted to 'FR'. Students who obtain FR in the final (second stage) assessment will be required to re-register for the second stage in the subsequent semester.

Student should submit 4 soft-bound typed copies of integrated M.Sc. Project Report and after successfully defending the Project Report at the viva-voce examination; the original copy of the Project Report is to be submitted in hard-bound form to the coordinator.

5.6 Non-credit requirements :

Non-credit requirements are assessed as Pass (PP)/ Not Pass (NP) subject to the fulfillment of the minimum requirements of these activities and a minimum of 80% attendance. The award of degree is subject to successful completion of these activities.

5.6.1 NCC/NSO/NSS

A student will be awarded PP (*Pass*) grade for any one of these activities s/he is registered for, in that semester, provided the minimum requirement is met during that semester together with attendance criteria. Not satisfying these requirements will result in a fail grade NP (*Not Pass*), and the student has to re-register for the activity in the next semester. The grades are sent to the academic office before the commencement of the semester-end examination. The award of the degree is subject to the successful completion of NCC/NSO/NSS.

5.6.2 Practical Training

A student will be awarded PP (Pass) / NP (Not Pass) after completion of 8 weeks of Practical Training. The student has to register immediately in the semester following the completion of the PT and submit a report along with the completion certificate from the organization/s where s/he received the training. The effective benefit gained by the student is assessed through a viva-voce conducted by the PT coordinator and/or the report. The grades are sent to the academic office within one month from the date of registration.

5.6.3 Works Visit

The grading for the works visit is done by the coordinator from the concerned department based on attendance, participation in discussions during the visit and any further criteria set by the department. Accordingly, a (PP) Pass /NP (Not Pass) grade is awarded by the coordinator. The grades are sent to the academic office before the commencement of the semester-end examination.

5.7 Grading

i. Indian Institute of Technology Bombay follows grading system. Based on the combined performance in all assessments, the student is awarded a letter grade in every course taken by him/her in a particular semester as per the curriculum. These letter grades not only indicate a qualitative assessment of the student's performance but also carry a quantitative (numeric) equivalent called the Grade Point. The letter grades and their equivalent grade point are given below:

Letter Grade	Grade Point
AP	10
AA	10
AB	9
BB	8
BC	7
CC	6
CD	5
DD	4
FR	0 (Fail- Repeat the course)

Letter Grade	Grade Point
XX	0 (Attendance below 80% - Repeat the course)
PP	Pass
NP	Not Pass
AU	Audit
II	Incomplete (place holder, awarded on medical grounds; gets converted to an appropriate grade after Semester end re-examination)
DR*	Dropped

* DR is not a grade but only a position holder indicating that the course has been dropped and it has to be cleared in subsequent semesters.

A student passes the course if he/she gets any grade in the range of "AP" to "DD" ("AU" in the case of an audit course, but fails if he/she gets the grade "FR" and/or "XX". "II" and "DR" are place holders. "II" is awarded temporarily on medical grounds and gets converted to an appropriate grade after the Semester end re-examination. Where as "DR" indicates that the course has been dropped and it has to be cleared in subsequent semesters.

- ii. The grade "AP" indicates exceptional performance and is awarded only in the Course/(s) in which the number of registered students is more than 50. It should not exceed 2 % of the total strength of the particular theory or lab course. The grade "AP" is not awarded for projects / seminars.
- iii. "FR" grade will be awarded in case/(s) where, in the opinion of the instructor (panel of examiners in the case of projects), the student has inadequate academic exposure to the course / has very poor performance in the in-semester and/or semester-end examinations. "FR" can also be awarded any time during the semester for any kind of academic malpractices. In such cases the course instructor will immediately report along with the award of "FR" grade to the Dean of Academic Programmes through DUGC. **The Dean (AP) may refer the matter to the Disciplinary Action Committee (DAC) for further action, if needed.**

- iv. The grade “**XX**” in a course is awarded if (i) a student does not maintain the minimum 80% attendance in the Lecture/Tutorial classes, or (ii) severely incomplete in-semester evaluation record due to non-medical reasons (for example when a student has missed all tests and midsem), (iii) incomplete assignment submissions etc.. The XX grade will be declared one week before semester-end examination and intimated to the academic office immediately thereafter. **A student with “XX” grade in a given course is not permitted to take the semester-end examination. The “XX” grade is treated as “FR” for the purpose of CPI calculation, and requires re-registration for the course.**
- v. ‘**II**’ is awarded in a lecture/laboratory course if a student has satisfactory in-semester performance and has fulfilled the 80% attendance requirement, but has not appeared for the semester-end examination due to medical reasons. Such students are eligible for a make up for the Semester-end examination only on medical grounds / valid reasons AND on production of medical certificate issued / authenticated by SMO, IIT Bombay Hospital or other supporting documents as required. The application must be submitted to the Academic Office, for consideration by UGAPEC, before the last date for registration for such make-up examination announced in the Academic Calendar. (See Sec.3.5 and 3.6 for full details). For a student present in the semester-end re-examination, the instructor will award a regular performance grade (AP-FR) depending on the overall performance in the course including the re-examination. If a student fails to appear for the re-examination too, the instructor will award “II” grade again. If the absence is due to medical / valid reasons, the student must submit supporting documents as mentioned above, within seven days of the scheduled date of the re-examination, to the Academic Office. UGAPEC will examine such cases and convert the “II” grade into a dropped course status (“DR”) in bonafides cases. In all other cases the “II” grade will be converted to “FR” grade. In any case the “II” grade will not be continued beyond the commencement of the subsequent semester.
- vi. There are, however, a few other academic requirements for the programmes. The following two grades viz., “PP” (*Pass*) and “NP” (*Not pass*), will be awarded for Practical training, Work visits and NCC/NSO/NSS. No grade points are associated with these grades and performance in these courses is not taken into account in the calculation of the performance indices (SPI, CPI). However, the award of the degree is subject to obtaining a “PP” (*Pass*) grade in all such courses. A student will be awarded “PP” (*Pass*) / “NP” (*Not Pass*) grade for NCC/NSO/NSS in each semester provided the minimum requirement of these activities are met during that semester together with 80% minimum attendance, failing which the “NP” (*Not Pass*) grade will be awarded.
- vii ‘**AU**’ grades are awarded for those who have audited a course, and adequate exposure to the contents. No grade points are associated with this grade. It has no implication on CPI/SPI. No grade is awarded in case of insufficient exposure to the contents of the course.

5.8 Valid reasons for semester-end make-up examination

Following may be considered as valid reasons for semester – end make-up examination:

1. Serious Illness / personal accident in the case of the student herself/himself.
2. Serious illness / Accident / Death of parent / guardian
3. Logistic problems such as non availability of resources / lab. facilities / availability of examiner /(s) for project / seminars etc.

Students claiming semester-end re-examination (evaluation in the case of projects) on the above valid reasons are required to make suitable application to the UGAPEC before the prescribed last date for registration for such re-examination announced in the Academic Calendar, through proper channel along with proper medical certificate issued / authenticated by SMO, IIT Bombay Hospital. In the event of death and / or serious illness / accident of parent or guardian, the application should be supported

by adequate evidence of the same / appropriate documents. Decision of the convener, UGAPEC is final in these matters.

5.9 Academic Malpractice :

Academic malpractices are severely dealt with. In case of malpractice during any of the valuations like assignments, quizzes, tests, and examinations, the instructor can award a "FR" grade in the course immediately on occurrence and report the matter to the Dean of Academic Programmes, through DUGC. If the Dean (AP) finds that the offence is serious enough, s/he may further refer the matter to the Disciplinary Action Committee (DAC).

5.10 SPI/CPI

5.10.1 Semester Performance Index (SPI)

The performance of a student in a semester is indicated by a number called Semester Performance Index, SPI. The SPI 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 SPI is equal to:

$$\text{SPI} = \frac{C_1g_1 + C_2g_2 + C_3g_3 + C_4g_4 + C_5g_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SPI is calculated to two decimal places. The SPI for any semester will take into consideration the FR/XX grades awarded in that semester. For example if a student has failed in course 4, the SPI will then be computed as:

$$\text{SPI} = \frac{C_1g_1 + C_2g_2 + C_3g_3 + C_4 * \text{ZERO} + C_5g_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The courses which do not form the minimum requirement of the degrees will not be considered for calculation of the SPI. Such additional courses undertaken and the grades earned by the student will be shown separately.

5.10.2 Cumulative Performance Index (CPI)

An up to date assessment of the overall performance of a student from the time s/he

entered the Institute is obtained by calculating a number called the Cumulative Performance Index, CPI, in a manner similar to the calculation of SPI. The CPI therefore considers all the courses registered by the student, towards the minimum requirement of the degree s/he has enrolled for, since s/he entered the Institute. The CPI is calculated at the end of every semester to two decimal places and is indicated in semester grade reports.

The CPI will reflect the failed status in case of FR/XX 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 CPI will only reflect the new grade and not the fail grades earned earlier.

Example : Up to semester *r* a student has registered for *n* courses, among which s/he has a "FR" grade in course *i*. The semester grade report at the end of semester *r* therefore will contain a CPI calculated as:

$$\text{CPI} = \frac{C_1g_1 + C_2g_2 + C_3g_3 + \dots + C_i * \text{ZERO} + \dots + C_n g_n}{C_1 + C_2 + C_3 + \dots + C_i + \dots + C_n}$$

Even if a student has failed in a course more than once, the course will figure only once in the numerator as well as the denominator.

At the end of semester *r+1* s/he has registered for four more courses including the backlog course *i* and has cleared all the courses including the backlog course, the CPI at the end of this semester is calculated as

$$\text{CPI} = \frac{C_1g_1 + C_2g_2 + C_3g_3 + \dots + C_i * g_i + \dots + C_n g_n}{C_1 + C_2 + C_3 + \dots + C_i + \dots + C_n}$$

The courses which do not form the minimum requirement of the degrees will not be considered for calculation of the basic CPI. These courses will be shown separately, and a separate CPI will be calculated for these courses. There will also be a combined CPI calculated which considers all the credits earned by the student.

5.10.3 Semester Grade Report

At the end of each semester the semester grade report, which reflects the performance of the student in that semester, is prepared. This report includes the fail grades as awarded. Four copies of this report are prepared and the Student's copy and the Faculty Advisor's copy is sent to the respective Faculty Advisors for their information and disbursement of the Student's copy to the concerned student. The parent copy of the grade report will be dispatched to their respective address by the Academic Office. The office copy of the grade report will be retained by the Academic office for their record. The semester grade report for those students with "II" grade is prepared only after the "II" grade is converted to a suitable grade, after the semester – end – re-examination.

Even when a failed course is cleared in a later semester, no new modified grade report for that semester in which the fail grade was awarded will be issued.

5.10.4 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 programme and is given to a student on successful completion of the programme 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 programme will only contain earned pass grade (AP-DD, PP); 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 CPI 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. Additional copies of the transcript can be obtained if needed, on request and upon payment of applicable fee.

Students who have not yet completed the programme can obtain an **Interim Transcript**, if needed, on request and upon payment of applicable fee. The Interim Transcript includes failed courses which have not been cleared at the time of issue.

5.11 Display of In-semester Performance

- i. In-semester performance of all students is communicated by the instructor to the students before the end-semester examination. Those awarded "XX" grades as described in 5.7(iv) above will be clearly identified in this list.
- ii. Based on the in-semester performance, the instructor may also decide and publish a cut-off (based on the average performance of the class), below which the in-semester performance is considered 'Unsatisfactory'. This will be the basis on which an instructor may declare a "FR" grade even when a student is absent for the end-semester examination on valid grounds.

5.12 Disclosing the Evaluated Answer scripts after Semester-end Examination.

A course instructor may allow students to see the evaluated answer scripts at his/her discretion, as long as this is done before finalization of grades. The limit fixed for such a disclosure is **three days** before the last date for receiving grades in the Academic Office.

5.13 Answer Script Retention period

Evaluated answer scripts are preserved by the Instructor/ Departmental Office for a minimum period of one semester.

5.14 Re-totaling of marks

Sufficient precaution is taken while evaluation of answer scripts. There is no provision of re-evaluation of evaluated answer scripts. However there is a provision for requesting a re-totaling of marks in the evaluated answer scripts on payment of **Rs.200/-** per course. Such requests will be processed by the Academic Office. **Once grades are published, changes if any will be allowed in case of totaling and tabulation errors only.** A request for re-totaling must be made by the student to Academic Office using the prescribed form, which will be sent to the instructor for further action. Student must not contact the instructor directly.

6. Change of Branch

The Senate of IIT Bombay has approved new rules for change of branch which is effective from the JEE batch of 2011 onwards. Students are eligible to apply for change of Branch /

Programme after completing the first two semesters. The following rules/guidelines will be used for considering applications for change.

1. The eligibility criteria to apply for change of Branch / Programme are
 - (a) completion of the course credits prescribed in the first two semesters, and
 - (b) no backlog at the end of first year of 4-year B.Tech./5-year M.Sc./Dual Degree programmes, and
 - (c) secured a Cumulative Performance Index CPI
 - ≥ 8.0 for General and OBC category students
 - ≥ 7.0 for SC, ST and PD category students
2. Applications from students who satisfy the eligibility criteria are to be considered in the order as given below.
 - All students who satisfy the norms specified in rule 3 are allocated first.
 - Students who satisfy the norms specified in rule 4 are allocated subsequently.
 - Students who satisfy the norms specified in rule 5 are allocated at the end.
3. A student with $CPI \geq 9.0$ will be permitted to change from branch A to branch B, strictly in CPI order, provided the strength in branch B, to which the change is being sought, does not exceed its sanctioned strength by more than 10%. There is no restriction on the strength of branch A (may go well below its sanctioned strength) during the application of this rule. The request of this student will be reconsidered again, strictly in CPI order, if she/he does not violate the not exceeding 10% of sanctioned strength in the branch condition, due to another student getting transferred to branch A.
4. A student will be permitted to change from branch A to branch B, strictly in CPI order, if she/he
 - (a) was eligible for admission to branch B at the time of entry to IIT Bombay, and
 - (b) strength of branch B does not exceed the sanctioned strength by more than 10%, and
 - (c) strength of branch A does not fall below 85% of its sanctioned strength (equivalently at most 15% students of sanctioned strength of a branch are permitted to leave it). The request of this student will be reconsidered again, strictly in CPI order, if she/he does not violate rule 4(b) and 4(c) due to another student getting transferred to branch A.
5. For other students, request for change, strictly in CPI order, from a student from branch A to branch B will be considered if the
 - (a) Strength of branch B does not exceed the sanctioned strength by more than 10%
 - (b) Strength of branch A does not fall below 85% of its sanctioned strength (equivalently at most 15% students of sanctioned strength of a branch are permitted to leave it). The request of this student will be reconsidered again, strictly in CPI order, if she/he does not violate rule 5(b) and 5(c) due to another student getting transferred to branch A.
6. If a student S1 is not permitted to change from branch A to branch B, due to rules 3, 4 or 5, any other student S2 with CPI less than S1 will also not be permitted to change to branch B.
7. (a). The rules 3 to 6 are applicable for all categories with the concession in eligibility criteria mentioned in rule 1 for SC, ST and PD students.
 - (b). Every student has a birth category attribute, which is one of GE, OBC, SC, ST or ST.
 - (c). A vacant seat that is available for allocation is defined to be one of six different types.

The types are i) open, ii) reserved for GE, iii) reserved for OBC, iv) reserved for SC, iv) reserved for ST and vi) reserved for PD.
 - (d). The additional seats in a branch, limited to maximum of 10% of its sanctioned strength, that are made available to students for allocation at the time of change of branch are defined at the start of the allocation process to be of type "open" in nature (do not belong to any category). There may also be a few vacant seats of type "reserved for category X" at this point in time.
 - (e). A vacant open seat in Branch B, when allocated to a student in branch A belonging to birth category X, creates a vacant seat in branch A of type "reserved for category X".
 - (f). A vacant seat of type "reserved seat of category X" is available for re-allocation only to students of birth category X.
8. All branch transfers can be effected only once at the beginning of the second academic year. No application for change of branch during the subsequent academic years will be entertained.
9. Students will be permitted to change from B.Tech. to Dual Degree Programme in the same department at the end of third and fourth semesters subject to the department's recommendation.

7. PERFORMANCE REQUIREMENTS

7.1 Award of degree

On successful completion of the prescribed requirements for a programme (B.Tech.; Integrated M.Sc.; Dual Degree (B.Tech. and M.Tech.)), the required degree will be conferred on a student in an annual convocation of the Institute.

The degree certificate will indicate the relevant branch, and specializations if any, in the engineering or science discipline in which the student has graduated. For example: 'Bachelor of Technology in Civil Engineering,' 'Master of Science in Chemistry,' or 'Bachelor of Technology in Electrical Engineering and Master of Technology in Electrical Engineering with Specialization in Microelectronics.'

In those cases where the student has earned the required credits for an Honors in her/his discipline or a Minor in another discipline within the stipulated time, this will be mentioned in the degree certificate: for example 'Bachelor of Technology in Metallurgical Engineering and Materials Science with Minor in Environmental Sciences and Engineering'; 'Bachelor of Technology in Mechanical Engineering with Honors'; or 'Bachelor of Technology in Chemical Engineering with Honors and Master of Technology in Chemical Engineering with Specialization in Process Systems Design and Engineering.'

Along with the degree certificate, the student will be given a transcript, giving semester-wise details of all academic accomplishments. The additional courses taken, whether earning a minor / honors or not, will be separately mentioned in the transcript. If an honors / minor is earned that will also be mentioned. An overall CPI for all the academic work done by the student will be given.

For conferment of degree, student has to fulfill the following requirements:

- a) The student should have taken and passed all the courses prescribed for the degree under the general institutional and departmental requirements.
- b) The student should have satisfactorily fulfilled other academic requirements like practical training, NSS/NSO/NCC, work

visits, seminar and projects, as specified for the discipline

- c) The student should have paid all the Institute dues.
- d) The student should have no case of indiscipline pending against him/her.

The transcript and the final degree certificate will not mention any class whatsoever; only the CPI/s will be given in the transcript. CPI of 6.5 or above may be considered as a first class.

Honors is not indicative of class.

7.2 Award of Medals

A medal be awarded to a student **only if he/she has completed at least thirty credits beyond** the mandatory course credit requirement in that discipline.

For the **President of India Medal and the Institute Gold Medal**, the total grade points (overall total of Credits multiplied by Grade Points) for that student shall be considered. The student(s) with the highest total grade points and no academic irregularities during the Programme (underloading, failed mandatory courses, and so on) shall be considered for the award of the President of India Medal/ Institute Gold Medal. In case of a tie, the performance of (a) student(s) with a larger number of credits completed, would be deemed to be superior. In case of a tie even then, a performance where an Honours and/ or Minor is completed would be deemed superior.

An **Institute Silver Medal would be awarded in each discipline**, irrespective of the recipient of the President of India Medal. For the Institute Silver Medal, only student(s) who have completed Honours in that discipline and have no academic irregularities during the Programme (underloading, failed mandatory courses, and so on) would be considered. The student(s) in each discipline with the highest CPI, calculated based only on the **mandatory plus honours** credit requirement would be considered for the award of the Institute Silver Medal in that discipline. For Dual Degree students, since completing the Honours requirement is mandatory, the term "CPI, calculated based only on the **mandatory plus honours** credit requirement" be interpreted as "CPI, calculated based only on the **Dual Degree** credit requirement".

7.3 Early termination

Given that some of the best talents in the country take admission at this Institute, it is expected that all of them perform very well, and fully utilize the various opportunities provided for their academic advancement. However, in a few cases, students are unable to cope with the studies here. This may often be due to a lack of aptitude or a mismatch between the student's interest and what the programmes provide. Early recognition of this tendency permits corrective action to be taken in time, and the students to pursue their careers elsewhere. UGAPEC, therefore, will recommend early termination of studentship in the following situations –

1. During the first and Second year

Students having five or more FR and/or XX grades at the end of each semester (after taking into account the grades obtained in the semester – end - re-examination, if applicable)

2. During the Third and subsequent years.

Students are having seven or more FR and/or XX grads, at the end of each semester (after taking into account the grades obtained in the semester – end – re-examination, if applicable)

7.4 Early exit for poorly performing Dual Degree students

Early exits for poorly performing Dual degree students with CPI below 5.0 are permitted at the end of 7th semester, declaring them ineligible for the Master's degree. Such students are required to complete the requirements of the B.Tech degree in the relevant discipline, and allowed to exit with a B.Tech degree after completion of total period of at least four and half years. Such students *cannot* be awarded a B.Tech. degree with honors, and neither can they be permitted to complete a minor.

8. UNDERGRADUATE RESEARCH AWARDS (URA)

Some students may have an inclination towards research. The Undergraduate Research Awards (URA) is designed for such students. URA will be available at three levels, all of them independent of each other. They will carry codes similar to course codes so that they can be listed in grade reports.

URA01 : for preliminary research/ developmental experience

URA02 : for B. Tech. Level Research Project.

URA03 : for Dual Degree Level Research Project

URA01: This is a recognition of a small research/ developmental effort, successfully completed by a student in the first, second or third year of an undergraduate programme – that is, a B.Tech., Integrated M.Sc. or a Dual Degree Programme. A faculty member must agree to supervise the student for the URA01 project. The student works with this faculty member, with the approval of the DUGC, for four-to-six month duration – including the summer or winter vacations. No formal registration is required with the academic office at this stage. If the faculty member is satisfied with the quantum and quality of work done, at any stage, s/he may recommend the award of URA01 to the student, which will then be listed in the grade card of the student in the semester immediately following the semester in which this award was recommended. No credits are assigned to URA01. URA01 can be awarded only once to a student.

URA02: This is to be treated as recognition of truly exceptional work, both in quality and in extent, done in the B.Tech. Project. If the committee evaluating the B. Tech. Project of a B.Tech. student believes that the student has carried out truly exceptional work in the B. Tech. Project and the quantum of work is substantially higher than what is expected, it may recommend that two more faculty members, other than those who already participated in the committee for evaluation, duly chosen by the DUGC, examine the work done and evaluate whether a URA02 can be awarded to the student in addition to the AA grade already given. A joint recommendation must then be made by all: the original committee of evaluation and these two other faculty members that this student be awarded URA02, duly routed through the Convener, DUGC to the Convener, UGAPEC. This award, on approval by the UGAPEC, will be mentioned on the grade report of the student as URA02 carrying six credits and the grade AA. No formal registration is required with the academic office. The advantage to the student would be that his / her CPI would improve, given that these credits are with an AA grade.

URA03: These are to be treated as recognition of truly exceptional work, both in quality and in extent, in the Dual Degree Project. If the committee evaluating the Final Stage of the Dual Degree Project of a given Dual Degree student believes that the student has carried out truly exceptional work and the quantum of work is substantially higher than what is expected, it may recommend that two more faculty members, other than those who already participated in the committee for evaluation, duly chosen by the DUGC, examine the work done and evaluate whether a URA03 can be awarded to the student in addition to the AA grade already given. A joint recommendation must then be made by all: the original committee of evaluation and these two other faculty members that this student be awarded URA03, duly routed through the Convener, DUGC to the Convener, UGAPEC. This award, on approval by the UGAPEC, will be mentioned on the grade report of the student as URA03 carrying six credits and the grade AA. No formal registration is required with the academic office. The advantage to the student would be that his / her CPI would improve, given that these credits are with an AA grade.

9. MISCELLANEOUS

9.1 Helping weaker students

The students with backlogs are required to register manually. This will require them to meet and discuss their performance with the Faculty Advisor. The students with backlogs should continuously seek help from the Faculty Advisor, the student counselor, the student mentors, and the DUGC concerned and keep their parents/guardians informed about their performance. At the end of each semester, the Institute will also send semester grade report of the students / warning letter for poor performance etc. as directed by the UGAPEC (if required) to their parents/guardians by ordinary post. It is expected that the parents/guardians, especially in the case of students with backlogs, stay in constant touch with the Faculty Advisors and if necessary, the student counselor, and keep themselves abreast of their wards' progress.

9.2 Faculty Advisor

On joining the Institute, a student or a group of students is/are assigned to a Faculty Advisor. The 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 / summer terms. The idea of a Faculty Advisor has been evolved to extend guidance to the students enabling them to complete their courses of study for the required degree in a smooth and satisfactory manner. For effective utilization of the opportunities for additional academic accomplishments, planning of the individual's academic journey needs careful consideration, and constant consultation with the Faculty Advisors is imperative. Thus, the role of the Faculty Advisor is of immense importance. **The Faculty Advisor is the person whom the parents/guardians should contact for performance related issues of their ward.**

The role of the Faculty Advisor is outlined below:

1. Guide the students about the rules and regulations governing the courses of study for a particular degree.
2. Advise the students for registering courses as per curriculum given or otherwise within the scope of the rules and regulations set by the Senate from time to time. For this purpose the Faculty Advisor has 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 s/he can register during the semester as per the curriculum.
3. Approve the registration of the students. Student without any backlog will do online registration. Faculty Advisor has to approve the same. For this purpose s/he has been provided online interface. Students having backlog courses has to register manually. Course Registration Form (CRF) of such students is provided to the Faculty Advisor through the Departmental office. The FA has to approve the CRF by signing on it, before the prescribed last date.
4. Advise students to overload / drop one or more courses/activities based on her/his academic performance as per the prescribed rules.
5. At the end of the first semester/year, the Faculty Advisor may even advise a reduced load programme for a poorly performing student. This reduced load programme may spread over several semesters subject to

minimum load for the semester and completion of the degree programme within the prescribed maximum period. Such reduced load programme is to be prepared by the Faculty Advisor in consultation with the Student; her/his parent and recommend the same through the DUGC to the UGAPEC for consideration and approval before the commencement of the semester.

6. Pay special attention to weak students and carefully monitor performance of students recommended for slow track option.
7. Advise students for Course Adjustment / Dropping of courses during the Semester within the stipulated time frame given in the Academic calendar.
8. Advise students seeking semester drop either during the ongoing semester or before the commencement of the semester. FA has to ensure strict compliance of rules and regulations laid down for this purpose. Recommend the cases to the appropriate authorities for consideration.
9. Make revised plan of study for weak/bright students based on their semester-wise performance.
10. Suggest modalities for course/credit requirements for the students recommended for exchange programme.
11. Guidance and liaison with parents of students for their performance.
12. To ensure that students are not permitted to re-register for courses, which they have already passed.
13. Upraise students that any academic activity (course / Lab./ seminar / project / non credit requirement etc) undergone without proper registration will not be counted towards the requirements of his/her degree.
14. Strictly warn students that if s/he fails to register during any semester without prior approval, his/her studentship is liable to be cancelled.
15. Keep the students updated about the Academic Administration of the Institute.

10. Glossary

Senate : The Senate is a statutory and supreme body that governs all academic matters of the Institute.

The rulings of Chairman, Senate is final in regard to all academic matters.

DUGC : Departmental Under-Graduate Committee

UGPC : Under-Graduate Programmes Committee

UGAPEC : Under-Graduate Academic Performance Evaluation Committee

CRF : Course Registration Form

CAF : Course Adjustment Form

FA : Faculty Advisor

Semester : Two semesters in an academic year, approximately of 16 weeks duration each, the first one (Autumn Semester) from the last week of July to last week of November and the second one (Spring Semester) from the first week of January to the last week of April.

Summer Term : Approximately of 8 weeks duration from the first week of May to the first week of July.

Course Credit : Weighted sum of the number of Lecture hours (L), Tutorial hours (T), and Practical hours (P) associated with the course.

Registration : Semester wise enrolment for courses as per the prescribed curriculum.

Semester Credits: Sum of credits of courses registered by the student in a semester.

Credits Earned : Sum of credits earned by passing a course registered during the semester.

Grade : Qualitative assessment of the student's performance in a course indicated by the letters, AP, AA, AB, BB, BC, CC, CD, DD, FR, XX, II, PP or NP Grade. XX or FR indicates that the student has to repeat the course. DR indicates course dropped.

Grade point : Number equivalent of the letter grades given by 10, 9, 8, 7,6, 5, 4, corresponding to AP and AA, AB, BB, BC, CC, CD, and DD respectively. FR, XX carry zero grade points,

PP, and NP do not carry any grade points. It is a place holder, gets converted to an appropriate grade after semester end re-examination. DR is just a position holder.

Instructor : Member of faculty who teaches courses/labs.

Semester Grade Points : The sum of the products of credits and Grade Points for each course registered by a student in a semester.

SPI : Semester Performance Index which is obtained by dividing the Semester Grade Points by the Semester Credits.

Cumulative Credits : Sum of the Semester Credits for all the semesters taken together, wherein the credits of a course is not counted if an alternative course has been taken in lieu of it.

Cumulative Grade Points : Sum of the Semester Grade Points for all the semesters taken together, wherein the credits of a course

is not counted if an alternative course has been taken in lieu of it.

CPI : Cumulative Performance Index which is obtained by dividing the Cumulative Grade Points by the Cumulative Credits.

URA : Undergraduate Research Award.

Minor : A credential earned by a student, optionally, by earning a total of 30 specified credits in addition to the minimum prescribed for the degree, in a focused area different from her/his discipline

Honors : A credential earned by a student optionally by earning a total of 30 specified credits in addition to the minimum prescribed for the degree, in her/his parent discipline

Transcript : Consolidated statement of the Academic Performance of a student for all the semesters completed.

Audit course : Course taken by a student for exposure only and carries no grade points.