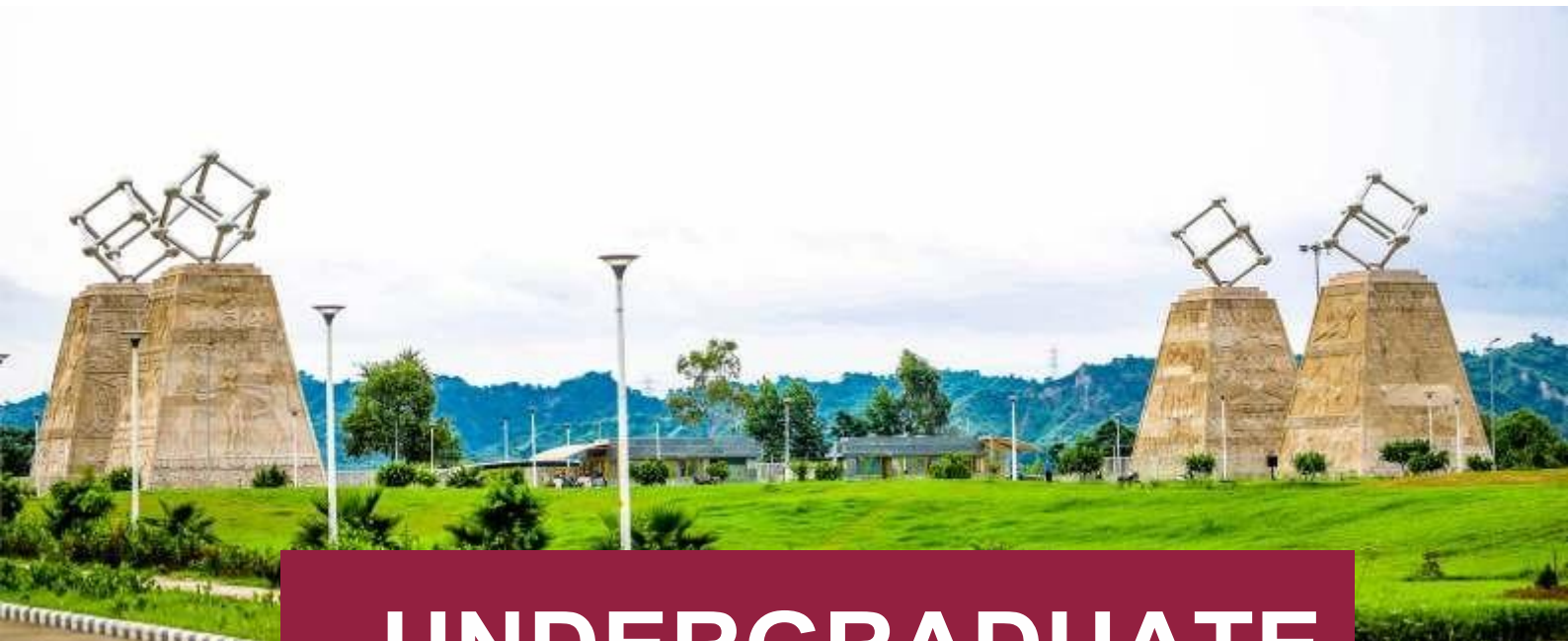# HANDBOOK OF
INFORMATION
2023-24

UNDERGRADUATE PROGRAMME

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HANDBOOK OF INFORMATION

UNDERGRADUATE PROGRAMME
2023-24

INDIAN INSTITUTE OF TECHNOLOGY ROPAR

Rupnagar, Punjab-140001 (INDIA)
www.iitrpr.ac.in

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1 INTRODUCTION

1.1 BACKGROUND

The Indian Institute of Technology Ropar is one of the eight IITs set up by the Government of India, Ministry of Human Resource Development (MHRD) in 2008. In keeping with MoE (erstwhile) the spirit of the IIT system, this institute is committed to provide state-of-the-art technical education in a variety of fields, and also to facilitate transmission of knowledge using the latest developments in pedagogy. The Indian Institute of Technology Ropar started functioning from the academic year 2008-09 from the campus of IIT Delhi, the mentor institute. The foundation stone laying ceremony was held on 24 February 2009. The Indian Institute of Technology Ropar was registered under the Societies' Registration Act 1860 on 29 July 2009 and later on notified under the Institutes of Technology Act, 1961 vide gazette notification no. 59 of 1961. Now, the Institute has been declared as an Institute of national importance. The Institute shifted to its permanent campus and currently operates from its permanent campus. The permanent campus of IIT Ropar is spread across 501 acres of land located in Rupnagar in the lap of nature at the banks of river Satluj. It has been awarded the 5 Star GRIHA (Green Rating for Integrated Habitat Assessment) rating, one of the highest national ratings for Green Buildings.

1.2 DEPARTMENTS

Each course is offered by an academic unit called department. The Departments and their two letter codes are given below. Some courses are offered jointly by multiple academic units and are classified as interdisciplinary courses.

Academic Departments

Sr. No.	Name of Academic Unit (alphabetical order)	Code
1	Biomedical Engineering	BM
2	Chemical Engineering	CH
3	Chemistry	CY
4	Civil Engineering	CE
5	Computer Science and Engineering	CS
6	Electrical Engineering	EE
7	Humanities and Social Sciences	HU
8	Mathematics	MA
9	Mechanical Engineering	ME
10	Metallurgical and Materials Engineering	MM
11	Physics	PH

Centers		
1	Center of Excellence for Studies and Applied Research in Defense and Security	
2	Center for Applied Research and Data Engineering	

1.3 PROGRAMMES OFFERED

IIT Ropar offers a variety of academics programmes for students with a wide range of backgrounds. Admission to these programmes are based on the students' performance in national level test JEE Advanced. For undergraduate programmes, students are admitted after 10+2 schooling. The admission is done through JEE advanced only. For further detail on admission to IIT Ropar, visit www.jeemain.nic.in, www.jeeadv.ac.in. The department and their programmes are listed below.

1.3.1 UNDERGRADUATE PROGRAMMES

Bachelor of Technology (B.Tech.)

Sr. No.	Programme
1	B.Tech. in Artificial Intelligence & Data Engineering (AI&DE)
2	B.Tech. in Chemical Engineering
3	B.Tech. in Civil Engineering
4	B.Tech. in Computer Science and Engineering
5	B.Tech. in Electrical Engineering
6	B.Tech in Engineering Physics
7	B.Tech. in Mathematics and Computing
8	B.Tech. in Mechanical Engineering
9	B.Tech. in Metallurgical and MaterialsEngineering

1.4 STUDENT'S ENTRY NUMBER

The entry number of a student consists of eleven alpha-numerals.

2	0	2	3	C	S	B	1	2	3	4
1	2	3	4	5	6	7	8	9	10	11

Entry Year
(Academic year of Joining)

Unique Identification number for each student.

Programme Code

Fields 5 & 6   Academic Unit Code
Field 7   :   B.Tech.   - B
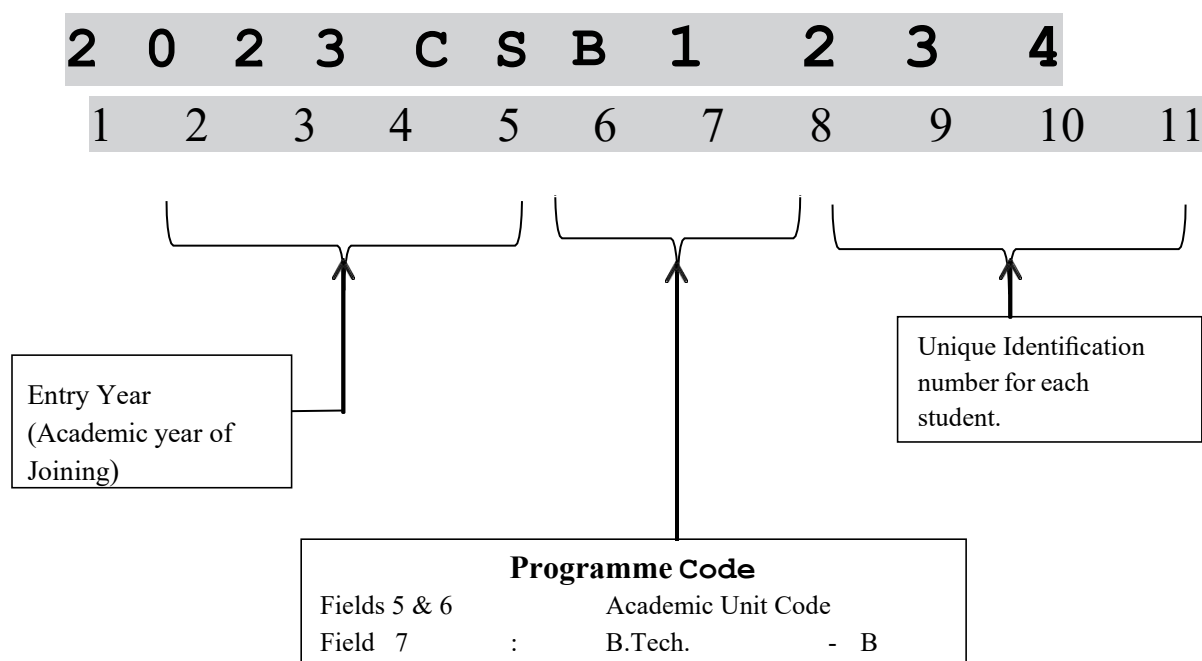
In case of a branch change, the three alphabets (fields 5, 6 and 7) will be changed. However, his /her unique numeric code will remain unchanged. Such students will have two entry numbers, one prior to branch change and one after the change. At any time, though, only one entry number thatcorresponds to the student's present status will be in use.

2. ACADEMIC SYSTEM

The overall academic system of IIT Ropar has been designed to provide a science-based engineering education with a view to produce quality engineer-scientists. The curriculum provides broad-based knowledge and simultaneously builds a temper for life-long learning and exploring. The undergraduate programme begins with a set of science and general engineering courses which are reflected in the course plan for the first year. These courses provide a foundation for further discipline-specific courses. The medium of instruction at IIT Ropar is English.

The current Academic year begins on July 2023 and expected to end on Dec, 2023. The detailedschedule of the activities and academic deadlines is given in the semester schedule and is availableon website link: https://www.iitrpr.ac.in/academic.

2.1 CREDIT SYSTEM

Education at the Institute is organized around the semester-based credit system of study. The prominent feature of credit system is a process of continuous evaluation of a student's performance/progress and the flexibility to allow a student to progress at an optimum pace suited to his/her ability or convenience. This feature is subject to the fulfillment of the minimum requirement for continuation. A student's performance/progress is measured by the number of credits that he/she has earned, i.e. completed with a pass grade. Based on the course credits and grade obtained by the student, the gradepoint average is calculated. A minimum grade point average is required to be maintained for satisfactory progress and continuation in the programme.

Each programme has a maximum credit requirement and a pattern of credit distribution over c ourses of different categories. Details are given below.

2.1.1 COURSE CREDITS ASSIGNMENT

Each course, except a few special courses, has a certain number of credits assigned to it depending upon its lecture, tutorial, practical and total preparation hours by the students (L-T-P-S-C) in a week. Weightage also indicates the academic expectation that includes in-class contact and self-study beyond class hours. A few courses are without credit and are referred to as non-credit (NC) courses.
L = No. of lecture 'hours' (actually 50 min.) per week,
T = No. of tutorial 'hours' = $L/3$, by default.
P = No. of laboratory 'hours'.
S = Total preparation 'hours' by students including assignments and self-study, $S = 2L + P/2 - T$. C = Total credit-terms, $C = L + P/2$.

2.1.2 EARNING CREDITS

At the end of every course, a letter grade is awarded in each course for which a student had registered. On obtaining a pass grade, the student accumulates the course credits as earned credits. A student's performance is measured by the number of credits that he/she has earned and by the weighted grade point average.

2.1.3 COURSE COORDINATOR

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

2.1.4 GRADING SYSTEM

The grading reflects a student's own proficiency in the course. While the relative standing of the student is clearly indicated by his/her grades, the process of awarding grades is not necessarily based upon some statistical distribution of performance of the whole class. The course coordinator and the associated faculty for a course formulate appropriate procedures to award grades that are reflective of the student's performance vis-a-vis the instructor's expectation.

The credit system enables continuous evaluation of a student's performance, and allows the student to progress at an optimum pace suited to individual ability and convenience. This is subject to the fulfilling of the minimum requirements for continuation.

The grades and their description, along with equivalent numerical points wherever applicable are listed below:

Grades with their description

Grade	Grade Points	Description
A	10	Outstanding
A (-)	9	Excellent
B	8	Very good
B (-)	7	Good
C	6	Average
C (-)	5	Below average
D	4	Marginal
E	2	Poor
F	0	Very poor
NP	-	Audit Pass
NF	-	Audit Fail
I	-	Incomplete
W	-	Withdrawal
S	-	Satisfactory
U	-	Unsatisfactory

2.1.5 DESCRIPTION OF GRADES

A grade
The 'A' grade stands for outstanding achievement. The minimum percentage for the award of an 'A' grade is 80%. However, individual course coordinators may set a higher performance requirement.

B grade
The 'B' grade refers to very good/good performance.

C grade
The 'C' grade stands for average performance. This average performance refers to "average" as per instructor's expectations in a holistic sense and not on the average marks.

D grade
The 'D' grade stands for marginal performance, i.e., it is the minimum pass grade in any course. The minimum percentage for the award of 'D' grade is 30%, however, individual course coordinators may set a higher marks requirement.

E and F grades
The 'E' and 'F' grades denote poor and very poor performance, and indicate failing a course. An 'F' grade is also awarded in case of poor attendance (see Attendance Rules). A student has to repeat all the core courses in which he/she obtains either an 'E' or an 'F' grade, until a pass grade is obtained. In case of the elective courses in which either an 'E' or an 'F' grade has been obtained the student may take the same course or any other course from the same category. An 'E' grade in a course makes a student eligible to repeat the course in the summer semester, if the course is offered. Further, 'E' and 'F' grades secured in any course stay permanently on the grade card. These grades are not counted in the calculation of the CGPA; however, these are counted in the calculation of the SGPA.

NP and NF grades
The 'NP' Grade denotes completion of the Audit course. The NF grade denotes Audit fail. These grades are awarded in a course that the student opts to audit. Only an elective course can be audited until one week after the mid semester examination. The Audit Pass (NP) is awarded if the student's attendance is above 75% in the class and he/she has obtained at least a 'D' grade. The Course Coordinator can specify a higher criterion for audit pass at the beginning of the semester. If either of these requirements is not fulfilled, an audit fail (NF) is awarded. The grades obtained in an audit course are not considered for the calculation of SGPA or CGPA.

I grade

The 'I' grade denotes incomplete performance in any L (lecture), P (practical), V (special module) category courses. It may be awarded in case of absence on medical grounds or other special circumstances, before or during the major examination period. The student should complete all requirements within:

(i) 10 days of the last date of the Major Tests; the request is to be made to the Head of the Department of the student's programme who will notify the same to the concerned course coordinators, OR

(ii) With the permission of the Dean (Academics) the period can be extended to the first week of the next semester. Upon completion of all course requirements, the 'I' grade is converted to a regular grade (A to F, NP or NF). The 'I' grade does not appear permanently in the grade card. Requests for an I-grade should be made at the earliest but not later than the last day of the major tests.

For (ii), the request is to be made to the Dean (Academics). A student may be considered for the award of an 'I' grade in a course only if the attendance in the course is 75%.

Attendance in the course for which an I-grade is being sought will be certified by the course coordinator of the course.

W grade

The 'W' grade is awarded in a course where the student has opted to withdraw from the course. Withdrawal from a course is permitted until one week after the Mid Semester Examination. The W grade stays on the grade card.

S grade: The 'S' grade denotes satisfactory performance and completions a course.

U grade: The 'U' grade denotes unsatisfactory performance in a course.

2.1.6 EVALUATION OF PERFORMANCE

The performance of a student will be evaluated in terms of two indices, viz. the Semester Grade Point Average (SGPA) which is the Grade Point Average for a semester, and Cumulative Grade Point Average (CGPA) which is the Grade Point Average for all the completed semesters at any point of time.

The Earned Credits (E.C.) are defined as the sum of course credits of courses in which students have been awarded grades between A to D; for UG students, credits from courses in which an NP grade has been obtained are also added.

Points earned in a course = (Course credits × Grade Point) for courses in which A– F grade has been obtained. The SGPA is calculated on the basis of grades obtained in all courses registered in the particular semester, except the audit courses in which an NP/NF grade has been awarded.

$$SGPA = \frac{\text{Points secured in the semester}}{\text{Credits registered in the semester, excluding audit grade courses}}$$

The CGPA is calculated on the basis of all pass grades, except the courses in which NP/NF grade has been awarded, obtained in all completed semesters.

$$CGPA = \frac{\text{Cumulative points secured in all passed courses (A-D)}}{\text{Cumulative earned credits, excluding audit grade courses}}$$

Course no.	Course credits	Grade awarded	Earned credits	Grade Points	Points secured
(column 1)	(column 2)	(column 3)	(column 4)	(column 5)	(column 6)
MAXXX	5	C	5	6	30
CSXXX	4	C(-)	4	5	20
PHXXX	4	A	4	10	40
PHXXX	2	B	2	8	16

MEXXX	4	E	0	2	08
CEXXX	2	NP	2	–	–

An example of these calculations is given below:

Typical academic performance calculations-I semester

Credits registered in the semester (total of column 2)   =21
Credits registered in the semester excluding audit grade course   =19
Earned credits in the semester (total of column 4)   =17
Earned credits in the semester excluding audit grade courses   =15
Points secured in this semester (total of column 6)   =114
Points secured in this semester in all passed courses
(Total of column 6 & A–D grade)   =106

$$\text{SGPA} = \frac{\text{Points secured in the semester}}{\text{Credits registered in the semester, excluding audit grade course}} = \frac{114}{19} = 6.000$$

$$\text{CGPA} = \frac{\text{Cumulative points secured in all passed courses (A-D)}}{\text{Cumulative earned credits, excluding audit grade courses}} = \frac{106}{15} = 7.067$$

Semester performance: Earned credits (E.C.)= 17   SGPA = 6.000
Cumulative Performance: Earned credits (E.C.)= 17   CGPA = 7.067

Typical academic performance calculations-II semester

Course no.	Course credits	Grade awarded	Earned credits	Grade Points	Points secured
(column 1)	(column 2)	(column 3)	(column 4)	(column 5)	(column 6)
MAXXX	5	B	5	8	40
EEXXX	4	A(-)	4	9	36
CYXXX	4	W	—	—	—
CYXXX	2	B(-)	2	7	14
MEXXX	4	C	4	6	24
CHXXX	4	A	4	10	40
HUXXX	1	NP	1	—	—

Credits registered in the semester (total of column 2)   = 24
Credits registered in the semester excluding audit grade courses   = 23
Earned credits in the semester (total of column 4)   = 20
Earned credits in the semester excluding audit grade courses   = 19
Points secured in this semester (total of column 6)   = 154
Points secured in this semester in all passed courses
(Total of column 6 & A-D grade)   = 154
Cumulative points earned in all
passed courses = 106 (past semesters) + 154 (this semester)   = 26

$$\text{CGPA} = \frac{\text{Cumulative points secured in all passed courses (A-D)}}{\text{Cumulative earned credits, excluding audit grade courses}} = \frac{106+154}{15+19} = 7.647$$

Cumulative earned credits =17 (past semesters) + 20 (this semester)   = 37

Semester performance: Earned credits (E.C.)= 20   SGPA = 8.105
Cumulative Performance: Earned credits (E.C.)= 37   CGPA = 7.647

2.1.7 COURSE NUMBERING SCHEME

Every course runs for the full length of the semester. At the beginning of the semester, a student registers for the courses that he/she wants to study and at the end of the semester a grade is awarded. On obtaining a pass grade, the student earns all the credits associated with the course while a fail grade does not get any credit; partial credits are not awarded. Each course is associated with a certain number of credits.

(a) Level of the course

The first digit of the numeric part of the course code indicates the level of the course as determined by the prerequisite course and/or by the maturity required for registering for the course.

2.2 REGISTRATION AND ATTENDANCE

2.2.1 REGISTRATION

Registration is a very important procedural part of the academic system. The registration procedure ensures that the student's name is on the roll list of each course that he/she wants to study. No credit is given if the student attends a course for which he/she has not registered. Registration for courses to be taken in a particular semester will be done according to a specified schedule before the end of the previous semester. The student is required to pay his/her dues before the beginning of the semester through SB Collect. Students who do not make payments by a stipulated date will not be registered for the particular semester. In absentia registration or registration after the specified date will be allowed only in rare cases at the discretion of the Dean (Academics). In case of illness or absence during registration, the student should intimate the same to his/her course advisor and Dean (Academics). A student must meet his/her advisor within the first week of the new semester for the confirmation of his/her registration. The registration record should be preserved until the semester grade card is received.

Various activities related to registration are listed below. The relevant dates are included in the Semester Schedule that is available before the start of the semester.

2.2.2 REGISTRATION AND STUDENT STATUS

Registration by a student confirms his/her status as a student at the Institute. Failure to register before the last date for late registration will imply that the student has discontinued studies and his/her name will be struck-off the rolls.
Every registered student is considered as a full-time student at the institute. He/She is expected to be present in the Institute and devote full time to academics.

2.2.3 ADVICE ON COURSES

At the time of registration, each student must consult his/her faculty advisor/programme coordinator to finalize the academic programme keeping in view factors, such as, minimum/maximum numbers of total and lecture credits, past performance, backlog of courses, SGPA/CGPA, pre-requisite, work load and student's interests, amongst others. Special Provisions exist for academically weak students.

2.2.4 REGISTRATION VALIDATION

Before the first day of classes, every student is required to be present on campus and validate his/her registration online.. The updated registration record will be available on the website and the hard copy will be available with the student's advisor. Students who do not do registration validation will not be permitted to add/drop courses.

2.2.5 LATE REGISTRATION

Late registration is permitted under the following conditions:
(a) A student, who was not on campus during the period of registration in the previous semester, needs to complete the registration process on or before the first day of the semester before the commencement of classes.

or

(b) For reasons beyond his/her control, if a student is not able to register or send an authorized representative with a medical certificate, he/she may intimate prior through email to academics@iitrpr.ac.in. He/She is required to apply to the Dean (Academics) for late registration. Dean (Academics) will consider and may approve late registration in genuine cases on payment of an extra fee called late registration fee. Late registration is permitted until one week after the start of the semester.

2.2.5.1 LATE REGISTRATION FINE

(Assuming Registration day on 0th day)
(i) Late registration fees from 1st to 2nd day after registration date: Rs. 1000/-
(ii) Late registration fees from 3rd day to Last day of Late Registration Date: Rs. 2000/-
(iii) Late registration fees after Last Day of Late Registration: Rs. 5000/-
(iv) If late registration is due to medical reasons, the students are required to submit medical certificate duly mentioning the rest needed for recovery, and need to provide fitness certificate. The late registration fine may be waived off on case-to-case basis, in genuine medical cases only.
(v) The students who fail to submit the late registration fee by the stipulated date will not be allowed to sit in the mid-semester/end semester examination.

Please see academic calendar for AY 2023-24 on Institute website for dates of registration.

2.2.6 ADD, DROP, AUDIT AND WITHDRAWAL FROM COURSES

a. Add/Drop: A student has the option to add a course (s) that he/she has not registered for, or drop a course (s) for which he/she has already registered for. This facility is restricted to the first week of the semester.
b. Audit: A student may apply for changing a credit course to an audit one within one week of the end of the mid semester examination. Audit is not allowed in any 1st year course and also for any core course. The credit of the courses which are audited will not be counted in the final degree requirements.
c. Withdrawal: A student who wants to withdraw from a course should apply within one week of the end of the mid semester examination. A withdrawal grade (W) will be awarded in such cases.

2.2.7 SEMESTER WITHDRAWAL

If a student is absent for more than 20 teaching days in a semester on medical grounds, he/she may apply for withdrawal for that semester, i.e., withdrawal from all courses registered in that semester. Application for semester withdrawal must be made alongwith medical certificate from an authorized doctor not below the rank of MBBS as early as possible at least before the start of the major tests. Partial withdrawal from the courses registered in a semester is not allowed. However, in case of un-authorized absence of 20 days in total during the semester, the student would be deemed to have withdrawn the semester. Semester fee in such cases will not be refunded or adjusted.

2.2.8 REGISTRATION AND FEES PAYMENT

Every registered student must pay the stipulated fees in full before the specified deadlines. In the event, a student does not make these payments, he/she will not be registered from all courses and his/her name will be struck-off from the roll list.

2.2.9 REGISTRATION RECORD

In addition to web-based entries related to registration, the student should ensure that the same are entered on the Registration Record. Queries related to registration will be considered only when accompanied by the original Registration Record. This record must be preserved until the semester grade card is received by the student.

2.2.10 CONTINUOUS ABSENCE AND REGISTRATION STATUS

If a student is absent from the Institute for more than four weeks without notifying the Head of the Department or the Dean (Academics), his/her registration will be terminated and the name will be removed from the Institute rolls.

2.2.11 ATTENDANCE RULES

All students must attend every lecture, tutorial and practical class. However, to account for late registration, sickness or other such contingencies, the attendance requirement will be a minimum of 75% of the classes actually held. If a student has less than 75% attendance in a course during the semester, in lectures, tutorials and practical taken together (as applicable), the course coordinator may award an 'F' grade in that course irrespective of his/her performance in the tests. For the purpose of attendance calculation, every scheduled lecture, tutorial or practical class will count as one unit irrespective of the number of contact hours. Attendance record will be maintained based upon roll calls (or any equivalent operation) in every scheduled lecture, tutorial and practical class. The course coordinator will maintain and consolidate attendance record for the course (lectures, tutorials and practical's together, as applicable). Students are required to attend lectures, laboratories, workshops, etc., and not to absent themselves without adequate reasons and prior permission. Applications for leave of absence are to be made in writing to the Head of the Department through the Faculty Advisor .Any type of absence for more than 10 days should be notified to the Academic Section immediately.

2.2.12 AIMS (ACADEMIC INFORMATION MANAGEMENT SYSTEM)

The name and other details of a new student is entered in the AIMS Portal. All the process regarding registration of courses, Add / Drop, Audit / Withdrawal etc. are required to be done on the Academic Information Management System (AIMS) portal. The information related to courses, credits & grades etc all is available on the AIMS portal. A student must check AIMS portal from time to time for various academic activities. The student can login to AIMS portal through the Institute email ID provided to them. The link of AIMS portal is https://www.iitrpr.ac.in/aims/. Unauthorized accessing the records of other students leads to locking of the login ID and penalty may be imposed.

2.3 RULES AND REGULATIONS

2.3.1 ABSENCE DURING THE SEMESTER

(a) A student must inform the Dean (Academics) immediately of any instance of continuous absence from classes.

(b) A student who is absent due to illness or any other emergency, up to a maximum of two weeks, should approach the course coordinator for make-up quizzes, assignments and laboratory work.

(c) A student who has been absent from mid semester examination due to illness should approach the course coordinator for a make-up test immediately on return to class. The request should be supported with a medical certificate from institute's medical officer. A certificate from a registered medical practitioner will also be acceptable for a student normally residing off-campus provided registration number of the medical practitioner appears explicitly on the certificate.

(d)   In case of absence on medical grounds or other special circumstances, before or during the major examination period, the student can apply for I-grade. 75% attendance in a course is necessary for being eligible for an I-grade in that course. An application requesting I-grade should be made at the earliest but not later than the last day of major tests. The application should be made to the Head of the Department of the student's programme who will grant approval depending on the merit of the case and inform the course coordinators and UG section. The student should complete all the course requirements within ten days from the last day of the Major Tests. The I-grade will then be converted to a proper grade (A to F, NP or NF).

(e)   In special situations arising due to the inability to be present at the institute during the stipulated period, in (d) above, the period for conversion of I grade can be extended to the first week of the next semester. Approval for this extension can be granted by the Dean (Academics) on recommendations of the concerned Head of the Department and the course coordinators. A request to this effect must be included in the application for I-grade.

(f)   If a student is absent for more than 20 teaching days in a semester on medical grounds, he/she may apply for withdrawal for that semester, i.e., withdrawal from all courses registered in that semester. Application for semester withdrawal must be made alongwith medical certificate from an authorized doctor not below the rank of MBBS as early as possible at least before the start of the major tests. Partial withdrawal from the courses registered in a semester is not allowed. However, in case of un-authorized absent of 20 days in total during the semester, the student would be deem to have withdrawn the semester. Semester fee in such cases would not be refunded or adjusted.

(g)   If a student is continuously absent from the institute for more than four weeks without notifying the Dean (Academics), his/her name will be removed from institute rolls.

2.3.2 BRANCH CHANGE AT THE END OF FIRST YEAR

A. A student is eligible to apply for change of branch at the end of first year only, provided he/she satisfies the following criteria:-

i. CGPA for GE/OBC category student :- 7.50 or greater

ii. CGPA for SC/ST/PD category student :- 6.50 or greater

iii. Earned credits at the end of first academic session are 36 credits or more.

B. Change of the branch will be permitted strictly in the order of merit , in each category as determined by CGPA at the end of the first year, subject to the limitation that

i. the actual number of students in the third semester in the discipline to which the transfer is to be made should not exceed its sanctioned strength by more than 10%, and

ii. the strength of the branch from which transfer is being sought does not fall below 85% of its sanctioned strength.

A minimum of two (2) students will, however, be eligible for consideration for change of branch from each discipline, irrespective of the regulation B(ii).

In case of tie in CGPA, the CGPA will be compared up to 3rd decimal place and if the tie still persists, all the students, with the same CGPA, would be allowed to change the branch even, if it violates the upper/ lower limits of 10% and 85% respectively.

C. The condition mentioned in item A (i) - (iii) above will not be insisted upon for a change to a branch in which a vacancy exists with the reference to the sanctioned strength and the concerned student was eligible as per JEE Rank for admission to that branch at the time of entry to IIT Ropar. However, these conditions will continue to apply in the case of students seeking change to a branch to which the concerned student was not eligible for admission at the time of entry to IIT Ropar.

D. At least Two (2) students will be allowed to be eligible for branch change from the existing branch even if the strength goes below 85% of the sanctioned strength subject to fulfilling the eligibility criteria as mentioned in 2.3.2(a). Change of branch will be permitted strictly in the order of merit, in each category as determined by CGPA at the end of the first year.

For Branch change reservation in seats is applicable as per Government of India norms.

2.3.3 MEASURES FOR HELPING SC/ST STUDENTS

A number of measures exist for helping students belonging to SC and ST categories. A senior faculty member is appointed as advisor to SC/ST students for advising them on academic and non- academic matters. Financial measures for helping SC and ST students are also available

2.4 CURRICULUM AND STRUCTURE OF THE BACHELOR OF TECHNOLOGY PROGRAMMES

2.4.1 PROGRAMME AND CREDIT STRUCTURE

There are four options for 4-Year UG Program as given below

S.No.	Options for 4 year UG program	Total credit required to complete the course	Remarks
1	"**B.Tech.**" in an engineering major discipline.	145 Credits	
2	**B.Tech. with Minor**"(minor in any other discipline than the major discipline)	160 Credits	145 Credit B.Tech. +15 Credit Minor Coursework
3	"**B.Tech. with Concentration**" (concentration areas will be within the major discipline).	160 Credits	145 credit B.Tech.+15 Credit concentration Coursework
4	"**B.Tech. with Honors**".	170 Credits	145 Credit B.Tech. +15 Credit Coursework + 10 Credit Honors Project. An honors student can opt for minor/ concentration courses as part of the 15 credit coursework requirement of honors.
5	**B.Tech. with "Additional Internship"**	160 Credits	145 Credits B.Tech. + 15 credits "Additional Internship".

2.4.2 CREDIT STRUCTURE OF THE BASIC B. TECH. PROGRAMME

Category	Credits Requirements	Remarks
Science Requirement Core (SR)	24	
Science Electives (SE)	6	
General Engineering Requirement (GR)	23.5	16 credits as GE core for each
Programme Core (PC)	36 to 42	Total 48 credits (PC+PE)

Programme Elective (PE)	6 to 12	
Humanities and Social Sciences (HS) core	15 (min)	
Humanities and Social Sciences (HS) Electives	6	
Capstone Projects · Development Engineering Project. · Capstone Project I · Capstone Project II	Total 9 credits 3 3 3	
Industrial Internship and Comprehensive Viva	3.5	
Extra-curricular NCC/NSO/NSS	4 credits	
Open Electives · Open Electives I · Open Electives II	6 (Total) 3 3	
Graduation Requirements (GR)	**145**	

2.4.3 OVERALL CREDIT STRUCTURE FOR ALL THE FOUR OPTIONS GIVEN IN 2.5.1

Total Credits	Basic B.Tech. (145)	B.Tech. with Concentration (160)	B.Tech. with Minor (160)
Maths + Science	30	30	30
Humanities & Social Sciences	21	21	21
General Engineering	23.5	23.5	23.5
Program Core + Electives	48	63	48
BTP + DE Capstone Projects	9	9	9
Internship + Comp. Viva	3.5	3.5	3.5
Open Electives	6	6	21
Extra-Curricular	4	4	4
Total	145	160	160
Honors Add-On		**10**	**10**

2.4.4 CREDIT LIMITS

The following credit limits may be adopted:
(i) B.Tech.: 24 Credits per semester
(ii) B.Tech. with Minor : 24 credits per semester
(iii) B.Tech. with Minor, Concentration, Honors, Additional Internship : 24 Credits per semester
(iv) The maximum credit limit for all regular semesters is 24 credits for 2nd year to final year students with CGPA of 7.00.
(v) The minimum credit requirement per semester is 12 credits.
(vi) Along with the CGPA criterion, the students will be eligible for the 24 credit limit in the third semester only if the earned credit is 36.5 i.e. there is no backlog after the first year.

2.4.5 CGPA REQUIREMENT FOR MINOR, CONCENTRATION, HONORS, ADDITIONAL INTERNSHIP

The minimum CGPA for opting for Minor, Concentration, Honors, additional internship and 6-Month internship program is as follows. It is needed to be maintained the required CGPA in order to remain enrolled to the Minor, Concentration, Honors, Additional Internship.
i)   Minor Programme : 7.00 CGPA
ii)   Concentration Programme: 7.00 CGPA
iii) Additional Internship: 6.00 CGPA
iv)   Honours: 7.50 CGPA

2.4.6 MINIMUM CGPA FOR AWARD OF B. TECH. DEGREE

The minimum CGPA for award of the B. Tech. degree is 5.0

2.4.7 SPECIAL REQUIREMENTS

Communication Skills

Every student will be required to make presentations in various courses and if the Department so feels, the student can be asked to take a regular course on this aspect for credit.

2.5 PERFORMANCE REQUIREMENTS AND MONITORING

2.5.1 MAXIMUM PERIOD FOR COMPLETING DEGREE REQUIREMENTS

The maximum permitted duration of each programme is determined in terms of number of registered regular semesters, herein after called registered semesters. Any semester in which a student has registered for a course will be called registered semester subject to the following:
(a)   Only the first and second semesters of an academic year can be registered semesters. The summer semester will not be considered as a registered semester.
(b)   A semester when a student has been granted withdrawal or granted leave will not be considered as a registered semester.
(c)   The semester when a student is suspended from the Institute on disciplinary grounds will not be counted towards the number of registered semesters.
       The summer semesters falling in between the permitted registered semesters shall be available for earning credits. After the student has registered for the maximum permissible number of registered semesters, the subsequent summer semesters will not be available for earning credits. The maximum permissible number of registered semesters for completing all degree requirements for the B. Tech. degree is twelve (12). If a student opts for the slow-paced programme (as defined later), then the maximum permissible number of registered semesters shall be increased by two semesters.
(d)   A student who is not able to complete the CGPA requirement of 5.00 for the award of degree, after the stipulated maximum period of 6 years, can be offered to improve the courses / project(s) where he/she has secured a "D" grade to arrive at the CGPA of 5.00 for the award of degree to him/her.

2.5.2 CONDITIONS FOR TERMINATION OF REGISTRATION, PROBATION AND WARNING

If the performance at the end of first two registered semesters is very poor, then registration will be terminated. If the performance is poor but not very poor, then the student will be given an option to start afresh. Rules for re-start/termination are given below.
a)   Student will be given a chance to re-start after the first two registered semesters if his/her total number of earned credits is less than or equal to 17 at the end of the second semester.
b)   If a student re-starts after the first two registered semesters, then his/her credits earned and semesters registered will not be carried over. The re-start will be indicated on the transcript. The re-start will be permitted only once. If at the end of first academic year after re-start, the earned credits are less than or equal to 17 then the registration will be terminated.

c) Each student is expected to earn at least 9 credits in the first registered semester and 10.5 credits in each subsequent registered semester with an SGPA greater than or equal to 5.0. If the performance of a student at the end of the any registered semester is below this minimum acceptable level, then he/she will be placed on probation and a warning shall be given to him/her and intimation sent to the parents also.

d) The student placed on probation shall be monitored, including mandatory attendance in classes, special tutorials and mentoring.

e) If the performance of a student on probation does not meet the above criterion (c) in the following registered semester, then the student will be permitted to register only if the department makes a favorable recommendation. The Head of the Department's recommendation shall be prepared after consultation with the student, and will include (i) feasibility of completing the degree requirements, and (ii) identification or remedial measures for the problems leading to poor performance.

f) The registration of any student is limited to 1.25 times the average earned credits of the previous two semesters, subject to a minimum of 8 credits and a maximum of 19.5 credits.

2.5.3 SLOW-PACED PROGRAMME

A student who has earned between 18 and 27 credits at the end of the first academic year will be eligible to opt for the slow-paced programme. A student opting for such a programme shall be permitted two additional registered semesters for completing degree requirements.

In the slow paced programme, the upper limit for credits registered in a semester will be 12.5. A student in this programme is expected to earn at least 8 credits with minimum SGPA 5.0 in any semester, failing which he/she will be issued a warning and placed on probation.

(a) The student placed on probation shall be regularly monitored. Ensuring mandatory attendance in classes, engaging special tutorials and mentoring will be some of the ways of monitoring.

(b) If the performance of a student on probation does not meet the above criterion in the following registered semester, then the student should be permitted to register only if the department makes a favorable recommendation. The Head of the Department's recommendation shall be prepared after consultation with the student, and should include (i) feasibility of completing the programme, and (ii) identification of remedial measures for the problems leading to poor performance.

Such slow-paced programmes will be defined by the respective department for each student.

2.6 SELECTION OF COURSES FOR THE BASIC B.TECH. IN CIVIL ENGINEERING / CHEMICAL ENGINEERING / COMPUTER SCIENCE & ENGINEERING / ELECTRICAL ENGINEERING/ENGINEERING PHYSICS / MATHEMATICS & COMPUTING / MECHANICAL ENGINEERING & METALLURGICAL AND MATERIALS ENGINEERING .

Sr.No.	Courses	Detail of Courses/Credits
1.	HS Core (15 Credits)	• HS101 History of Technology (1.5) • HS103 Professional English CommunicationOR HS102 English Language Skills (3) • HS201 Economics (3) • HS301 Industrial Management (3) • HS104 Professional Ethics (1.5) • HS202 Human Geography and Societal Needs (3)
2.	HS Electives (6 Credits)	• HS Elective I (3)* • HS Elective II (3)* *An English Language/Literature elective coursein either 7th or 8th semester is required for the students who had "HS102 English Language Skills" in 1st Semester
3.	Sciences Core (24 Credits)	• PH101 Physics for Engineers (3)

		• PH102 Physics for Engineers Lab (2) • CY101 Chemistry for Engineers (4) • MA101 Calculus (3) • MA102 Linear Algebra, Integral Transformsand Special Functions (3) • BM101 Biology for Engineers (3) • Program-Specific Science-Maths I (3) (viz. MA201"Differential Equations" for all departments) • Program-Specific Science-Maths II (3) (viz. MA202 "Probability and Statistics" by CSE, ME,CE and MA203 ; "Probability and Stochastic Processes" by EE; a chemistry course CY230 "Introduction to Organic Chemistry and Biochemistry" by CH)
4.	Sciences Electives (SE) (6 Credits) (The elective courses offered by the Department of Mathematics, Chemistry, Bio-medical and Physics will be counted in SE Category).	• Science - Maths Elective I (3) • Science Maths Elective II (3)

Sr.No.	Courses	Detail of Courses/Credits
5.	General Engineering(23.5 Credits)	• GE101 Technology Museum Lab (1) • GE102 Workshop Practice (2) • GE103 Introduction to Computer Programming & Data Structure (4.5) • GE104 Introduction to Electrical Eng (3) • GE105 Engineering Drawing (1.5) • GE109 Introduction to Engineering Products (1) • GE107 Tinkering Lab (1.5) • GE108 Basic Electronics (3) • Introduction to Environmental Science & Engineering (3) • Program-Specific General Engineering (3)* *The following Program - Specific General Engineering courses by the departments: GE201 "Introduction to Materials Science & Engineering" for ME & CH, GE106 "Materials Science for Electrical and Electronics Engineers" for EE, GE203 "Materials Science for Civil Engineers" for CE, and EE201 "Signals and Systems" for CSE
6.	Program Core and Electives (total 48 Credits)	• Program Core (36 to 42 Credits) • Program Electives [PE] (6 to 12 Credits) (The elective courses offered by the respective Departments will be counted as PE Category).
7.	Capstone Projects(9 Credits)	• Development Engineering Project (3) • Capstone Project I (3) • Capstone Project II (3)
8.	Industrial Internship and Comprehensive Viva (3.5 Credits)	• Industrial Internship and Comprehensive Viva Voce (3.5)

9.	Extra-Curricular (4 Credits)	• NC101 NCC I OR NO101 NSO I ORNS101 NSS I (1) • NC102 NCC II OR NO102 NSO II ORNS102 NSS II (1) • NCC III OR NSO III ORNSS III (1) • NCC IV ORNSO IV OR NSS IV (1)
10.	Open Electives (6 Credits)	• Open Elective I (3) • Open Elective II (3)
11.	Extra-Curricular (4 Credits)	Will be notified soon

2.7 SEQUENCE OF THE COURSES FOR ALL THE BASIC B.TECH. PROGRAMME:

Most of the common core courses are planned to be run in both the semesters of the year, so that half of the students (half of the entire batch) study a course in one semester and the rest half in the other .

Semester 1

Plan A (about 50% students)	Plan B (rest 50% students)
MA101 Calculus (3) [3-1-0-53]	
HS103 Professional English Communication (3) [2-2/3-2-13/3-3] **OR** HS102 English Language Skills (3) [2 -2/3-2-13/3-3] instead, for students weak in English	
NC101 NCC I (1) [0 -0-2-11]- (NS101NSS I / NO101 NSO I only when NCC 1 not feasible for the student)	
PH101 Physics for Engineers (3) [3-1-0-5-3] PH102 Physics for Engineers Lab (2) [0-0-4-2-2]	CY101 Chemistry for Engineers (4) [3 -1-2-6-4]
GE104 Introduction to Electrical Engineering (3) [2-2/3-2-13/3-3]	GE103 Introduction to Computer Programming & Data Structure (4.5) [3-0-3-15/2-4.5]
GE102 Workshop Practice (2) [0-0-4-2-2]	GE105 Engineering Drawing (1.5) [0-0-3-3/2-1.5]
HS101 History of Technology (1.5) [3/2-1/2-0-5/2-1.5]	GE 101 Technology Museum Lab (1) [0-0-2-1-1]
Total Credits 18.5/18	

Semester 2

Plan A (for those having Plan B in Sem 1)	Plan B (for those having Plan A in Sem 1)
MA102 Linear Algebra, Integral Transforms and Special Functions (3) [3-1-0-5-3]	
Program Core (3) (viz. ME101 "Engineering Mechanics" [3-1-0-5-3] for ME and CE, CH 101 "Introduction to Chemical Engineering" [3-1-0-5-3] for CH, CS101 "Discrete Mathematical Structures" [3-1-0-5-3] for CSE) **OR** Program-Specific General Engineering (3) (viz. "GE106 Materials Science for Electrical and Electronics Engineers" [3-1-0-5-3], for EE and EP), GE110 for MME	
NC102 NCC II (1) [0 - 0-2-1-1] OR NO102 NSO II (1) [0- 0-2-1-1] OR NS102 NSS II (1) [0 - 0-2-1-1]	
CY101 Chemistry for Engineers (4) [3 -1-2-6-4]	PH101 Physics for Engineers (3) [3-1-0-5-3] PH102 Physics for Engineers Lab (2) [0-0-4-2-2]
GE103 Introduction to Computer Programming & Data Structure (4.5) [3-1-3-13/2-4.5]	GE104 Introduction to Electrical Engineering (3) [2-2/3-2-13/3-3]
GE105 Engineering Drawing (1.5) [0-0-3-3/2-1.5]	GE102 Workshop Practice (2) [0 -0-4-2-2]

GE101 Technology Museum Lab (1) [0 -0-2-1-1]	HS 101 History of Technology (1.5) [3/2-1/2-0-5/2-1.5]
Total Credits 18/18.5	

2.7.1 B.TECH. ARTIFICIAL INTELLIGENCE & DATA ENGINEERING (AI)

Semester 1

Plan A (about 50% students)	Plan B (about 50% students)
MA101 Calculus (3) [3-1-0-53]	
HS103 Professional English Communication (3) [2-2/3-2-13/3-3] OR HS102 English Language Skills (3) [2 -2/3-2-13/3-3] instead, for students weak in English	
NC101 NCC I (1) [0 -0-2-11]- (NS101NSS I / NO101 NSO I only when NCC 1 not feasible for the student)	
PH101 Physics for Engineers (3) [3-1-0-5-3] PH102 Physics for Engineers Lab (2) [0-0-4-2-2]	CY101 Chemistry for Engineers (4) [3 -1-2-6-4]
GE104 Introduction to Electrical Engineering (3) [2-2/3-2-13/3-3]	GE103 Introduction to Computer Programming & Data Structure (4.5) [3-0-3-15/2-4.5]
GE102 Workshop Practice (2) [0-0-4-2-2]	GE105 Engineering Drawing (1.5) [0-0-3-3/2-1.5]
HS101 History of Technology (1.5) [3/2-1/2-0-5/2-1.5]	GE 101 Technology Museum Lab (1) [0-0-2-1-1]
Total Credits 18.5/18	

Semester 2

Plan A (for those having Plan B in Sem 1)	Plan B (for those having Plan A in Sem 1)
MA102 Linear Algebra, Integral Transforms and Special Functions (3) [3-1-0-5-3]	
Program Core (3) (viz. ME101 "Engineering Mechanics" [3-1-0-5-3] for ME and CE, CH 101 "Introduction to Chemical Engineering" [3-1-0-5-3] for CH, CS101 "Discrete Mathematical Structures" [3-1-0-5-3] for CSE) OR Program-Specific General Engineering (3) (viz. "GE106 Materials Science for Electrical and Electronics Engineers" [3-1-0-5-3], for EE) : "GE110 Introduction to Metallurgical and Materials Engineering [3-1-0-5-3], for MM") **CSxxx** Mathematical Foundation for AI and DE (Basics of discrete maths, prob and stats) 3-1-0-5-3	
NC102 NCC II (1) [0 - 0-2-1-1] OR NO102 NSO II (1) [0- 0-2-1-1] OR NS102 NSS II (1) [0 - 0-2-1-1]	
CY101 Chemistry for Engineers (4) [3 -1-2-6-4]	PH101 Physics for Engineers (3) [3-1-0-5-3] PH102 Physics for Engineers Lab (2) [0-0-4-2-2]
GE103 Introduction to Computer Programming & Data Structure (4.5) [3-1-3-13/2-4.5]	GE104 Introduction to Electrical Engineering (3) [2-2/3-2-13/3-3]

GE105 Engineering Drawing (1.5) [0-0-3-3/2-1.5]	GE102 Workshop Practice (2) [0 -0-4-2-2]
GE101 Technology Museum Lab (1) [0 -0-2-1-1]	HS 101 History of Technology (1.5) [3/2-1/2-0- 5/2-1.5]
Total Credits 18.5/18	

Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	CSxxx	Foundation of Computer Systems	3-1-0-5-3
2	CSxxx	Foundation of Computer Systems Lab	0-0-2-1-1
3	MA201	Differential Equations	3-1-0-5-3
4	CSxxx	Data Structures and Algorithms	3-1-2-6-4
5	EE201	Signals and Systems	3-1-0-5-3
6	NCIII/NOIII/NSIII	NCC/NSO/NSS	0 -0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
TOTAL CREDITS			19 or 19.5

Semester 4

S.No.	Course Code	Course Description	L-T-P-S-C
1	CS503	Machine Learning	3-0-2-7-4
2	EE207	Control Engineering	3-1-2-6-4
3	MA302	Optimization Techniques (Prog. specific Maths' core)	3-1-0-5-3
4	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
5	NCIII/NOIII/NSIII	NCC/NSO/NSS	0 -0-2-1-1
6	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
7	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	**19 or 19.5**

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	CS301	Databases (+lab)	3-1-2-6-4
2	CSxxx	Artificial Intelligence (+lab)	3-0-2-7-4
3	EEXXX/CSXXX	HCI & Visualization	2-0-2-5-3
4	CSxxx	Ethics in AI	1-0-0-2-1
5	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
6	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
7	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	**19 or 19.5**

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	XXX	Big Data Analytics: Tools & Techniques	2-0-2-6-3
2	XXX	Deep Learning	3-0-0-6-3
3	CSxxx	MLOps Lab	0-0-4-2-2
4	CSxxx/EExxx	Program Elective I	3 credits
5	CP301	Development Engineering Project	0-0-6-3-3
6	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
7	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	**18 or 18.5**

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
		TOTAL CREDITS	**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
ELECTIVE COURSE(S)			
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXX X	Science Maths Elective I	3 Credits
4	CSxxx/EExxx	Program Elective II	3 credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
TOTAL CREDITS			**15**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
ELECTIVE COURSES			
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXX X	Science Maths Elective II	3 Credits
4	CSxxx/EExxx	Program Elective III	3 credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
TOTAL CREDITS			**15**

Program Core (as proposed)

Sem	Course	Credits	Needed in
2	Mathematical Foundations of AI and DE	3	2024 Jan
3	Data Structures and Algorithms (+Lab)	4	2024 July
3	Foundation of Computer Systems (+Lab)	4	2024 July
4	Machine Learning (+ Lab)	4	2025 Jan
4	Control Engineering (+Lab)	4	2025 Jan
5	Databases (+Lab)	4	2025 July
5	Artificial Intelligence (+ Lab)	4	2025 July
5	HCI & Visualization	3	2025 July

5	Ethics in AI	1	2025 July
6	Big Data Analytics: Tools & Techniques	3	2026 Jan
6	Deep Learning (+Lab)	3	2026 Jan
6	MLOps Lab	2	22026 Jan
6-8	Prog. electives in 6, 7, and 8 sems (3 x 3 credits)	9	2026/2027
	Total	**48**	

GE103 done in 1st sem, MA302 Optimization is done in 4th sem as Prog. specific Maths core.
EE201 (Signals and systems) and MA201 (Differential Equations) done in 3rd sem

Tentative list of Elective Courses, electives may be offered by CSE or EE department*

S. No.	Course Name	S. No.	Course Name
1	Nonlinear Control Techniques	16	Cloud Computing
2	Information Theory and Coding	17	Robotics
3	Natural Language Processing	18	IoT
4	Information Retrieval	19	Computer Networks
5	Text Processing	20	Probabilistic Graphical Models
6	Digital Signal Processing	21	Advanced Machine Learning
7	Advanced DSP	22	ANN
8	Computer Vision	23	Data Mining
9	Speech Processing	24	Autonomous MultiAgent Systems
10	Digital Image Processing	25	Security Analytics
11	Advanced Computer Vision	26	Computer Graphics Lab
12	Surveillance Video Analytics	27	Biomedical Image Processing & Analysis
13	Advanced AI	28	Affective Computing and Interaction
14	Predictive Analysis	29	Probabilistic Graphical Models
15	Distributed Systems	30	Multimedia Surveillance Systems

*Please Note:

i.   This list will adapt with time as per needs, feasibility and recruitment of new faculty members

ii. Although the industrial internship is suggested to be done in "summer vacation following semester 6", the course II301 will normally be registered in the 7th semester.

2.7.2 B.TECH. IN CHEMICAL ENGINEERING

Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	CH201	Thermodynamics	3-1-0-5-3
2	CH202	Transport Phenomena	3-1-0-5-3
3	CH230	CHE Simulation (Lab I)	0-0-4-2-2
4	MA201	Differential Equations	3-1-0-5-3
5	CH120	Seminar I (Technical communications for Chemical Engineers)	0-0-2-1-1
6	GE201	Materials Science and Engineering	3-1-0-5-3
7	NCIII/NOIII/NSIII	NCC/NSO/NSS	0 -0-2-1-1
8	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
9	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	20 or 20.5

Semester 4

S.No.	Course Code	Course Description	L-T-P-S-C
1	CH203	Heat & Mass Transfer	3-1-0-5-3
2	CH204	Fluid Mechanics	3-1-0-5-3
3	CH231	Fluid Mechanics, Heat & Mass Transfer Lab (LAB COURSE)	0-0-4-2-2
4	CH220	Seminar II (Data Analysis and Research Skills)	0-0-2-1-1
5	CY230	Introduction to Organic Chemistry and Biochemistry	3-1-0-5-3
6	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
7	NCIV/NOIV/NSIV	NCC/NSO/NSS	0 -0-2-1-1
8	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
9	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	20 or 20.5

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	CH301	Separation Processes	3-1-0-5-3
2	CH302	Chemical Reaction Engineering	3-1-0-5-3
3	CH303	Process Control	3-1-0-5-3
4	CH330	Chemical Reaction Engineering Lab (Lab III)	0-0-4-2-2
5	CH320	Seminar III (Chemical Engg. Applications)	0-0-2-1-1
6	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
7	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3

8	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	18 or 19.5

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	CH304	Process Equipment Design	3-1-0-5-3
2	CH305	Process Design and Economics	3-1-0-5-3
3	CH331	Process Control Lab	0-0-4-2-2
4	CH420	Seminar IV(ASPECTS OF CHEMICAL BUSINESS AND ETHICS)	0-0-2-1-1
5	CP301	Development Engineering Project	0-0-6-3-3
6	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
7	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	15 or 16.5

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
Total Credits			**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
		ELECTIVE COURSES	
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective I	3 Credits
4	CHXXX	Program Elective I	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
ELECTIVE COURSES			
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective I	3 Credits
4	CHXXX	Program Elective II	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			15 Credits

XXXXX denotes Open Elective Course code.

Grand Total: 145

Please Note:

i. Contents of all the courses are available on www.iitrpr.ac.in as Course booklet of UG 2023-24.
ii. Although the industrial internship is suggested to be done in "summer vacation following semester 6", the course II301 will normally be registered in the 7th semester.

2.7.3. B.TECH. IN CIVIL ENGINEERING

Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	CE201	Strength of Materials	2-1-2-4-3
2	CE202	Fundamentals of Fluid Mechanics	2-1-0-3-2
3	CE304	Geomatics	2-1-2-4-3
4	MA201	Differential Equations	3-1-0-5-3
5	GE203	Materials Science for Civil Engineers	3-1-0-5-3
6	NCIII/NOIII/NSIII	NCC/NSO/NSS	0 -0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
TOTAL CREDITS			19 or 19.5

Semester 4

S.No.	Course Code	Course Description	L-T-P-S-C
1	CE301	Structural Analysis	2-2/3-0-3-2
2	CE302	Pipe and Open Channel Hydraulics	2-2/3-2-4-3
3	CE303	Soil Mechanics	2-2/3-2-4-3
4	MA202	Probability and Statistics	3-1-0-5-3
5	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]

6	NCIV/NOIV/NSIV	NCC/NSO/NSS	0 -0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
	TOTAL CREDITS		**19 or 19.5**

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	CE401	Structural Analysis II	2-1-0-3-2
2	CE402	Water Resources Engineering	3-1-0-5-3
3	CE203	Computer Aided Building Drawing	0-1-2-0-1
4	CE404	Reinforced Concrete Structures	3-1-3-6.5-4.5
5	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
6	GE111	Introduction to Environmental Science & Engineering	3-1-0-5-3
7	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
	TOTAL CREDITS		**16.5 or 18**

*Civil Engineering students shall credit the course- Introduction to Environmental Science and Engineering in their fifth semester only.

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	CE405	Water and Wastewater Treatment	2-1-3-4.5-3.5
2	CE407	Transportation Engineering	3-1-2-6-4
3	CE403	FOUNDATION ENGINEERING	2-1-0-3-2
4	CE406	STEEL STRUCTURES	3-1-0-5-3
5	CP301	Development Engineering Project	0-0-6-3-3
6	HS301	Industrial Management	3-1-0-5-3
7	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
	TOTAL CREDITS		18.5 or 20

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
Total Credits			**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
	ELECTIVE COURSES		
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective I	3 Credits

4	CEXXX	Program Elective I	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
ELECTIVE COURSES			
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective II	3 Credits
4	CEXXX	Program Elective II	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

XXXXX denotes Open Elective Course Code.

Grand Total: 145

Please Note:

i. Contents of all the courses are available on www.iitrpr.ac.in as Course booklet of UG 2023-24.
ii. Although the industrial internship is suggested to be done in "summer vacation following semester 6 ", the course II301 will normally be registered in the 7th semester.

2.7.4 B.TECH. IN COMPUTER SCIENCE AND ENGINEERING

Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	CS201	Data Structures	3-1-2-6-4
2	CS203	Digital Logic Design	3-1-2-6-4
3	MA201	Differential Equations	3-1-0-5-3
4	EE201	Signals and Systems	3-1-0-5-3
5	NCIII/NOIII/NSIII	NCC/NSO/NSS	0 -0-2-1-1
6	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
7	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
TOTAL CREDITS			19 or 19.5

Semester 4

S.No.	Course Code	Course Description	L-T-P-S-C
1	CS202	Programming Paradigms and Pragmatics	3-1-2-6-4
2	CS204	Computer Architecture	3-1-2-6-4
3	MA202	Probability and Statistics	3-1-0-5-3
4	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]

5	NCIV/NOIV/NSIV	NCC/NSO/NSS	0 -0-2-1-1
6	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
7	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	19 or 19.5

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	CS301	Introduction to Database Systems	3-1-2-6-4
2	CS302	Analysis and Design of Algorithms	3-1-0-5-3
3	CS303	Operating Systems	3-1-2-6-4
4	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
5	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
6	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	17 or 18.5

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	CS 304	Computer Networks	3-1-2-6-4
2	CS 305	Software Engineering	3-1-2-6-4
3	CS 306	Theory of Computation	3-1-0-5-3
4	CP301	Development Engineering Project	0-0-6-3-3
5	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
6	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	17 or 18.5

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
Total Credits			**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
ELECTIVE COURSES			
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective I	3 Credits
4	CSXXX	Program Elective I	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
		ELECTIVE COURSES	
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective II	3 Credits
4	CSXXX	Program Elective II	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

XXXXX denotes Open Elective Course code.

Grand Total: 145
Please Note:

i. Contents of all the courses are available on www.iitrpr.ac.in as Course booklet of UG 2023-24.
ii.
iii. Although the industrial internship is suggested to be done in "summer vacation following semester 6 ", the course II301 will normally be registered in the 7th semester.

2.7.5. B.TECH. IN ELECTRICAL ENGINEERING
Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	EE201	Signals and Systems	3-1-0-5-3
2	EE203	Digital Circuits	3-1-0-5-3
3	EE204	Digital Circuits Lab	0-0-3-3-1.5
4	EE205	Electromechanics	3-1-0-5-3
5	MA201	Differential Equations	3-1-0-5-3
6	NCIII/NOIII/NSIII	NCC/NSO/NSS	0 -0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	19 or 18.5

Semester 4

S.No.	Course Code	Course Description	L-T-P-S-C
1	EE209	Circuit Theory	3-1-0-5-3
2	EE207	Control Engineering	3-1-0-5-3
3	EE206	Electromechanics Lab	0-0-3-3-1.5
4	MA203	Probability and Stochastic Processes	3-1-0-5-3
5	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
6	NCIV/NOIV/NSIV	NCC/NSO/NSS	0 -0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 /

			(2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2 -1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	18.5 or 19

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	EE208	Control Engineering Laboratory	0-0-3-3/2-1.5
2	EE301	Analog Circuits	3-1-0-5-3
3	EE302	Analog Circuits Lab	0-0-3-3-1.5
4	EE303	Communication Engineering	3-1-0-5-3
5	EE305	Engineering Electromagnetics	3-1-0-5-3
6	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
7	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
8	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	18 or 19.5

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	EE304	Communication Lab	0-0-3-1.5-1.5
2	EE306	Electromagnetics Lab	0-0-3-1.5-1.5
3	EE307	Power Electronics	3-1-0-5-3
4	EE308	Power Electronics Lab	0-0-3-1.5-1.5
5	EE309	Power Systems	3-1-0-5-3
6	EE310	Power Systems Laboratory	0-0-3-1.5-1.5
7	CP301	Development Engineering Project	0-0-6-3-3
8	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
9	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	18 or 19.5

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
Total Credits			**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
ELECTIVE COURSES			
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective I	3 Credits

4	EEXXX	Program Elective I	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
ELECTIVE COURSES			
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective II	3 Credits
4	EEXXX	Program Elective II	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

XXXXX denotes Open Elective Course Code.

Grand Total: 145

Please Note:

i. Contents of all the courses are available on www.iitrpr.ac.in as Course booklet of UG 2023-24.
ii. Although the industrial internship is suggested to be done in "summer vacation following semester 6 ", the course II301 will normally be registered in the 7th semester.

2.7.6. B.TECH. IN ENGINEERING PHYSICS

Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	PH202	Applied Mathematical Physics	3-1-0-5-3
2	PH203	Classical Mechanics	3-1-0-5-3
3	PH204	Electromagnetic Theory	3-1-0-5-3
4	PH20X	Physics Lab-I	0-0-3-1.5-1.5
5	EE201	Signals and Systems	3-1-0-5-3
6	GE108/HS201	Basic Electronics /Economics	[2-2/3-2-13/3-3] [3-1-0-5-3]
7	GE109/GE107	Introduction to Engineering Products /Tinkering Lab	[0 -0-2-1-1] [0 -0-3-3/2-1.5]
8	NCC-III /NSO-III /NSS-III (	NCC/NSO/NSS	[0 -0-2-1-1]
TOTAL CREDITS			19 or 19.5

Semester 4

S.No.	Course Code	Course Description	L-T-P-S-C
1	MA203	Probability and Stochastic Process	3-1-0-5-3
2	PH30X	*Physics Lab-II	0-0-3-1.5-1.5
3	EE207	Control Engineering	3-1-0-5-3
4	EE209	Circuit Theory	3-1-0-5-3
5	HS202/BM101	Human Geography & Societal Needs /Biology for Engineers	[1-1/3-4-11/3-3] [3-1-0-5-3]
6	HS201/GE108	Economics /Basic Electronics	[3-1-0-5-3] [2-2/3-2-13/3-3]
7	GE107/GE109	Tinkering Lab /Introduction to Engineering Products	[0 -0-3-3/2-1.5] [0 -0-2-1-1]
8	NCC-IV /NSO-IV /NSS-IV	NCC-IV /NSO-IV /NSS-IV	[0 -0-2-1-1]
TOTAL CREDITS			19 or 19.5

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	PH30X	*Quantum Physics	3-1-0-5-3
2	PH30X	*Thermal and Statistical physics	3-1-0-5-3
3	EE208	Control Engineering Lab	0-0-3-1.5-1.5
4	EE301	Analog Circuits	3-1-0-5-3
5	EE302	Analog Circuits Lab	0-0-3-1.5-1.5
6	BM101/HS202	Biology for Engineers / Human Geography & Societal Needs	[3-1-0-5-3] [1-1/3-4-11/3-3]
7	HS301/GE111	Industrial Management /Introduction to Environmental Science & Engineering	[3-1-0-5-3]
8	HS104	Professional Ethics	1-1/3-1-13/6-1.5
TOTAL CREDITS			16.5 or 18

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	PH30X	* Optics & Photonics	3-1-0-5-3
2	PH30X	* Quantum Theory of Solids	3-1-0-5-3

3	PH30X	* Semiconductor Physics and Applications	3-1-0-5-3
4	PH30X	* Numerical Methods and Analysis	2-0-2-5-3
5	GE111/HS301	Introduction to Environmental Science & Engineering /Industrial Management	[3-1-0-5-3]
6	CP301	Development Engineering Project	0-0-6-3-3
Total Credits			**18**

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
Total Credits			**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
		ELECTIVE COURSES	
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX/ CYXXX/PHXXX	Science Maths Elective I	3 Credits
4	EEXXX	Program Elective I	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
		ELECTIVE COURSES	

2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX/ CYXXX/PHXXX	Science Maths Elective II	3 Credits
4	EEXXX	Program Elective II	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

XXXXX denotes Open Elective Course Code.

*Subject to approval of Senate.

Grand Total: 145

Please Note:

i. Contents of all the courses are available on www.iitrpr.ac.in as Course booklet of UG 2023-24.

ii. Although the industrial internship is suggested to be done in "summer vacation following semester 6 ", the course II301 will normally be registered in the 7th semester.

2.7.7. B.TECH. IN MATHEMATICS AND COMPUTING

Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	CS201	Data Structures	3-1-2-6-4
2	MA411	Real Analysis	3-1-0-5-3
3	MA201	Differential Equations	3-1-0-5-3
4	EE201	Signals and Systems	3-1-0-5-3
5	NCIII/NOIII/NSIII	NCC/NSO/NSS	0-0-2-1-1
6	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
7	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0-0-3-3/2-1.5] / [0-0-2-1-1]
TOTAL CREDITS			18 or 18.5

Semester 4

S.No.	Course Code	Course Description	L-T-P-S-C
1	MA204	Introduction to Numerical Analysis	3-1-0-5-3
2	MA426	Theory of computation	3-0-0-6-3
3	MA205	Computing Lab	0-0-4-2-2
4	MA202	Probability and Statistics	3-1-0-5-3
5	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5-3]

6	NCIV/NOIV/NSIV	NCC/NSO/NSS	0 -0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	19 or 19.5

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	MA514	Analysis & Design Of Algorithms	3-1-0-5-3
2	MA515	Foundations Of Data Science	3-0-2-7-4
3	MA301	Computational Algebra	3-0-0-6-3
4	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
5	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
6	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	16 or 17.5

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	MA302	Optimization Techniques	3-1-0-5-3
2	MA303	Computing Lab-II	0-0-4-2-2
3	CS503	Machine Learning	3-0-2-7-4
4	CP301	Development Engineering Project	0-0-6-3-3
5	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
6	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
Total Credits			**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
ELECTIVE COURSES			
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits

3	BMXXX/CYXXX/PH XXX	Science Maths Elective I	3 Credits
4	MAXXX	Program Elective I	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
		ELECTIVE COURSES	
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/CYXXX/PH XXX	Science Maths Elective II	3 Credits
4	MAXXX	Program Elective II	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

XXXXX denotes Open Elective Course Code.

Grand Total: 145

Please Note:

i. Contents of all the courses are available on www.iitrpr.ac.in as Course booklet of UG 2023-24.

ii. Although the industrial internship is suggested to be done in "summer vacation following semester 6 ", the course II301 will normally be registered in the 7th semester.

2.7.8. B.TECH. IN MECHANICAL ENGINEERING

Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	ME102	Engineering Thermodynamics	3-1-0-5-3
2	ME201	Solid Mechanics	3-1-0-5-3
3	ME202	Machine Drawing	0-0-4-2-2
4	GE201	Introduction to Materials Science and Engineering	3-1-0-5-3
5	MA201	Differential Equations	3-1-0-5-3
6	NCIII/NOIII/NSIII	NCC/NSO/NSS	0 -0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	19 or 19.5

Semester-4

S.No.	Course Code	Course Description	L-T-P-S-C
1	ME203	Theory of Machines	3-1-0-5-3
2	ME204	Fluid Mechanics	3-1-0-5-3
3	ME205	Design Lab-I	0-0-4-2-2
4	MA202	Probability and Statistics	3-1-0-5-3
5	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
6	NCIV/NOIV/NSIV	NCC/NSO/NSS	0 -0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0 -0-3-3/2-1.5] / [0 -0-2-1-1]
		TOTAL CREDITS	19 or 19.5

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	ME 206	Manufacturing Technology-I	3-1-0-5-3
2	ME207	Manufacturing Lab-I	0-0-4-2-2
3	ME301	Vibrations and Control	3-1-0-5-3
4	ME302	Heat and Mass Transfer	3-1-0-5-3
5	ME 303	Thermo-Fluids Lab-I	0-0-2-1-1
6	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
7	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
8	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	18 or 19.5

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	ME304	Machine Design	3-1-0-5-3
2	ME305	Manufacturing Technology-II	3-1-0-5-3
3	ME306	Design Lab-II	0-0-3-1.5-1.5
4	ME307	Thermo-Fluids Lab-II	0-0-3-1.5-1.5
5	ME308	Manufacturing Lab-II	0-0-4-2-2
6	CP301	Development Engineering Project	0-0-6-3-3
7	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
8	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	17 or 18.5

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
Total Credits			**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
		ELECTIVE COURSES	
2	HSXXX	An English Language/Literature elective course in either 7th or 8th semester for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective I	3 Credits
4	MEXXX	Program Elective I	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
		ELECTIVE COURSES	
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX /CYXXX/PHXXX	Science Maths Elective II	3 Credits
4	MEXXX	Program Elective II	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

XXXXX denotes Open Elective Course code.

Grand Total: 145

Please Note:

i. Contents of all the courses are available on www.iitrpr.ac.in as Course booklet of UG 2023-24.

ii. Although the industrial internship is suggested to be done in "summer vacation following semester 6 ", the course II301 will normally be registered in the 7th semester.

2.7.9. B.TECH. IN METALLURGICAL AND MATERIALS ENGINEERING

Semester 3

S.No.	Course Code	Course Description	L-T-P-S-C
1	MM201	Metallurgical Thermodynamics and Kinetics	3-1-0-5-3
2	MM202	Transport Phenomena	3-1-0-5-3
3	MM203	Materials Characterization Techniques	3-0-0-5-3
4	MM204	Materials Characterization Techniques Lab	0-0-2-1-1
5	MM205	Physical Metallurgy Lab	0-0-2-1-1
6	MA201	Differential Equations	3-1-0-5-3
7	NCIII/NOIII/NSIII	NCC/NSO/NSS	0-0-2-1-1
8	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
9	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0-0-3-3/2-1.5] / [0-0-2-1-1]
		TOTAL CREDITS	19 or 19.5

Semester 4

S.No.	Course Code	Course Description	L-T-P-S-C
1	MM206	Principles of Extractive Metallurgy	3-1-0-5-3
2	MM207	Phase Transformation and Heat Treatment	3-1-0-5-3
3	MM208	Phase Transformation and Heat Treatment Lab	0-0-2-1-1
4	MA202	Probability and Statistics	3-1-0-5-3
5	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
6	NCIV/NOIV/NSIV	NCC/NSO/NSS	0-0-2-1-1
7	HS201 / GE108	Economics/Basic Electronics	3-1-0-5-3 / (2-2/3-2-13/3-3)
8	GE107 / GE109	Tinkering Lab / Introduction to Engineering Products	[0-0-3-3/2-1.5] / [0-0-2-1-1]
		TOTAL CREDITS	18 or 18.5

Semester 5

S.No.	Course Code	Course Description	L-T-P-S-C
1	MM301	Iron and Steel Making	3-1-0-5-3
2	MM302	Mechanical Behaviour and Testing of Materials	3-1-0-5-3
3	MM303	Materials Processing	3-1-0-5-3
4	MM304	Mechanical Behavior and Testing Lab	0-0-3-1.5-1.5
5	MM305	Materials Processing Lab	0-0-3-1.5-1.5
6	HS202 / BM101	Human Geography and Societal Needs / Biology for Engineers	[1-1/3-4-11/3-3] / [3-1-0-5- 3]
7	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
8	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	18 or 19.5

Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	MM306	Corrosion And Its Prevention	2-2/3-0-10/3-2
2	MM307	Electronic, Magnetic and Optical Materials	3-1-0-5-3
3	MM308	Modeling and Simulation	2-2/3-0-10/3-2
4	MM309	Polymers and Composites	2-2/3-0-10/3-2
5	MM310	Corrosion Lab	0-0-2-1-1
6	MM311	Modeling and Simulation Lab	0-0-4-2-2
7	CP301	Development Engineering Project	0-0-6-3-3
8	HS301 / GE111	Industrial Management / Introduction to Environmental Science & Engineering	3-1-0-5-3
9	HS104	Professional Ethics [about 50% students]	1-1/3-1-13/6-1.5
		TOTAL CREDITS	18 or 19.5

Summer Vacation following Semester 6

S.No.	Course Code	Course Description	L-T-P-S-C
1	II301	Industrial Internship and Comprehensive Viva Voce (70% weightage for 8-week full internship and 30% for comprehensive viva on program fundamentals)	0-0-7-3.5-3.5
Total Credits			**3.5**

Semester 7

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP302	Capstone Project I	0-0-6-3-3
		ELECTIVE COURSES	
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX/CYXXX/PHXXX	Science Maths Elective I	3 Credits
4	MMXXX	Program Elective I	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

Semester 8

S.No.	Course Code	Course Description	L-T-P-S-C
1	CP303	Capstone Project II	0-0-6-3-3
		ELECTIVE COURSES	
2	HSXXX	An English Language/Literature elective course in either 7th or 8th sem for students who had "English Language Skills" in 1st Semester	3 Credits
3	BMXXX/MAXXX/C	Science Maths Elective II	3 Credits

	YXXX/PHXXX		
4	MMXXX	Program Elective II	3 Credits
5	XXXXX	Any extra credits taken under HS Elective/Program Elective/Science Maths Elective	3 Credits
Total Credits			**15 Credits**

XXXXX denotes Open Elective Course code.

Grand Total: 145
Please Note:

i.   Contents of all the courses are available on www.iitrpr.ac.in as Course booklet of UG 2023-24.

ii.   Although the industrial internship is suggested to be done in "summer vacation following semester 6 ", the course II301 will normally be registered in the 7th semester.

2.7.10 CONVERSION FROM B.TECH TO B.TECH - M.TECH (DUAL DEGREE) PROGRAMME.

B Tech - M Tech (Dual Degree)

Programme Duration: 5 years

1) Admission:
1.   Undergraduate students can opt to convert to dual degree program before the start of end semester examination of 7th semester.
2.   Minimum CGPA required for converting to B.Tech.-M.Tech. Dual degree: **7.0.**
3.   Total credits for B.-Tech.-M.Tech. dual degree : **188-192.**

2) Courses
The first four years of the program are almost identical to the B.Tech. course work.

3) Course credits Requirements
a)   UG level courses : 139
b)   UG/ PG Course/ Project during summer after 7th sem: 6 credits
c)   Minimum PG level elective courses :15 credits
d)   Project work: 28-32 credits

4) Research
The last two semesters and one summer terms are devoted entirely to research work. Students work under a faculty research supervisor on a challenging research problem. Supervisor for project can be assigned to the students before the start of end- semester exam of 7th semester. Further course details of the programme will be decided by Department.

5) Scholarship
a)   In the fifth year (1st June to 31st May), a scholarship currently at Rs. 12,400 per month (as per Govt.of India Norms) will be given subject to a minimum CGPA of 8 or attaining a valid GATE Score.
b)   If a student opt for conversion to B.Tech –M.Tech (dual degree) then he/she is eligible to get a scholarship amount of Rs 5000/- per month in the 8th semester and subsequently as mentioned above.

6) Exit degree
At the end of 5 year, the student graduates, receiving both B.Tech. and M.Tech. degree together, there is no option for early exit with a B.Tech. degree unless the student performance is so poor that he/she is considered incapable of securing the higher degree. Institute reserves the sole right to make the decision in such cases.

2.7.11 COURSE PLAN FOR B.TECH. WITH MINOR

Same as that for "Basic B.Tech." with Minor coursework (total 15 credits) added and distributed over four semesters - Semester 5 to 8.

2.7.12 GUIDELINES FOR OFFERING OF MINOR PROGRAMME FOR UG STUDENTS

i.   Students can take 15 credits of the Minor Programme, it is offered to the B.Tech. Students from 2017 batch onwards, B.Tech. with Minor is minor in any other discipline than the major discipline, the credit requirements is B.Tech. with Minor Programme: 145 (basic B.Tech.)+15 (minor credits) =160 credits.
ii. A student can take 15 credits of designated courses in one of other disciplines to earn a Minor.
iii. A student can opt for one minor. The student opting for minor is not eligible for opting concentration and vice-versa.
iv. A student can take maximum credits of 24 for minor programme per semester.
v.   The minor courses would be typically the most basic UG level courses of the discipline. For example, the Minor courses in Mechanical Engineering (ME) would be a subset of Program Core courses of ME. Minor courses include some lab components.
vi. The intake of students for minor will be 20.
vii. The student with CGPA 7 is eligible for opting minor.
viii. The department offering the courses for minor programme, shall check overlap of course(s) contents with other departments.
ix. The department shall recommend selection criteria for offering the minor programme to the students.
x.   The students of B.Tech –M.Tech Dual Degree can also opt for Minor Programme
xi. This is not a mandatory requirement for completion of basic B.Tech degree of 145 credits.

2.7.13 COURSE PLAN FOR B.TECH. WITH CONCENTRATION

Same as that for "Basic B.Tech." with Concentration coursework (total 15 credits) added and distributed over four semesters - Semester 5 to 8.

2.7.14 GUIDELINES FOR OFFERING OF CONCENTRATION PROGRAMME FOR UG STUDENTS

i)   Students can take 15 credits of Concentration Programme courses within their discipline. For example, Mechanical Engineering students may choose to specialize in Design, Manufacturing or Thermal and fluids. The credit requirements for B.Tech. with Concentration Programme is : 145 (basic B.Tech.)+15 (concentration credits)=160 credits.
ii) A student can opt for one concentration programme only.
iii) A student can take maximum 24 credits for concentration programme per semester.
iv) A student can opt for one Minor/ Concentration programme. The student opting for minor is not eligible for opting Concentration and vice-versa
v)   The concentration programme courses may include lab components.
vi) The student with CGPA 7 is eligible for opting concentration programme.
vii) This is not a mandatory requirement for completion of basic B.Tech degree of 145 credits.

2.7.15 COURSE PLAN FOR B.TECH. (HONORS)

Same as that for "Basic B.Tech." with Honors coursework (total 15 credits) added and distributed over four semesters - Sem 5 to 8. Honors coursework may be the same as Minor or Concentration coursework. This will be followed by Honors Project 1 and 2 of 5 credits each.
The track options (Honours / Minor / Concentration / Additional Internship) to be offered to the students after 4th semester and before start of the 5th semester. Honours may be opted after 6th semester (and before start of 7th semester) as well, provided the remaining coursework (including the project) requirements for Honours can be completed without exceeding the maximum credit limit.

2.7.16 COURSE PLAN FOR BASIC B.TECH. WITH ADDITIONAL INTERNSHIP

The coursework required for "Basic B.Tech." may be completed in first seven semesters. Additional Internship I to III [About 6 Months, Mid December to Mid June] may be opted during the last 7th/8th semester. This option may be opted by the end of 4th semester.

2.7.17 GUIDELINES FOR OFFERING OF ADDITIONAL INTERNSHIP FOR UG STUDENTS

i. Students can take 15 credits of the additional internship, it is offered to the B.Tech. Students from 2017 batch onwards. The credit requirement for basic B.Tech. 145+15 (additional internship) =160 credits.

ii. Minimum CGPA for opting additional internship may be 6.00.

iii. The student can take the additional internship in their 7th/8th semester.

iv. A student doing Basic B.Tech. can finish all requirements by 7th semester (for those proceeding in 8th) and for the students proceeding in 7th semester should have left with 22 credits to complete in the 8th semester.

v. A student can only opt one option i.e. minor/concentration/additional internship.

vi. There will be two grades only i.e. Satisfactory / Unsatisfactory.

vii. The student who fails to get satisfactory grade will be eligible only for the basic degree without any mention of additional internship.

viii. A student can only opt for additional internship at the end of 4th semester.

ix. There will be two reviews in between the Internship period by the faculty advisor and department for internship supervising the Internship.

x. The courses to be done in the 7th/8th semester will be distributed to other semester so that students are able to complete course credit requirements of basic degree.

xi. A student can take maximum credits of 24 for additional internship programme per semester.

xii. The internship will be facilitated by the CDPC Cell.

xiii. Type of the internship (core/non-core) shall be decided by the parent department of the student, it could be in research labs/industry/institutes etc.

xiv. The students of B.Tech –M.Tech Dual Degree can also opt for additional internship.

xv. The 'U' ("Unsatisfactory") grade in Additional internship will be reflected in the grade sheet.

xvi. Under no circumstances, Additional internship can be done within the institute.

xvii. For students opting additional internship in 8th semester, if the students could not avail the internship (outside the institute) for some reason, the student shall enroll to a new 15- credit "UG Research Thesis" (letter grading based) course in his/her own department to enable him/her to do research within the institute. UG research Thesis will be an individual work in line with the M.Tech thesis.

xviii. Successful enrollment to Additional Internship shall require approval from Academic Section based on the offer letter of internship and confirmation from the industry. The offer letter and other information shall be submitted by the student well in advance, at least 7 days before start of the "Additional Internship".

2.7.18 SUPPLEMENTARY EXAMINATION GUIDELINES FOR THE STUDENTS OF B.TECH. WHO FAILS IN CORE COURSES.

i. Students who get "E" in a core course are eligible to seek Supplementary Examination in the immediately following semester.

ii. A student is eligible for writing only one Supplementary Examination in a course. In case a student fails in the Supplementary Examination, he/she has to repeat the course in a regular semester, as and when it is offered.

iii. The Supplementary Examination will be held on the 1st Saturday/ Sunday of the following semester, before the add/drop process ends.

iv. The Supplementary Examination shall be scheduled with the mutual convenience of the instructor and the student, with intimation to the Academic Section.

v. The syllabus for supplementary exam must remain the same as per the regular Semester Policy (declared by the Instructor in the respective course in the regular semester).

vi. Final grade will be based on the marks obtained in PMT plus new marks secured in

the supplementary exam not exceeding 'D' grade on the same grading policy as that used in the regular semester.

vii.   Maximum number of supplementary exams to be written by a student is two in a semester.

viii. Not more than five supplementary examinations can be written by the student in the entire duration of his/ her degree programme.

2.7.19 SUMMER SEMESTER GUIDELINES:

i. The summer semester courses will be floated for all backloggers of core courses, subject to availability of teachers. Keeping in mind smaller class strengths in some departments, the departments may fix the criteria for the minimum number of students for floating departmental courses during summer semester.

ii. The credit limit for the summer semester (for back loggers only) will be 9 credits subject to maximum 3 courses only.

iii. No elective course will be floated to the students during summer semester, except for the students of the graduating batch.

iv. The students who wish to take backlog courses floated in summer semester are required to register by paying the requisite fee as follows.

Fee per credit (Tuition fee)	:	Rs.4000/- per credit (i.e. if a student takes a 3 credit course his/ her tuition fee will be 4000*3 = 12000)
Other fees	:	Rs.2000/-

Note: SC/ST/PH students are exempted from payment of Tuition fee. However, they have to pay other fee of Rs.2000/-.

2.7.20 GUIDELINES FOR SELF STUDY/ INDEPENDENT MODE IN THE SUMMER SEMESTER:

i.   The courses in which there are less than or equal to 5 students, the courses be floated as self study/ independent courses in the summer semester.

ii.   Only the students who are having backlog in the courses be allowed to take the course in Self study/ independent mode.

iii. The instructor(s) will provide the study material to the students and give assignments, conduct quizzes and examinations. The evaluation will be done in offline mode only as per summer semester academic calendar.

iv.   B.Tech. students are allowed to take total two (02) course in self-study/independent mode during the entire duration of the program and 1 course as self-study/ independent mode during each summer semester only.

v.   The courses will be offered in the self-study / independent mode preferably to the graduating students, subject to need of the course, availability of the instructors and approval by the Director.

2.7.21 COMPARISON OF DIFFERENT OPTIONS GIVE IN 2.5.1

Semester ===>>	1	2	3	4	5	6	Summer between sem 6 and 7	7	8	Total Credits
HSS	Professional English Communication (3) + History of Technology (1.5)		Economics(3)	Human Geography and Societal Needs (3)	Professional Ethics (1.5)	Industrial Management (3)		HSS Elective I (3)	HSS Elective II (3)	21
Physics	Physics for Engineers (5)									5
Chemistry		Chemistry for Engineers (4)								4
Mathematics	Engineering Mathematics I (3)	Engineering Mathematics II (3)								6
Science -Maths			Program-Specific Science-Maths I (3)	Program-Specific Science-Maths II (3)				Science-Maths Elective I (3)	Science-Maths Elective II (3)	12
General Engineering	Intro to Electrical Eng (3) + Engineering Drawing (1.5)	Workshop(2) + Museum Lab (1) + Programming & Data Struct (4.5)	Program-specific General Engineering (3) + Tinkering Lab (1.5)	Intro to EngineeringProducts (1) + Basic Electronics(3)	Environmental Sc & Engg (3)					23.5
Projects (BTP + DE) + Internship + Comprehensive Viva						Development Engineering Project (3)	Industrial Internship & Comprehensive Viva (3.5) *	BTP Capstone Project I (3)	BTP Capstone Project II (3)	12.5

* Industrial Internship will be in the summer semester, however it will be registered in a regular semester (e.g.) 7th semester. Evaluation for the internship and comprehensive viva will be conducted in the regular semester.

Program Core (CSE / EE / ME / CE/CH)		Program Core (3)	Program Core (8)	Program Core (8)	Program Core (10.5)	Program Core (6.5) + Program Core and/or Electives (6)		Program Elective (3)	Program Elective (3)	48
Honors (CSE / EE / ME / CE/CH)								**Honors Project 1 (5)**	**Honors Project 2 (5)**	10
Extra - Curricular	NCC/NSS/NSO I (1)	NCC/NSS/NSO II (1)	NCC/NSS/NSO III (1)	NCC/NSS/NSO IV (1)						4
Biology					Biology for Engineers (3)					3
Minor / Concentration / Honors Related Open Elective					**Minor / Concentration / Honors Related Coursework(4)**	**Minor / Concentration / Honors Related Coursework (4)**		**Minor / Concentration / Honors Related Coursework (4)**	**Minor / Concentration / Honors Related Coursework(3)**	15
Open Electives								Open Elective I (3)	Open Elective II (3)	6
Total credits (B.Tech.+Minors+Honors)	18	18.5	19.5	19	22	22.5	3.5	24	23	170
Total credits (B.Tech.+Minor)	18	18.5	19.5	19	22	22.5	3.5	19	18	160
Total credits (B.Tech.)	18	18.5	19.5	19	18	18.5	3.5	15	15	145

3   FEES

3.1   MODE OF PAYMENT

(a)   Institute dues
All Institute dues shall be paid through SB Collect to "IIT Ropar Fee account, IIT Ropar". In case of Bank loan by the student, the fee can be deposited / transferred through Internet Banking. No fee in cash is accepted.

(b)   Mess dues
Mess dues shall be paid through SB Collect to "The Director, IIT Ropar, Hostel Account". In case of Bank loan by the student, the fee can be deposited / transferred through Internet Banking. No fee in cash is accepted.

3.2   DEADLINES FOR PAYMENT

(a)   Institute dues
- (i)   All the students will be informed through email the schedule for deposit of Institute fee, Hostel fee.
- (ii)   All Institute dues to be paid in full before the last date for Late Registration (this is typically one week after the first day of classes).
- (iii)   Students who do not pay the required amount by the due date, or those who make partial payments, their registration shall be cancelled. Their registration will be restored on payment of fees and a fine as stipulated in the Institute rules.

(b)   Mess dues
All Mess dues are to be paid on or before the date for Registration Validation as notified by the Institute.

3.3   REFUND OF FEES

The whole amount of fees/other charges deposited by the students will be refundable after deduction of Rs. 1,000/, if the students do not join the programme after paying the dues and leave the Institute by applying for refund on or before the date of registration. No refund of fees will be permissible to the students who have registered for the programme but leave immediately thereafter or later. In such cases, only caution money will be refunded and that too only at the end of the semester.

3.4   GUIDELINES FOR CONTINUATION FEES DURING SEMESTER WITHDRAWAL

a.   Wherever semester withdrawal for a student is approved as per the Institute rules, the semester fees is waived off for the student(s).
b.   During the withdrawal period, a continuation fee of 3000/- will be charged to maintain his / her enrollment / registration in the Institute.
c.   The student is required to pay semester fees for a period of at least 8 semester (4 Years).

4.5   WITHDRAWAL FROM THE INSTITUTE

If a student is continuously absent from the Institute for more than four weeks without informing the Dean (Academics), his/her name will be removed from the Institute rolls. Such absence during the first year will render the B.Tech. student ineligible for re-admission.

A B.Tech. student wishing to leave the Institute on his/her own should submit an application duly countersigned by his/her father/guardian. He/she shall also obtain "Clearance Certificate" from the Department, the Librarian, the Warden, the Officer Commanding, NCC, and the Accounts Section, and submit to the Academics Section (UG) for settling his/her accounts in the Accounts Section. The student shall remain liable to pay all dues till the date on which his/her name is formally struck off the Institute rolls.

3.6 TRANSCRIPTS, DEGREE AND OTHER CERTIfiCATES

Additional transcripts, duplicate degrees/diplomas, etc can be obtained on payment of the following charges:

a) Degree, in person   : Rs.1000

b) Degree, in absentia   (In India)   : Rs.1000
                                                                (In Abroad)   : Rs.1500
                                                                Or   : US$150

c) Migration Certificate *   : Rs.500
    (Only one original)

d) Duplicate Degree/certificate *(Only   (In India)   : Rs.2500
    one Original)
                                                                (In Abroad)   : US$250

e) Transcripts *   (In India)   : Rs.1000
    (1 Original + 4 Attested Copies)   (In Abroad)   : US$50

f) Duplicate Identity Card *   : Rs.500

g) Certificate of medium of instruction in English *   (In India)   : Rs.100
    (Only one original)   (In Abroad)   : US$10

h) Verification of degree certificate, JEE   (In India)   : Rs.1000
    Rank, membership of Institute bodies,   (In Abroad)   : US$100
    etc. (for each individual verification)

i) Character Certificate (only one original) *   (In India)   : 100
                                                                (In Abroad)   : US$10

*Postal charges extra

3.7 DETAILS OF SEMESTER FEES FOR THE YEAR 2023-24

Sr.No.	Particulars	Amount
1	**SEMESTER FEES**	**(INR)**
1.1	**INSTITUTE FEES**	
	i) Tuition Fee	100000
	ii) Examination Fee	350
	iii) Registration/Enrolment Fee	250
	iv) Gymkhana Fee	500
	v) Medical Fee	50
	vi) Laboratory & other facilities	1500
	vii) Library	500
	viii) Hostel Development Fund	1000
1.2	**HOSTEL FEES +**	
	i) Hostel Seat Rent	1000
	ii) Fan, Electricity and water charges	1000
	iii) Student Amenities Fee	1000
	TOTAL (Semester Fees to be paid)	**107150**
2	**ONE TIME PAYMENTS (Non - Refundable)** To be paid at the time of admission.	
	i) Admission Fees	200
	ii) Grade Card	200
	iii) Provisional Certificate	200
	iv) Student Welfare Fund	300
	v) Modernization Fees	400
	vi) Identity card	100
	vii) Benevolent fund	100
	viii) Alumni Affairs fees	1000
	ix) Training and Placement	500
3	**Total (one time payment at the time of admission) Deposits (Refundable)**	**3000**
	i) Institute security deposit	2000
	ii) Library security deposit	2000
4	**OTHER PAYMENTS** Insurance scheme (to be paid every year in 1st semester)	500
	TOTAL FEES	**114650**

The fee payable at IIT Ropar is subject to change as per the Institute rules.

Note :
I)   All SC and ST students will get 100% exemption from payment of tuition fee.
II)   The *Economically weaker students (whose family income is less than Rs.1 lakh perannum, shall get full exemption from payment of tuition fee).
III) The *other Economically weaker students (whose family income is between Rs.1 lakh toRs.5 lakh per annum, shall get exemption from payment of tuition fee equivalent to 2/3rd of the tuition fee.
* Irrespective of the caste category of the students.

3.8 HOSTEL/MESS FEES : To be notified separately

*subject to revision in every semester.
Please Note : The students are required to pay the Hostel/Mess Fees every semester.

4   DISCIPLINE AND ATTENDANCE

4.1   DISCIPLINE

(a)   Students are expected to dress and to conduct themselves in a proper manner.
(b)   All forms of ragging are prohibited. If any incident of ragging comes to the notice of the authorities, the student concerned shall be given the opportunity to explain. If the explanation is not found to be satisfactory, the authorities can expel him/her from the Institute.
(c)   The students are expected to conduct themselves in a manner that provides a safe working environment for women. Sexual harassment of any kind is not tolerable and will attract appropriate disciplinary action.

4.2   PUNISHMENT TO THE STUDENTS WHO INDULGE IN UNFAIR MEANS DURING QUIZZES/MIDSEMESTER/END-SEMESTER EXAMINATIONS.

The following graded punishments will be imposed on those who indulge in Academic Malpractices—unfair means during quizzes/Mid-semester/End-semester examinations. In such cases, the parents of that student would be informed of such indiscipline:

(a)   For rude behaviour

(i) Severe warning shall be issued to a student who is found to display rude behaviour towards fellow students /invigilators.

(ii) The student is liable to be expelled from the examination hall.

(b)   Malpractices and corresponding Punishments:

S.No.	Nature of Malpractice	Recommended Punishment
1	Communicating with neighbours in the examination hall.	The erring student(s) shall be awarded `F' grade in the subject concerned.
2.	Possessing incriminating* materials inside the examination hall. (or) Possessing the answer book of another candidate. (or) Passing on answer book to another student.(or) Exchange of question papers, with some answers noted down on them. (or) Individual referral of material/discussion with other students, during visit outside the examination hall.	The Disciplinary Committee shall have the discretion to recommend one of the following punishments: (a) The erring students(s) shall be awarded 'F' grade in the subject concerned. (or) (b) The erring student(s) shall be awarded 'F' grade in the subject concerned and one grade less in all the other subjects in the concerned semester. (or) (c) The concerned student(s) shall be awarded `F' grade in all the subjects in the concerned semester.

3.	Involved in malpractice in the examination for the second time, in a premeditated manner.	The concerned student i) shall be awarded 'F' grade in all subjects, inthe concerned semester and ii) shall be debarred from attending classes andtaking examinations in the subsequent semester.
4.	Impersonation in the examination.	The concerned student i) shall be awarded `F' grade in all subjects, inthe concerned semester and ii) shall be debarred from attending classes and taking examinations in the next two subsequentsemesters.

(* incriminating materials include written/printed material; unauthorized additional sheets without or with write-ups, bits,scribbles on scales / handkerchief / on the body; abuse of calculator / organizer / cell phone, etc.)

5   INDIAN INSTITUTE OF TECHNOLOGY ROPAR, PUNJAB
THE HONOUR CODE

I, ………………………………..…..................................…Entry No…………………..……………..

Do hereby undertake that as a student of IIT Ropar, Punjab:

1.   I will not give or receive aid in examination; that I will not give or receive unpermitted aid in classwork, in preparation of reports or in other work that is to be used by the instructor as the basis of grading; and

2.   I will do my share and take an active part in seeing to it that others as well as I uphold the spirit and letter of the Honour Code.

3.   I realize that some examples of misconduct which are regarded as being in violation of the Honour Code include:

   • Copying from another's examination paper or allowing another to copy from one's own paper;

   • Unpermitted collaboration;

   • Plagiarism;

   • Revising and resubmitting a marked quiz or examination paper for regarding without t h e instructor's knowledge and concern;

   • Giving or receiving unpermitted aid on take home examination;

   • Representing as one's own work the work of another, including information available on the internet;

   • Giving or receiving aid on academic assignments under circumstances in which a responsible person should have known that such aid was not permitted; and

   • Committing a cyber offence such as breaking passwords and accounts, sharing passwords, electronic copying, planting viruses etc.

I accept that any act of mine that can be considered to be an Honour Code violation will invite disciplinary action.

Date:……………………..   Student's Signature………………......……………...................

                                     Name:……………………………………........................……...

                                       Entry No: ……………………………….................………………….

6 ACADEMIC INTEGRITY

1. Cases of ethical lapses emanating from institutions of scientific research are increasingly being reported in the news. In this context, we need to create awareness and come up with a set of clear guidelines to maintain academic integrity. A flourishing academic environment entails individual and community responsibility for doing so. The three broad categories of improper academic behavior that will be considered are: I) plagiarism, II) cheating and III) conflict of interest.

2. Cases of ethical plagiarism are the use of material, ideas, figures, code or data without appropriate acknowledgment or permission (in some cases) of the original source. This may involve submission of material, verbatim or paraphrased, that is authored by another person or published earlier by oneself. Examples of plagiarism include:

    (a) Reproducing, in whole or part, text/sentences from a report, book, thesis, publication or internet.

    (b) Reproducing one's own previously published data, illustrations, figures, images, or someone else's data, etc.

    (c) Taking material from class-notes or downloading material from internet sites, and incorporating it in one's class reports, presentations, manuscripts or thesis without citing the original source.

    (d) Self-plagiarism, which constitutes copying verbatim from one's own earlier published work in a journal or conference proceedings without appropriate citations.

    The resources given in Subsection (8) explain how to carry out proper referencing, as well as examples of plagiarism and how to avoid it.

3. Cheating is another form of unacceptable academic behavior and may be classified into different categories:

    (a) Copying during exams, and copying of homework assignments, term papers or manuscripts.

    (b) Allowing or facilitating copying, or writing a report or exam for someone else.

    (c) Using unauthorized material, copying, collaborating when not authorized, and purchasing or borrowing papers or material from various sources.

    (d) Fabricating (making up) or falsifying (manipulating) data and reporting them in thesis and publications.

    4. Some guidelines for academic conduct are provided below to guard against negligence as well as deliberate dishonesty:

    (a) Use proper methodology for experiments and computational work. Accurately describe and compile data.

    (b) Carefully record and save primary and secondary data such as original pictures, instrument data readouts, laboratory notebooks, and computer folders. There should be minimal digital manipulation of images/photos; the original version should be saved for later scrutiny, if required, and the changes made should be clearly described.

    (c) Ensure robust reproducibility and statistical analysis of experiments and simulations. It is important to be truthful about the data and not to omit some data points to make an impressive figure (commonly known as "cherry picking").

    (d) Lab notebooks must be well maintained in bound notebooks with printed page numbers to enable checking later during publications or patent. Date should be indicated on each page.

    (e) Write clearly in your own words. It is necessary to resist the temptation to "copy and paste' from the Internet or other sources for class assignments, manuscripts and thesis.

    (f) Give due credit to previous reports, methods, computer programs etc. with appropriate citations. Material taken from your own published work should also be cited; as mentioned above, it will be considered self-plagiarism otherwise.

5. A clash of personal or private interests with professional activities can lead to a potential conflict of interest, in diverse activities such as teaching, research, publication, work on committees, research funding and consultancy. It is necessary to protect actual professional independence, objectivity and commitment, and also to avoid an appearance of any impropriety arising from conflicts of interest. Conflict of interest is not restricted to personal financial gain; it extends to a large gamut of professional academic activities including peer reviewing, serving on various committees, which may, for example, oversee funding or give

recognition, as well as influencing public policy. To promote transparency and enhance credibility, potential conflicts of interests must be disclosed in writing to appropriate authorities, so that a considered decision can be made on a case-by-case basis. Some additional information is available in the section below dealing with resources.

6. The responsibility varies with the role one plays.

   (a) Student roles: Before submitting a thesis to the department, the student is responsible for checking the thesis for plagiarism using software that is available on the web. In addition, the student should certify that they are aware of the academic guidelines of the institute, have checked their document for plagiarism, and that the thesis is original work. A web-check does not necessarily rule out plagiarism.

   (b) Faculty should ensure that proper methods are followed for experiments, computations and theoretical developments, and that data are properly recorded and saved for future reference. In addition, they should review manuscripts and theses carefully. Apart from the student certification regarding a web-check for plagiarism for theses, the Institute will provide some commercial software at SERC for plagiarism checking. Faculty members are encouraged to use this facility for checking reports, theses and manuscripts. Faculty members are also responsible for ensuring personal compliance with the above broad issues relating to academic integrity.

   (c) A breach of academic integrity is a serious offence with long lasting consequences for both the individual and the institute, and this can lead to various sections. In the case of a student, the first violation of academic breach will lead to a warning and/or an "F" course grade. A repeat offence, if deemed sufficiently serious, could lead to expulsion. It is recommended that faculty members bring any academic violations to the notice of the Department Chairman. Upon receipt of reports of scientific misconduct, the Director may appoint a committee to investigate the matter and suggest appropriate measures on a case to case basis.

7. The Indian Institute of Technology Ropar will own the Intellectual Property (IP) made or created by any student carrying out research under the supervision of any employee of the Institute, or the IP developed individually by the student in the course of his/her studies at IIT Ropar, or with any use of IIT Ropar facilities. By accepting admission to IIT Ropar, a student agrees to assign to the IIT Ropar all such IP made or created at IIT Ropar, including inventions and copyright-able material; and to execute all papers required to assign, apply for, obtain, maintain, issue and enforce IP and IP rights.

8. References:

   1. National Academy of Sciences article "On being a scientist,"
      http://www.nap.edu/openbook.php?record_id=4917&paRI
   2. http://www.admin.cam.ac.uk/univ/plagiarism/
   3. http://www.aresearchguide.com/6plagiar.html
   4. https://www.indiana.edu/~tedfrick/plagiarism
   5. http://www.files.chem.vt.edu/chem-ed/ethics/index.html
   6. http://www.ncusd203.org/central/html/where/plagiarism_stoppers.html
   7. http://sja.ucdavis.edu/files/plagiarism.pdf
   8. http://web.mit.edu/academicintegrity/
   9. http://www.northwestern.edu/provost/students/integrity/
   10. http://www.ais.up.ac.za/plagiarism/websources.htm#info
   11. http://ori.dhhs.gov/
   12. http://www.scientificvalues.org/ceses.html

7 SCHOLARSHIPS AND FELLOWSHIPS

7.1 SCHOLARSHIP FOR B.TECH. STUDENTS

7.1.1 INSTITUTE MERIT-CUM-MEANS (MCM) SCHOLARSHIPS

The Institute offers Merit-cum-Means scholarships to under-graduate students in engineering and technology. These are permissible to about 25% of the students. The present value of Merit-cum-Means scholarship is Rs.1000 per month for general category students and the recipient is exempted from paying tuition fee. 4-year B.Tech. students are eligible to receive Merit-cum-Means scholarship at the time of joining the Institute. The criterion of merit for the first year is All India Rank (AIR) in the JEE. The scholarships are renewed on a yearly basis until he/she clears all academic requirements of the programme, provided that he/she continues to satisfy the eligibility and continuation criteria.
For continuation of MCM, the performance of the students will be reviewed at the end of each semester. The first such review will be held at the end of the second semester.

On the criterion of means, only those students are presently eligible whose parents have a gross yearly income up to Rs. 4.5 lacs per annum. This criterion is applicable for all categories of students including SC/ST students. The terms and conditions of the award of the scholarship are laid down in the rules and regulations thereof in force and are subject to change from time to time.

Continuation of MCM Scholarship: For the general category students, the requirements of merit for the continuation of Institute Merit-cum-Means Scholarship are:

- CGPA must be 6.0 or more; and
- Earned credits should not less than 18 times the number of semesters registered for OR actual no. of credits offered by the department;
- SGPA in the previous semester must be 6.0 or more
- The SGPA, CGPA, Credits of Basic B.Tech. will only be considered.
- The SGPA requirement will be waived for the students having only "Additional Internship" in the semester in which he/she does additional internship.

7.1.2 INSTITUTE MERIT PRIZES AND CERTIfiCATES

The Institute offers merit prizes and certificates to the top 7% of the students of each 4-year B.Tech. Programme for the 1st and 2nd semester. The value of merit prize is Rs. 2500. The rules are as follows

1. For Merit Prizes and Certificates, the top 7% of the students admitted or sanctioned capacity whichever is less will be eligible in order of merit. In case the 7% limit is exceeded by virtue of more than one student having same merit, those students will also be eligible for these awards. The students having SGPA/CGPA less than 8.50 will not be considered for the award of merit prizes and certificates.
2. If 7% departmental strength is less than one, the students with highest CGPA subject to minimum 8.5 will be awarded the merit prizes of Rs.2500/-.
3. A prize of Rs.2500/- will be paid to all students entitled to merit prizes. This will be in addition to any scholarship that student may receive from any source whatsoever.
4. The SGPA, CGPA, Credits of Basic B. Tech. will only be considered for award of 7% merit prize and certificates.
5. The award will be given to top 7% of the students each semester based on their SGPA in the previous semester.
6. The award of 1st year students will be given in 2nd semester based on their performance in 1st semester.
7. There will be common merit list of all students for the first year students. The merit list from 2nd to 5th year will be made discipline wise.
8. Any student except final semester, having less than 18 earned credits in the semester under consideration will not be eligible for merit prizes. All the credits of courses repeated by the student in the semester under consideration will not count towards the 18 earned credits mentioned above.

9.   All graduating students subject to 7% limit will be considered eligible for awards on SGPA basis obtained during 8th/10th semester. In case of a tie, merit prize will be awarded to the student with higher CGPA.
10.   The SGPA, CGPA, Credits of Basic B.Tech. will only be considered for award of 7% merit prize and certificates.
11.   The SGPA requirement will be waived for the students having only "Additional Internship" in the semester in which he/she does additional internship.

7.1.3 INSTITUTE FREE STUDENTSHIP

The Institute offers free studentship to 10% of the students on the basis of means alone. The recipient is exempted from paying tuition fee. Students who are not eligible for the award of MCM Scholarship on the basis of their parent's income will not be considered eligible for the award of Free Studentship Scholarship.

On the criterion of means, only those students are presently eligible whose parents have a gross yearly income up to Rs. 4.5 lac per annum. This criterion is applicable for all categories of students including SC/ST students. If the slots are available in this scholarship scheme, the eligible students can be granted scholarship at any time, during their program on their request only. The terms and conditions of the award of the scholarship are laid down in the rules and regulations thereof in force and are subject to change from time to time.

Continuation of Free studentship : For the general category students, the requirements of merit for the continuation of Institute Free studentship Scholarship are:

● CGPA must be 6.0 or more; and
● Earned credits should not less than 18 times the number of semesters registered for OR actual no. of credits offered by the department;
● SGPA in the previous semester must be 6.0 or more
● The SGPA, CGPA, Credits of Basic B.Tech. will only be considered.
● The SGPA requirement will be waived for the students having only "Additional Internship" in the semester in which he/she does additional internship.

7.1.4 SCHOLARSHIP PROVISION FOR STUDENTS OF SC/ST CATEGORY

(a)   Tuition fee exemption is admissible to all SC/ST students irrespective of their parents/guardians income.

(b)   The Institute offers a scholarship of Rs. 300/- per month and exemption from paying room rent of the hostel, only to those SC/ST students whose parent'/guardians' income does not exceed the limit prescribed by the Government of India from time to time for the award of Merit-cum-Means scholarship.

<div align="center">or</div>

Free messing scholarship: The students can opt for free mess facilities (basic menu) and Rs.250/- per month as pocket allowance in lieu of the amount of the scholarship.
All the eligible SC/ST students while on training or doing courses during semester breaks or required to stay in the Institute during the semester breaks or exempted to take meals from the hostel due to medical reasons etc. may be given a payment of Rs. 70/- as pocket allowance (per month) and a per diem allowance in lieu of free mess facilities on the basis of prevalent average rate of mess charges as applicable from time to time.

(c)   Where an SC/ST candidate fails in the examination for the first time, the award may be renewed subject to a maximum limit of 5 years.

7.2 OTHER MISCELLANEOUS SCHOLARSHIPS FROM CENTRAL GOVERNMENT /STATE GOVERNMENT / NGO'S / SOME EXTERNAL AGENCIES:

7.2.1 NATIONAL SCHOLARSHIPS PORTAL (FOR ALL CATEGORY STUDENTS):

National Scholarships Portal is one-stop solution through which various services starting from student application, application receipt, processing, sanction and disbursal of various scholarships to Student are enabled. Where all scholarships information available under one umbrella. Various scholarship schemes are launched/offered by Union Government, State Government and Union Territories for students on National Scholarship Portal. Single integrated application used for all scholarships.

The student can opt for these scholarship offered to them by State/Central Government and other external agencies/NGO's.Students are required to apply for this scholarship to https://scholarships.gov.in .

7.2.2 DR. B.R AMBEDKAR SCHOLARSHIP PORTAL :
http://www.scholarships.punjab.gov.in/Default.aspx.

7.2.3 MUKHYA MANTRI MEDHAVI VIDHYARTI YOJANA (MMVY):
http://scholarshipportal.mp.nic.in/slogin.aspx?ReturnUrl=%2fInstituteAdmin%2fVariousSchemes%2fMMVY%2fReports%2fView_Applications.aspx

7.2.4 E-KALYAN _DEPARTMENT OF SCHEDULED TRIBE, SCHEDULED CASTE, MINORITY AND BACKWARD CLASS WELFARE,GOVT.OF JHARKHAND : https://ekalyan.cgg.gov.in/

7.2.5 BIHAR POST MATRIC SCHOLARSHIP :
https://pmsonline.bih.nic.in/pmsedu/(S(0srb2etyanwscwqty5tlki53))/pms/Default.aspx

7.2.6 PMSSS J & K SCHOLARSHIP
https://www.aicte-jk-scholarship-gov.in/institutes/login.php

7.2.7 SOME EXTERNAL AGENCIES: FAEA / Reliance foundation / NTSE etc.

Student can avail scholarships from their parents employer, if any departments offers.

7.2.8 JEE ADVANCED RANK MERIT SCHOLARSHIP:

B.Tech. Students satisfying the below criteria are eligible for the JEE Advanced rank merit scholarship:
(A). Merit scholarship to 2% to 3% of the students having JEE Advanced Rank given below will be provided scholarship as follows:

1	JEE Advanced Rank 1to 500 in common Rank list (CRL)	Scholarship equivalent to the full tuition fees.
2	JEE Advanced Rank 501 to 1000 in common Rank list (CRL)	Scholarship equivalent to the half tuition fees.

(B). For continuation of the scholarship, the students have to fulfill the following criteria.
i.   CGPA must be 7.0 or more; and
ii.   Earned credits should not less than 18 times the no. of semesters registered for.

         SGPA in the previous semester must be 7.0 more.

7.2.9 GUIDELINES FOR   VIDYA LAXMI LOAN SCHEME.

Vidya Lakshmi Education Loan Scheme was launched under the Pradhan Mantri Vidya Lakshmi Karyakram to increase the literacy rates in the country. Under this scheme, the interest subvention is given to the students subject to their satisfactory academic performance in the institution. students interested to take loan are required to visit to the website www.vidyalakshm.com.in. Students can view, apply and track the education loan applications to banks anytime, anywhere by accessing the portal.

Following is the criteria for satisfactory Academic performance for Vidya Laxmi Loan Scheme

1. The student should secure a minimum CGPA of 5.00 at the end of each semester.
2. There should not be any backlog in any registered course throughout the academic programme.
3. Earned credits should not less than 18 times the number of semesters registered for OR actual no. of credits offered by the department.
4. There should not be any disciplinary action against the student seeking interest subvention on education loan.

8. LIBRARY FACILITIES

The Central Library functions as the primary information resource centre and repository of printed and electronic resources for teaching and research activities at the institute. Apart from textbooks and recommended reading materials prescribed for each course offered at the institute, the library houses a growing collection of research monographs, reports, multi-volume reference works, dictionaries, encyclopedias, handbooks, and so on. The library facilitates access to electronic journals through its participation in consortia, such as E-Shodh Sindhu. The library also subscribes to several e-journals directly from publishers as well as through reputed subscription agencies. At present, users can consult more than 22,500 books (available on shelves) and thousands of electronic books, journals. Online access is also provided to economic and political databases, scientometric databases such as Scopus, MathSciNet, and Web of Science.

The library operations have been automated using LIBSYS 7 (EJB Version) software. The Online Public Access Catalogue (OPAC) , which is in the public domain, enables users to search documents in possession of the library. The library is using the Radio Frequency Identification Technology (RFID), a state-of-the-art auto identification technique which helps in self-servicing and enhanced security. A separate e-resources section is provided in the library to browse CDs and DVDs of books, theses, and dissertations. The library has developed an institutional digital repository (IDR) using open source software (DSpace) to archive and provide online access to the intellectual output of the institute. IDR is available publicly. These steps will significantly enhance the library's efficiency in making the resources available to the academic community at large and also enable the institute to participate in various inter-library initiatives at national and international levels. Library also provided access to Indian Research Information Network System (IRINS) developed by INFLIBNET which gave comprehensive information about the research profiles of IIT Ropar.

The library is offering extensive research support services such as citation analysis, usage of reference management tools, copyright and plagiarism support etc. The library has subscriptions to Turnitin & Urkund, standard academic anti-plagiarism tools and Grammarly, an English grammar checking tool to improve the quality of writing and research publications. The library is continuously striving to identify and adopt the emerging academic and research support tools and helping the institute in achieving its vision and mission.

8. HEALTH CARE

Presently the Institute Medical Centre is located in a utility building adjoining the hostel complex. Medical Centre consist of full time medical officers, paramedical staff to attend faculty, staff and students and having facility of visiting specialist doctors. The medical centre has facilities of outdoor patient treatment (OPD), day care services, medical emergency care 24x7 and having referral facility via well equipped ambulance round the clock. In addition, the Institute has empanelment with local Ropar hospital and a few superspecialty hospitals in the city Mohali and Chandigarh for providing medical care to IIT fraternity. IIT Ropar provides cashless facilities for OPD treatment from the local empanelled hospitals in Ropar. The students are covered under medical insurance for indoor treatment subject to terms and conditions of insurance policy. Medical Healthcare aims to enhance the health care experience of IIT Ropar campus community by providing healthcare with respect, consideration and confidentiality.

9 HOSTEL AND DINING FACILITIES

The Institute campus has three 3 boys hostels (Satluj, Beas, Chenab) and 1 girl hostel(Raavi) with a total capacity of 2010 available at the main campus. In addition to this there is one boys hostel and 2 girls hostel at Transit campus. All hostels are well furnished along with common rooms for recreational activities for each hostel. The campus also has an expansive and airy common dining area. All hostels are provided with excellent drinking water facilities. Each hostel has common facilities indoor, recreation and games. The hostel complex also includes a few shops that cater to the basic needs of the residents. IIT Ropar also provides gymnasium facilities within its campus for its students. Lush green IIT campus add enormous fuel in the daily life of the students. We have lively and enchanting campus life wherein the students are provided with all the amenities for the recreational activities. Here at IIT Ropar students rejuvenate their hidden talent and relive their hobbies. State of the art classrooms with Audio visual aids and state of the art laboratories with latest research facilities enhance the teaching- learning process while High Tech library with tremendous books, journals, periodicals etc help them to connect with the entire world of information and knowledge. We have also introduced drastic changes to the Mess Menu with detailed options given to students w.r.t the food items they would like to have in the Mess by fixing the base menu and providing extra items in the menu which they student can opt for at an extra cost. At IIT Ropar, Students relish research and extracurricular activities to grow as an aspiring engineer with moral and ethical integrity.

10 STUDENT ACTIVITIES

The Institute has a Society for Publication and Communication Skills Development. In addition, there are Music, Dance, Dramatics, Arturo, Fine Arts, Literary clubs and also Science & Technology, Robotic Societies, Monochrome, Computer Integrated Manufacturing, Astronomy, Quiz, Coding clubs where the students can participate and develop a well– rounded personality.

11 RECREATIONAL FACILITIES

At present, the transit campus has excellent facilities for several sports, including a cricket field, three lawn tennis courts, a football field, a hockey field, a gymnasium, a basket ball court, badminton courts, an athletics track, table tennis room and also facilities for several athletic events. The institute encourages its students to participate in inter-IIT sport events and other competitions. Space for recreational and creative activities is also available. The institute is actively involved in collaboration programs with international organizations and universities. The institute has the following facilities other than the basic academic facilities.Virtual Classrooms (NKN) Two virtual classrooms have been set up at IIT Ropar. NKN interconnect the institutions engaged in research, higher education and scientific development in the country.

12 GENERAL FACILITIES

The Institute has a branch of SBI as well as a Post office to cater to the needs of the faculty members, staff and students.

14. DETAILS OF MEDALS

Name of the Medal	Criteria for Award
President Gold Medal	A candidate who obtains the highest CGPA among all students obtaining a B.Tech. degree in that year from-the 4 year B.Tech. programme. In case there is a tie, the medal is awardedto the student with the largest earned credits.
Director Gold Medal	A candidate who is adjudged as the best all-rounder from amongst the graduating students of the 4 year B.Tech. programme.
Institute Gold Medal	A candidate securing a CGPA of 10, other than the one whohas been awarded the President's Gold medal.
Institute Silver Medal (For each programme)	A candidate (one in each programme) who obtains the highestCGPA among and undergraduate graduating class of the Institute in his/her programme. No silver medal will be awarded in the discipline from which a student gets the President's Gold Medal & Institute Gold Medal. A minimum CGPAof 8.5 is required for the Institute Silver Medal; in case no graduating student satisfies this criterion, the student with the highest CGPA is given a certificate.

15. ACADEMIC CALENDAR FORTHE1ST SEMESTER OF ACADEMIC YEAR 2023-24

Please visit - www.iitrpr.ac.in/academic-calendar-

CONTACT INFORMATION

Director

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Associate Dean
(Academics-UG)

Dr. Jitendra Prasad
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Associate Dean
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Associate Dean
(Student Affairs)

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