\*\*Preamble\*\*

The vision of the Indian Institute of Technology (IIT) Goa is to become a distinctive institution of higher learning that offers state-of-the-art education, research, and training in the fields of science, technology, humanities, and social sciences. Its goal is to make a positive impact on society and the environment by addressing global and local challenges. The dynamic and rigorous faculty members at IIT Goa are committed to pursuing research, leading to the establishment of the Ph.D. program across various disciplines in the institute.

IIT Goa, founded in 2016, has been steadily enhancing its modern research facilities and expanding its infrastructure, providing strong support for the Ph.D. program. The program received approval from the Senate of IIT Goa during its inaugural meeting. The primary objective of the Ph.D. program is to realize the vision of IIT Goa.

A Ph.D. degree is awarded to recognize independent research achievements and the application of knowledge to solve technical and scientific problems. To attain this degree, students must meet specific criteria set by the Senate of IIT Goa, which includes acquiring credits through coursework and research. Admission to the Ph.D. program is based on a centralized institute process, and IIT Goa actively encourages interdisciplinary research.

The institute has been actively involved in various sponsored projects from both the government and industrial sectors. IIT Goa offers comprehensive facilities for groundbreaking research in various fields of science, technology, humanities, and social sciences. Students have access to all facilities within and outside the school to which they are enrolled. IIT Goa has established Memoranda of Understanding (MoUs) with various institutes and national laboratories in India and abroad, enabling students to work in different locations for their research.

IIT Goa regularly invites distinguished personalities from various fields and organizes events such as workshops, symposia, and conferences. These events foster engaging discussions that contribute to the students' intellectual growth. The institute also supports students in their non-academic development by providing opportunities to explore their extracurricular interests through various clubs. Additionally, IIT Goa offers psychological and emotional support services to students in need. In other words, IIT Goa strives to create the best possible environment for students pursuing the Ph.D. program and excelling in their chosen research path.

\*\*II\*\*

This manual serves as a guiding document for the exciting journey that students have decided to embark upon. The rules and regulations are presented with minimal ambiguity. The manual may evolve with changing times as needed. It has been prepared by the Senate Postgraduate Committee (SPGC), appointed by the Senate of IIT Goa. The committee's primary aim is to provide maximum flexibility to both students and faculty, ensuring a smooth conduct of the program.

\*\*Currently Running Ph.D. Program\*\*

During its first meeting on January 30, 2018, under the chairmanship of Prof. B. K. Mishra, the Senate of IIT Goa approved the Ph.D. program in the following disciplines:

- Chemistry

- Computer Science and Engineering

- Economics

- Electrical Engineering

- Mathematics

- Mechanical Engineering

- Language and Literature

- Physics

\*\*Acknowledgments\*\*

This manual is an adaptation of the Ph.D. rules and regulations implemented in various esteemed institutes in India and abroad. We express our gratitude to these institutions for making them available online.

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\*\*Introduction\*\*

This manual provides comprehensive guidelines, rules, and regulations for students enrolled in the Ph.D. program at IIT Goa. The awarding of a Ph.D. degree is contingent upon the following conditions:

- The student has successfully fulfilled the minimum credit requirements, as outlined by the respective Academic Units (AUs) (refer to Table 3.1).

- The student has engaged in research under the guidance of their Doctoral Adviser(s) for a minimum of two years, commencing from the date of confirmation of Ph.D. registration (as described in Chapter 5).

- In certain cases, the student may be allowed to conduct a portion of their research work outside the institute, in settings such as industries, laboratories, workshops, work sites, or other research facilities. This decision is based on the recommendations of the Doctoral Committee (DC) and requires approval from the relevant Academic Unit (AU). If the student plans to be away from the institute for a duration exceeding two months, approval from the Senate Postgraduate Committee (SPGC) is mandatory (see Chapter 9 for further details).

- The student's dissertation must receive recommendations for the award of the Ph.D. degree from two external referees affiliated with esteemed universities or research institutions. Additionally, the Board of Examiners, constituted for the viva voce (as explained in Chapter 7), must endorse the dissertation.

This manual adheres to the new credit hour calculation system (refer to Section III.1) for courses, setting out the minimum requirements for the Ph.D. program. For students who were already enrolled, the previous credit hour calculation scheme for courses may still apply. However, a mapping to the new credit system, which is based on contact hours, can be found in Annexure III.

The credit system was integrated from the new undergraduate curriculum approved during the 3rd meeting of the Senate held on June 10, 2019, at IIT Goa.

\*\*Admissions\*\*

\*\*2.1 Admission Categories\*\*

Students gain admission to the Ph.D. program through an institute selection process, falling under one of the following categories:

\*\*Full-Time or Regular Ph.D. Student:\*\*

- \*\*Teaching Assistantship (TA):\*\* Students receive a fellowship from the institute following the Ministry of Education's guidelines.

- \*\*TA through Project (TAP):\*\* Students receive a fellowship from a research project and partial support from the institute.

- \*\*Government/Semi-Government Fellowship Awards:\*\* This includes QIP, CSIR-JRF, UGC-JRF, DAE, DST-INSPIRE, DBT, NBHM, and similar awards.

- \*\*Sponsored:\*\* Students in this category are sponsored by R&D organizations, academic institutions, government organizations, or industry. They conduct full-time research in the institute, with no assistantship or fellowship provided by the institute.

- \*\*Self-financed:\*\* Students in this category pursue the Ph.D. program full-time or part-time without any assistantship or fellowship from the institute.

\*\*Part-Time Ph.D. Student:\*\*

- \*\*Professionally Employed:\*\* These students, including IIT Goa staff, pursue the Ph.D. program while continuing their employment. The institute does not provide any assistance or fellowship.

- \*\*Permanent Employees from State or Central Government Universities, Colleges, or Research Institutes and Labs\*\*

- \*\*External:\*\* This category includes students employed in R&D organizations, academic institutions, or industries with adequate research facilities. Research work leading to the Ph.D. degree can be conducted primarily in the student's parent organization, guided by a Local Supervisor from that organization, with overall guidance provided by an Institute Supervisor from the AU in which the student is registered.

- \*\*Self-Sponsored:\*\* Self-financed students who are permanent staff of IIT Goa.

\*\*2.2 Eligibility for Admission to the Ph.D. Program\*\*

Candidates must meet the institute's requirements for admission, which include:

- \*\*At least First Division or equivalent\*\* in M.A./M.Sc./B.Tech./B.E./MCA/M.Tech./M.Phil. or an equivalent degree in the appropriate branches.

- Individual Academic Units (AUs) may impose higher cutoff levels or other discipline-specific criteria for shortlisting, if necessary.

- Candidates from reserved categories are eligible for relaxations in the selection criteria, as per applicable norms.

\*\*Registration and Credit Requirements\*\*

- All Ph.D. students are required to submit their original Qualifying Degree/Diploma Certificates (QDC) within one year after joining the institute or before the confirmation of their Ph.D. registration, whichever occurs earlier. In cases where students do not possess QDC, they must provide their provisional degree/degree completion certificate along with the degree/diploma transcripts at the time of Ph.D. program admission. Students admitted provisionally will not receive their fellowship until their admission is confirmed. If the QDC is not produced within the stipulated time, provisional admission will be canceled.

- Students who cannot submit their QDCs within the due date should apply for an extension, providing reasons and a new date for submission.

- Students may participate in examinations even without submitting their QDCs until the commencement of the end-semester examination. However, their results will be withheld until the required documents are produced.

- Students who do not meet the admission requirements (such as those awaiting the results of qualifying exams) and have been provisionally selected must submit their provisional certificates within six months of joining, or their admission will be canceled.

- Requirements for scholarships from various funding agencies will apply to student scholarships.

- Upon joining the institute, each student is assigned a Faculty Advisor (FA) by the Academic Unit (AU) in which the student is admitted. The student must plan their academic program in consultation with the FA and identify a Doctoral Adviser (DA), informing the Academic Office within the stipulated time.

- All enrolled students must register for courses or research at the beginning of each subsequent semester through the institute registration program, in consultation with their FA/DA.

- Registration at the start of each semester is mandatory for all students, and they must adhere to the prescribed registration dates.

- Students are required to register for a minimum of 12 credits every semester. If the total credits from core and elective courses in a given semester are less than 12, the remaining credits may be taken as research credits (as explained in Section 3.2).

- Failure to register for two consecutive regular semesters will result in the automatic cancellation of admission.

- Ph.D. students registered for five or more years in the program must apply for an extension of Ph.D. registration in the subsequent year, on or before the last date for completing the Academic Performance Summary (APS) for the previous year. Financial support will follow the rules set by the funding agency and/or the institute.

- Students can register for a maximum of two audit courses per semester with the consent of their FA/DA.

- Students are not allowed to re-register for a course in which they have already secured an Audit or Passing Grade, except for course replacement (details in Section 8.3).

| Qualifying Degree | Minimum Credits Through Coursework | Minimum Credits Through Research | Minimum Credits for Graduation | Minimum Duration to Graduate | Maximum Duration to Graduate |

|------------------------|-----------------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|

| Group A | B.Tech., B.E. or equivalent 4-year bachelor's degree | 24 | 54 | 78 | 3.5 years | 7 years |

| Group B | M.Sc., M.A. or equivalent | 18 | 54 | 72 | 3 years | 6 years |

| Group C | M.Tech., M.E., or M.Phil. or equivalent | 9 | 54 | 63 | 2.5 years | 6 years |

- Table 3.1 outlines the minimum credit requirements and expected duration for students enrolled in the Ph.D. program based on their qualifying degree. The expected duration is counted from the date of joining. Students are allowed to complete extra credit courses if recommended by their DA(s), DC, or AU.

\*\*3.1 Credit Requirements through Course-work\*\*

Ph.D. students must attain the prescribed minimum credits through coursework as per Table 3.1. The following guidelines apply:

- Group C students must complete their coursework within one semester from the date of joining.

- Group A and B students must complete their coursework within the first two semesters from the date of joining.

- Extensions may be granted with permission from SPGC.

\*\*3.1.1 Course Registration\*\*

Ph.D. students should register for courses after paying the required semester fees. Course registration should be done in consultation with and approval from their Faculty Advisor (FA) or Doctoral Adviser (DA).

Students can make course adjustments within the specified timeframe on the Academic Calendar. Any discrepancies in a student's registration will be communicated by the Academic Office. It is the students' responsibility to ensure compliance with the credit requirements.

In exceptional cases, Ph.D. students who are unable to start their coursework in the semester of admission may commence in the following semester with approval from SPGC and the Chair of the Senate.

\*\*3.1.2 Dropping a Course\*\*

Ph.D. students may drop courses if their academic load becomes too heavy. The following conditions apply:

- Students must meet the minimum course credit requirements and ensure they do not violate Table 3.1.

- The last date for course drops will be specified in the Academic Calendar.

- Dropped courses will appear in the student's transcript with a "W" (Withdrawn) grade, which does not affect the Cumulative Performance Index (CPI).

\*\*3.1.3 Relaxation from Course Credit Requirements\*\*

Relaxations in course credit requirements may be considered on a case-by-case basis, subject to the recommendation of SPGC and Senate discretion.

\*\*3.1.4 Crediting NPTEL or MOOC Courses\*\*

Ph.D. students may credit NPTEL or MOOC courses under specific circumstances with approval from their FA/DA(s) and Academic Unit (AU). The following rules apply:

- Only PG level courses will be considered for course credit.

- The credits from NPTEL/MOOC courses should not exceed 40% of the total course credit requirements (individual AUs can lower this limit if necessary).

- Students must obtain prior approval for these courses, follow institute deadlines and guidelines, and refer to Annexure IV for credit calculation and grading details.

\*\*3.1.5 Research Communication, Ethics, and Methods\*\*

This is a compulsory course for all Ph.D. students, carrying 3 credits graded as Pass/Non-Pass. It is not counted toward the minimum course credit requirements. Exemptions may be granted to students with equivalent courses completed at reputable institutes within the past five years.

\*\*3.2 Credits Requirements through Research\*\*

Ph.D. students must acquire certain minimum credits through research, as outlined in Table 3.1. These credits are earned through research courses, and the following conditions apply:

- Doctoral Research: Students can register for these credits after meeting Ph.D. registration requirements. The grading system differs from the regular 10-point grading scheme and does not impact CPI/SPI.

- Graduate Research: Students may also register for graduate research credits, which can be guided by a faculty member. A maximum of 6 credits may be considered toward the minimum research credit requirements for the Ph.D. program.

- Students may take theory courses approved by their DA(s) after Ph.D. registration to satisfy minimum requirements for an academic year or the Ph.D. program.

These credits are significant for academic termination, probation, or exit degree decisions, and the final grades should align with the performance in the Annual Progress Seminar (APS). Grading of research credits is as follows: S (Satisfactory) or U (Unsatisfactory).

\*\*Doctoral Adviser (DA)\*\*

- For students in Group B and Group C (Table 3.1), DA allocation should be completed within the first three months of their enrollment.

- For Group A students (Table 3.1), DA allocation should be completed within one year of their enrollment as per the AU's policies.

\*\*Doctoral Committee (DC)\*\*

- The DA(s) should form the Doctoral Committee (DC) in consultation with the student well before the student's comprehensive examination (Section 5.1).

- The DC typically consists of five members, including:

- The doctoral adviser(s)

- Two to three faculty members from the student's AU

- One faculty member from the institute, outside the student's AU, who is knowledgeable about the subject.

- Additional members if necessary.

- Any member other than the DA chairs the committee, while the DA serves as the convener.

- DCs must be approved by the respective AU's Postgraduate Committee and then forwarded to the Dean (Academic Programs)’s office.

- SPGC's approval is required for the DC.

- The DC has various roles, including but not limited to:

- Ensuring the Ph.D. student's good standing in terms of coursework and research throughout the program.

- Setting additional research and publication requirements beyond what is specified in the Ph.D. manual.

\*\*Change of DA(s)\*\*

- If a situation arises where a student requests a change of DA or a faculty member requests to be relieved from supervising the student, and another faculty member agrees to supervise the student, the change may be approved by the Chair of the Senate.

- In such cases, the DC may be reformed.

- If the research area requires modification due to this change, the student's entire coursework requirement shall be reviewed by the DC, and the confirmation of Ph.D. registration may be revised, if necessary.

- If no faculty member is willing to take over the student, the student will need to exit (Section 8.5) or leave the Ph.D. program.

\*\*Confirmation of Ph.D. Registration\*\*

- A student will receive confirmation of Ph.D. registration only after successfully completing the comprehensive examination (Section 5.1) and meeting the minimum course credit requirements (e.g., see Section 5.1, Table 3.1).

\*\*5.1 Ph.D. Comprehensive Examination\*\*

- The Ph.D. Comprehensive Examination is a mandatory requirement for every student to complete Ph.D. registration. This examination assesses a student's readiness to engage in doctoral research.

- The exam must be successfully completed within six months after fulfilling the minimum course credit and CPI requirements.

- The student's Doctoral Committee (DC) will manage the exam. The examination format (oral, written, or a combination) and the specific procedures are determined by the student's Academic Unit (AU) and communicated to the students. Students will receive notification at least one month before the examination date.

- Students who do not pass the exam on their first attempt may be given additional opportunities to retake it. However, students must successfully complete the exam within the prescribed time frame. Failure to do so will result in the student's exit or termination from the Ph.D. program.

- The DC must submit the examination report to the Academic Office within two weeks of conducting the examination.

\*\*5.2 State of the Art Seminar (SOAS)\*\*

- The State of the Art Seminar (SOAS) may be an additional requirement for the Ph.D. program as determined by the respective AU. If the AU mandates the SOAS, it should be completed within six months after the successful completion of the Comprehensive Examination.

- The SOAS is conducted under the guidance of the DC. In cases where the first SOAS is deemed unsatisfactory, the student is required to present another SOAS within a month (or as specified by the DC).

\*\*Annual Progress Seminar\*\*

- Every student enrolled in the Ph.D. program, including part-time Ph.D. students, is required to present an Annual Progress Seminar (APS) after successfully completing the Comprehensive Examination.

- The APS is open to all members of the student's school or program. Typically, students are given a minimum of six months following the Comprehensive Examination to present their APS.

- Students who enroll in July are expected to present their APS every July, while those who enroll in the January semester should present their APS in January.

- These rules are also applicable to students supported by external funding agencies. The date for APS of such students may be determined based on the requirements of the funding agencies.

- APS may also be necessary for the enhancement and/or continuation of any institute assistantship.

- If a student is unable to present the APS according to the schedule, an extension request must be submitted to the academic office at least 15 days before the due presentation date. Such requests will be reviewed on a case-by-case basis.

- If the State of the Art Seminar (SOAS) is introduced as an additional requirement by an Academic Unit (AU), it may replace the first APS. The evaluation will focus on the quality and quantity of research. In addition to the seminar, the student is required to submit a report to the Doctoral Committee (DC) at least ten days before the APS.

- The APS will be assessed by the DC, and the DC will submit a report to the head/coordinator of the AU. The APS report will then be forwarded to the Academic Office within a week of the APS date.

- In cases where coursework and/or research performance is considered unsatisfactory, the student may be asked to present another seminar within six months. If two consecutive APS presentations are unsatisfactory, the student may face termination with or without a lower degree (details in Section 8.5). Decisions in such instances will be made on a case-by-case basis.

- If mandated by the funding agency, an additional member from other institutes may be invited to participate in the evaluation.

\*\*7.1 Pre-dissertation seminar\*\*

- A Ph.D. candidate must present their research work before submitting the synopsis. This seminar is open to the entire IIT Goa community.

- The student is required to submit a report to their Doctoral Committee (DC) at least seven days before the pre-dissertation seminar.

- A positive report from the DC makes the candidate eligible to submit the synopsis to the Doctoral Postgraduate Committee (DPGC) or Senate Postgraduate Committee (SPGC). The synopsis, which is an extended summary of the dissertation, should be submitted within three months of the pre-dissertation seminar to the DPGC/SPGC. After approval of the synopsis, the candidate must submit the dissertation within a month of receiving the DPGC/SPGC report.

- Following synopsis approval, the student's Doctoral Adviser (DA), in consultation with the DC, will submit a confidential list of eight potential external examiners as per the institute's guidelines. This list will be recommended by the AU/DPGC and SPGC, and finally approved by the Chair of the Senate, who may also determine the order in which examiners are contacted by the Academic Office.

- In the event of an unsatisfactory performance in the pre-dissertation seminar, a candidate may be asked to present another seminar within six months of the initial presentation.

- Failure to submit the synopsis and dissertation within the stipulated period will result in the requirement to present the pre-dissertation seminar again.

\*\*7.2 Submission of synopsis and dissertation\*\*

- The dissertation and synopsis must be submitted in the prescribed format to the Academic Office, accompanied by several certificates for submission.

- These certificates include approval from the DC and DPGC for the dissertation submission, confirmation from the student and DA(s) regarding the suitability of the dissertation for consideration and absence of previous degree submissions, a certificate of authorization from the DA(s), and a plagiarism check report.

- The Academic Office will verify that the prescribed course credits have been completed by the student.

\*\*7.3 Evaluation of dissertation\*\*

- Two examiners will evaluate the dissertation.

- The Academic Office will contact external examiners from the approved list provided by the DC within one week of synopsis approval. The synopsis will be sent to the examiners for their review.

- The examiners are required to maintain the confidentiality of proprietary information.

- Examiners must acknowledge their acceptance to evaluate the dissertation within fifteen days of communication. If no response is received, reminders may be sent, and other examiners may be approached if no reply is received within one week.

- If all the suggested examiners decline to review the dissertation or an insufficient number of evaluators is available, the DC may suggest a new list of examiners in consultation with DPGC/SPGC, subject to approval by the Chair of the Senate.

\*\*7.4 Dissertation defense\*\*

- The defense committee is composed of the Chair, an internal examiner, an external examiner (usually the one who evaluated the dissertation), and the student's DA(s).

- The defense committee is constituted by the Chair of the Senate based on SPGC's recommendation.

- The Ph.D. defense is held at an open viva voce examination, and students announce the date and time of the defense at least one week in advance. The defense may be conducted in an online mode if an in-person meeting is not possible.

- The defense committee submits its report on the viva voce examination to SPGC. In case of unsatisfactory performance by the student, a repeat defense is held with approval from the Chair of the Senate.

- The student submits the final dissertation copy in electronic format, after incorporating suggestions and corrections from the defense committee and external examiners, within one month of the defense date. This file should include a signed copy of the approval sheet.

\*\*8.1 Minimum Cumulative Performance Index (CPI) Requirements\*\*

- Students are expected to uphold the minimum Cumulative Performance Index (CPI) of 6.5 out of 10 at the conclusion of each semester. Individual Academic Units (AUs) can establish more stringent minimum CPI requirements.

- Failing to meet these minimum CPI requirements will result in Academic Probation, and the procedures for remediation are discussed in Section 8.4.

- To calculate the CPI, students must earn a minimum grade point of 5 in each course. If a student's grade point falls below this minimum, they must retake or replace the course, provided they meet other Ph.D. program requirements.

\*\*8.2 Course Failures\*\*

- Students are permitted a maximum of ONE Failure grade (F or FF, refer to Tables III.3 and III.4) during their entire Ph.D. program, while still satisfying the minimum credit requirements for each semester.

- Should a student accumulate more than one course failure, they risk termination from the Ph.D. program (Section 8.5).

- In the event of a single course failure, the student may:

- Request a re-examination in that course at the end of the semester (subject to instructor agreement) or

- Register for an alternative course in accordance with SPGC guidelines.

- Continuing students who have faced course failure will be placed on academic probation in the subsequent semester unless they meet the minimum credit and CPI requirements for that semester (Section 8.1).

\*\*8.3 Grade Improvement\*\*

- Students who fail to maintain the minimum CPI requirements are permitted to repeat a course or replace it for the purpose of improving their grade, as long as they fulfill other credit requirements of the Ph.D. program (Section 3.1).

- Students may repeat a course if they fail to achieve the minimum allowable grade for a graduate-level course.

- The student must re-register for the course they wish to repeat in a subsequent semester if it is offered, or they may choose an alternative course.

- Grade improvement plans require approval by the Faculty Advisor (FA) or Doctoral Committee (DC) before the registration of replacement courses. Courses already completed with a minimum allowable grade for a graduate-level course (e.g., 'C' grade) or higher cannot be replaced.

- The grade earned in the re-registered course supersedes the earlier grade for CPI calculation and is reflected in the semester grade card. The final transcript includes all courses taken by the student.

- Each student may use this option for a maximum of TWO (2) courses during their enrolled program, and only ONCE for a specific course.

- Grade improvements must be completed within the stipulated time for fulfilling the minimum credit requirements of the Ph.D. program (Section 3.1).

\*\*8.4 Academic Probation\*\*

- A student who fails to meet the minimum CPI requirements will be placed on academic probation for a maximum of one semester.

- Academic probation goes into effect immediately if the student fails to meet the CPI requirements for the given semester.

- The probationary status is reported to the Senate through SPGC.

- To lift the probationary status, the student must attain a CPI equal to or greater than the minimum CPI requirements by the end of the probationary semester.

\*\*8.5 Termination/Exit from the Ph.D. Program\*\*

- After one semester of academic probation, if the student fails to achieve satisfactory performance, they are at risk of being terminated from the Ph.D. program (Section 8.5).

- Students on academic probation are not eligible for any concessions or fee waivers, and the institute may reduce their Teaching Assistant (TA) duties to allow them to focus on academic activities.

- Students on probation are not permitted to represent the institute in extracurricular activities or participate in student body elections during this period.

\*\*9.1 Personal Leave and Casual Leave\*\*

- Students funded by the Ministry of Education or the Institute are eligible for a maximum of 30 days of leave per calendar year, in addition to public holidays. This leave is considered a part of the student's tenure.

- Leave credits can be carried over to the following year, but the total accumulation should not exceed 90 days at any time during the entire tenure.

- In the first year of fellowship or for any incomplete year, leave may be calculated on a pro-rata basis for the completed months.

- Leave entitlement is credited in advance to students in two installments on January 1st and July 1st of each year, ensuring that the maximum leave balance does not exceed 90 days at any point.

\*\*9.2 Maternity and Paternity Leave\*\*

- Maternity and paternity leave will be granted to female and male students in accordance with Government of India directives issued periodically. Detailed information is available in IIT Goa Statutes.

\*\*9.3 Medical Leave\*\*

- Students can request medical leave, supported by a medical certificate from the IIT Goa medical section, for a maximum of 10 days per calendar year.

- Unused medical leave cannot be carried over to the following year.

\*\*9.4 Academic Leave\*\*

- Students can apply for academic leave to attend seminars, conferences, workshops in India or abroad for the purpose of presenting their research work.

- The duration of academic leave covers the transit time, which is calculated based on the travel time from the institute to the event location.

- Academic leave may be granted for a period of up to six weeks.

\*\*9.5 Absence without Sanctioned Leave\*\*

- Any absence by a student without approved leave will result in the loss of their financial assistantship for the duration of the absence.

- In cases of unexcused absences, the student's program may be terminated upon the recommendation of the respective Academic Unit (AU) and approval of the Senate Postgraduate Committee (SPGC).

\*\*10.1 Change of Status from Full-time to Part-time\*\*

- Full-time Ph.D. students are not permitted to engage in any positions or activities unless assigned or approved by the institute.

- However, under exceptional circumstances, a Full-Time Ph.D. student may request to convert to a Part-Time Ph.D. status. Such a change requires approval from the Senate.

\*\*10.2 Guidelines for Research Work Involving Human Participation\*\*

- Ph.D. students whose research work involves human participation, whether directly or indirectly, are required to obtain approval from the Institute Ethics Committee (IEC) before commencing the study or any component of the study that involves human participation.

- IEC approval is mandatory for all projects that involve human participation, and this requirement aligns with the guidelines of various funding agencies such as DST, DBT, CSIR, and ICMR.

- Obtaining IEC approval is also a prerequisite for publishing any research work related to projects involving human participation.

- Importantly, IEC approval cannot be sought retrospectively; it must be obtained before the commencement of the research project.

\*\*Academic Performance Index\*\*

A student's academic performance in a semester is quantified using the Semester Performance Index (SPI). The SPI is calculated as the weighted average of the final grade points obtained in all the courses taken by the student during the semester. SPI is computed to two decimal places.

To illustrate the SPI calculation, let's consider a semester in which a student has enrolled in five courses with respective credits (C1, C2, C3, C4, C5) and has earned final grade points (G1, G2, G3, G4, G5) in these courses. The student's SPI can be calculated using the following formula:

SPI = (C1G1 + C2G2 + C3G3 + C4G4 + C5G5) / (C1 + C2 + C3 + C4 + C5)

\*\*Cumulative Performance Index (CPI)\*\*

The Cumulative Performance Index (CPI) reflects a student's overall academic performance from the time they enrolled in the institute. Like SPI, CPI is also calculated as the weighted average of the final grade points obtained in all the courses taken by the student, but it considers all courses taken by the student since their enrollment in the institute.

The formula for calculating CPI is identical to the SPI calculation. However, it includes all courses taken up to the current point in time. CPI provides a comprehensive assessment of a student's academic progress throughout their academic career in the institute, accounting for multiple semesters.

In summary, SPI and CPI are essential metrics for evaluating a student's academic performance within a specific semester and throughout their entire academic journey. These indexes offer a quantitative measure of a student's accomplishments, taking into account course credits and grade points, facilitating institutions and students in tracking progress and making informed academic decisions.

\*\*III.1 Credit Calculation Based on Contact Hours\*\*

Courses are categorized primarily as theory, laboratory, self-learning, seminar, or research courses. Each course is assigned a fixed number of credits that align with the workload associated with that course. For instance, theory courses typically consist of lecture (L) hours and tutorial (T) hours, with the possibility of practical (P) hours in special cases. Laboratory courses, on the other hand, comprise practical (P) hours, occasionally accompanied by tutorial (T) hours. The calculation of credit hours (C) for a course is determined as follows:

- For a full-semester Lab/Practical-only course, meaning a course with zero lecture hours but possibly including tutorials, the credit calculation is as follows:

C = T + (P / 2)

- For all other courses that involve lectures, the credit calculation is:

C = L + T + (P / 2)

Credit hours for a half-semester course are half of those for a full-semester course with similar L-T-P parameters.

Let's look at some examples (you can also refer to Table III.1 and Table III.2 for additional information):

- A full-semester course with the format 3-0-0, which includes 3 lecture hours per week and no practicals or tutorials, is equivalent to 3 credits. A half-semester course with the same parameters carries 1.5 credits.

- A standard full-semester course with the format 3-0-3, consisting of 3 lecture hours per week and 3 lab hours per week, is credited as 4 credits. The same applies to a standard 3-1-0 course, which includes 3 lecture hours per week and 1 tutorial hour per week.

- A practical course with parameters 0-0-3, meaning 3 hours of practical hours per week, is assigned 2 credits. Likewise, a 0-1-2 course, with 1 tutorial hour and 2 lab hours per week, also carries 2 credits.

| Course | Lecture (L) | Tutorial (T) | Practical (P) | Credits | Remarks |

| ------- | ----------- | ------------ | ------------- | ------- | ------- |

| XX801 | 4 | 0 | 0 | 4 | |

| XX856 | 4 | 0 | 2 | 5 | |

| XX541 | 2 | 1 | 0 | 3 | |

| XX542 | 0 | 0 | 4 | 2 | |

| XX543 | 0 | 1 | 2 | 2 | |

| XX545 | 3 | 0 | 3 | 4 | Floor |

| XX611 | 0 | 0 | 3 | 2 | Ceiling |

Table III.1: Hours per week for 12-14 week course

| Course | Lecture (L) | Tutorial (T) | Practical (P) | Credits | Remarks |

| ------- | ----------- | ------------ | ------------- | ------- | ------- |

| XX801 | 4 | 0 | 0 | 2 | |

| XX856 | 4 | 0 | 2 | 3 | Floor |

| XX541 | 2 | 1 | 0 | 2 | Ceiling |

| XX542 | 0 | 0 | 4 | 1 | |

| XX543 | 0 | 1 | 2 | 2 | Ceiling |

| XX545 | 3 | 0 | 3 | 2 | Floor |

| XX611 | 0 | 0 | 3 | 1 | Floor |

Table III.2: Hours per week for 6-8 week course

\*\*Old System: Credit Calculation Formula\*\*

In the old system, the credit hours (C) for a course are determined using the following formula:

C = 2(L + T) + P

\*\*Examples:\*\*

- For a theory course with two lectures (L = 2), one tutorial (T = 1), and two practical (P = 2) hours per week throughout the semester, the credit calculation is as follows: C = 2(2 + 1) + 2, resulting in a total of C = 8 credits.

- Similarly, for a lab course with two tutorials (T = 2) and two laboratory (P = 2) hours per week throughout the semester, the credit calculation is as follows: C = 2(0 + 2) + 2, which equals a total of C = 6 credits.

Here's an improved version of the text, making it more concise and readable:

\*\*III.2 Grading System\*\*

Certain courses, mainly core courses and electives, use a grading system where passing grades are associated with specific grade points. Grade points are integer values ranging from 0 to 10, representing a student's performance level in the course. The letter grades and their corresponding descriptions can be found in Table III.3. Table III.4 lists grades that do not have associated grade points.

| Letter Grade | Grade Point | Remarks | Description |

| ------------ | ----------- | ------------ | ------------------------------------------------------ |

| A\* | 10 | Exceptional | Exceptional performance and mastery of the subject. The A\* grade can only be given for core courses. This grade indicates exceptional mastery over the subject when compared with students across multiple batches. |

| A+ | 10 | Outstanding | Outstanding mastery of the subject and applications. |

| A | 9 | Excellent | Excellent mastery of the subject and applications. |

| B+ | 8 | Very good | Very good mastery and scholarship in the subject. |

| B | 7 | Good | Good mastery and scholarship in the subject. |

| C+ | 6 | Average | Acceptable understanding and mastery of the subject. |

| C | 5 | Below average | Below-average understanding and proficiency in the subject. Grade C is the minimum grade required for the evaluation of the final CPI of graduate students (masters and Ph.D.). If a graduate student secures a grade less than C, the student shall replace/repeat the course in the subsequent semester in accordance with other rules to be adhered to by the student. |

| D | 4 | Marginal | Border-line understanding of the subject and marginal performance. |

| E | 2 | Exposed | Grade E is a failing grade. Grade E is awarded for the students who attended the lectures and learned the subject to some extent but could not demonstrate marginal performance. Grade E is an acceptable prerequisite for registering in another course, however, students must re-register and pass. |

| F | 0 | Poor | The F grade indicates extremely poor and unsatisfactory performance in a course. |

Table III.3: Letter grades with grade points

III.3 Graduate Seminars

Each graduate seminar course is worth 2 credits.

During their entire Ph.D. program, a student is limited to taking only one graduate seminar course.

\*\*III.4 Self-Learning/Reading Courses\*\*

- Any course approved by the Senate for graduate students, whether it's an elective or a core course, may be offered as a self-learning or reading course, and it will be administered in accordance with the course document.

- Approval from the Senate is required for courses intended to be offered as self-learning courses.

| Letter Grade | Remarks | Description |

| ------------ | ------- | ----------- |

| P | Pass | This grade is solely for Pass/Fail courses and represents satisfactory performance. No grade points allocated, but credits acquired. |

| F | Poor | The F grade indicates extremely poor and unsatisfactory performance in a Pass/Fail course. |

| S | Satisfactory | Progress satisfactorily in a dissertation, research, or project-oriented course. No grade points allocated. |

| U | Unsatisfactory | Progress unsatisfactorily in a dissertation, research, or project-oriented course. No grade points allocated. |

| I | Incomplete | Grade I is awarded in a lecture/lab course if a student has satisfactory performance but has not appeared for the end-semester examination on medical grounds or performed poorly/did not appear in the end-semester examination due to unavoidable circumstances. The student has to appear in the end semester examination when the course is offered next or when the exam is offered next; otherwise, this grade will be converted to grade F. Grade I will then be converted into a performance grade depending on the overall performance in the course. |

| W | Withdrawn | The course is withdrawn after the initial course adjustment period and before the course drop deadline specified in the academic calendar. This grade appears in a student's transcript. |

| L | Audit | Students registered for a course as audit shall be awarded grade L if they fulfill the requirement of duly satisfactory performance as prescribed by the Instructor. If a student does not qualify for the grade L, it will be assumed that the course has been dropped by that student and will not appear in the transcript. |

| FX | Failed due to low attendance | Grade FX in a course is awarded if a student does not maintain the attendance requirement in the lectures/tutorials. This grade may also be awarded to the students having bad or incomplete in-semester records for non-medical reasons. FX grade is typically declared in the first week of November for the Autumn semester courses and in the first week of April for Spring semester courses (The academic office decides otherwise). A student with FX grade in a given course is not permitted to take the end semester examination in that course. Such a student gets one more chance to register for the same course to improve grades. Grade FX does not count in SPI / CPI calculations. However, it will be counted as a backlog. This is an internal grade and never shown in the transcripts. |

Table III.4: Letter grades with no grade points

\*\*IV Credit Calculation and Grading for NPTEL/MOOC Courses\*\*

For NPTEL/MOOC courses, a consistent credit calculation and grade assignment system is followed (Table IV.1).

| Contact hours per semester | Number of credits |

| -------------------------- | ------------------ |

| 40-44 | 3 |

| 28-32 | 2 |

| 12-16 | 1 |

Table IV.1: NPTEL/MOOC credit calculation

For every additional 8 hours per course above the higher limit in each row, 1 credit may be added. For example, see Table IV.2.

| Actual work hours per semester (as mentioned in the certificate/course brochure) | Credits to be allotted |

| ------------------------------------------------------------------------------- | ------------------------ |

| 24 (16 + 8) | 2 |

| 20 (16 + 4) | 1 |

Note: No flooring or ceiling will be applied compared to regular courses offered by IIT Goa

\*\*Grade Assignment for NPTEL/MOOC Courses\*\*

To meet the credit requirements and receive a grade for NPTEL/MOOC courses, students are required to achieve a minimum score of 65%.

In certain cases, a higher grade may be awarded, provided the following conditions are met:

- Students may request a written examination, which will be administered by the university (AU). These requests should be endorsed by the AU and forwarded to the Dean (Academic Programs) for further consideration.

| Score (%) as printed on grade card issued by respective authority | Grades |

| ----------------------------------------------------------------- | ------- |

| 65-70 | D (4) |

| 70-75 | C (5) |

| 75-80 | C+ (6) |

| 80-85 | B (7) |

| 85-90 | B+ (8) |

| 90-95 | A (9) |

| 95-100 | A+ (10) |

Table IV.3: Grade allotment to NPTEL/MOOC courses

\*\*Examination Process and Grade Adjustment\*\*

- The examination will be administered by the respective Academic Unit (AU) upon a recommendation from the SPGC (Senate Postgraduate Committee).

- To be eligible for a higher grade, the student's absolute score in the examination must be at least equal to the score achieved in the exam conducted by NPTEL/MOOC or equivalent.

- The maximum grade that can be attained will be one level higher than the grade calculated based on the NPTEL/MOOC exam results (refer to Table IV.4 for an example).

| Score obtained in NPTEL/MOOC | Grade allotted | Score obtained in the exam conducted | New grade to be allotted |

| ----------------------------- | -------------- | ------------------------------------- | ------------------------ |

| 64% | F | NA | NA |

| 73% | C | 73% | C+ |

| 81% | B | 99% | B+ |

Table IV.4: Improving allotted grade to NPTEL/MOOC courses

\*\*Glossary\*\*

- \*\*APS (Annual Progress Seminar)\*\*: A seminar or presentation that Ph.D. students are required to deliver annually to discuss their research progress and findings.

- \*\*AU (Academic Unit)\*\*: Refers to the academic entity where a Ph.D. student is enrolled, such as a program, department, school, or center.

- \*\*AY (Academic Year)\*\*: Denotes an academic year, for example, AY 2020-2021, which is often used to track and reference academic periods.

- \*\*CPI (Cumulative Performance Index)\*\*: A measure of a student's overall academic performance, calculated by considering all courses taken since enrollment.

- \*\*CSIR (Council of Scientific and Industrial Research)\*\*: An organization or council that plays a significant role in scientific and industrial research.

- \*\*DA (Doctoral Advisor)\*\*: Refers to the doctoral advisor or supervisor who guides and mentors a student enrolled in a Ph.D. program.

- \*\*DC (Doctoral Committee)\*\*: A committee responsible for overseeing and evaluating a Ph.D. student's progress and research.

- \*\*DPGC (Department Postgraduate Committee)\*\*: The committee within a department that deals with postgraduate matters, including those related to Ph.D. students.

- \*\*FA (Faculty Adviser)\*\*: A faculty member who provides guidance and advice to a student, often related to academic matters.

- \*\*IIT (Indian Institute of Technology)\*\*: Refers to prestigious educational institutions in India known for their excellence in technology and engineering education.

- \*\*SOAS (State Of the Art Seminar)\*\*: A seminar or presentation related to the current state of knowledge and developments in a specific field of study.

- \*\*SPGC (Senate Postgraduate Committee)\*\*: The committee at the institutional level responsible for overseeing and making decisions related to postgraduate programs.

- \*\*SPI (Semester Performance Index)\*\*: A measure of a student's academic performance for a specific semester, calculated as a weighted average of final grade points.

- \*\*TA (Teaching Assistantship)\*\*: A form of financial support in which a student assists in teaching-related tasks, often in exchange for a stipend or tuition coverage.

- \*\*UGC (University Grants Commission)\*\*: A governing body or organization responsible for regulating and coordinating higher education in India.