

INDIAN INSTITUTE OF TECHNOLOGY GANDHINAGAR

NORMS FOR INDEPENDENT RESEARCH PROJECT, INDEPENDENT RESEARCH SEMINAR, INDEPENDENT TEACHING AND SEMINAR COURSES FOR PhD STUDENTS

Out of the minimum credits through coursework, PhD students must complete a minimum of 12 credits through project-based courses. Each unit of this project course [independent research project (IN 791)/ independent research seminar (IN 792)] will have three credits, and four of such courses must be registered during the programme. Project-based courses may include activities including lab-based experiments, independent study with a faculty, design study, book review etc., that involve at least 100 hours of overall engagement for a 3-credit course by the student in a given semester. For students admitted from Semester II, 2023-24, the project-based course(s) will be independent research project (IN 793)/independent research seminar (IN 794)/independent teaching (IN 795), each of 2 credits.

- **Independent Research Project** [IN 791 (3 credits)/IN 793 (2 credits)] - An activity-oriented course where students need to perform one or more of the followings: experimental work, simulations, coding, analysis, design, data collection and interpretation, structured laboratory sessions, etc.
- **Independent Research Seminar** [IN 792 (3 credits)/IN 794 (2 credits)] – A seminar course based on detailed literature review in the chosen topic of the course, which may include reading books, journal articles, conference proceedings, reports, etc.
- **Independent Teaching** [IN 795 (2 credits)] –The independent teaching course will include mentorship by a faculty member, successful completion of the teaching certification programme and independent teaching of at least two classes (of 1 hour 20 minutes each). The mode of evaluation will be developed and announced by the departments.

The focus and objective of project-based courses for PhD scholars is to promote the following:

1. Provide breadth to knowledge base and capability to understand variety of topics beyond their thesis topic as well as exploring different areas beyond their specialization. Promoting students to come out from their comfort zone and explore something different.
2. Working with various faculty members during these courses gives a broader spectrum to their personality as a more rounded professional. For example: a Civil Engineering student in Geotechnical Engineering research area does one IN course in mathematical type problem (structures) in one semester, and then explores composite materials (in Mechanical Engineering) in other semester with another faculty member.
3. In spirit, it is an attempt to expose the student to various dimensions (different topics, different sub-streams, different disciplines, different professors, different methods of learning including project based and literature review based). The take-home from these courses will surely be significantly different from one student to another, based on his/her capability to allow himself/herself to flow in new content without the fear of moving from his/her comfort zone.

Course Work Expectations:

- Each unit (3 credits) will require about 100-120 hours of overall engagement in a semester, which includes meeting, reading, preparations, report writing, etc. For 2 credit units, the overall expected engagement is about 80 hours.

- A student can register for a maximum of one unit (3 credits/2 credits) of IN 792/IN 794/IN 795 in a semester. IN 791/IN 793 Independent research projects can be registered for any number of units in a semester, irrespective of IN 792/IN 794/IN 795 registration.
- It is NOT necessary to work on an innovative topic with tangible outcomes or create new knowledge. Learning from existing knowledge or performing repeat analysis and design is perfectly fine. It is fine to work on writing skills and presentation skills by following an old series of work, gain hands-on experience through a set of experiments, learn new skills like machining, instrumentation, creating surveys, sampling, etc.
- The topic chosen in IN 791/IN 792/IN 793/IN 794 courses should not be part of thesis work in any manner. In case of any overlap with thesis work in future, the student is expected to submit request for dropping these credits by submitting a detailed explanation.
- For example, in one unit of IN 792/IN 794 it is sufficient for a student to read 8-12 journal articles related to the topic and summarize those with their own interpretations and good understanding. Similarly, one can scale the expectations in IN 791/IN 793 project work.

Course Adviser:

- The students should choose a course advisor in the area of their interest in consultation with the programme advisor. It is suggested to be with different course advisers on different topics each time, but not necessary.
- The students claiming multiple project-based courses towards graduation requirements should work with at least one course advisor who is not from the primary area of their thesis work.
- Students should not have the same course adviser for more than two units of these courses.
- The students should meet and choose course advisor for each unit within first week of the semester and submit the name(s) to the course coordinator of their own department.

Evaluation:

- The students are expected to work on IN 791/IN 792/IN 793/IN 794 throughout the semester by distributing their work on weekly basis. The assessment will be primarily based on the amount and consistency of effort.
- The students are expected to present their work at least two times in a semester in front of an evaluation committee or a faculty group, one in the middle of the semester and the other towards the end of the semester.
- The mode of evaluation for IN 795 will be developed and announced by the departments.
- The course coordinator of the department will finalize grade(s) of each student in consultation with the committee/group and the course advisor(s) of the student and submit it to the academic office before Examination II.

Seminar Course (IN 798) - PhD students, admitted from July 2013 onwards, are registered for one-credit seminar course in each semester till Semester I, 2023-24. It is different from the IN 792/IN 794 Independent research seminars.

- The expectation of IN 798 is that each student will attend at least one seminar/lecture per week on an average, i.e., 15 hours of such sessions. It includes faculty candidate seminars (of any department), invited lectures in the department or outside, lectures/seminars outside the institute, popular lectures, interaction sessions with invited speakers, student seminars, etc.
- At the end of the semester, the registered students fill up a claim form with details of the attended seminar/lectures, which requires minimum 15 hours' worth of genuine entries to get Pass grade.
- IN 798 is not more a requirement for PhD students from Semester II, 2023-24 (including students admitted prior to Semester II, 2023-24).