Indian Institute of Technology Delhi

Academic Year 2025–2026

Curriculum Revision 2025

Indian Institute of Technology Delhi

2025–2026

Contents

Acknowledgement

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1 Credits and Expected Work

The new curriculum defines a credit system based on the hours of work required per week, including contact hours.

1.1 Undergraduate Courses

1 credit equals 2–3 hours of work per week.

The standard workload for a full-time student is assumed to be 54 hours per week.

Undergraduate Students: The average credit load is 18–21 credits per semester.

1.2 Postgraduate Courses

1 credit equals 3 hours of work per week.

M.Tech Students: The average credit load is 15 credits per semester. M.Tech students are also required to be a Teaching Assistant or Research Assistant for 8 hours per week.

2 Proposal for Undergraduate Curriculum (Entry through JEE Advanced)

2.1 Curricular Principles

The curriculum review is guided by the following principles:

A. Academic Rigour: Providing a strong foundation in the fundamentals of science and engineering.

B. Flexibility: Offering various paths for students to customize their experience and explore their interests.

C. Emphasis on Hands-on Work: Changing the nature of lab courses and projects to be more practical.

D. Societal Relevance and Social Responsibility: Sensitizing students to sustainability issues and developing skills to solve them.

E. Innovation and Ethical Leadership: Encouraging students to be innovative and ethical leaders.

F. Communication and Teamwork: Fostering a range of communication skills and encouraging team projects and peer learning.

2.2 Salient Features

Key recommendations of the Curriculum Review Committee (CRC) include:

- A strong foundation in fundamental sciences and general engineering.
- Flexible pathways to meet core requirements.
- Increased focus on hands-on departmental courses and early exposure to the department.
- More exposure to environmental and sustainability topics.
- Courses that promote creative expression, ethical reasoning, and emerging engineering trends.
- The introduction of a capstone project.

2.3 Learning Outcomes (LO)

Upon graduation, IIT Delhi students will be able to:

1. Analyze, synthesize, and communicate ideas.
2. Demonstrate scientific temperament, integrity, personal and professional responsibility, and respect for others.
3. Identify, analyze, and solve challenging problems across disciplines.
4. Apply analytical skills to design ethical and sustainable solutions for societal issues.

2.4 Implementation Proposal: Assessment of Learning Outcomes

The proposed curriculum consists of several course categories. The total credit distribution is: 72 credits for Institute requirements and 70–86 credits for departmental courses.

2.5 Mapping of Course Categories with Learning Outcomes and Curricular Principles

2.6 B.Tech with Honours

Students can earn an Honours degree by completing an additional 18 credits within their department. A 12-credit BTP2 project can be an option within these 18 credits. There is no special entry requirement for this program.

2.7 Minor Areas

As before, students can pursue a minor by completing 20 credits in another department. The 9 OC credits may be waived for this purpose.

Category	Description
BS	Basic Sciences (24 credits): All students will take two 4-credit math courses, a 2-credit physics lab, and a 2-credit chemistry lab. The remaining 12 credits are structured as Physics, Chemistry, and Biology courses, with a requirement of at least 5 practical credits overall.
GE	General Engineering (24 credits): All students must take a 4-credit introductory computer science course. The remaining 20 credits are chosen from three groups: Mechanical Sciences, Electrical Sciences, and Computational or Data Sciences. A total of 16 credits must be selected with at least one course from each group, while the remaining 4 credits are student choice.
HU	Humanities (15 credits): A committee will be formed to decide the composition of this category. Students must take at least 9 credits of Humanities, with the rest being elective courses. Courses from the Department of Management Sciences and the School of Public Policy may be included.
OC	Open Category (9 credits): These credits offer students the flexibility to explore any course not already counted in other categories.
DC/DE	Departmental Core and Departmental Electives (70–86 credits): • The first DC course has a restricted class size of around 30 students. • Courses must integrate modules on Creative Expression (CR) and Ethical Reasoning (ER) (at least 3 credits total). • Courses must also feature modules on Emerging Trends (ET) (at least 3 credits total), potentially including AI/ML. • Students need at least 5 credits in modules related to Environment and Sustainability. • A departmental Capstone Project or BTP1 is mandatory. BTP2 (a larger project) is for BTech-Honours students. • Evaluation for the Capstone Project will be outcome-based (not more than 50% of the grade). Students must define milestones and use collaboration platforms. • The document recommends restricting DC courses to a maximum of 3 lecture courses per semester over 5 semesters.
NGU	Graded Pass-Fail Units (8 units): These units, which have existed since 2013, will have new guidelines defined by a committee. They include: • 1–2 units of NCC/NSS/NSO • 2 units of language and writing skills • 2–3 units of design and practical experience • 2 units of life skills

Category	LO1	LO2	LO3	LO4	CPA	CPB	CPC	CPD	CPE	CPF
BS	x		x		x	x				
GE	x		x		x	x				
HU		x		x		x	x			
OC			x	x		x				
DC	x	x	x	x	x		x	x	x	x
DE					x					x

Table 2: Mapping of Course Categories with Learning Outcomes and Curricular Principles

2.8 First Year Schedule

Semester-1	**Semester-2**
Calculus (4 credits)	Linear Algebra (4 credits)
2 Dept. recommended GE courses (8 credits)	1 Dept. recommended GE course (4 credits)
1 Departmental Core course (4 credits)	1 Dept. recommended BS course (3 credits)
1 Dept. recommended BS course (3 credits)	Physics/Chemistry laboratory (2 credits)
Chemistry/Physics laboratory (2 credits)	
Total: 17 Credits + Language & Life Skills	Total: 17 Credits

Table 3: First Year Schedule

3 Branch Change

Branch change is continued for the session of 2025–2026. An undergraduate student is eligible to apply for department change at the end of the first year only.

3.1 CGPA-based Branch Change

To be eligible for CGPA-based branch change, a student must satisfy the following conditions:

1. Student must successfully complete all courses including Language and Life Skills
2. Student should not have any Disciplinary Action against him/her
3. Having a minimum CGPA of:

i) For General, OBC and EWS category: 8.00

ii) For SC/ST and Person with Disability category: 7.00

3.2 JEE-Advanced Rank-based Branch Change

Branch change based on JEE-Advanced Rank will not require any of the above conditions. A student needs to only have been eligible for admission to the desired branch at the time of admission to IIT Delhi. Such a branch change will be allowed only in the case there is a vacancy (after CGPA-based branch change) in the desired branch and appropriate category as per sanctioned strength.

After branch change at the end of Semester-2, the number of students in any branch should not exceed 115%, or fall below 85% of the sanctioned strength.

3.3 After Branch Change

- The student will have to credit the first DC (Departmental Core) course of the new branch as soon as possible.
- The corresponding course in the original branch, that the student has already completed in the first year, will be considered as OC (Open Category).
- Further, the GE and BS courses that the student has credited in the first two semesters, based on the mandatory requirements of the original branch, will be considered to satisfy the mandatory GE and BS requirements of the new branch (for the first two semesters), unless there are course pre-requisites to be satisfied.

Also it is proposed that auditing of courses for the student is allowed only over and above the minimum credit requirements. Currently only B.Tech students are allowed up to 8 audited credits. The current proposal places B.Tech students at par with all others in the Institute.

To ensure that 1 credit corresponds to 2–3 hours of student effort, strong teaching assistant (TA) support is essential. One proposed administrative measure is to require TAs to formally register for a course to account for their TA responsibilities (as outlined in the PG proposal below). This approach serves two key purposes:

i) Introduces greater accountability for TAs

ii) Increases outside-of-class learning

4 Undergraduate Exit Policy

Multiple exit points are allowed before completing the full B.Tech. degree.

Based on how many credits you finish, you get different qualifications:

- 34 credits (18 Basic Sciences, 12 General Engineering, 4 Department Core) → Certificate of IIT Delhi
- 72 credits (24 Basic Sciences, 18 General Engineering, 21 Department Core) → Associate of IIT Delhi
- 108 credits (24 BS, 24 GE, at least 36 Department Core/Electives) → Intermediate B.Tech. of IIT Delhi
- 108 credits + 46 Department Core/Electives → Intermediate B.Tech. in a specific discipline

Each exit qualification has clear learning outcomes (skills and knowledge expected).

Learning expectations:

- Certificate: Can communicate ideas and use scientific principles in a very narrow scope.
- Associate: Can analyze & communicate ideas and apply scientific & engineering principles in a limited scope.

The Institute/Academic Unit will give a list of courses that count towards each exit option. The current practice of awarding a UG Diploma on completing 100 credits will also continue.

5 Dual Degree Program (B.Tech. + M.Tech.)

Open to JEE Advanced entry students; 5-year program granting both degrees. Uses all features of the regular B.Tech. and M.Tech. in that discipline.

Changes in requirements:

- BTP1/Capstone (final year B.Tech. project) removed.
- Remove 6 OC/OE credits from either B.Tech. or M.Tech. side.
- Up to 6 Program Core (PC) credits in M.Tech. waived if already covered in B.Tech.
- Reduce B.Tech. DE (Department Elective) requirement by 6 credits.
- If eligible, dual degree students need to enroll for research/teaching practicum starting from their 5th year.
- Must complete both MTP1 and MTP2 (major M.Tech. projects).

Learning outcomes:

- Analyze, synthesize, communicate ideas.

- Demonstrate scientific temperament, ethics and responsibility.
- Identify & solve challenging interdisciplinary problems.
- Design ethical, sustainable solutions for societal issues.
- Apply advanced knowledge in a specialized area.

Category	**Credits**
BS	24
GE	24
DC/DE	61–77 (based on corresponding BTech program, less 9: 6 credits DE, BTP1/Capstone)
PC/PE	45–51 (based on corresponding MTech program, less 6: foundational PC courses covered in BTech; includes internship/minor-project)
HU	15
OC/OE	9 (max OE = 6)
Total	**178–200**

Table 4: Typical Credit Range for Dual Degree Program

6 Advanced Standing for UG Students

Lets B.Tech. students start a Master's degree in their 4th year. Can be in the same department (Dept-X) or a different department (Dept-Y).

Eligibility:

- CGPA ≥ 7.5
- Department approval after evaluation/interview.
- Apply before completing your UG degree.

6.1 Case 1: UG + M.Tech. in Same Department

- Waive 6 OE/OC credits.
- Reduce DE by 6 credits.
- Waive 6 PC credits in M.Tech. if covered in B.Tech.
- Waive BTP1/Capstone.

Category	Credits
BS	24
GE	24
DC/DE	61–77
PC/PE	45–51 (includes 3 internship/minor project)
HU	15
OC/OE	9 (max OE = 6)
Total	**178–200**

Table 5: Category-wise Credits: UG + M.Tech. in Same Department

6.2 Case 2: UG + MS(R) in Same Department

- Waive BTP1/Capstone and up to 6 DE credits.
- MS(R) includes 45 PC credits (3 internship/minor project + 42 thesis).

Category	Credits
BS	24
GE	24
DC/DE	61–77
PC	45
PE	15
HU	15
OC	9
Total	**193–209**

Table 6: Category-wise Credits: UG + MS(R) in Same Department

6.3 Case 3: UG in Dept-X + M.Tech. in Dept-Y

- Waive cornerstone project in M.Tech. (teamwork covered in BTP1/Capstone).
- Waive 1 PE credit (total 3 credits) to encourage enrollment.
- Waive 6 OE credits.
- Use 9 OC credits in UG to take foundational UG courses in Dept-Y.
- No waivers for MS(R) in this case.

Note: Students in advanced standing must start research/teaching practicum from year 5.

Category	Credits
BS	24
GE	24
DC/DE	70–86
PC/PE	43–51
HU	15
OC	9 (no OE)
Total	**185–209**

Table 7: Category-wise Credits: UG in Dept-X + M.Tech. in Dept-Y

7 Post Graduate Curriculum

7.1 Ph.D. Section

A. Coursework

- Minimum credits based on entry qualification:

Entry Qualification	Minimum Credits
M.Tech. or equivalent	6
M.Sc./2-year PG Diploma/MBA/MBBS or equivalent	12
B.Tech./B.E. or equivalent	20

Table 8: Minimum Credits Based on Entry Qualification for Ph.D.

- Minimum B- per course requirement removed.
- Continuation: CGPA $\geq$ 7.0 for registration; DGPA $\geq$ 7.5 for candidature.
- Low-performance rule: SGPA $<$ 7.0 before candidature $\rightarrow$ 'U' grade for that semester.

B. Comprehensive Examination

- Assesses broad field knowledge and research readiness.
- Modes:
  1. Written exam by AURC (at least once per semester).
  2. Written exam by SRC (approved syllabus).
- Waiver possible with 3 courses (9 credits) proficiency; oral exam still required.
- Two attempts allowed for each mode.

C. Research Plan Presentation

- Conducted after passing comprehensive exam; maximum 2 attempts.
- Timeline: Master's entry – within 18 months; Bachelor's entry & part-time – within 24 months.
- PhD candidature requires successful coursework, comprehensive exam, and research plan approval.

D. Progress Monitoring

- Annual presentation to SRC; supervisor awards Satisfactory (S) or Unsatisfactory (U).
- Awarding U requires SRC concurrence.
- Deregistration: 2 consecutive U grades or 3 U grades total; CGPA/DGPA rules also apply.

E. Thesis Evaluation and Defense

- DRC/CRC/ScRC propose 8 external expert names.
- Thesis evaluated by 2 Dean-appointed external experts; supervisor is not an examiner.
- Supervisor submits a strengths/weaknesses report.
- Thesis must be submitted within 6 months (max 9 months) of pre-PhD synopsis approval; delays require repeat synopsis.

Supplementary Provisions – Learning Outcome & Related Requirements

1. Teaching / Research Practicum

- Mandatory each semester: register for one 3-unit practicum (Teaching or Research).
- Graded S/U; transcript only, no CGPA impact.
- AUs run monthly reviews; poor performance can pause assistantship.
- Continues from first term until degree completion to build pedagogy or research skills.

2. Annual Presentation & Pre-PhD Synopsis

- Present research at least once per academic year in an AU symposium or external conference.
- Oral or poster; proof filed with AU.
- Institute/Project funds may cover travel and registration.
- Failure to present can delay later milestones such as synopsis approval.

3. Research Communication & Ethics Course

- Compulsory pass/fail course on academic writing, speaking, and research ethics – no waivers.
- Includes paper structure, data display, literature critique, LaTeX, plagiarism tools, authorship norms.
- Must be cleared before Research Plan presentation; recorded on transcript (zero credit).

4. Research Empowerment Requirement

- **Option 1:** Up to 4-week external stint (industry, lab, NGO); longer stays need Dean approval.
- **Option 2:** Develop and defend an original proposal outside thesis topic before SRC/AURC.
- Activity must broaden research horizons; prior approval required; completion noted by AU.

5. Exit to M.S. by Research (MSR)

- SRC may recommend exit with MSR if sufficient work done; candidate must have formal PhD candidature.
- Scholarship stops on exit approval.
- Complete all MSR coursework & thesis; viva within 12 months.
- All AUs must offer the MSR pathway.

6. Other Key Points

- Current M.Tech./MSR-to-PhD conversion rules and SRC composition remain unchanged.
- SRC to be formed within 3–6 months of joining; supervisor appointed simultaneously.
- AUs encouraged to offer advanced 800-level courses; lab courses optional but creditable.
- PhD students may audit UG courses for foundational strengthening.

8 M.Tech. Section

8.1 Program Structure

Total Credits: 60 ± 3 (including 3 credits for summer internship/minor project).

A. Program Core & Electives

- Flexibility in core/elective credits.
- Core should include math grounding and exposure to labs.
- Include United Nations SDGs & emerging trends.
- Tune coursework to societal & market demands.

B. Project / Thesis

- MTP1 (M.Tech. Project 1) (6 credits) in 3rd semester is compulsory.
- The minimum grade requirement for MTP1 for C grade initially, which will be discontinued.
- Option for MTP2 ($\geq$ 12 credits) project-intensive track, or course-intensive track.
- Students encouraged to do projects in industry, labs, NGOs, etc.
- Different Dept./Institute awards related to MTP will be awarded only to those students who complete both MTP1 and MTP2.
- AU has flexibility to decide credits for M.Tech. project: minimum 18 (MTP1-6 and MTP2-12), maximum 30.
- If 30 credits are used, OE/cornerstone projects may be replaced with other courses.

C. Open Electives

- At least 6 credits; OE courses can include parent AU courses.

D. Audit Courses

- A successful audited course can serve as a prerequisite for PE/OE courses.

8.2 Assessment

A. Teaching / Research Practicum

- 3 units each semester, graded S/U, mandatory for full-time students.
- Shown on transcript but doesn't affect academic progress.

B. Internship / Minor Project

- 3 credits in summer after 2nd semester, graded Pass/Fail.
- Helps M.Tech. students interact with external stakeholders like industry, labs, govt., academic organisations, etc.
- New grade P introduced.
- An "F" in the course will affect graduation.
- Current grades such as S, X, or NP do not satisfy the requirement.
- Preferably floated as an internship (AURC approval needed).
- If external engagement is not possible, the course will be floated as a minor project within the institute (AURC approval needed).

C. Cornerstone Project

- AU must float this course.
- 3–5 credits, team-based.
- Starts in winter vacation after 1st semester, continues in 2nd semester.
- Trains in problem solving, project execution, communication, and interdisciplinary skills.
- Expected work equivalent to 2 credits to be completed by end of winter vacation.

D. Professional Ethics Course

- AUs must float a minimum 1 credit course on professional ethics.
- Can be a customized course by the AU or an existing course (e.g., VEV739, VEV740).

8.3 Exit Policy

Exit Degree: Postgraduate Diploma in the respective AU.

- Completed at least 1 year in the program.
- Minimum 30 credits completed.
- Recommendation from DRC confirming sufficient courses done and knowledge gained.
- Scholarship/Teaching Assistantship stops immediately upon exit approval.
- AU may set mandatory courses for the exit diploma.

8.4 Other Recommendations

- Criteria for conversion from M.Tech. to PhD to continue.
- Criteria for conversion from M.Tech. to MSR to continue.
- Minimum CGPA requirements for continuation of stipend/degree will continue.
- Part-time students may be given a waiver from NGUs.

9 Master of Science Section (Research)

9.1 Curricular

- Similar to PhD program principles.
- Strong foundation in discipline + advanced topic-specific knowledge.
- Skills to read, review and analyze scientific/technical literature.
- Training in research methodology to solve problems.
- Opportunities to communicate ideas to diverse audiences.
- Emphasis on ethical standards.
- Exposure to practical applications and applied research.

Learning Outcomes:

1. Apply advanced knowledge and scholarship in a specialized area for their research and further learning.
2. Effectively communicate ideas, demonstrate a scientific temperament, and ethically utilize transferable skills in their chosen profession.

9.2 Assessment of Learning Outcome 1

Component	Credits
Coursework	15
Summer internship / minor project	3
Thesis	42

Table 9: Credit Distribution for MSR Programme

A. Coursework

- Lab-only courses (0-0-P) allowed along with regular L-T-P courses.
- None of these components should be taken through self-study.
- Research credits fixed at 42.
- CGPA requirement for assistantship as per institute rules.

B. Research Progress Monitoring

- SRC rules same as PhD.
- SRC to be formed within 3 months of joining.
- Annual progress presentation to SRC at end of 1st and 2nd years (and later if needed).
- Supervisor gives Satisfactory/Unsatisfactory grade each semester.
- U grade requires an SRC meeting.
- Two consecutive U grades lead to de-registration from the MSR programme.

C. Thesis Evaluation and Defense

- SRC recommends final thesis submission after satisfactory progress review.
- Minimum residency period is 2 years for MSR students.
- Thesis evaluation guidelines remain unchanged.

9.3 Assessment of Learning Outcome 2

A. Teaching Practicum / Research Practicum

- For MSR students, 3 units each semester, graded S/U.
- All full-time MSR students must register for either Teaching Practicum or Research Practicum each semester.
- Grades appear on transcript but do not affect academic progress.
- AUs may conduct monthly assessments and share them with the Academic Section, especially if teaching assistantship needs to be withheld.

B. Internship / Minor Project

- Offered in summer semester after 2nd semester.
- Same as the internship/minor project section of M.Tech.

C. Presentation at Symposia/Conferences

- Once per academic year.
- Either at AU-organized symposia or in national/international workshops, conferences, or schools.

D. Research Communication and Professional Ethics

- Mandatory training in:
  - Research writing
  - Oral communication skills
  - Research ethics (discipline-specific)
- Pass/Fail courses aimed at improving written and oral research communication.
- No waivers allowed for this requirement.

9.4 Exit Policy

Exit Degree: P.G. Diploma in the academic unit.

- Completed at least 1 year in the program.
- Minimum 30 credits completed.
- Recommendation from DRC confirming sufficient courses done and knowledge gained.

- Scholarship/Teaching Assistantship stops immediately upon exit approval.
- Student must complete all exit diploma requirements specified by the AU, which may include mandatory courses.

9.5 Other Recommendations

- Courses with only lab components (0-0-P) can count toward coursework requirements, along with regular L-T-P courses.
- M.Tech. to MSR allowed under current rules with AURC recommendation (may require interview).
- Conversion from MSR to M.Tech. allowed if:
  1. GATE score is higher than the lowest GATE score in the corresponding M.Tech. batch (same category).
  2. Minimum CGPA 8.0.
  3. Student is otherwise eligible for M.Tech. admission.
  4. AURC recommendation required (may require interview).