



A Study on Challenges and Pedagogy of Teaching the Indian Constitution to Engineering Students

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Abstract

Engineering students in India are introduced to the Constitution of India through courses such as Professional Ethics, Human Values and Constitutional Literacy. While these courses are designed to build civic awareness and ethical responsibility, student engagement with the subject is often limited. Many students approach constitutional studies with a sense of reluctance, perceiving it as abstract, legally complex and only loosely connected to their core technical training. For learners who are accustomed to problem-solving, calculations and tangible outputs, the interpretive and theory-driven nature of constitutional concepts can feel distant and difficult to relate to.

This gap is not only a reflection of student perception but also of the way the subject is typically taught. In many classrooms, the focus remains on covering content and preparing students for examinations, often through lecture-based teaching and memorization of articles and provisions. As a result, students may perform adequately in assessments but struggle to see the relevance of constitutional principles in real-life or professional contexts.

This paper examines the reasons behind this disconnect and evaluates the limitations of existing teaching approaches. It further explores how more engaging and context-driven pedagogical methods - such as case-based discussions, real-world examples and interdisciplinary learning - can make constitutional studies more meaningful for engineering students. Drawing on both existing literature and classroom experience, the study identifies key challenges and suggests practical curricular changes that can help bridge the gap between civic literacy and technical education.

Keywords: constitutional education, engineering students, pedagogy, active learning, civic literacy.

1. Introduction

The Indian Constitution is the highest law and moral compass of governing India-it is the law that defines citizens' rights, assigns duties, delineates power between institutions and tells how citizens relate with state. Education on the Constitution has been deemed so important since independence that it is part of all streams in higher education; engineering included. The reasoning is simple: engineers do not only build things. They decide - about design, about data, about infrastructure - for many people and usually in an uneven manner. It is arguably more appropriate to have some grounding in constitutional values than it is for engineering.

The problem is that very few engineering students see it that way. Most treat it as a formality. They show up, copy notes, learn enough article numbers to get through the exam, and This



often marks the end of meaningful engagement with the subject. Nothing was ever expected of them beyond that, and nothing more happened.

This paper looks at two things: the specific reasons constitutional education fails in engineering programs, and the pedagogical approaches that have shown genuine improvement in both engagement and understanding.

Objectives

1. To identify key challenges faced by engineering students in learning constitutional concepts.
2. To analyze students' attitudes and perceptions towards constitutional studies in technical education.
3. To evaluate existing teaching methods (lecture-based, case-based, activity-based learning) used in constitutional courses.
4. To explore the gap between constitutional theory and its practical application in engineering contexts.
5. To examine institutional and curriculum-related constraints affecting the teaching of constitutional subjects.

2. Literature Review

The effectiveness of teaching and learning processes has been widely examined in educational research, particularly in the context of higher and technical education. Foundational work such as *How People Learn* (Bransford et al., 2000) emphasizes that learning is an active, constructive process in which students build new knowledge based on prior understanding. The study highlights the importance of engagement, reflection, and application, suggesting that passive, lecture-based methods are insufficient for deep learning. This perspective is particularly relevant for subjects like the Constitution, where conceptual understanding and real-world application are essential.

In the context of engineering education, *Learning and Teaching Styles in Engineering Education* argues that students have diverse learning styles, and traditional teaching approaches often fail to address this diversity. The author advocates for varied instructional methods to improve student engagement and comprehension. Extending this perspective, research by *Does Active Learning Work* (Prince, 2004) provides empirical evidence that active learning strategies - such as discussions, problem-solving, and collaborative activities - significantly enhance student performance compared to passive instruction.

Further supporting the need for effective teaching strategies, *Teaching for Quality Learning at University* introduces the concept of 'constructive alignment,' which emphasizes aligning learning outcomes, teaching methods, and assessment practices. This approach ensures that students are actively involved in the learning process and are able to achieve deeper levels of understanding. Similarly, *Teaching for Critical Thinking* highlights the importance of fostering critical thinking skills by encouraging students to question assumptions, engage in dialogue, and reflect on their learning experiences. These insights are particularly valuable when dealing with subjects that require interpretation and ethical reasoning.

3. Challenges in Teaching the Indian Constitution to Engineering Students



3.1 Students Do not See Why It Matters

The most persistent problem is not that engineering students are incapable of engaging with constitutional ideas – it is because nobody has convincingly shown them why they should. Students whose days are spent on algorithms, circuits, and systems design see legal frameworks as someone else's problem.

One of the faculty members of Inventure Academy on Whitefield-Sarjapur Road at the school when asked why, responded by saying,

“Unless students get a practical feel of what it is that is being taught, they get bored and lose concentration. The Constitution and associated studies are rather complicated in nature and can be simplified only to a certain extent. Therefore, to properly explain their message, it is important to provide a practical feel and experience.”

This paper argues that constitutional principles are not confined to judicial interpretation but are increasingly embedded within technological systems. Algorithmic decision-making and engineering design choices can either uphold or undermine values such as equality and fundamental duties articulated in the Constitution of India. The Constitution is not just for courts—it lives inside algorithms and engineering choices. Every time you rank users or design a system, you are either upholding equality or violating it. Every time you build something, you are either fulfilling your duties or ignoring them.

A course that doesn't name them explicitly will be treated as unrelated to engineering, because nothing has contradicted that assumption.

So students disengage. They attend because attendance is marked. They study the night before. Three weeks after the exam, most of it is gone.

3.2 The Language Is Off-Putting

Engineering education trains students to think in precise, quantitative terms. Constitutional text is almost the opposite - it is philosophical, interpretive, and written in a legal register that rewards slow reading and comfort with ambiguity. A student who is good at thermodynamics is not automatically equipped to parse the meaning of ‘reasonable restrictions’ under Article 19, or to understand why ‘judicial review’ is contested rather than settled.

This isn't a problem of intelligence. It is a problem of unfamiliarity. But unfamiliarity, if it isn't addressed early and directly, turns into avoidance. Students decide the subject isn't for them before they've really engaged with it, and most courses do nothing to interrupt that decision.

3.3 Teaching Gets Reduced to Memorization

In many institutions, constitutional studies is delivered as a list of things to remember: articles, schedules, amendments, landmark cases - all to be reproduced on demand for an exam. Students do what is asked of them. They memorize, they pass, they forget.

This is particularly damaging for a subject whose value is entirely in application. The Constitution is not a catalogue to be stored, it is a framework for reasoning about power, rights, and accountability. A student who can recite Article 21 but has never been asked to think through what it means in the context of a surveillance system, or a public health mandate, has not learned constitutional law - they've learned a list which contains articles and sections.



3.4 Instructors Are Working Without the Right Tools

Many faculty members who teach constitutional studies at engineering institutions are not trained in the active, discussion-based pedagogy the subject requires. This isn't a criticism of individual instructors – it is a structural problem. The training that most academicians receive prepares them to deliver content, not to facilitate argument. Combined with a rigid syllabus that leaves little room for experimentation, the result is lecture-heavy teaching that generates passive rooms.

There are also practical constraints: large class sizes, limited contact hours, and assessment formats that don't reward anything beyond recall. Instructors who want to teach differently often find they can't, or at least not easily.

3.5 Assessments Measure the Wrong Things

Ask most engineering students what 'directive principles' are, and they can tell you - they memorized a definition for the exam. Ask them whether a particular government scheme is consistent with those principles, and most will go quiet. That second question was never on a test.

This is what the assessment is actually selecting for: students who can store and retrieve, not students who can think with what they've stored. And because students study what is tested, and teachers teach what is studied, the exam format ends up determining what the course actually is. Change the test, and you change the course. Most institutions have not significantly revised their assessment practices.

4. Suggestions

4.1 Connect It Directly to Engineering Work

One of the most effective pedagogical approaches identified in the literature is the use of contextual and application-based teaching, where abstract concepts are connected to real-world scenarios. Research such as *How People Learn* (Bransford et al., 2000) emphasizes that students develop a deeper understanding when knowledge is presented in meaningful contexts rather than as isolated facts. Similarly, *Does Active Learning Work* (Prince, 2004) demonstrates that engagement increases significantly when learners actively interact with realistic problems and applications.

In the context of constitutional education for engineering students, this implies demonstrating how constitutional principles directly intersect with technological practices. For instance, algorithmic systems that produce racially or economically skewed outcomes raise questions under Article 14 related to equality. Issues surrounding biometric data collection by the state have been examined under the Right to Privacy, as recognized in the landmark *Justice, Justice K.S. Puttaswamy v. Union of India* (2017) judgment. Similarly, environmental obligations under Article 51A have been invoked in disputes concerning industrial and infrastructure projects, highlighting the role of constitutional values in engineering decision-making.

These examples are not hypothetical constructs but are drawn from actual legal cases and policy debates, reinforcing the argument that constitutional principles are actively applied in domains relevant to engineering practice. As noted by *Teaching for Critical Thinking*, learning becomes more meaningful when students are encouraged to question, analyze, and engage with



real-world complexities. When students recognize that constitutional provisions are debated in contexts they are likely to encounter in their professional lives, the subject becomes more difficult to dismiss as abstract or irrelevant.

4.2 Replace Passive Listening with Active Argument

Debates on constitutional amendments, mock parliamentary sessions, case discussions built around actual Supreme Court judgments, group projects on technology policy and ethics - all of these produce better learning outcomes than lectures, and the research on this is not ambiguous. Active learning works. It works especially well for normative content, where the skill being developed is not rote memorization but reasoning.

Getting students to argue forces a different kind of engagement. A student who has had to defend a position on whether facial recognition in a railway station is consistent with Article 21 will have an opinion about that article. Most students who read a case summary about it will not. That difference matters more than any amount of additional content coverage.

4.3 Bring In People Who Work With This Material

An engineering professor who taught themselves Article 19 over the weekend is not the same as a lawyer who argued a takedown case last month. Students pick up on that gap, even if they couldn't explain why.

Bring in someone who actually uses this stuff, an advocate, a policy researcher, anyone who has sat across a table from a government official and cited a constitutional provision. One guest session like that does more than three weeks of lecture. The subject stops feeling like content to memorize and starts feeling like something that governs real decisions.

Law students are also worth pulling in for a joint session. Most engineering students have never watched a peer take a constitutional argument seriously. Seeing it happen and getting pushed back on their own vague claims tends to stick.

4.4 Use Digital Tools Where They Help

A ten-minute explainer on the Shreya Singhal judgment (2015) is not a substitute for deep engagement, but it is a better starting point than a forty-five minute lecture to a half-empty room. Short videos, application-based quizzes forums where students have to post a question to respond to someone else's - none of this is sophisticated. Engineering students already use these formats to learn programming, to prepare for placements, and to study everything else. Using them here just removes the unnecessary friction of an unfamiliar delivery mode.

4.5 Change What Gets Assessed

Everything follows from what you choose to test. A question that asks students to name the articles under Part III produces students who can name those articles. A question that asks whether a mandatory Aadhaar linkage for welfare benefits is constitutionally defensible - and requires a written argument - produces something different. The syllabus matters less than most people think. The question paper matters more than almost anyone admits.

Reflection journals, design ethics essays and short presentations on a live policy debate - these take more time to grade. That is a genuine constraint. But the thing being measured is real understanding, which is what the course was supposedly trying to produce.



5. Findings

What Some Institutions Are Already Doing

A number of universities have redesigned their constitutional studies modules to sit explicitly at the intersection of technology and rights. One common structure is a 'Technology and Fundamental Rights' module that covers privacy law, data protection, cyber law, and the constitutional cases that underpin them. Students in these programs produce concrete outputs - policy proposals, design recommendations, ethical assessments - grounded in constitutional reasoning rather than abstract description.

The outcomes tend to be consistent: students who are asked to do something with constitutional knowledge retain it better and report finding it more relevant than those who receive it as passive content.

Peer teaching - where students prepare and lead sessions on assigned constitutional topics - is another approach that works well in this context. The preparation required to teach something is more demanding than the preparation required to take a test about it. Students who know they will have to explain judicial review to their classmates engage with it more seriously.

6. Discussion

The failure of constitutional education in engineering programs is not a mystery. It comes from decisions that were made - about how to structure the curriculum, what to cover in class, what to put on the exam - and those decisions can be made differently. The subject was added to engineering programs for a reason. It got hollowed out by the way it was implemented.

When constitutional material is taught with any real connection to engineering work, most students engage with it.

This kind of thinking doesn't come from memorizing facts. It develops when students are regularly given real-life situations to think through, where their decisions matter and have consequences. Some programs are producing students like that. They redesigned the assessment, brought in real examples, and stopped treating the course as a hurdle. It is not a complicated formula; it is just not yet the default, and until it is, most engineering graduates will leave with a passing grade in constitutional studies and no working knowledge of what it actually contains.

7. Conclusion

The discussion indicates that the limitations of constitutional education in engineering programs are not inherent to the subject itself but are largely shaped by curricular and pedagogical choices. Decisions related to content selection, teaching approaches, and assessment design have significantly influenced how the Constitution of India is perceived and experienced by students. Although the subject was introduced with the intention of fostering socially responsible and ethically conscious engineers, its implementation has often reduced it to a procedural requirement rather than a transformative learning experience.

A consistent pattern emerging from both literature and classroom practice is that students tend to disengage when the subject is taught in isolation from their technical context. When constitutional education is delivered primarily through lectures and assessed through memory-based examinations, students may achieve short-term academic success but fail to develop



meaningful understanding or long-term retention. This disconnect reinforces the perception that the subject is peripheral to their professional development.

At the same time, the discussion also highlights a more encouraging insight: student disengagement is not inevitable. When constitutional principles are taught through context-driven and application-oriented methods - such as linking them to issues of technology, data governance, environmental responsibility, and ethical decision-making; students demonstrate significantly higher levels of engagement and critical thinking. This suggests that the challenge lies less in student interest and more in the limited adoption of pedagogical strategies that make the subject relevant.

In conclusion, addressing this gap requires a deliberate shift in how constitutional education is conceptualized and delivered within engineering programs. Greater alignment between curriculum, pedagogy, and assessment can transform the subject from a theoretical requirement into a meaningful component of professional education. By situating constitutional principles within real-world engineering contexts, institutions can ensure that students not only understand these ideas but are also able to apply them in practice. The convergence of learning theory, engineering education research, and constitutional principles highlights the need for a pedagogical shift from content delivery to context-driven, student-centred learning.

Such an approach is essential for preparing engineers who are not only technically competent but also socially aware and ethically responsible. It enables them to anticipate the broader social and legal implications of their work, particularly in areas such as data governance, algorithmic decision-making, and sustainable development. In doing so, it encourages a more reflective and accountable professional practice, where technical innovation is guided not only by efficiency but also by principles of justice, equity, and public welfare.

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