

# A Didactical Obe Approach In The Domain Of The Predominant Elt In Engineering

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**Abstract:** *“Change does not always imply transition, but change is unavoidable of progress. Education is essential for progress because it generates both new desires and new needs and the opportunity to meet their needs.” – Henry Steele Commager.*

## 1. INTRODUCTION

Due to the globalized Industrial Revolution, higher education has transformed the scheme from traditional to contemporary, with a concurrent shift in quality assurance based on objectives and results rather than inputs and processes. When globalists argue that education should be evaluated by individual student achievement, the UGC has stated that outcome-based education (OBE) should be implemented across the board in all tertiary education courses in all entities, with autonomy over how they are structured, due to its discovery in colossal values such as highlighting the students' main goal, how they achieve it, and how the assessor knows the students are well-trained for their future application. The most crucial aspect of OBE is that the whole quality control system in education is based on Quality Outcomes. As the industry stresses improving engineering education, engineering education needs to introduce OBE to ensure qualification mobility. In reality, OBE is a challenging educational technique that considers the priorities that underpin every aspect of a system, including curriculum planning through appropriate adaptable methods in the teaching-learning process and the appraisal of students. After completing their required learning end-products, the organizational command of OBE is to highlight the necessary applicable competencies of professional students in their lives. In the meantime, it is essential to discuss a tradition of engineering schools that focuses almost exclusively on technological skills while neglecting non-technical qualities such as communicative understanding, teamwork, life-long learning, and event management skills. Thus, this paper focuses on enhancing and estimating OBE in engineering, particularly in the English curriculum.

### Abbreviations:

- 1) Program Educational Objectives - (PEO),
- 2) Program Specific Outcomes - (PSO),
- 3) Program Outcomes - (PO) and
- 4) Course Outcomes - (CO)
- 5) English Language Teaching - ELT

### PREAMBLE

**"Although most of the world's configurations are being renovated,**

**there is a necessity to refurbish the edification as well."**

Our developing world has changed its entire phases in all aspects. It becomes a more vibrant city in this current global environment. The engineering phase has created an irreversible intuition in every aspect of our lives and identities through technology, changing the only evergreen constant. Nonetheless, ever-increasing globalization guarantees unparalleled engineering talent mobility based on job-specific abilities and competencies rather than encyclopedic knowledge. It has led to engineering educational managements overhauling their educational practices, curriculum, and end-product evaluation at all stages. It gathers evidence of learning and scrutinizing results using various measurement methods and conducting a continuous total quality assurance process. In this context, the Outcomes-Based Education (OBE) strategy claims that it places a high value on students demonstrating their mastery of knowledge and skills through their learning outcomes. The University Grants Commission (UGC) and the rationale for assessing students' learning outcomes as mandated by corporate sectors have allied to this modern epoch. They have pertinently upheld OBE among all higher education institutions. The overture of the OBE approach in professional education heralds a new age of significant learning for the world's greatest endurance athletes. It is also expected to be on track to change the educational framework from inputs-to-outputs and outputs to inputs.

**LEARNING OBJECTIVES OF OBE**

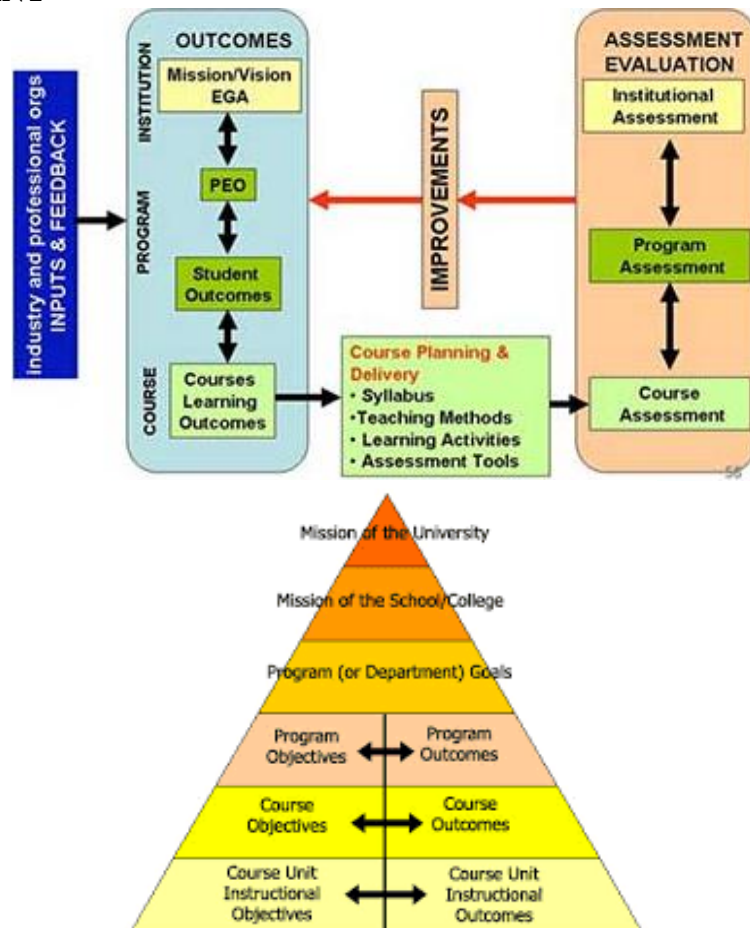
It is a sign of high-quality education when a student demonstrates mastery in his learning outcomes, allowing faculty members to have a more self-righteous view of their educational experiences. The teaching staff may use the learning goals to help them choose course materials and determine how much time should be allotted to each topic. They also can provide appropriate activities to help students practice what they have learned in class and propose appropriate assessments to evaluate their learning. Setting such objectives is more realistic than merely presenting a syllabus to teachers. Learning goals may be helpful if they are discussed with the andragogy approach in the form of evaluation source guides. When the wards clearly understand their expectations, it will be easier to organize the topics and schedule the prospects. Furthermore, these learning goals can be used to measure the Teaching-Learning Process (TLP) and initiate student and stakeholder comment sessions.

**LEARNING UPSHOTS OF OBE**

OBE learning end-results include more reliable accounts of what learners are expected to know and what he has brought out, i.e., the degree of maturity after the learning flurry, than the pedagogue's intentions. Competencies include intelligence, understanding, interpersonal, analytical, cognitive, metacognitive, ethical, and practical abilities. The OBE approach distinguishes between Program goals and learning outcomes in teaching activities, specifically, the teacher's point of view versus the students' expectations and expected teaching results versus actual learning results. For example, in this learner-centric OBE, the usual methodology of teachers determining the highest levels of crystal success on a well-structured curriculum to assist students is discarded. All students cannot gain knowledge simultaneously or in the same way. The OBE stratagem is the proposed teaching scheme to achieve the intended outcomes such as understanding, skills, personality growth, and the ability to take advantage of expanded opportunities. The OBE strategy, primarily the teaching methods used and evaluation assignments, are scheduled to make learning activities achieve the desired end goal, emphasizing that the ward must be "successful." Graduates will be able to study research designs and processes, self-evaluate their strengths and weaknesses, fine-

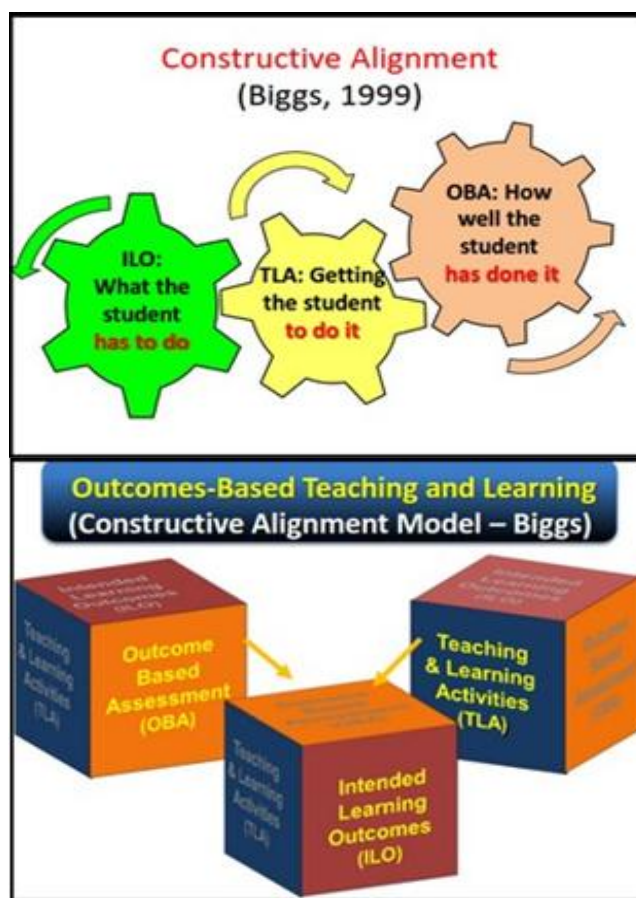
tune their forthcoming presentations in the light of their self-evaluations, and communicate effectively in verbal and written skills at the course's successful conclusion. Thus, integrating the syllabus, instruction, and assessment involves a transition from a transmissive mode of tutoring to a method of facilitating, that is, considering outcomes rather than rankings only.

### OBE BLUEPRINT



The OBE model calculates graduate advancement based on four variables such as PEO, PSO, PO, and CO. PEOs portray an overall performance of the engineering profession. In contrast, Program Specific Outcomes portray the objectives that the andragogy of a particular engineering course will achieve. Program results describe the skills and abilities that learners expect to possess by graduating. They must show the NBA's 12 Graduate attributes for UG engineering courses (Annexure 1). Similarly, course outcomes evaluate each student's success in each course or each semester that the graduate student completes.

### EXCLUSIVE TLP OF OBE



The teaching-learning process (TLP) encompasses educators' paths to instill students' skills, strategies, and styles. All TLP gives comprehensive and exact results and formulates the educational program. Different learners can take different paths, spend time or make different attempts to achieve the same result. Educators must employ various teaching techniques to encourage students to apply what they have learned to address this. One exultant tactic is for students to group in pairs or clusters to complement their English endowment. Students should have exercised such as role-plays, games, and small talks while educationalists pilot the approach. For paradigm, knowing grammar entails knowing many rules and using language resources effectively to communicate specific meanings. The teaching faculty may use beneficial social media as a method to prop up their teaching of English. YouTube programs like Ted talks on current events and accidents allow students to make overt language attempts and substantive terms in English class. These social media systems prepare students for reliable contact and language augmentation outside of the classroom.

### **MONITORING COMMUNICATIVE ENGLISH (L2) CLASSES**

Given how difficult and unique it is to create relevant and quantifiable results for each discipline of education, the preference for clear-cut outcomes seems to be a source of contention. Because of some multifaceted facades such as communicative, expressive, and written, English Language Learning (ELL) outcomes cannot be assessed. The preponderance of L2-need industries, such as Business Process Outsourcing (BPO), software centers, and transcription companies, demand the supremacy of the language from the employees because English excels as an extraordinary language. Experts in university teaching can assess college

students' ability to comprehend and communicate in English. A new methodology and style for the shift in expertise and skills for pedagogues must be conceived to achieve the envisioned change in the education sector.

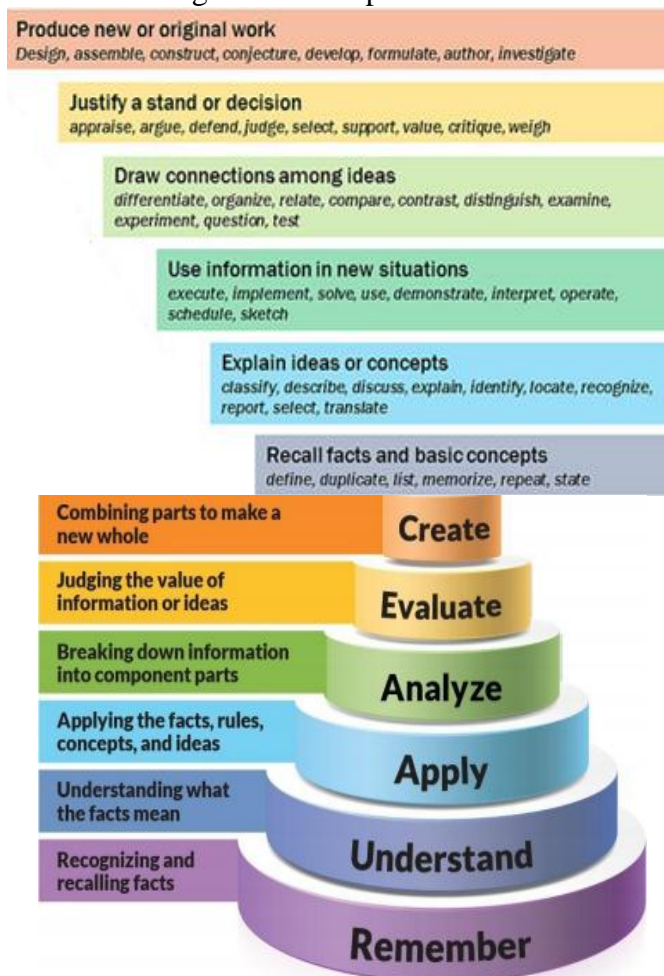
A resilient learning style must be traced to confront the instructor in construing and kindling the students' thinking processes and assisting the students in problem-solving. When teaching L2, faculty members must focus on various issues, including determining the areas of English knowledge and skills needed and determining if their students are acquiring these skills without a doubt. To adopt a new archetype in ELL, educators should be the paramount facilitators of the learners rather than transmitters of bookish information.

The use of the OBE method in an L2 class aims to improve students' ability to communicate in formal and informal situations. Teachers and students provide a communicative forum in English class, where soft skills and performance-based events such as individual presentations, pair discussions, and collaborative discussions are prioritized. In ELL, English professors assess interpersonal skills. To perfect performance-based tasks such as discussions and debates, language's four core skills (Listening, Speaking, Reading, and Writing (LSRW)) are used.

Students are given opportunities to actively engage in activities that turn fun-filled connections into the brain, brain-teased challenging notions of improving L2 skills. Learners spark their learning by participating in these events. Communication skills serve as a mode of upholding the growth of lateral and creative thought to distill unrefined learners in the ethnicity of L2. When students are learning English, they are cultivating themselves. Because of their English deficiencies, most learners who came from progressive schools suffered from English interactive activities. As a result, tutors emphasize a change from a teacher-centered approach to a learner-centered approach. Using the lecture/oral form in traditional TLP of languages would impede students' comprehension and, as a result, result in default achievement. Since communication is an interactive activity, a response occurs if the appropriate medium is used. The medium establishes a strong connection between objectives and outcomes through encoders and decoders.

Pedagogues and andragogy communicate meaningfully in OBE-based TLP, resulting in effective English communication. As a result, the OBE approach ensures a clear distinction between tutoring and instruction, the importance of learning, and therefore the increased mobility for learners in their professional lives. The teaching faculty informs the students on what will be covered in the class ahead of time. However, when it comes to reporting straight, the professor asks questions about the students' prior knowledge of the particular lesson to get them thinking about the new section that will be learned. However, a few students seem to be engrossed in verbally responding; they make great efforts to communicate their ideas in English. The teacher will assist in translating the learner's responses. Some students respond well to questions, while others partake because of their inefficiency. The oral form is still used sparingly in such circumstances. The prologue of specific topics begins with reading an article to attract the students' interest. Instead of teaching the curriculum units, mentors create their modules based on Bloom's taxonomy (Annexure 2), an essential aspect of OBE, to provide the best inputs and outcomes for self-assessment exercises. Tutors are resourceful individuals who use LCD presentations, handouts, worksheets, and magazines to keep their classes interesting. Now and then, the

students are required to explain what they have learned to the whole class in simple terms. Since students are more accessible to their peers, group learning is more effective than individual work in the classroom. Students of today's generation are quickly bonded with one another and eager to learn new things from their peers.



Simple employability skills such as writing papers, making oral presentations, and practicing successful interpersonal communication are critical for students to study and understand the most up-to-date situations. The employability life skills enable them to teach communication skills to a new generation. Professional communication for engineering can be divided into three distinct segments to apply: productive oral skills, interpersonal skills, and advanced reading and writing skills.

Successful oral communication necessitates the development of several skills that are introduced and taught to students in the Engineering curriculum. Students take a practical lesson on expanding their understanding of the essential function of communicative English in multi-processes to improve their speech abilities. Their speaking talents are audience-focused, and as a consequence, they utilize rising speech content and power pact delivery style to demonstrate their capacity to be upbeat in real-time. Students are given ample opportunities to research, prepare, and deliver professional oral communication for various reasons that include technical, insightful, and persuasive speeches. It is put into effect to convey technical information to non-technical listeners. The students are expected to pay close attention to various writing genres relevant to the engineering field. For example, report

writing – analytical reports, academic reports, project proposals, job application, memos, minutes of the meeting, agendas, circulars, notices, and article writing – are some professionally written concepts that can help students develop and become more acquainted with a variety of technical written communication types. Aside from these skills, students should view data, as graphical representation plays a significant role in providing information in technical documents. These ideas are fundamental to engineering graduates after they get employment.

Because engineering graduates must have interpersonal skills, he has been advised to arbitrate the target audience to determine the most critical variables. Such as the speed with which he gathers technical core information and the breadth with which he presents his ideas on academic knowledge. The primary qualified mode of communication can be accomplished in various ways, ranging from a structured report to casual chatting. When deducing communication programs, students are taught to value the abundance of structures and feedback. Since management relationships such as conflict resolution, stress management, and time management must be learned and preserved to uphold official decorum, students attempt to identify and resolve conflict to commune effectively.

Acquiring a clear perspective from ineffective communication such as stereotyping and ethnocentrism and avoiding the abuse of nepotism and influence would allow students to be more prolific in the workplace. All performances and activities initiate collective learning and teamwork, even though these technical interpersonal skills are unambiguously defined in the curriculum. Despite the tutor's constant use of English, some students would answer in their native tongue. Furthermore, if a faculty member has mandated OBE, the goals will not be met if the students do not participate in the class. Because of their past school experiences, the reluctance to express or participate may result in a crisis situation. Even though Students are constantly reminded that they must communicate in English with their English tutors once they arrive at college, they are unable to construct proper sentences, verbalize their thoughts in English, or comprehend what they are hearing.

#### **MEASURES TO ENSURE THE TLP OF COMMUNICATIVE ENGLISH:**

Continuous training from a basic level to an intermediate/ advanced level is required; however, the student's training will be fundamental to ensure the effectiveness of TLP of Communicative English. Not only is it essential to be familiar with a variety of teaching methods, but it is also essential to understand how to make the most of what we have. Students should be given a prospectus that is communicative and persistent. Every person should accept responsibility for instilling positive energy in the educational institution by using English to encourage students to speak the language. Interactive exercises and plenty of mock-ups will also attract the students' interest in learning the language. Contemplating more on grammatical functions will obstruct the students' inquisitiveness. Grammar loses its importance as the most important thing for students to learn is vocabulary. Without vocabulary, the chances of forming syntax and pronouncing a sentence are slim to none. Using an English-English dictionary as paraphernalia is an easy way to boost word strength.

#### **APPROACHES TO TRIGGER TEACHING-LEARNING APPRAISAL IN OBE:**

- Creating and nurturing an educational newness culture is critical for educational success and achieving the desired learning outcomes.

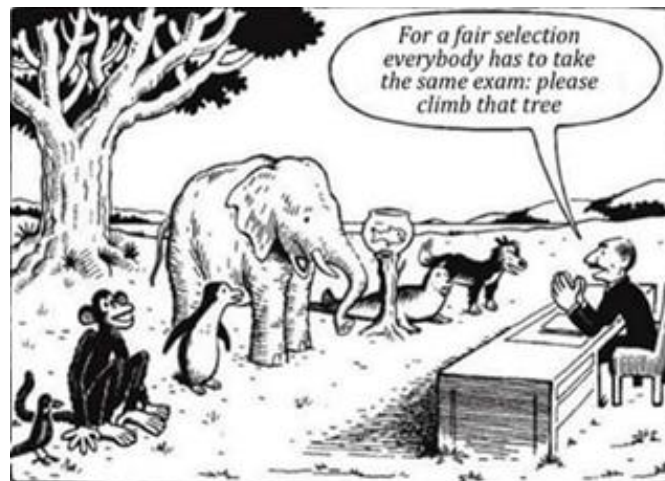


- Educational institutions should create a welcoming environment for innovation in education and strengthen Faculty Development Programs (FDP) on OBE and the tools for its successful implementation.
- Learning outcomes should be mapped through a student's program of study to determine the right time and real-life scenarios, and each learning outcome can be grouped.
- It is then possible to use both cumulative and seminal evaluations to determine how well the preferred learning outcomes are assembled and whether any educational modernization has a positive or negative effect.
- Cumulative and seminal analyses will then be used to see how well the preferred learning results are assembled and whether any educational modernization has a positive or negative impact.
- In addition to lectures, students may be given a range of suitable practical learning opportunities such as internships, conferences, symposiums, seminars, industrial tours, and individual/group public presentations.
- Engineering institutions should persuade joint ventures with corporate sectors to contribute to the development of the curriculum.
- Industrialists may also help determine which teaching resources, learning goals, and results are worthwhile.
- In addition to the traditional, group teacher-course evaluations, interactions between students and tutors may be used to provide more detailed knowledge about the success of educational experiences.
- It is critical to expand the process of examining assessment data to identify actions that lead to advancement. Without such a process, the assessment would lose a lot of its effect, and the students will not see it as a severe problem.

### **SUM UP**

With a sense of urgency, all engineering institutes in India are under severe pressure from above to adopt OBE; in fact, introducing the OBE is the need of the hour for improving the outcomes of the institutes. The National Board of Accreditation must raise awareness among employers, corporations, educators, teaching and support staff, trainers, alumni, and students about the importance of enforcing OBE in all facets of academics at all levels, including ELT. Furthermore, this learner-centric approach must be implemented to harmonize learning outcomes in review processes and shift the perspectives of educators, parents, and students away from rating. The successful implementation of OBE in the engineering discipline is only possible thanks to the tireless efforts of educational administrators, universities, and the government; as such, each person will benefit from this OBE approach.





*“Everyone is a genius.” But if you judge a fish by its ability to climb a log, it will believe it is dumb for the rest of its life.” – Einstein, Albert*

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## ANNEXURE 1

### PROGRAM OUTCOMES

**"Engineering Graduates will be able to:**

- 1) **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to solve complex engineering problems.
- 2) **Problem analysis:** Identity, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3) **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety and the cultural, societal, and environmental considerations.
- 4) **Conduct investigations of complex problems:** Use research-based knowledge and research methods, including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

- 5) **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities to understand the limitations.
- 6) **The engineer and society:** Apply to reason informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7) **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.
- 8) **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9) **Individual and teamwork:** They function effectively as individuals and as members or leaders in diverse teams and multidisciplinary settings.
- 10) **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- 11) **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12) **Life-long learning:** Recognize the need to prepare and engage in independent and life-long learning in the broadest context of technological change.

**PROGRAM-SPECIFIC OUTCOMES**

- 1) **PSO 1:** Ability to design manufacturing processes, products, equipment, tooling, and necessary environment for manufacturing products that meet specific material and other requirements.
- 2) **PSO 2:** Ability to use design, manufacturing, and industrial engineering software packages to formulate and solve real-time issues.
- 3) **PSO 3:** Ability to analyze, synthesize and control manufacturing operations using statistical methods and to create competitive advantage through the application of manufacturing planning, strategy, quality, and control concepts."

[ <https://www.nbaind.org/files/PEOs-Curriculum-and-CO-PO-mapping-21-may-2016.pdf>]

**ANNEXURE 2**

**BLOOM'S TAXONOMY**

Terms	I. Recalling	II. Recognizing	III. Substituting	IV. Examining	V. Assessing	VI. Devising
Meaning	Recall facts, words, basic concepts, and answers from previously	Organize, compare, translate, explain, provide explanations, and state key ideas to demonstrate	Apply learned experience, facts, methods, and laws in a new way to solve problems in	Examine and dissect knowledge by determining intentions or triggers. Make	Settle on choices about realities, the legitimacy of thoughts, or the	Assemble information in a particular manner by joining components in another example or

	learned material to demonstrate memory.	comprehension of facts and ideas.	new circumstances.	inferences and gather facts to back up your assertions.	nature of work dependent on an assortment of standards to introduce and shield suppositions.	proposing substitute arrangements.
<b>Words</b>	<ul style="list-style-type: none"> <li>• Pick</li> <li>• Describe</li> <li>• Tell</li> <li>• Locate</li> <li>• Where</li> <li>• Mark</li> <li>• Catalog</li> <li>• Fit</li> <li>• Label</li> <li>• Exclude</li> <li>• Remember</li> <li>• Connect</li> <li>• Choose</li> <li>• Display</li> <li>• Read</li> <li>• Which</li> <li>• How</li> <li>• What</li> <li>• Why</li> <li>• Whom</li> <li>• Who</li> <li>• Find</li> <li>• Show</li> <li>• Spell</li> </ul>	<ul style="list-style-type: none"> <li>• Identify</li> <li>• Contrast</li> <li>• Compare</li> <li>• Rephrase</li> <li>• Discuss</li> <li>• Expand</li> <li>• Demonstrate</li> <li>• Translate</li> <li>• Conclude</li> <li>• Perceive</li> <li>• Overview</li> <li>• Refer</li> <li>• Connect</li> <li>• Relate</li> </ul>	<ul style="list-style-type: none"> <li>• Implement</li> <li>• Design</li> <li>• Pick</li> <li>• Build</li> <li>• Establish</li> <li>• Explore</li> <li>• Model</li> <li>• Recognise</li> <li>• Survey</li> <li>• Use</li> <li>• Plan</li> <li>• Coordinate</li> <li>• Sort</li> <li>• Tackle</li> </ul>	<ul style="list-style-type: none"> <li>• Figure</li> <li>• Presume</li> <li>• Classify</li> <li>• Identify</li> <li>• Contrast</li> <li>• Inference</li> <li>• Compare</li> <li>• Discover</li> <li>• Examine</li> <li>• Differentiate</li> <li>• Separate</li> <li>• Investigate</li> <li>• Operate</li> <li>• Conclusion</li> <li>• Check</li> <li>• Motive</li> <li>• Intent</li> <li>• Clarify</li> <li>• Review</li> <li>• Partake</li> </ul>	<ul style="list-style-type: none"> <li>• Agree</li> <li>• Value</li> <li>• Evaluate</li> <li>• Criteria</li> <li>• Grant</li> <li>• Select</li> <li>• Contrast</li> <li>• Assert</li> <li>• Question</li> <li>• Assess</li> <li>• Exempt</li> <li>• Support</li> <li>• Conclude</li> <li>• Measure</li> <li>• Substantiate</li> <li>• Calculate</li> <li>• Evaluate</li> <li>• Discuss</li> <li>• Value</li> <li>• Motivate</li> <li>• Analyze</li> <li>• Determine</li> <li>• Clarify</li> <li>• Mark</li> <li>• Value</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust</li> <li>• Develop</li> <li>• Modify</li> <li>• Prefer</li> <li>• Merge</li> <li>• Assemble</li> <li>• Construct</li> <li>• Remove</li> <li>• Design</li> <li>• Create</li> <li>• Analyze</li> <li>• Expand</li> <li>• Generate</li> <li>• Predict</li> <li>• Propose</li> <li>• Make</li> <li>• Work</li> <li>• Visualize</li> <li>• Enhance</li> <li>• Imagine</li> <li>• Make up</li> <li>• Eliminate</li> <li>• Change</li> <li>• Launch</li> <li>• Initiate</li> <li>• Plan</li> <li>• Anticipate</li> <li>• Suggest</li> <li>• Sketch</li> <li>• Fix</li> <li>• Postulate</li> <li>• Test</li> <li>• Hypothesis</li> </ul>

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