

# A Dataset on Graduating Students of PSITCOE, Kanpur – UP

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**Abstract**— This paper deals with some of the selected students of B. Tech. course of PSIT College of Engineering, Kanpur affiliated to AKTU, Lucknow. Total 152 students were selected through a survey of their satisfaction level during the course of their study based on program outcomes. It has been found that students had a significant association with the dependent variable (program outcomes POs [1]). However, the respondents showed a great association with their study levels.

**Keywords**— Program Outcomes, Performance Indicators, Course-outcomes, Blooms Taxonomy.

## I. INTRODUCTION

PSIT College of Engineering (PSITCOE) (College Code: 348) is affiliated to Dr. A.P.J. Abdul Kalam Technical University (AKTU), a state technical university set up by the Government of Uttar Pradesh, formerly known as UPTU/GBTU.

PSITCOE, Kanpur is the leading institution in AKTU and recognized as one of the best engineering and management institute in UP, run by Sahyog Jan Kalyan Samiti. PSITCOE stands out as a premier centre of higher learning with a mission of pursuing excellence in education and research. The various departments, with their diverse and dynamic community of students, accomplished faculty offer a distinctive combination of some of the finest undergraduate and postgraduate programs, world class facilities and a residential campus set on a sprawling 80 acres of sylvan surroundings. The award-winning campus of PSITCOE was envisioned to be aesthetically appealing and designed as the best environment-friendly campus in North India. We are committed to provide our students with a clean and healthy environment. A 10,000 liters per hour RO water plant, a 1000 kw solar power plant and a three-chambered Vermicompost Plant (which is capable of converting entire campus waste into organic fertilizer) are some of the endeavors towards this commitment.

The annual placement portfolio of PSITCOE is a witness to its excellent track record of outstanding placements that keeps our students on a motivational highly needed towards carving a niche for themselves in the professional sphere.

At PSITCOE, the students get a unique opportunity to establish themselves in their chosen field of study that enables them to become well-rounded and discerning citizens.

The vision of the institute: *To provide an environment of effective learning and innovation transforming the students into dynamic responsible and productive professionals in*

*their respective fields who are capable of adapting to the changing need of Industry and Society.*

**Program Outcomes (POs) of the Engineering students will be able to:**

**1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**2. Problem analysis:** Identify, 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 the 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 in the field of Engineering.

**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 with an understanding of the limitations.

**6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practices.

**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 practices.

**9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in 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 own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

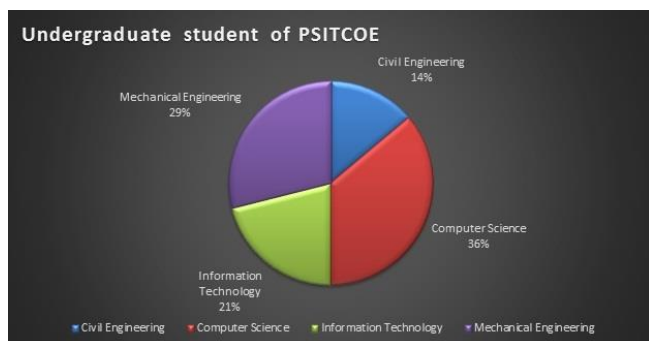
**12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## II. OBSERVATIONS AND RESULTS

On the basis of student responses, it is found that in Computer Science & Engineering, there are 36.2% students, and 13.8% of lowest in civil Engineering students have given their view about Program Outcome as appended below:

**Table 1**

SN	Branch	No of Students	Percentage
1	Civil Engineering	21	14%
2	Computer Science	55	36%
3	Information Technology	32	21%
4	Mechanical Engineering	44	29%
	<b>Total</b>	<b>152</b>	



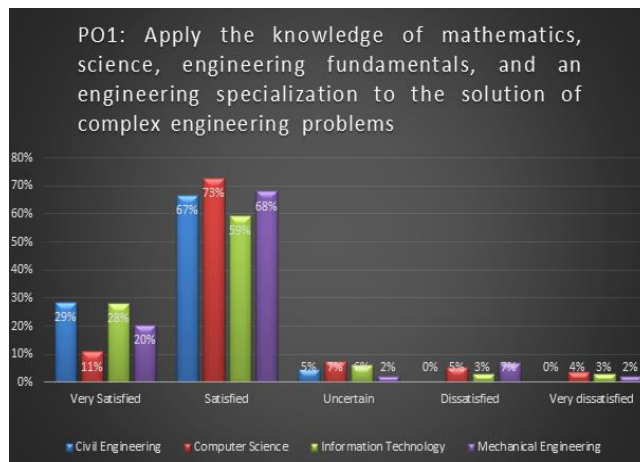
**PO1: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.**

Table-2 describes about PO1 by Applying the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems. In this way the observation based on PO1 by 152 respondents. From the table it is clear that Civil Engineering and Information Technology students are very satisfied while, the maximum number of satisfied students comes from Computer Science and Engineering. branch Although there is not very significant difference with rest of the branches. Moreover, the uncertain and dissatisfied students are very low in percentage.

**Table 2**

S. N.	Branch\Level	Very Satis fied	Satis fied	Uncer tain	Dissati sfied	Very dissati sfied
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1	Civil Engineering	29%	67%	5%	0%	0%
2	Computer Science	11%	73%	7%	5%	4%
3	Information Technology	28%	59%	6%	3%	3%
4	Mechanical Engineering	20%	68%	2%	7%	2%

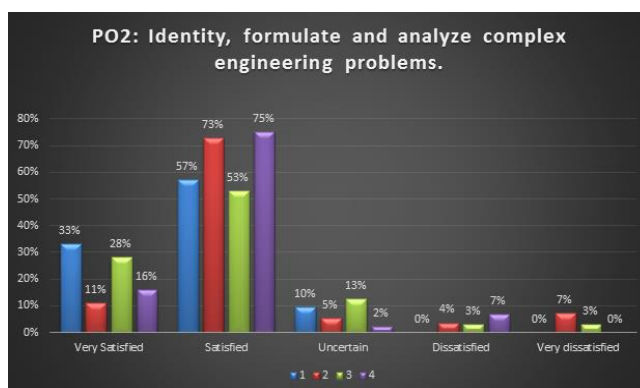


**PO2: Identify, formulate and analyze complex engineering problems:**

In table-3, the observation is based upon 152 respondents for PO2 where the students identify, formulate and analyze complex engineering problems in their syllabus. It is clear that Civil Engineering and Information Technology students are very satisfied, while the maximum number of satisfied students comes from Computer Science and Engineering. branches. However, the uncertain and dissatisfied students are in very low percentage.

**Table -3**

S. N.	Branch\Level	Very Satis fied	Satis fied	Uncer tain	Dissati sfied	Very dissati sfied
1	Civil Engineering	33%	57%	10%	0%	0%
2	Computer Science	11%	73%	5%	4%	7%
3	Information Technology	28%	53%	13%	3%	3%
4	Mechanical Engineering	16%	75%	2%	7%	0%

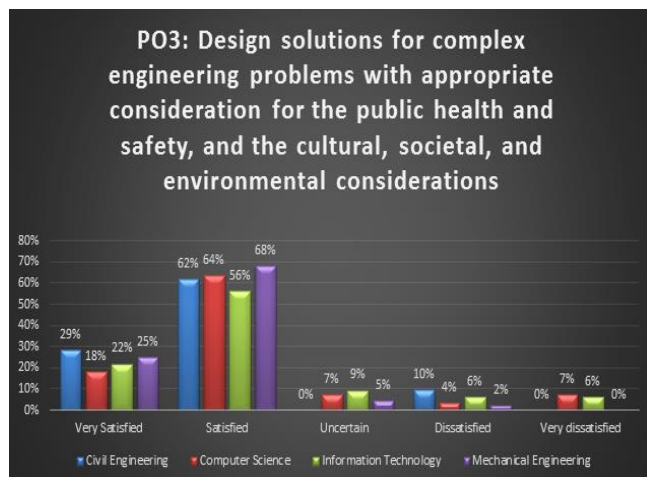


**PO3: Design solutions for complex engineering problems with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations**

In table- 4, the data given by 152 respondents about PO3 in which 29% students of Civil Engineering are very satisfied wherever 68% students of Mechanical Engineering branch are satisfied while 7% students of Computer Science and Engineering branch are very dissatisfied.

**Table-4**

S. N.	Branch\Level	Very Satis fied	Satis fied	Uncer tain	Dissati sfied	Very dissati sfied
1	Civil Engineering	29%	62%	0%	10%	0%
2	Computer Science	18%	64%	7%	4%	7%
3	Information Technology	22%	56%	9%	6%	6%
4	Mechanical Engineering	25%	68%	5%	2%	0%

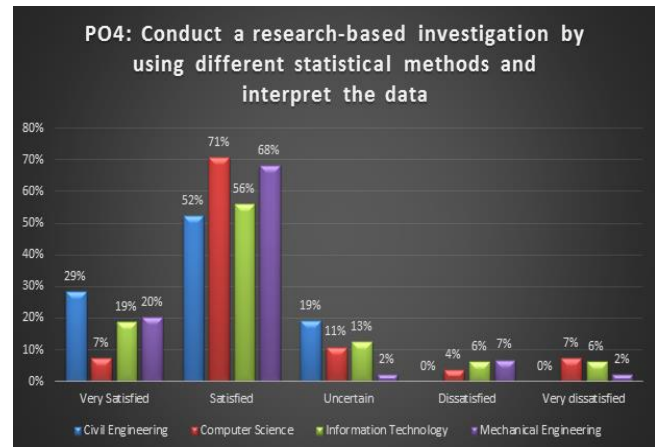


**PO4: Conduct a research-based investigation by using different statistical methods and interpret the data.**

Table-5 represents the satisfaction percentage for PO4 based on research investigation by using different statistical tools. From the given observations 29% students of Civil Engineering are very satisfied to PO4, 71% students of Computer Science and Engineering Students are satisfied but the percentage of dissatisfied students are very low.

**Table-5**

S. N.	Branch\Level	Very Satis fied	Satis fied	Uncer tain	Dissati sfied	Very dissati sfied
1	Civil Engineering	29%	52%	19%	0%	0%
2	Computer Science	7%	71%	11%	4%	7%
3	Information Technology	19%	56%	13%	6%	6%
4	Mechanical Engineering	20%	68%	2%	7%	2%

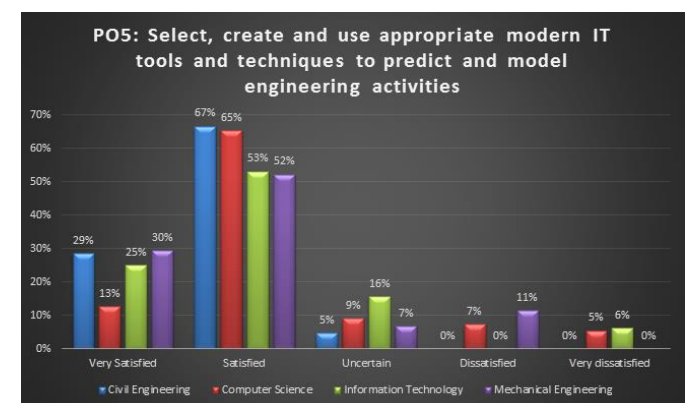


**PO5: Select, create and use appropriate modern IT tools and techniques to predict and model engineering activities**

Table-6 represents the satisfaction percentage for PO5 based on research investigation. From the given observations 30% students of Mechanical Engineering are very satisfied to PO4, 67% students of Civil engineering are satisfied but the percentage of very dissatisfied students are very low.

**Table-6**

S. N.	Branch\Level	Very Satis fied	Satis fied	Uncer tain	Dissati sfied	Very dissati sfied
1	Civil Engineering	29%	67%	5%	0%	0%
2	Computer Science	13%	65%	9%	7%	5%
3	Information Technology	25%	53%	16%	0%	6%
4	Mechanical Engineering	30%	52%	7%	11%	0%



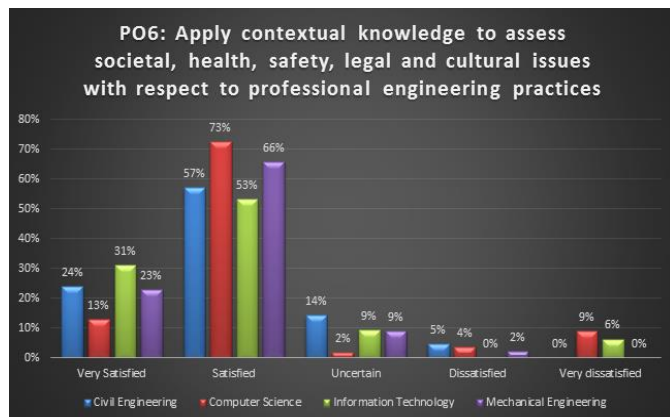
**PO6: Apply contextual knowledge to assess societal, health, safety, legal and cultural issues with respect to professional engineering practices.**

Table-7 describe about PO6. In which students apply contextual knowledge to assess societal, health, safety, legal and cultural issues with respect to professional engineering practices. 31% students of Information Technology who very satisfied with PO6 where as 73% students of Computer Science and Engineering students had satisfied and the percentage of students who are very dissatisfied are from Information

Technology and Computer Science and Engineering branches respectively.

**Table-7**

S. N.	Branch\Level	Very Satisfied	Satisfied	Uncertain	Dissatisfied	Very dissatisfied
1	Civil Engineering	24%	57%	14%	5%	0%
2	Computer Science	13%	73%	2%	4%	9%
3	Information Technology	31%	53%	9%	0%	6%
4	Mechanical Engineering	23%	66%	9%	2%	0%



#### PO7: Understand the impact of professional engineering solutions in societal and environmental contexts.

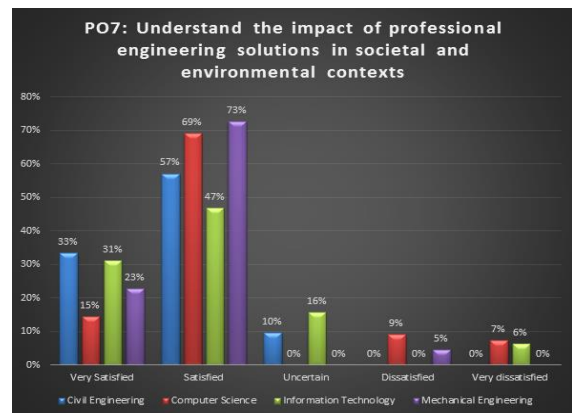
Table-8 describes about PO7, in which students the effectiveness of professional engineering in society with reference to environmental contexts. Here 33% students of Civil Engineering are very satisfied but 73% students of Mechanical Engineering are satisfied but 7% and 6% students of Computer Science and Engineering and Information Technology respectively are very dissatisfied.

**Table-8**

S. N.	Branch\Level	Very Satisfied	Satisfied	Uncertain	Dissatisfied	Very dissatisfied
1	Civil Engineering	33%	57%	10%	0%	0%
2	Computer Science	15%	69%	0%	9%	7%
3	Information Technology	31%	47%	16%	0%	6%
4	Mechanical Engineering	23%	73%	0%	5%	0%

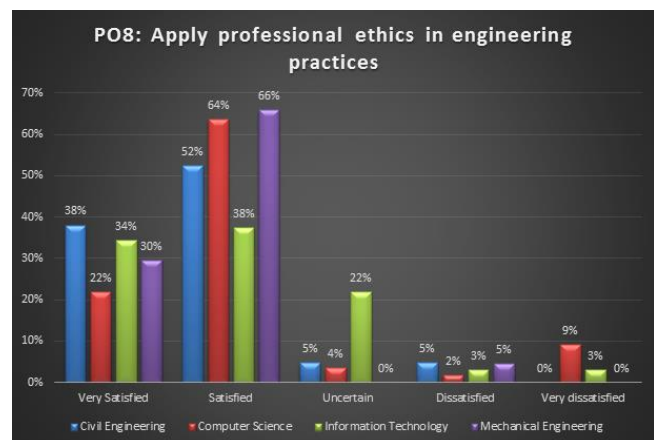
#### PO8: Apply professional ethics in engineering practices

Table-8 describe about PO8, in which students apply professional ethics in engineering practices. Here 38% students of Civil Engineering are very satisfied but 66% students of Mechanical Engineering are satisfied but only 9 % and 3% students of Computer science and Engineering and Information Technology are very dissatisfied for PO8.



**Table-9**

S. N.	Branch\Level	Very Satisfied	Satisfied	Uncertain	Dissatisfied	Very dissatisfied
1	Civil Engineering	38%	52%	5%	5%	0%
2	Computer Science	22%	64%	4%	2%	9%
3	Information Technology	34%	38%	22%	3%	3%
4	Mechanical Engineering	30%	66%	0%	5%	0%



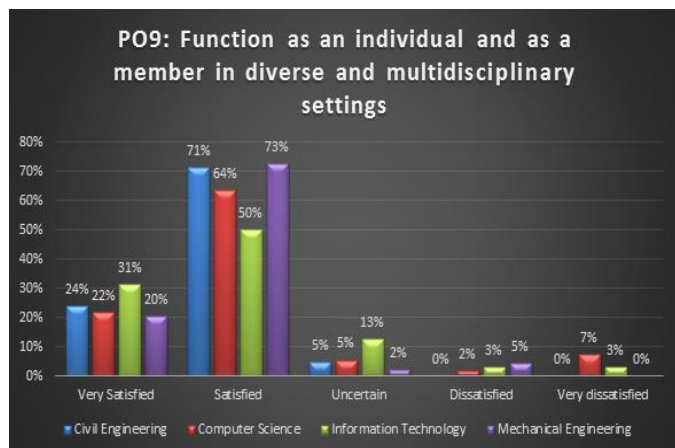
#### PO9: Function as an individual and as a member in diverse and multidisciplinary settings.

Table-10 describe about Functional effectiveness as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings in which 31% students of Information Technology are very satisfied and 73% students of Mechanical Engineering are satisfied wherever only 7% and 3% students of Computer Science and Engineering and Information Technology are very dissatisfied.

**Table-10**

S. N.	Branch\Level	Very Satisfied	Satisfied	Uncertain	Dissatisfied	Very dissatisfied
1	Civil Engineering	24%	71%	5%	0%	0%
2	Computer Science	22%	64%	5%	2%	7%
3	Information Technology	31%	50%	13%	3%	3%
4	Mechanical Engineering	20%	73%	2%	5%	0%



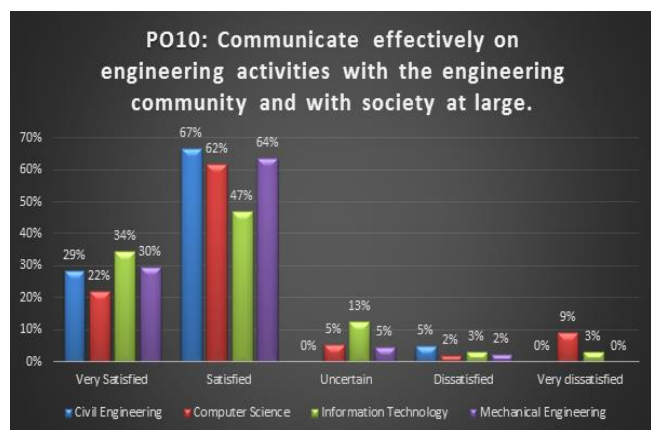


**PO10: Communicate effectively on engineering activities with the engineering community and with society at large.**

Table-11 describes about Communicational affectivity 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, in which 34% students of Information Technology are very satisfied and 67% students of Civil Engineering are satisfied wherever only 9% and 3% students of Computer Science and Engineering and Information Technology are very dissatisfied.

**Table-11**

S. N.	Branch\Level	Very Satis fied	Satis fied	Uncer tain	Dissati sfied	Very dissati sfied
1	Civil Engineering	29%	67%	0%	5%	0%
2	Computer Science	22%	62%	5%	2%	9%
3	Information Technology	34%	47%	13%	3%	3%
4	Mechanical Engineering	30%	64%	5%	2%	0%

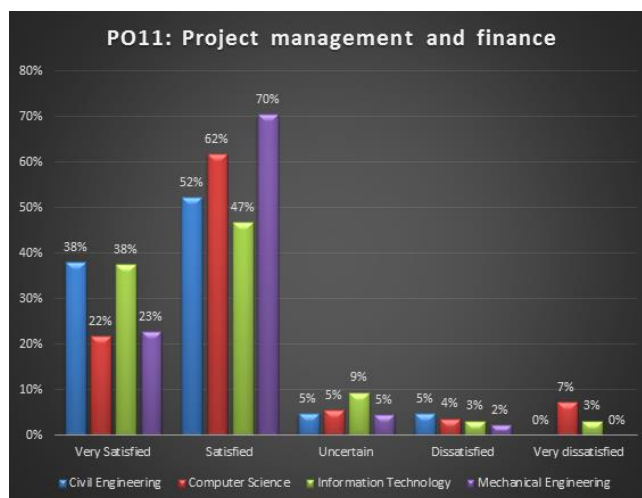


**PO11: Project management and finance:**

Table-12 describes about demonstrate knowledge and understanding of the engineering and management principles and by applying these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments, in which 38% students of Civil Engineering are very satisfied and 70% students of Mechanical Engineering are satisfied wherever only 7% and 3% students of Computer science and Engineering and Information Technology are very dissatisfied.

**Table-12**

S. N.	Branch\Level	Very Satis fied	Satis fied	Uncer tain	Dissati sfied	Very dissati sfied
1	Civil Engineering	38%	52%	5%	5%	0%
2	Computer Science	22%	62%	5%	4%	7%
3	Information Technology	38%	47%	9%	3%	3%
4	Mechanical Engineering	23%	70%	5%	2%	0%

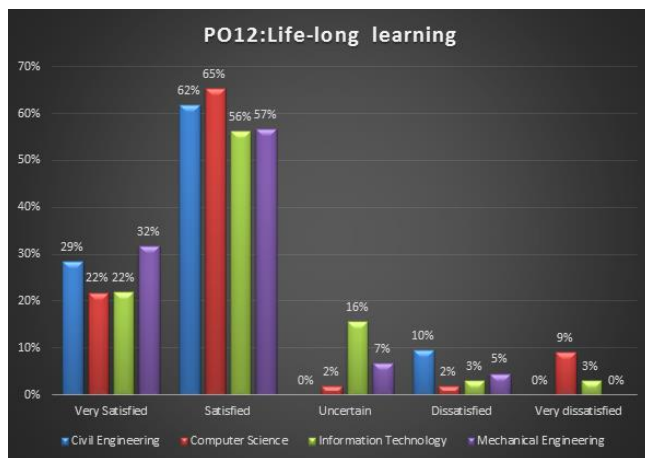


**PO12: Life-long learning:**

Table-13 describes about **Life-long learning**: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change, in which 32% students of Mechanical Engineering are very satisfied and 62% students of Civil Engineering are satisfied wherever only 9% and 7% students of Computer science and Engineering and Information Technology are very dissatisfied.

**Table-13**

S. N.	Branch\Level	Very Satis fied	Satis fied	Uncer tain	Dissati sfied	Very dissati sfied
1	Civil Engineering	29%	62%	0%	10%	0%
2	Computer Science	22%	65%	2%	2%	9%
3	Information Technology	22%	56%	16%	3%	3%
4	Mechanical Engineering	32%	57%	7%	5%	0%



### III. CONCLUSIONS:

The program out comes survey reveals that the high percentage of learning is found in computer science students then civil engineering students. In branch Information Technology their choice is mixing whenever in branch Electronic and Communication engineering the students are dissatisfied and the students of Mechanical Engineering are very dissatisfied. So in the light of these findings, it may be suggested that there is a need to revise the program out comes and recognize to those factors which is responsible for dissatisfactions of students in some branches as students can get good results by good understanding and their educational status show a great association with their study levels.

### ACKNOWLEDGMENT

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