Mapping of COs & POs after finding attainment level by Various Direct-Indirect method

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Abstract- Indian higher education system is the one of the largest system in the world. In India every state has its own specific approaches to find the solution. As per the NBA(National Board of Accreditation) the all have to concentrate on Outcome base education for Students. NBA is outcome based learning education. Faculty has to define Course outcome and then to assess the COs after finding attainment of all COs faculty has to map all Course Outcomes with POs . after mapping the attainment using some direct and indirect methods can be find out, here we are finding the attainment of subject behavioral science.

With increased globalization and rapid changing business expectations, employers are looking for wide cluster of skills to cater to the changing demand. Personality traits and soft skills are playing a key role in a student's career in this changing scenario. Corporate houses look for soft skills that supplement hard skills. Addition of behavioral science in curriculum is intended to enhance the efficiency of a person so that he can contribute to overall growth of organization. It aims at developing insight into leadership, team building, motivation, interpersonal relationship, problem solving, decision making and aspects of personality in a technician's profile. Addition of the topic of organizational culture will further mold him/ her in the organizational role. This subject of 'Behavioral Science' provides a broad base in which a technician can develop a successful career in the world of work.

Keywords :- COs -Course Outcomes, POs- Program Outcomes, PEOs-Program Educational Outcomes, PSOs- Program Specific Outcomes, Rubrics, Student

I. INTRODUCTION

In this Paper we are going to observe the specific Course outcomes of the subject and the program outcomes of electrical engineering, after finding attainment of all COs the mapping of POs is done, the level of COs is same with the mapped POs, The attainment of POs is same that of COs.
MSBTE (Maharashtra State board of technical Education) has designed Subject in such a manner by which the students will get knowledge of ethics and all behavioral science.
General Objectives: After studying this subject, the students will be able to:
1. Develop him/her as Team leader.
2. Use self-motivation and motivate others.
3. Build a team and develop team spirit among the team members.
4. Improve the interpersonal relationship skills.
5. Learn Problem solving and decision making skills.
6. Discuss a particular topic in a group and face the interview.
Application - Self-development and organizational growth • Performing tasks effectively by implementing team spirit, defining problem • Goal achievements and result oriented work culture
Procedure -Team building • Team development Conflict resolution • Problem solving
Principle - Brain storming • Trial and error Interpersonal relationship • Group Discussion
Concept - Leadership • Motivation • Team spirit • Vision • Conflict
Facts - Organization • Problem • Task or Goal

II. COs & POs of Department

A.   *Course outcomes of Behavioural Science –*

1. Lead a team in given situation.
2. Use the strategies of management
3. Resolve a conflict.
4. Take decision in different types of professional situations.
5. Prepare for recruitment.
6. Maintain healthy relationship among co-workers.

B. *Program Outcomes –*

The Polytechnic pass out will be able to…..
a. Basic Knowledge :-
Apply knowledge of basic mathematics, science and concepts of electrical engineering in dealing with routine situations such as manufacturing, Testing, Calibration, Installation & maintenance of Electrical Appliances.(Application of fundamental)
b. Discipline Knowledge :-
Troubleshoot/Solve problems in electrical Machines such as transformer, AC motor, DC Motor.
c. Experiments and practice :-
Analyze the problems by conducting experiments on electrical circuits & machines.
d. Engineering Tools :–
Use modern tools and updated techniques of Industrial and system engineering throughout their professional careers.
e. The engineer and society :–
Implement electrical engineering projects considering economics, safety, environmental & social dimension.
f. Environment and sustainability :–
Adhere to professional ethics, social norms, environmental laws, safety rules while discharging duties.
g. Ethics -
Observe professional and ethical code of conduct while discharging duties and responsibilities as a supervisor in electrical industries and organizations.
h. Individual and team work :-
Contribute as a member of a multi-disciplinary team to implement electrical projects such as generation, transmission & distribution.
i. Communication :-
Communicate effectively reports, proposals and plans both orally and in writing.
j. Life-long learning
Deal with contemporary issues arising out of changing technical scenario through life-long learning activities.

In Behavioral science subject there is a Term work to students, there are total 10 practical's each practical carries 10 marks
The following table shows there all Term work mark in MSBTE D4 format. Various practical's are involved in the BSC 17075

III. Attainment of Course Outcomes and Program Outcomes

1. Attainment of Course Outcomes **Table -1 Format D4 Assessment Result**

CO's	CO17416.01	CO17416.01	CO17416.02	CO17416.03	CO17416.04	CO17416.05	CO17416.05	CO17416.06	CO17416.06	CO17416.06
Roll No	**Experiment No.**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	10	10	9	9	9	9	9	9	9	9
2	8	9	8	9	9	6	8	9	9	9
3	8	9	8	9	9	9	8	9	9	9
4	8	9	7	5	5	8	8	9	9	9
5	8	7	8	8	9	4	8	9	9	9
6	8	9	8	7	9	6	8	9	9	9
7	8	9	8	8	7	6	8	9	9	9

8	8	9	8	8	7	5	8	9	9	9
9	8	9	8	8	7	6	8	9	9	9
10	8	9	8	8	7	6	8	9	9	9
11	8	9	8	8	7	6	8	9	9	9
12	8	9	8	8	7	6	8	9	9	9
13	8	9	8	8	7	6	8	9	9	9
14	8	9	8	8	7	6	8	9	9	9
15	8	9	8	8	7	6	8	9	9	9
16	8	9	8	8	7	6	8	9	9	9
17	8	9	8	8	7	6	8	9	9	9
18	8	9	8	8	7	6	8	9	9	9
19	8	9	8	8	7	6	8	9	9	9
20	8	9	8	8	7	6	8	9	9	9
21	8	9	8	8	7	6	8	9	9	9
22	8	9	8	8	7	6	8	9	9	9
23	8	9	8	8	7	6	8	9	9	9
24	8	9	8	8	7	6	8	9	9	9
25	8	9	8	8	9	6	8	9	9	9
26	8	9	8	8	9	6	8	9	9	9
27	8	9	8	8	9	6	8	9	9	9
28	8	9	8	8	9	6	8	9	9	9
29	8	9	8	8	9	6	8	9	9	9
30	8	9	8	8	9	6	8	9	9	9
31	8	9	8	8	9	6	8	9	9	9
32	8	9	8	8	9	6	8	9	9	9
33	8	9	8	8	9	6	8	9	9	9
34	8	9	8	8	9	6	8	9	9	9
35	8	9	8	8	9	6	8	9	9	9
36	8	9	8	8	9	6	8	9	9	9
37	8	6	6	6	6	6	8	9	9	9
38	8	9	8	6	9	6	8	9	9	9
39	8	9	8	6	9	6	8	9	9	9
40	8	9	8	6	9	6	8	9	9	9
41	8	9	8	6	9	6	8	9	9	9
42	8	9	8	6	9	6	8	9	9	9
43	8	9	8	6	9	6	8	9	9	9
44	8	9	8	6	9	6	8	9	9	9
45	8	9	8	6	9	6	8	9	9	9
46	8	9	8	6	9	6	8	9	9	9
47	8	9	8	6	9	6	8	9	9	9
48	8	9	8	6	9	6	8	9	9	9
49	8	9	8	6	9	6	8	9	9	9
50	8	9	8	6	9	6	8	9	9	9
51	8	9	8	6	9	9	8	9	9	9
52	8	9	7	6	9	9	8	9	9	9
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58	8	9	7	6	9	9	8	9	9	9
59	8	9	7	6	9	9	8	9	9	9
60	8	9	7	6	9	9	8	9	9	9

61	8	9	7	6	9	9	8	9	9	9
62	8	9	7	6	9	9	8	9	9	9
63	8	8	8	8	8	8	8	9	9	9
64	8	9	7	6	5	9	8	9	9	9
65	8	9	7	6	9	9	8	9	9	9
66	8	9	7	7	9	9	8	9	9	9
67	8	9	7	7	9	9	8	9	9	9
Total	538	598	519	477	555	457	537	603	603	603
Average	80.30	89.3	77.5	71.2	82.8	68.21	80	90	90	90
Attainment level	**84.78**		**77.5**	**71.2**	**82.8**	**74.18**		**90**		

Calculations –
CO17075.01 attainment Average = Total Marks*670/100

TABLE 2 CO s attainment

CO's	CO attainment
CO17075.01	84.78
CO17075.02	77.46
CO17075.03	71.19
CO17075.04	82.84
CO17075.05	74.18
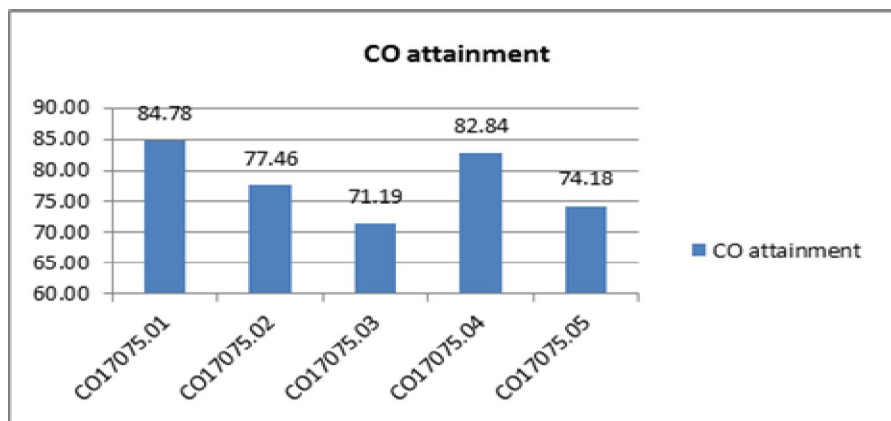
Graph No. 01

TABLE 3 PO s attainment

PO's	Program Outcomes									
	PO a	**PO b**	**PO c**	**PO d**	**PO e**	**PO f**	**PO g**	**PO h**	**PO i**	**PO j**
Pos attainment	80.1				53.6	40.8	68.2	80.1		65.95
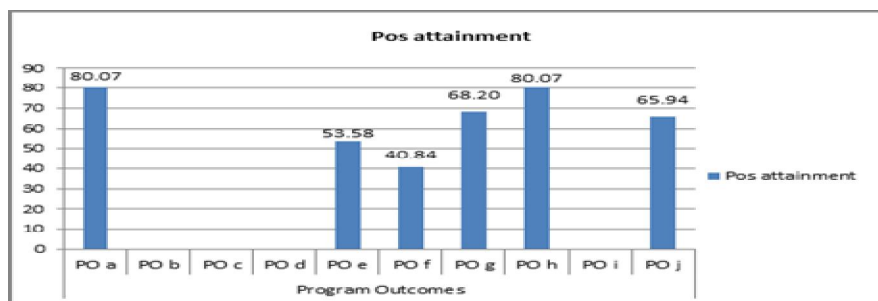
Graph No. 02

IV. MAPPING OF CO- PO

CO's	CO-PO Matrix									
	PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j
CO17075.01	■					■	■	■		
CO17075.02	■				■	■	■	■		■
CO17075.03	■				■		■			■
CO17075.04	■				■	■	■	■		■
CO17075.05	■						■	■		■
CO17075.06	■				■		■	■		■

V.CONCLUSION

Mapping of various COS with POS are shown in the following Table.

TABLE 2 CO-PO MAPPING MATRIX

CO's	CO-PO Matrix										CO attainment
	PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	
CO17075.01	84.78					84.78	84.78	84.78			84.78
CO17075.02	77.5				77.5	77.5	77.5	77.5		77.46	77.46
CO17075.03	71.2				71.2		71.2			71.19	71.19
CO17075.04	82.8				82.8	82.8	82.8	82.8		82.84	82.84
CO17075.05	74.18						74.18	74.18		74.18	74.18
CO17075.06	90				90		90	90		90	90.00
Pos attainment	80.1				53.6	40.8	68.2	80.1		65.95	
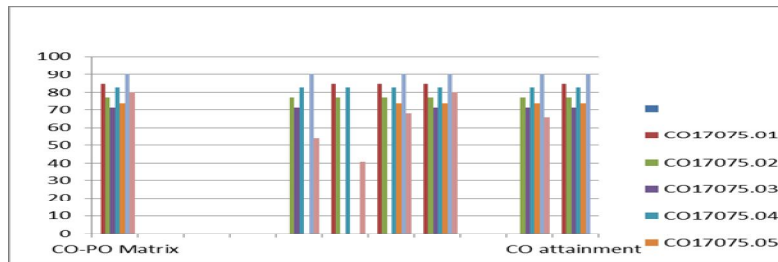
Graph No. 03

FINAL ATTAINMENT OF POS IS

POa – 80 % , PO e-53% POf-40% POg-68% POh- 80% POj-65%

REFERENCE

[1]   Sunil Magan More, "Measurement of Course Outcomes Attainment Level for Subject by using Direct-Indirect Method'' Imperial Journal of Interdisciplinary Research (IJIR) Vol-2, Issue-9, 2016 ISSN: 2454-1362

[2]   B.L. Gupta Department of Management, National Institute of Technical Teacher's Training & Research, Shamla Hills, Bhopal(MP), India.

[3]   Preparation for Obtaining NBA Accreditation, J. Engg. Sc. Mgmt. Ed. Vol-5 Issue-II (472–474) ACCREDITATION MANUAL FOR UG ENGINEERING PROGRAMMES (TIER-II), January 2013

[4]   MSBTE Electrical Engineering G Scheme Syllyabus.