MARATHA VIDYA PRASARAK SAMAJ'S
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COLLEGE OF ENGINEERING
KBTCOE
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& Approved by AICTE New Delhi Vide Letter No: 740-89-32 (E) ET/98
AISHE Code - C-41622
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NAAC

Department of Electronics & Telecommunication Engineering

Academic Year – 2020-21	Class: BE
Semester – II	Date :31-May-2021
CO5 : To design Automation systems for industrial applications using PLC approach.	PO: 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, PSO3

Innovative Teaching Methods

Title of Innovation method/activity: Case Study

1. **Name of Faculty**: Mr. A. P. Meshram

2. **Subject: PLC & Automation**

3. **Objective of Method:**

   1. To develop analytical skills, establishing an understanding of where and when to apply particular skills and strategies to solve specific issues.
   2. To be a capable of identifying issues or problems as they arise, determining perspectives and importance of information then effectively using and justifying actions taken toward any resolutions or discoveries.

4. **Topic Covered through Activity**:

SN	Case Studies
1	Traffic Signal Systems
2	Irrigation system
3	Thermal Power Plant
4	Cement Factory
5	Pharmaceutical Manufacturing
6	Water Management Systems
7	Electrical Power Grids and Electrical Generation Plants

5. **Description of method with Benefits (8 – 10 lines) :**

   • Using case study as a teaching strategy enables students to reason critically about situations and proposes appropriate courses of action. Case studies uncover values, perspectives and ideas of classmates resulting in students examining their own understandings, leading to deeper analysis of concepts, ideas and solutions.

   • The planning process also consider the cases to be used, and whether they are detailed and inclusive enough to nurture a valuable skill set which is transferrable across the curricula.

   • Curriculum requirements support the use of case studies when analysing sources of information, determining perspectives, interpretations and explanations relating to real events of the past and present

   • **The method** :

      • Teachers start by having students read the case or watch a video that summarizes the case.

- Student form a small group / team to solve/understand a case study on one topic.
- The students in a group explain what they have understood in the form of 20 minutes of video and one page report based on case study, following the guidelines given by the teacher.

Roles and Responsibilities

- **Teacher**
  - Provide the Introduction to all the topics.
  - Aware the student about the length, Breadth, Depth of Topic
  - Provide the Study Material and appropriate guide lines at every stage
  - Remain available all the time during all stages of process.
  - Prepare assessment methodology.

- **Student**
  - Go through all the material provided on particular topic
  - Once topic selected understand and gain expertise on topic through web/book search.
  - Actively participate in group and contribute by means of discussion.
  - Share the expertise topic by means of online virtual contacts and prepare the video for the same.

- **Group**
  - Develop the guidelines to establish group.(i.e. Decide the roll of all participants)
  - Every group should gain the expertise on particular topic.
  - Prepare a summary which cover all the details corresponding to the topic.
  - Appropriate references should be given.
  - Proper communication is expected.
  - Develop the video with which every group member can share the topic they learned.

6. Assessment Tools & Rubrics:

- ✓ **Upload Your Videos (About 20 Minutes Maximum) of activities.**
- ✓ **Video Must Contain Block Diagram (Mandatory)[15 Marks]**
- ✓ **Proper Selection of transducers [15 Marks]**
- ✓ **Justification for recommendation of system SCADA or DCS [15 Marks]**
- ✓ **Explanation with the help of Presentation/Module/animation and/or other media/creativity.[25 Marks]**
- ✓ **All group members must be involved in the activity. (Mandatory)[5 Marks each]**
- ✓ **Contribution of each student. [5 Marks each]**
- ✓ **One Page Report [10 Marks]**
- ✓ **Timely submissions. [15 Marks]**

Criteria	Excellent (5- 4)	High(3)	Moderate(2)	Slight (1)
Communication Skill (20 %)	Effective	Somewhat effective Low voice level	Not Effective	Need an improvement
Topic Content (50 %)	Highly relevant and concise	Highly Relevant	Moderately Relevant	Need an improvement
Presentation (20 %)	Neat, Clean and relevant Diagram	Relevant Diagrams	Some blocks missing	Need an improvement
Team Member involvements (10%)	All members actively and Interpersonally Engaged excellently.	All members actively and Interpersonally Engaged.	All members Interpersonally Engaged.	Need an improvement

Rubrics for Timely submission [15 Marks]

Criteria	Excellent (15)	High(11)	Moderate(07)	Slight (03)
Date of submission	On Time	Late by one day	Late by two days	Late by three days

Assignments:

GR	Case Studies	Roll Numbers
GR1	Traffic Signal Systems	34, 42, 55, 58, 65, 69
GR2	Irrigation system	33, 35, 40, 53, 56, 62
GR3	Thermal Power Plant	37, 45, 51, 57, 59, 70
GR4	Cement Factory	44, 47, 48, 49, 71, 74
GR5	Pharmaceutical Manufacturing	36, 39, 41, 43, 54, 60
GR6	Water Management Systems	38, 61, 63, 67, 68, 72
GR7	Electrical Power Grids and Electrical Generation Plants	46, 50, 52, 64, 66, 73

7. **Evaluation Sheet**

Case Study & Group Members		Timely submissions. [15] Less 4 marks for each late day (Last Day of submission - 31 May 2021	Explanation [25]	Block Diagram [15]	Proper Selection of transducers [15]	Justification for recommendation of system SCADA or DCS [15]	One Page Report [10]	Individual Member Presentation [5] Contributions Towards activity [5]	Grand Total
Max Marks=>		15	25	15	15	15	10	10	155
Gr1 Traffic Signal Systems		https://drive.google.com/file/d/1t5OizvhlJcaDgr2K9sH4LfQdZTeZKkp7/view							
34	Minal Amrutkar							7	
42	Jagruti Chaudhari							6	
55	Sonali Gupta	15	20	11	5	8	8	8	110
58	Shubhangi Kankal							8	
65	Vaishnavi Patil							7	
69	Shubham Shirude							7	
Gr2 Irrigation System		https://drive.google.com/file/d/1HkBN987msqf89Sy3ju_AsVH9LacYZF4C/view							
33	Poonam Aher							8	
35	Anushka Aware							8	
40	Priyanka Budhavant	15	21	13	12	7	8	8	120
53	Swati Gholap							7	
56	Meghana Jadhav							7	
62	Shraddha Pachore							6	

Gr3 **Thermal Power Plant**		https://drive.google.com/file/d/1zqdUAScj4km773fRy6VX4vnL6aw6f-Ho/view							
37	Tushar Borse	11	16	10	8	8	9	7	**99**
45	Hitesh Chitte							8	
51	Akash Gaikwad							3	
57	Siddhant Joshi							6	
59	Mohit Kirve							6	
70	Rushikesh Sukase							7	
Gr4 **Cement Factory**		https://drive.google.com/open?id=1Sye8b9rUQZaABjEHXe9uSqsTjwu8a21j							
44	Pranil Chavan	0	21	11	8	12	9	7	**104**
47	Shivam Deore							6	
48	Siddhant Deshmukh							7	
49	Pranav Deshpande							7	
71	Pritesh Vasani							8	
74	Harshvardhan Wagh							8	
Gr5 **Pharmaceutical Manufacturing**		https://drive.google.com/open?id=1tEMHbyTpfN-PWlKRL7vhsyk887JwBeZ3							
36	Priyadarshani Bare	0	19	7	5	7	6	8	**89**
39	Madhur Bothara							8	
43	Nitin Chaudhari							8	
54	Meghali Ghuge							7	
60	Aishwarya Nikalje							7	
41	Rushikesh Charaskar							7	

Gr6 Water Management Systems		https://drive.google.com/file/d/1nvqNHpgzxAiRBf8NQh0MHSeg4XmNYGgc/view							
38	Vaishnavi Borse	15	18	12	11	12	10	8	115
61	Amisha Nimse							8	
63	Sakshi Pagare							6	
67	Shivani Rajole							4	
68	Payal Rathod							6	
72	Gayatri Vazarde							5	
Gr7 Electrical Power Grids And Electrical Generation Plants		https://drive.google.com/open?id=14uDYteua_ynHPGYRzblhkJmdv628o3rQ							
46	Mahesh Chokhande	0	18	12	4	12	9	7	93
50	Sanket Devanhalli							8	
52	Pradip Gavali							5	
64	Nitin Patil							6	
66	Pratik Pawar							8	
73	Onkar Wadekar							6	
Assessment by Prof. A. P. Meshram									

RN	Name	Marks Out Of 105
33	Poonam Aher	84
34	Minal Amrutkar	74
35	Anushka Aware	84
36	Priyadarshani Bare	52
37	Tushar Borse	69
38	Vaishnavi Borse	86
39	Madhur Bothara	52
40	Priyanka Budhavant	84
41	Rushikesh Charaskar	51
42	Jagruti Chaudhari	73
43	Nitin Chaudhari	52
44	Pranil Chavan	68
45	Hitesh Chitte	70
46	Mahesh Chokhande	62
47	Shivam Deore	67
48	Siddhant Deshmukh	68
49	Pranav Deshpande	68
50	Sanket Devanhalli	63
51	Akash Gaikwad	65
52	Pradip Gavali	60
53	Swati Gholap	83

RN	Name	Marks Out Of 105
54	Meghali Ghuge	51
55	Sonali Gupta	75
56	Meghana Jadhav	83
57	Siddhant Joshi	68
58	Shubhangi Kankal	75
59	Mohit Kirve	68
60	Aishwarya Nikalje	51
61	Amisha Nimse	86
62	Shraddha Pachore	82
63	Sakshi Pagare	84
64	Nitin Patil	61
65	Vaishnavi Patil	74
66	Pratik Pawar	63
67	Shivani Rajole	82
68	Payal Rathod	84
69	Shubham Shirude	74
70	Rushikesh Sukase	69
71	Pritesh Vasani	69
72	Gayatri Vazarde	83
73	Onkar Wadekar	61
74	Harshvardhan Wagh	69

SN	Result Analysis	
1	Total Student Present Student	42
2	Number of Student Scoring above 60%	32
3	Percentage of student Scoring above 60%	76.19%

8. Impact Analysis

Particulars	5- Excellent	4- Very Good	3- Good	2- Average	1- Poor
How Much do you find explanation/presentation material/Video of particular topic chosen helpful in your day-today life? (Case Study) (CO5)	26	14	02	00	00
Overall Rating in percentage:	**61.9%**	**33.3%**	**4.8%**	**0.00%**	**0.00%**
How Much do you would rate understanding the topic (CO5)	16	25	01	00	00
Overall Rating in percentage:	**38.1%**	**59.5%**	**2.4%**	**0.00%**	**0.00%**

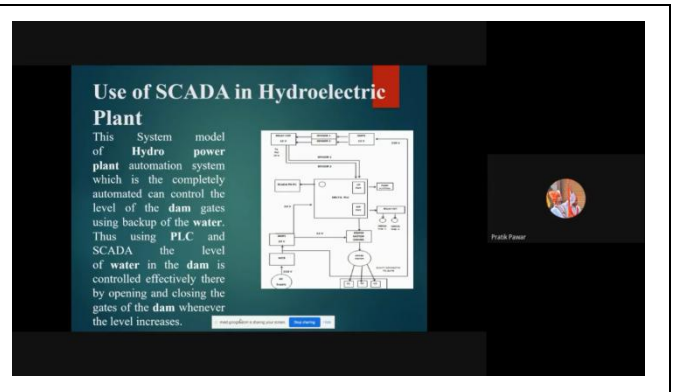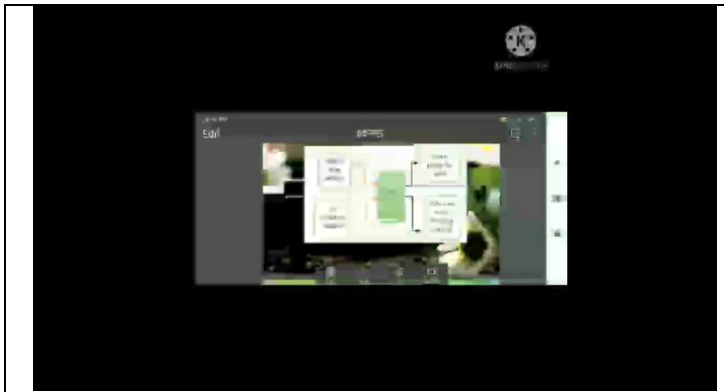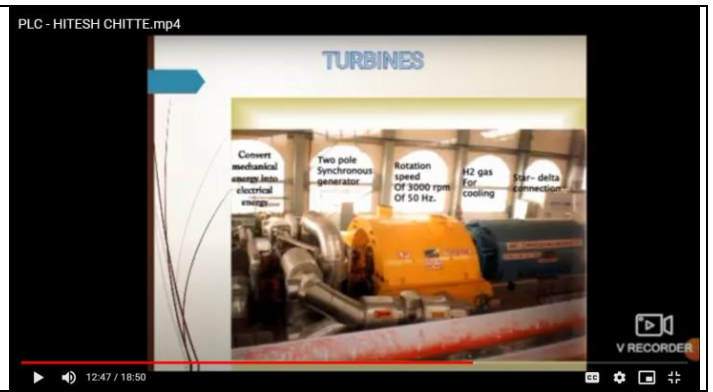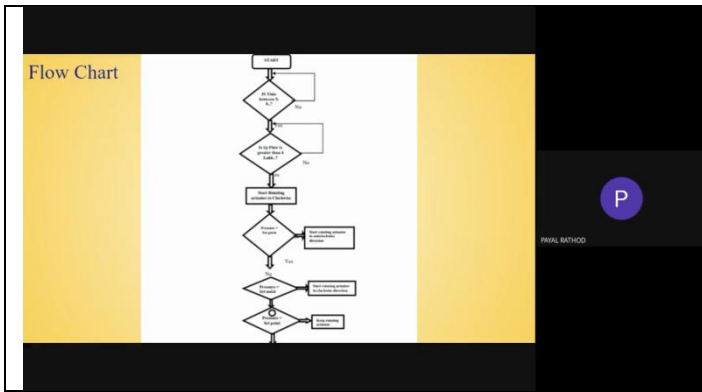| Rate Your Learning Experience:	5- Excellent	4- High	3- Moderate	2- Slight	1- Poor
P1.3.1 Application of fundamental engineering concepts in your system presented?	21(50.00%)	20(47.62%)	01(2.38%)	00	00
P2.1.2 Identification of engineering systems, variables, and parameters to solve in your system presented?	23(54.76%)	12(28.57%)	07(16.67%)	00	00
P3.2.3 Identification of suitable criteria for the evaluation of alternate design to solve in your system presented?	24(57.14%)	12(28.57%)	06(14.29%)	00	00
P4.3.4 Synthesization of information and knowledge about the problem from the raw data to reach	22(52.38%)	17(40.48%)	03(7.14%)	00	00

appropriate conclusions in your system presented?					
P6.1.1 Identification and description of various engineering roles; particularly as related to protection of the public and public interest at the global, regional and local level in your system presented?	23(54.76%)	14(33.33%)	05(11.90%)	00	00
P7.1.1 Identification risks/impacts in the life-cycle of an engineering product or activity in your system presented?	21(50.00%)	14(33.33%)	07(16.67%)	00	00
P8.2.2 Examination and application of moral & ethical principles to your system presented?	19(45.24%)	19(45.24%)	04(9.52%)	00	00
P9.2.3 Listening to other members-	24(57.14%)	14(33.33%)	04(9.52%)	00	00
P10.2.2 Able to deliver effective oral presentations to technical and non-technical audiences of your system presented.	19(45.24%)	20(47.62%)	03(7.14%)	00	00
P11.3.1 Identification of the tasks required to complete an engineering activity, and the resources required to complete the tasks.	27(64.29%)	12(28.57%)	03(7.14%)	00	00
P12.1.2 Identification of deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap	23(54.76%)	15(35.71%)	04(9.52%)	00	00
PSO3 Demonstration of the ability to apply fundamental knowledge of electronics and communication subjects in real world.	21(50.00%)	16(38.10%)	05(11.90%)	00	00
Does the group members communicate effectively on given topic (PO9)	YES – 42 (100%)			NO – 00 (0.00%)	

Learning Experience chart: Excellent, High, Moderate across P1.3.1, P2.1.2, P3.2.3, P4.3.4, P6.1.1, P7.1.1, P8.2.2, P9.2.3, P10.2.2, P11.3.1, P12.1.2, PSO3

Category	P1.3.1	P2.1.2	P3.2.3	P4.3.4	P6.1.1	P7.1.1	P8.2.2	P9.2.3	P10.2.2	P11.3.1	P12.1.2	PSO3
Excellent	21	23	24	22	23	21	19	24	19	27	23	21
High	20	12	12	17	14	14	19	14	20	12	15	16
Moderate	1	7	6	3	5	7	4	4	3	3	4	5
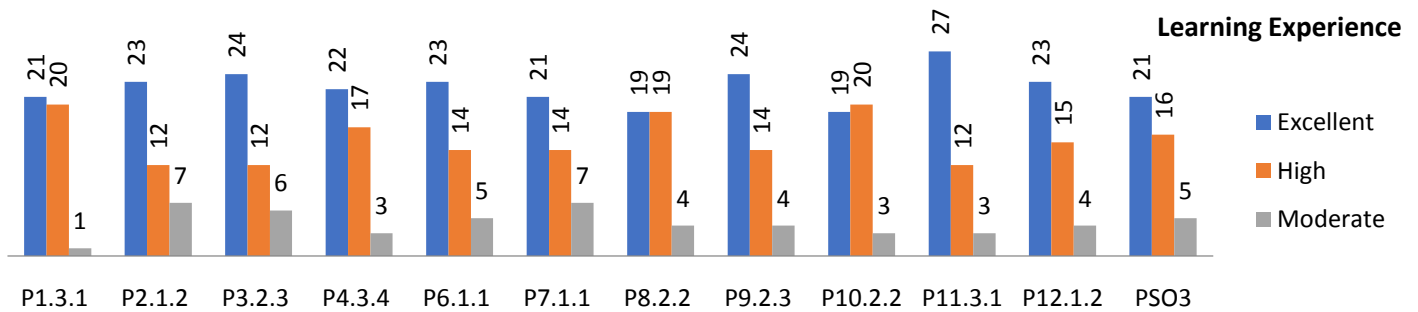
9. Activity Picture
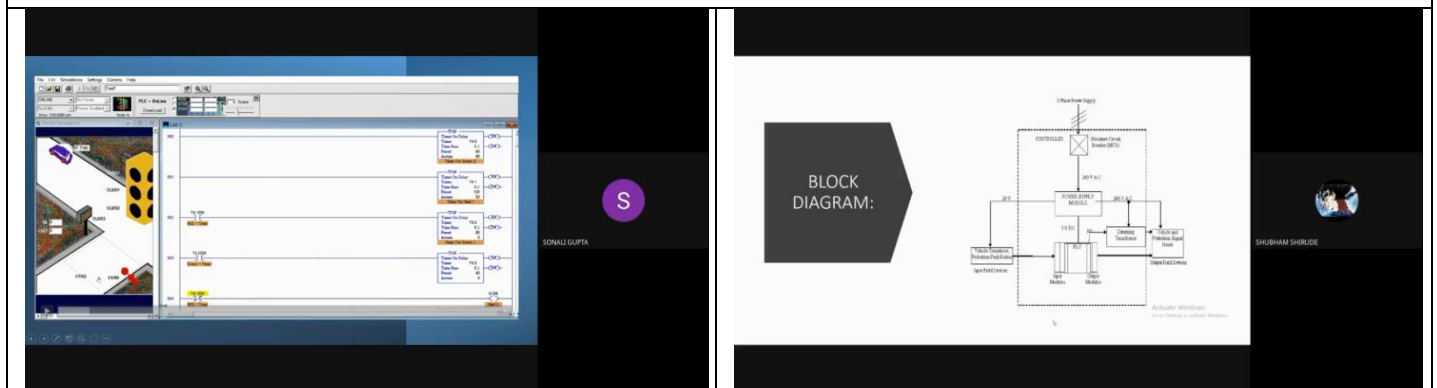
Recorded Video and One Page Report Link :

GR1:Traffic Signal Systems	https://drive.google.com/file/d/1t5OizvhlJcaDgr2K9sH4LfQdZTeZKkp7/view
GR2: Irrigation system	https://drive.google.com/file/d/1HkBN987msqf89Sy3ju_AsVH9LacYZF4C/view
GR3:Thermal Power Plant	https://drive.google.com/file/d/1zqdUAScj4km773fRy6VX4vnL6aw6f-Ho/view
GR4:Cement Factory	https://drive.google.com/open?id=1Sye8b9rUQZaABjEHXe9uSqsTjwu8a21j
GR5:Pharmaceutical Manufacturing	https://drive.google.com/open?id=1tEMHbyTpfN-PWlKRL7vhsyk887JwBeZ3
GR6:Water Management Systems	https://drive.google.com/file/d/1nvqNHpgzxAiRBf8NQh0MHSeg4XmNYGgc/view
Gr7:Electrical Power Grids and Electrical Generation Plants	https://drive.google.com/open?id=14uDYteua_ynHPGYRzblhkJmdv628o3rQ
GR1:Traffic Signal Systems	https://drive.google.com/file/d/1XpG2BrrKYkXPlo5Gg5qjvkm67eNavyVV/view
GR2:Irrigation system	https://drive.google.com/file/d/1cbwK-YhmVv4agXPqquCzcASPVSbpnJ-k/view
GR3:Thermal Power Plant	https://drive.google.com/file/d/1_Rnh7gDrd51amfqYgrn-flh-q90lzFyt/view
GR4:Cement Factory	https://drive.google.com/file/d/1qjyxqvMMWPs8LmLn_6vP4WR6bttYGxri/view
GR5:Pharmaceutical Manufacturing	https://drive.google.com/file/d/1EhfOv-VQ5wWXBGLBAhOD7iioElHsRPmc/view
GR6:Water Management Systems	https://drive.google.com/file/d/1_xZvN6X5RTeZQUfn2iaRs4ivhifFuk-_/view
Gr7:Electrical Power Grids and Electrical Generation Plants	https://drive.google.com/file/d/1L2sUcmUNRdSTpxIw5Jho9jqrL903TeJW/view

10. **For review and critique contact: e-mail address of faculty and HOD**
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