



Department of Electronics & Telecommunication Engineering

Academic Year – 2020-21	Class: Third Year
Semester – I	Date :05-Dec-2020
CO:6	PO: 1,2,5,6,9,10,12

Innovative Teaching Methods

Title of Innovation method/activity: Case Study

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

2. **Subject:** Mechatronics

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	Boat Autopilot
2	High Speed tilting trains
3	Automatic car parking systems
4	Engine Management systems
5	Antilock Brake systems (ABS)
6	CNC Machines
7	Coin Box (Coin Operated Pay Phones)

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, following the guidelines given by the teacher.

Roles and Responsibilities

- **Teacher**
 - Provide the Introduction to all the topic.
 - 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:

- Video Must Contain Block Diagram (Mandatory)[15%]
- Explanation with the help of Presentation/Module/animation and/or other media/creativity.[25%]
- All group members must be involved in the activity. (Mandatory)[5x6=30%]
- Explain 8051 microcontroller program and its simulation/flow diagram. (Mandatory)[15%]
- Timely submissions. [15%]

Rubrics for Assessment of Block Diagram and presentation with 8051 microcontroller

[15 + 25 + 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(10)	Moderate(08)	Slight (05)
Date of submission	On Time	Late by one day	Late by two days	Late by more than two days

Assignments:

GR	Case Studies	Roll Numbers
GR1	Antilock Brake systems (ABS)	5,24,33,34,41,45
GR2	Antilock Brake systems (ABS)	4,20,21,25,61,68
GR3	Automatic car parking systems	2,8,52,57,64,72
GR4	Automatic car parking systems	7,15,19,50,51,55
GR5	Boat Autopilot	12,17,23,30,40,67
GR6	CNC Machines	1,3,13,35,38,48
GR7	Coin Box (Coin Operated Pay Phones)	11,16,31,39,59,60
GR8	Coin Box (Coin Operated Pay Phones)	9,10,28,46,66,70
GR9	Engine Management systems	36,49,54,56,58,71
GR10	Engine Management systems	27,29,32,44,,53,63
GR11	High Speed tilting trains	14,26,47,62,65,69
GR12	High Speed tilting trains	6,18,22,37,42,43

7. Evaluation Sheet

Case Study & Group Members		Timely submissions. [15]	Explanation [25]	Block Diagram [15]	program and its simulation [15]	Individual Member Presentation [5]	Grand Total
		15	25	15	15	05	100
Boat Autopilot		https://drive.google.com/file/d/1gVw_xKq-IPgyGRrerGCQXpbmjuC5qiMx/view?usp=sharing					
12	Mallikaraje Sanjaysing Bhosale	15	18	12	9	3	71
17	Saurabh Prakash Dighe					3	
23	Ritesh Shyam Jadhav					3	
30	Shubham Atul Kulkarni					2	
40	Anisha Nitendra Panpatil					2	
67	Shubham Bhausaheb Suryawanshi					4	
High Speed tilting trains		https://drive.google.com/file/d/10ngGvSvrtJsFqjchCAqXsc8nFKz80MHT/view?usp=sharing					
14	Anushka Sanjay Chavan	15	20	13	10	4	78
26	Kanchan Anil Kapse					3	
47	Sejal Sanjay Pawar					4	
62	Bhagyashri Ravindra Sonar					2	
65	Sakshi Bapu Sonawane					4	
69	Prajakta Bapu Thakare					3	
High Speed tilting trains		https://drive.google.com/file/d/1JRbjlgTZrNdVO3z67TvudetQcc7kiTtp/view?usp=sharing					
6	Ravindra Sitaram Awari	08	15	9	0	--	40
18	Ravi Laxman Gaikwad					2	
22	Diksha Prabhakar Jadhav					2	
37	Manasi Nandkishor Mehetre					2	

42	Kaveri Jitendra Patil					2	
43	Kunal Prakash Patil					--	
Automatic car parking systems		https://drive.google.com/file/d/1PEF6Vk3wFGhnJW2wcMYvbJLbJMOH8USe/view?usp=sharing					
2	Ruthik Prasad Admane	08	17	11	8	3	59
8	Vrunda Vinod Bankar					2	
52	Rutu Anil Raka					3	
57	Ankita Bhagwat Sapnar					3	
64	Jay Sanjay Sonawane					2	
72	Harshal Rajendra Yeole					2	
Automatic car parking systems		https://drive.google.com/file/d/1cKOI7w4Cexr2jjaS-oZfkuRcqp6XCFHc/view?usp=sharing					
7	Shweta Vinodkumar Bagade	15	19	12	12	4	75
15	Esha Deepak Chokhar					2	
19	Vaishnavi Ganpat Gawande					3	
50	Pragya Bipinkumar Rai					3	
51	Pratiksha Vijay Rajule					3	
55	Nimisha Durgesh Salunke					2	
Engine Management systems		https://drive.google.com/file/d/1JyZB3g5EnQ4cMvLK19yZUoAizYEBR96Q/view?usp=sharing					
36	Kshitij Sanjay Malsane	15	14	0	0	3	43
49	Tanuja Rajendra Prajapati					2	
54	Sumit Dattatray Salke					2	
56	Rohini Sharad Sanap					2	
58	Mahesh Devnath Sawant					3	
71	Siddharth Jayant Todkar					2	

Engine Management systems		https://drive.google.com/file/d/1RRemrTQWNvTaHXO0-1w6ZLjg54fqJxDA/view?usp=sharing					
27	Rutuja Keshav Karate	10	18	13	0	2	55
29	Khyati Devendra Kshirsagar					2	
32	Rohan Umesh Kumbhakam					2	
44	Pradnya Avinash Patil					2	
53	Sneha Onkar Raundal					2	
63	Vaaideehi Niesh Sonavani					4	
Antilock Brake systems (ABS)		https://drive.google.com/file/d/17bBuO30ZffUqVATxJK2yTL9PcJkXLn6/view?usp=sharing					
5	Shubham Machhindra Avhad	15	23	13	14	4	83
24	Shivam Sunil Junghare					4	
33	Pracheta Anil Kuwar					3	
34	Piyush Sanjiv Mahale					3	
41	Sarang Ajaykumar Panse					2	
45	Shubham Ramesh Patil					2	
Antilock Brake systems (ABS)		https://drive.google.com/file/d/19lINOdLVXavRS4H_S0AWpzzo4LR4FchH/view?usp=sharing					
4	Shruti Dulaji Avhad	10	20	12	8	3	66
20	Gayatri Ravindra Gunjal					3	
21	Renu Shivkumar Guraddi					2	
25	Sakshi Shashikant Kapadnis					2	
61	Priyanka Ashwinikumar Shouche					3	
68	Mahima Sanjay Tekale					3	
CNC Machines		https://drive.google.com/file/d/1kJpUDZRy4FbiEi0n6wCx4nlO8YRwYc97/view?usp=sharing					
1	Ravi Narayan Aderao	10	17	12	9	3	62

3	Rinku Namdev Ahire					2	
13	Rutuja Rajendra Bule					3	
35	Sakshi Vijaykumar Malode					2	
38	Sonal Chandrakant More					2	
48	Rohini Ravindra Pendharkar					2	
Coin Box (Coin Operated Pay Phones)		https://drive.google.com/file/d/1LdAjs2qYSNW0DoAyMrh4-8SaYFVt9BWw/view?usp=sharing					
11	Himanshu Pramod Bhamare	15	22	13	13	3	82
16	Pratik Shantaram Datir					3	
31	Parag Sanjay Kulthe					3	
39	Devyani Dhananjay Pagar					3	
59	Saurabh Jayant Shewale					4	
60	Sonal Ajay Shirsath					3	
Coin Box (Coin Operated Pay Phones)		https://drive.google.com/file/d/1uFTKY8svaW5kCCft8QLYmNSKtvjIiXa5/view?usp=sharing					
9	Niraj Dilip Bari	15	17	11	6	3	63
10	Shreyas Pramod Barudwale					2	
28	Mayur Rajendra Katkar					2	
46	Vikrant Satish Patil					3	
66	Parag Dhanraj Suryawanshi					2	
70	Prajwal Deepakrao Tikhe					2	
Assessment by Prof. A. P. Meshram							

Final Marks

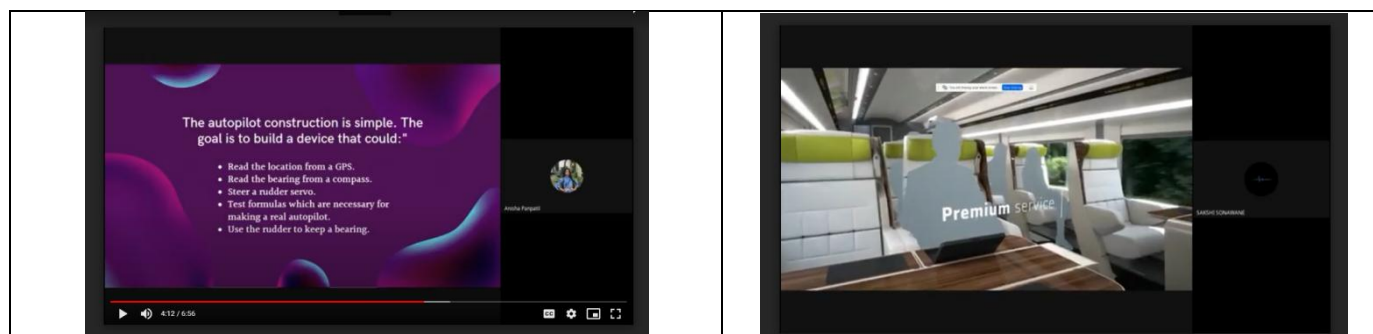
RN	Name	Marks out of 75			
1	Ravi Narayan Aderao	51	37	Manasi Nandkishor Mehetre	34
2	Ruthik Prasad Admane	47	38	Sonal Chandrakant More	50
3	Rinku Namdev Ahire	50	39	Devyani Dhananjay Pagar	66
4	Shruti Dulaji Avhad	53	40	Anisha Nitendra Panpatil	56
5	Shubham Machhindra Avhad	69	41	Sarang Ajaykumar Panse	67
6	Ravindra Sitaram Awari	32	42	Kaveri Jitendra Patil	34
7	Shweta Vinodkumar Bagade	62	43	Kunal Prakash Patil	32
8	Vrunda Vinod Bankar	46	44	Pradnya Avinash Patil	43
9	Niraj Dilip Bari	52	45	Shubham Ramesh Patil	67
10	Shreyas Pramod Barudwale	51	46	Vikrant Satish Patil	52
11	Himanshu Pramod Bhamare	66	47	Sejal Sanjay Pawar	62
12	Mallikaraje Sanjaysing Bhosale	57	48	Rohini Ravindra Pendharkar	50
13	Rutuja Rajendra Bule	51	49	Tanuja Rajendra Prajapati	31
14	Anushka Sanjay Chavan	62	50	Pragya Bipinkumar Rai	61
15	Esha Deepak Chokhar	60	51	Pratiksha Vijay Rajule	61
16	Pratik Shantaram Datir	66	52	Rutu Anil Raka	47
17	Saurabh Prakash Dighe	57	53	Sneha Onkar Raundal	43
18	Ravi Laxman Gaikwad	34	54	Sumit Dattatray Salke	31
19	Vaishnavi Ganpat Gawande	61	55	Nimisha Durgesh Salunke	60
20	Gayatri Ravindra Gunjal	53	56	Rohini Sharad Sanap	31
21	Renu Shivkumar Guraddi	52	57	Ankita Bhagwat Sapnar	47
22	Diksha Prabhakar Jadhav	34	58	Mahesh Devnath Sawant	32
23	Ritesh Shyam Jadhav	57	59	Saurabh Jayant Shewale	67
24	Shivam Sunil Junghare	69	60	Sonal Ajay Shirsath	66
25	Sakshi Shashikant Kapadnis	52	61	Priyanka Ashwinikumar Shouche	53
26	Kanchan Anil Kapse	61	62	Bhagyashri Ravindra Sonar	60
27	Rutuja Keshav Karate	43	63	Vaaideehi Niesh Sonavani	45
28	Mayur Rajendra Katkar	51	64	Jay Sanjay Sonawane	46
29	Khyati Devendra Kshirsagar	43	65	Sakshi Bapu Sonawane	62
30	Shubham Atul Kulkarni	56	66	Parag Dhanraj Suryawanshi	51
31	Parag Sanjay Kulthe	66	67	Shubham Bhausahab Suryawanshi	58
32	Rohan Umesh Kumbhakarn	43	68	Mahima Sanjay Tekale	53
33	Pracheta Anil Kuwar	68	69	Prajakta Bapu Thakare	61
34	Piyush Sanjiv Mahale	68	70	Prajwal Deepakrao Tikhe	51
35	Sakshi Vijaykumar Malode	50	71	Siddharth Jayant Todkar	31
36	Kshitij Sanjay Malsane	32	72	Harshal Rajendra Yeole	46

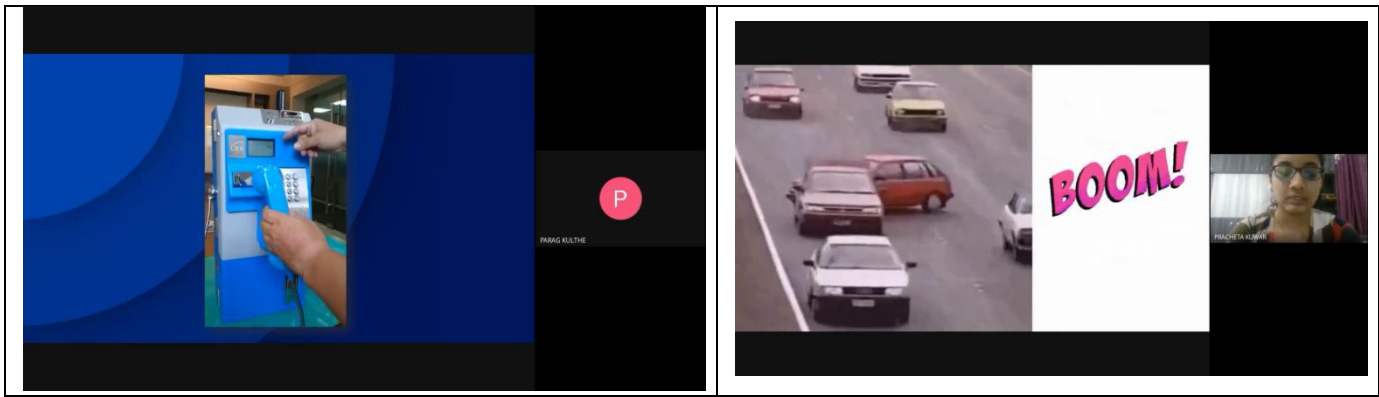
SN	Result Analysis	
1	Total Student Present Student	72
2	Number of Student Scoring above 60%	55
3	Percentage of student Scoring above 60%	76.39

8. Impact Analysis

Particulars	GR	5-Excellent	4-Very Good	3-Good	2-Average	1-Poor
How Much do you find explanation/presentation material/Video of particular topic helpful in your day-today life?(Case Study) (CO6)	1	32	27	11	00	00
	2	30	34	05	01	00
	3	33	24	13	00	00
	4	33	26	10	01	00
	5	34	25	09	02	00
	6	33	23	13	01	00
	7	36	24	10	00	00
	8	34	29	07	00	00
	9	31	26	12	01	00
	10	32	26	12	00	00
	11	30	32	06	02	00
	12	32	27	10	00	00
Overall Rating in percentage:		46.43%	38.45%	14.05%	0.95%	0.00%
How Much do you would rate understanding the topic (CO6)	1	32	25	13	00	00
	2	29	28	13	00	00
	3	32	23	15	00	00
	4	31	26	13	00	00
	5	28	25	16	01	00
	6	27	30	11	02	00
	7	33	25	11	01	00
	8	32	26	12	00	00
	9	27	31	12	00	00
	10	29	27	13	01	00
	11	28	31	10	01	00
	12	31	29	08	02	00
Overall Rating in percentage:		42.74%	38.81%	17.50%	0.95%	0.00%
Rate Your Learning Experience (PO9)	36	27	07	00	00	00
Does the group members communicate effectively on given topic (PO10)	70-Yes	00- No				
Does the content of covered topic will be remember for life long (PO12)	70-Yes	00-No				
Would You Like To Participate in This Methodology again	69-YES	01 - No				

9. Activity Picture





Recorded Video Link :

Antilock Brake systems (ABS)	https://drive.google.com/file/d/17bBuO30ZffUqVATxIJK2yTL9PcJkXLn6/view?usp=sharing
Antilock Brake systems (ABS)	https://drive.google.com/file/d/19IIN0dLVXavRS4H_S0AWpzxo4LR4FchH/view?usp=sharing
Automatic car parking systems	https://drive.google.com/file/d/1PEF6Vk3wFGhnJW2wcMYvbJLbJM0H8USe/view?usp=sharing
Automatic car parking systems	https://drive.google.com/file/d/1cKOI7w4Cexr2jjaS-oZfkuRcqp6XCFHc/view?usp=sharing
Boat Autopilot	https://drive.google.com/file/d/1gVw_xKq-IPgyGRrerGCQXpbmjvC5qiMx/view?usp=sharing
CNC Machines	https://drive.google.com/file/d/1kjpUDZRy4FbiEi0n6wCx4nIO8YRwYc97/view?usp=sharing
Coin Box (Coin Operated Pay Phones)	https://drive.google.com/file/d/1LdAjs2qYSNW0DoAyMrh4-8SaYFVt9BWw/view?usp=sharing
Coin Box (Coin Operated Pay Phones)	https://drive.google.com/file/d/1uFTKY8svaW5kCCft8QLYmNSKtvjliXa5/view?usp=sharing
Engine Management systems	https://drive.google.com/file/d/1JyZB3g5EnQ4cMvLK19yZUoAizYEBR96Q/view?usp=sharing
Engine Management systems	https://drive.google.com/file/d/1RRemrTQWNvTaHXOO-1w6ZLjg54fqJxDA/view?usp=sharing
High Speed tilting trains	https://drive.google.com/file/d/10ngGvSvrtJsFqjchCAqXsc8nFKz80MHT/view?usp=sharing
High Speed tilting trains	https://drive.google.com/file/d/1JRbilgTZrNdVO3z67TvudetQcc7kiTtp/view?usp=sharing

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

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