



Mechanical Engineering Department

Academic Year – 2021-22	Class: TE A & B
Semester – I	Date : 06/12/2021
CO: CO1	PO: PO1, PO9.PO10,PO12

Innovative Teaching Methods

Title of Innovation method/activity: Innovative Teaching Learning Method|(Project based learning/Case study of Sensors used in industry)

1. Name of Faculty: Mrs. V.V. Shinde

2. Subject: Mechatronics

3. Objective of Method:

- I. To get acquainted with different types of sensors used in Industry
- II. To get familiar with function working principle, costing and manufacturers of sensors

4. **Topic Covered through Activity:**

Types, working principles & Functions of the sensors

5. **Description of method with Benefits:**

Forming different group of the students consisting of maximum four numbers. They should carry out a Project based learning activity/case study focused on different types of sensors used in Industries. Each group will gather detail information about types, working principle, function, costing and leading manufacturers of selected sensors and prepare a report. Grading will be done as per rubrics given to the report and oral performance of group during submission

Benefits of method:

- It helps students to get In-depth knowledge of sensors used in Industry
- It teaches students to discuss contents with group and improves communication skills.
- It teaches students about how to do literature survey and improves there presentation skill.

The method:

Monitor and support students as they work through the following in this method:

- 1) Forming different group of students consisting maximum 4 members in each group.
- 2) Each group is to select one important sensor used in Industry
- 3) Each group will prepare a report and teacher will ask questions during report submission
- 4) It will be graded based on rubrics assigned.

Roles and Responsibilities

- **Teacher**
 - Provide the Introduction to the entire topic.
 - Aware the student about the length, Breadth, Depth of Topic
 - Provide the Study Material and appropriate guide lines at every stage.
 - Prepare assessment methodology.
- **Student**
 - Go through all the aspects of sensors used in Industry
 - Once topic is selected, prepare a report and submit to the teacher.
 - Actively participate in group and contribute by means of discussion.
- **Group**
 - Forming the group of members as per the guidelines.
 - Understand and discuss to finalize the best content for the Selected topic.
 - Assign the work within the group to achieve the task within stipulated time period.

6. Assessment Tools

Content	3	2	0
	Excellent	Good	Not acceptable
	The content are appropriate with no smudges	The content are acceptable with little smudges	The content are not appropriate
Report	3	2	0
	Excellent	Good	Not acceptable
	The Report is very well organized and expressive.	The Report is well organized with little expressive.	The Report does not seem to be acceptable
Presentation	3	2	0
	Excellent	Good	Not acceptable
	The content is very well explained and clarity in speech	The content is well explained with little hesitation	The content delivery is not proper and acceptable
Timeliness	1	0	
	Up to due date	After due date	
	Report Submitted on time	Report submitted after due date	

7. Evaluation sheet of attendee

Topic Name	Name of students	Content	Presentation	Report	Timelines	Total Marks
Hall effect sensor	Shantanu Pradhan (135)	3	2	3	1	9
	Omkar Shirsath(156)	3	2	3	1	
	Mayur Shirsath(155)	3	2	3	1	
	Saket Singh(158)	3	2	3	1	
Gyroscope sensor	Rohit Pingale (133)	3	3	2	1	9
	Pratik SALUNKE (139)	3	3	2	1	
	Saurbh Shewale (148)	3	3	2	1	
	Mayur Shinde (150)	3	3	2	1	
ABS sensor	Dhananjay Budhvant (91)	2	2	2	1	7
	Pushpak Jain (99)	2	2	2	1	
	Swayam Shewale (149),	2	2	2	1	
	Prathamesh Vadnere (171)	2	2	2	1	
Crash Sensor	Nishant Bundelkhandi (21)	2	2	2	1	7
	Atharv Deshmukh (27)	2	2	2	1	

Elevator Door Sensor	Aditya Sanjay Shelar (82)	3	2	2	1	8
	Monali Ramdas Shinde (85)	3	2	2	1	
	Jayesh Sanjay Dhattrak (29)	3	2	2	1	
	Pratiksha Ashok Borgude (19).	3	2	2	1	
LIDAR sensor : Used in Self Driving Cars	Nakshatra Patil (124)	3	2	3	1	9
	Parshuram Patil (126)	3	2	3	1	
	Prashant Patil (127)	3	2	3	1	
	Mayur Sonje (163)	3	2	3	1	
Infrared sensor	Deep Patel(118)	3	3	2	1	9
	Dev Patil(121)	3	3	2	1	
	Pratik Patil(128)	3	3	2	1	
	Pranav Patil(125)	3	3	2	1	
Alcohol sensor	Harsh Aher(01)	3	2	1	1	7
	Ganesh Ahirrao (02)	3	2	1	1	
	Siddhant Bachhav(08)	3	2	1	1	
	Bharat Bagul(09)	3	2	1	1	
Ultrasonic sensor	Saurabh Jadhav(97)	3	2	3	1	9
	Vivek Zade(180)	3	2	3	1	
	Sarthak Sarkar(142)	3	2	3	1	
	Gokul Sanap(141)	3	2	3	1	
Lidar Sensor	Samarth Boraste (18)	3	3	1	1	8
	Tejas Baviskar (11)	3	3	1	1	
	Ankush Derle (26)	3	3	1	1	
	Rohit Dugaje(31).	3	3	1	1	
Knock Sensor	Mrunali Atre (5)	3	3	2	1	9
	Ajinkya Giri (39)	3	3	2	1	
	Girish Jadhav (46)	3	3	2	1	
	Manav Kamble (52)	3	3	2	1	
LM35 Temperature Sensor	Utkarsh Malve (105)	3	2	3	1	9
	Bhushan Malsane(104)	3	2	3	1	
	Himanshushekhar Mandal(106)	3	2	3	1	
	Tejas Sanjay Nankar(112)	3	2	3	1	
MQ2 Sensor	Tejas Sonawane (161)	3	2	1	1	7
	Aditya Handore (96)	3	2	1	1	
	Gaurav Patil (123)	3	2	1	1	
	Aniket Karmase(102)	3	2	1	1	
Pressure sensor	Vedant Shingade (154)	3	2	2	1	8

	Rajat Shende (146)	3	2	2	1	
	Akshada Rajjade (136)	3	2	2	1	
	Vaibhav Shevkar	3	2	2	1	
Soil Moisture Sensor	Aniket Lawand(72)	2	2	2	1	7
	Jay Mahale(73)	2	2	2	1	
	Kunal Bachav(6)	2	2	2	1	
	Shivraj Gunjal(42)	2	2	2	1	
Throttle position sensor	Sanskar Pankaj Panchariya(117).	3	2	1	1	7
	Nachiket Shinde (151)	3	2	1	1	
	Ritesh Jibhau Kaklij (100)	3	2	1	1	
	Saurabh Wagh(173)	3	2	1	1	
Electro-Optical/Ir Sensors	Yash Shinde (153)	3	3	2	1	9
	Vishal Nishad(113)	3	3	2	1	
	Sahil Muthal(111)	3	3	2	1	
	Tanmay Mhatre(108)	3	3	2	1	
Piezoelectric Sensor	Chinmay Patil (119)	2	2	2	1	7
	Gaurav Pagar (115)	2	2	2	1	
	Pratik Pachore (114)	2	2	2	1	
	Alok Pagare (116)	2	2	2	1	
Oximeter pulse sensor	Gayatri Patil (79)	3	3	2	1	9
	Pranali Khaire(57)	3	3	2	1	
	Komal Ahhirrao (03)	3	3	2	1	
	Aniket Tupe (89)	3	3	2	1	
Capacitive Fingerprint sensor	Vansh Pawar 131)	3	3	3	1	10
	Suyash Sonawane(160)	3	3	3	1	
	Yash Sonawane(162)	3	3	3	1	
	Deepak Yadav(179)	3	3	3	1	
Metal detector sensor	Lokesh D Kelkar (56)	3	2	2	1	8
	Rutuj S Khairnar (60)	3	2	2	1	
	Yashodeep Khairnar(62)	3	2	2	1	
	Gaurav Kothawade(66)	3	2	2	1	
Curtain Sensor	Amit Daspute (92)	2	2	2	1	7
	Shantanu Gaikwad (95)	2	2	2	1	
	Gaurav Patil (123)	2	2	2	1	
	Rohit Patole (129)	2	2	2	1	
Inductive sensor	Bhushan Bharsat (90)	3	2	3	1	9
	Sujata Kamble (101),	3	2	3	1	
	Shraddha Kurware (103),	3	2	3	1	
	Sakshi Shinde (152)	3	2	3	1	
Ultrasonic Sensor (MB8450)	Saurabh Jadhv (97)	3	2	3	1	9
	Vivek Zade (180)	3	2	3	1	
	Sarthak Sarkar (142)	3	2	3	1	
	Gokul Sanap (141)	3	2	3	1	
Biosensors	Shubham Mhaskar(107)	3	2	2	1	8

	Jaydatt Taskar(166)	3	2	2	1	
	Akshay Watpade(177)	3	2	2	1	
	Urvesh Waghulde(175)	3	2	2	1	
Curtain Sensor	Amit Dashpute(92)	3	2	1	1	7
	Shantanu Gaikwad(95)	3	2	1	1	
	Rohit Patole(129)	3	2	1	1	
	Ankit Sonawane(159)	3	2	1	1	
Mass Air Flow Sensor.	Abhishek Tambe (165)	3	2	3	1	9
	Rohit Salve(140)	3	2	3	1	
	Nishant Pimpare (132),	3	2	3	1	
	Pranav Rayate(138).	3	2	3	1	
LM35 Temperature Sensor	Bhushan Malsane(104)	3	2	3	1	9
	Utkarsh Malve(105)	3	2	3	1	
	Himanshushekhar Mandal(106)	3	2	3	1	
	Tejas Nankar(112)	3	2	3	1	
Level sensor	Gaurav Dhondge (30)	3	2	2	1	8
	Prathamesh Jadhav(48)	3	2	2	1	
	Umesh Jadhav(50)	3	2	2	1	
	Amey Kadam(51)	3	2	2	1	
Proximity sensor	Shubham Jadhav (49)	3	2	1	1	7
	Minesh Mahesh Chaure (24)	3	2	1	1	
Accelerometer sensor	Rohit Doke (93)	3	2	2	1	8
	Ajinkya modak(109)	3	2	2	1	
	Rushikesh shelke(145)	3	2	2	1	
	Sagar shirsath(157)	3	2	2	1	
PIR motion sensor	Rohit Shilwan(84),	3	2	2	1	8
	Nagesh Wadkar(89)	3	2	2	1	
	Rushikesh Pawar(81)	3	2	2	1	
throttle position sensors	Bodke Sushant (15)	2	2	2	1	7
	Bodke Aniket (14)	2	2	2	1	
	Chavhan Rushikesh(25)	2	2	2	1	
	Gaikwad Onkar (34)	2	2	2	1	
MQ2Gas Sensors	Aniket Karmase(102)	3	2	1	1	7
	Gaurav Patil(123)	3	2	1	1	
	Tejas Sonawane(161)	3	2	1	1	
	Aditya handore	3	2	1	1	
Accelerometer sensor	Yashraj Pangre (77)	2	2	2	1	7
	Sarthak Sonaskar(86)	2	2	2	1	
	Ishan Patil(80)	2	2	2	1	
Level sensor	Gaurav Dhondge (30)	3	2	1	1	7
	Prathamesh Jadhav (48)	3	2	1	1	
	Umesh Jadhav (50)	3	2	1	1	
	Amey Kadam (51)	3	2	1	1	
Ultra sonic sensor	Shubham Bahiram(10)	2	2	2	1	7
	Pratik Ghotekar (38)	2	2	2	1	
	Purushottam Mondhe(75)	2	2	2	1	

Proximity sensors	,Rohit Patale (78)	2	2	2	1	8
	Yuvraj Labhade(70)	3	2	2	1	
	Vishal Khole(64)	3	2	2	1	
	Vaibhav Kushare(69)	3	2	2	1	
Gyroscope Sensor	Aniket Lahane(71)	3	2	2	1	9
	Deven Patil(122)	3	2	3	1	
	Himanshu Potdar(134)	3	2	3	1	
	Tanay Ugale(170)	3	2	3	1	
Hall Effect Sensor	Jayesh Thakur(168)	3	2	3	1	9
	Mukta Jadhav (47)	3	2	3	1	
	Sakshi Gadakh (32)	3	2	3	1	
	Shradhha Holkar(45)	3	2	3	1	
LIDAR sensor	Neha Kapadnis(53)	3	2	3	1	8
	Bokil Harshal(16)	3	2	2	1	
	Gujrati anand(41)	3	2	2	1	
	Kamble Manav(52)	3	2	2	1	
Gyroscope sensor	Kardile Yash(55)	3	2	2	1	7
	Himanshu potdar(134)	3	2	1	1	
	Jayesh Thakur(168)	3	2	1	1	
	Deven Patil(122)	3	2	1	1	
Hygrometer sensors	Tanay Ugale(170)	3	2	1	1	7
	Vishwajit Gadakh(33)	2	2	2	1	
	Swapnil borade(17)	2	2	2	1	
	Rushikesh Bhandare(12)	2	2	2	1	
	Vishal Budhwant(20)	2	2	2	1	

8. Impact Analysis

Questions	3- High/Excellent	2 - Moderate /Average	1- Slight/Poor
1. Did you understand and cover the objective of the activity?	91	8	-
2. Do you find this activity helpful in understanding the key concept of topic?(PO1)	88	10	1
3. Does this method helps to improve presentation skills and communication skills and team building ability?(PO9,PO10)	90	9	-
4. Does the content covered are relevant and will be helpful as a life-long learning?(PO12)	85	14	-
5. Can you want to conduct such activity again?	86	13	-

9. Activity Picture

classroom.google.com/g/tg/Mzg0MjkzMzE3Njk4/NDQyMTgzOTQ1MDY4#u=MjY1Mzc3Mjc3NDI58&t=f

innovative teaching activity:- Project based learning

05 MRUNALI ATRE Turned in

Topic Name: Knock Sensor

MECHANICAL ENGINEERING (TE-A)

Group Members:

Mrunali Atre (5)
Giri Ajinkya Devidas (39)
Girish Pravin Jadhav (46)
Manav Kamble (52)

Guided by:
Mr. V. V. Shinde

Files
Turned in on Dec 6, 2021, 2:20 PM
See history
MXT Knock sensor.pdf

Grade
/10

Private comments
Add private comment...
Post

Type here to search

ENG IN 3:42 PM 3/4/2022

classroom.google.com/g/tg/Mzg0MzAwNDM3MDky/NDQyMTgzOTQ1MjAw#u=MTE3MDg1NDUwNTk1&t=f

Innovative teaching activity:- project based learning

105 , UTKARSH MALVE TE B Turned in

WHAT IS LM35 SENSOR

- The LM35 series are precision integrated-circuit temperature devices with an output voltage linearly-proportional to the Centigrade temperature.
- The LM35 device has an advantage over linear temperature sensors calibrated in Kelvin, as the user is not required to subtract a large constant voltage from the output to obtain convenient Centigrade scaling.

Files
Turned in on Dec 6, 2021, 7:32 PM
See history
MECHATRONICS INN...

Grade
/10

Private comments
Add private comment...
Post

Type here to search

ENG IN 3:54 PM 3/4/2022

10. Shinde.vishal@kbtcoe.org, hod.mech@kbtcoe.org

Mr. V. V. Shinde
Subject In charge

Mr. P.C. Shete
Module Coordinator

Dr. A. B. Kakade
NBA Coordinator

Dr. V. C. Shewale
HOD