M.S.P. Mandal's
Deogiri Institute of Engineering and Management Studies, Aurangabad
Department of Basic Science & Humanities

Activity: Engineering Exploration
Class: First Year Engineering
Academic Year: 2021-2022

1. Introduction:

The first year Engineering course – "Engineering Exploration" is one of the unique outcomes of innovative education ecosystem of Deogiri Institute of Engineering and Management Studies. This is team-taught course that focuses on problem solving, Engineering Design, Multi-disciplinary skills, Ethics and Data Acquisition & Analysis. This course is co-designed and co-taught by faculty members drawn from multiple engineering disciplines & it follows PBL pedagogy. Students work in teams to solve identified problems. This course serve as a platform for peer learning and push students in Multi-disciplinary design thinking in first year itself.

The industry in this competitive environment is in the need of skilled graduates possessing diverse persona which meet the industry demand. Present work environment has become more target oriented, quality determined, skill and competence driven. A multidisciplinary and application-oriented focus is required to make the students industry ready. National Board of Accreditation (NBA) has defined 12 Programme Outcomes (PO's), which are nothing but the graduate attributes. Though the education sector in India has seen tremendous development in the last few decades still there are lots of challenges in engineering education.

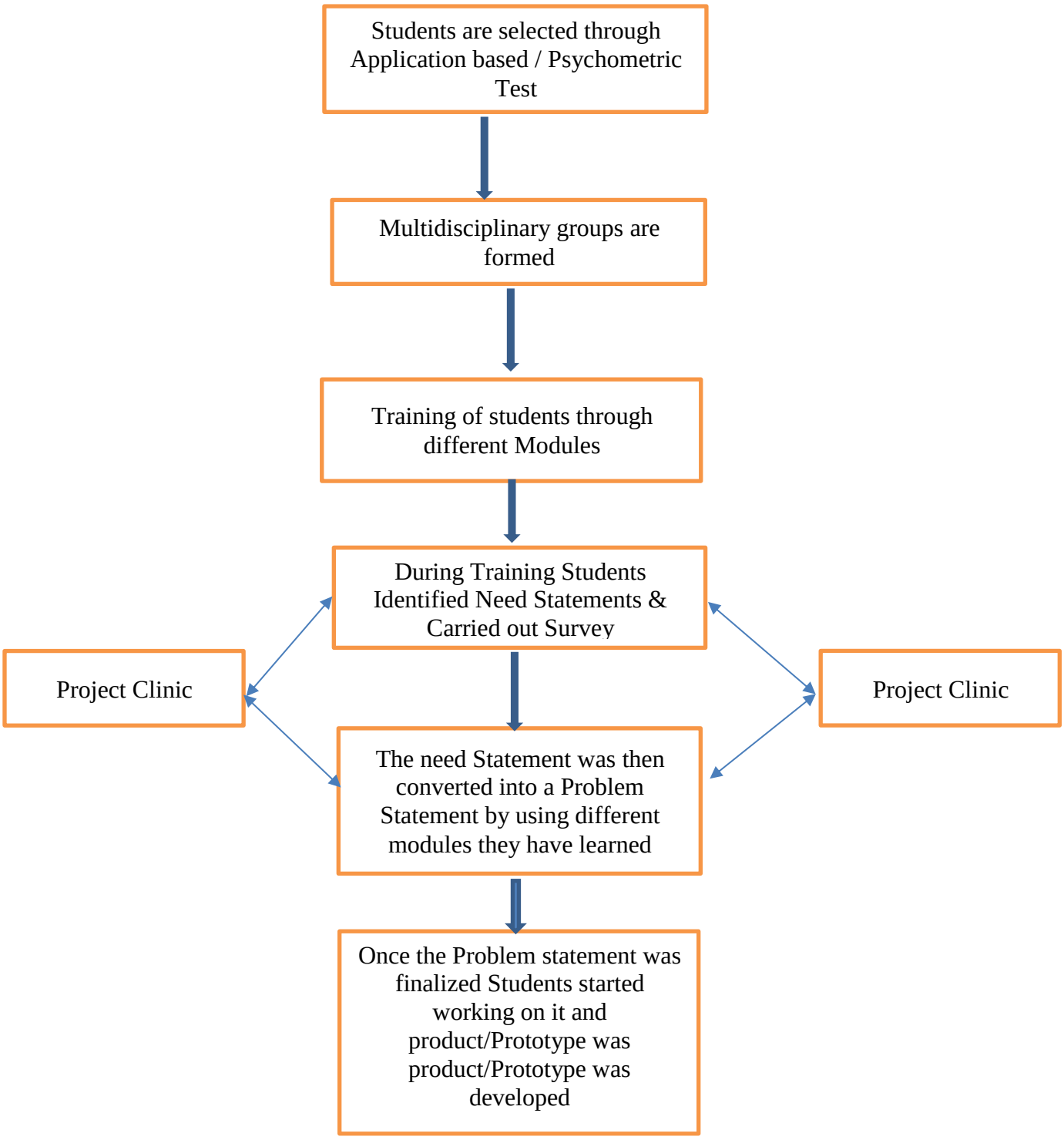
Challenges:

1. Outcome driven challenge
2. Persistent learning gap
3. Lack of higher-level problem-solving skills of students
4. Industry driven challenges
5. Technology trend
6. Gap between industry and academia practices
7. Student driven challenges.

To overcome the above-mentioned challenges and to improve skillset of students we have introduced “Engineering Exploration: Project Based Learning” course in academic year 2018-2019. For this course the faculties of institute have designed various activity-based learning training modules. Once the training part is going to complete the students identifies need statements from the following domains and completes the products under the guidance of mentors.

Sr. No.	Domain
1.	Agricultural
2.	Commercial
3.	Domestic
4.	Industrial
5.	Environmental
6.	Academia

2. Mechanism:


Students are selected through Application based / Psychometric Test
Multidisciplinary groups are formed
Training of students through different Modules
During Training Students Identified Need Statements & Carried out Survey
Project Clinic
Project Clinic
The need Statement was then converted into a Problem Statement by using different modules they have learned
Once the Problem statement was finalized Students started working on it and product/Prototype was product/Prototype was developed

3. Course Outcomes:

At the end of course the student should be able to

CO1	Explain the role of an Engineer as a problem solver
CO2	Identify multi-disciplinary approach required in solving an engineering problem
CO3	Build simple systems using engineering design process
CO4	Use basics of engineering project management skills in doing projects

4. Training Modules:

Module 1: Engineering Design

Engineering Design Process, Multidisciplinary facet of design, Pair wise comparison chart, Introduction to mechatronics system, generation of multiple solutions, Pugh Chart, Motor and battery sizing concepts.

Module 2: Platform Based Development

Introduction to various platform-based development (Arduino) programming and its essentials, Basics of C programming. Introduction to sensors, transducers and actuators and its interfacing with Arduino.

5. Projects/ Need Statements :

Group No.	Roll No	Name of Student	Need Statement	Name of Mentor
A-1	1102	AUCHARMAL VISHAL SUNIL	**Distance Measuring Equipment: A distance measuring device is requiring for different civil work process. A handheld low cost device should be developed for the same.**	**Prof. S.P.Nirkhe**
	1305	BAINADE SAGAR RAMPRASAD		
	1502	AKADE UMESH RAMESH		
	1957	TATDE ABHIJEET KESHVRAO		
	1738	PATIL ADITYA NITIN		
A-2	1103	BADOGE SAURABH GORAKH	**Drunk driving is one of the major reasons behind road accidents worldwide. In all the road accident cases worldwide drivers have been observed to have excess alcohol content in their blood. Create a system that should restrict drivers to use any vehicle under this condition.**	**Prof A. J.Punewale**
	1301	AAVHAD SANDEEP R		
	1514	BHOSALE YASHWANT B		
	1851	KAKDE VAISHNAVI P		
A-3	1111	BOWER JOSHUA SUNIL	**In agriculture we face a shortage of manpower, so need for automating the various activities in the field is required. So design and fabricate a multipurpose weed removing machine**	**Prof.V.V.Chahare**
	1317	CHOUDHARY SAJID		
	1521	CHAVAN SANIKA SANTOSH		
	1106	BHALERAO SAPNA PRAKASH		
A-4	1120	GALHATE SAMYAK AMOL	**Grain harvesting is the important part in agricultural mechanization. So design and fabricate a low-cost crop harvesting machine**	**Prof.V.V.Chahare**
	1318	CHOUDHARY ANWAR		
	1538	HANGE YASHWANT MAHADEV		
	1861	KULKARNI SIDDHI VISHWAS		
A-5	1123	DESHMUKH GAURI JEEVAN	**A householder is interested in disposal of plastics by crushing into small granules which can be use/sold in plastic industry for recycling.**	**Prof. R.V.Pande**
	1328	HIWRALE PAVAN C		
	1544	JAIN SAMYAK DILIP		
	1867	LOKHANDE SAMIKSHA S		
A-6	1124	BHUME SAKSHI PANJABRAO	**Floating House: To create floating house which helps to rising water levels, also they are very effective in dealing with floods**	**Prof. S.P.Nirkhe**
	1335	KAWLE PRATHMESH BANDU		
	1546	KAD ATHARVA DILIP		
	1928	RATHOD DARSHAN RAJU		
A-7	1127	HIWRALE GAURAV PRALHAD	**Smart Crop Protection from Wild Animals with Alert Using Arduino | Field Sensor Monitoring with WiFi**	**Prof.V.S.Kolte**
	1342	KOLTE OMKAR GANESH		
	1622	RAJE PAYASWINI PRAJESH		
	1929	RATHOD NANDINI RAJU		

A-8	1140	KELEY OM GIRISH	**Mini Room Heater with recharging**	**Prof.V.S.Kolte**
	1419	RATHOD PIYUSH RITESH		
	1567	MESHRAM TEJAS CHAKRADHAR		
	1936	SALODKAR PRIYA PRAFULL		
A-9	1141	KHANDAGALE KALPAK B	**Taking the meter reading by going to each house or building is a hectic job. Design a automated system that will read and transmit the reading to the MSEB office**	**Prof. R.V.Pande**
	1425	SALVE PRASHIK SARJERAO		
	1606	NAGE PRANALI PANDURANG		
	1918	PANDE SHREYA DATTATRAY		
A-10	1142	KHANDAGALE PREETI B	**Our college water cooler makes the water so cool that it is not drinkable to the normal human beings, so develop a system such that the water gets cooled at required temperature and when job is done the system shuts down immediately.**	**Prof.S.L.Nangrale**
	1426	SAYED HURAIS		
	1613	PARDESHI AISHWARYA R		
	1854	KARWANDE HARSHAL S		
A-11	1209	PATIL SOJWAL MANOJ	**It is difficult to breath in winter season for asthma patients develop a compact, portable air purifier.**	**Prof.N.B.Chandodkar**
	1428	SHAIKH DANISH FAROOQ		
	1617	PATIL SUSHANT SANDIP		
	1836	GUJRATHI MANTHAN ASHOK		
A-12	1241	WAGH SIMOL DILIP	**Now a days taking attendance in classrooms is the time-consuming task. Develop a system to take attendance smartly.**	**Prof.S.L.Nangrale**
	1432	SHARMA TANYA MAHENDRA		
	1618	PAWAR JIDNYASA RAJU		
	1855	KATARIYA KHUSHI SACHIN		
A-13	1139	QUAZI ABBU USAID SHAKIL	**In any country, Waste Management and segregation is a much-needed process in metro cities and urban areas due to spreading of diseases. When mixed dry and wet waste breaks down in lowland, it creates nasty greenhouse gases, harmful to environment. Design a Segregation system to makes this problem and recycle the waste effectively.**	**Prof A. J.Punewale**
	1226	SHAIKH SHOEB MAHOMMAED		
	1624	RATHOD ASHISH NAMDEO		
	1841	TAMBI BHAVESH PRAVIN		

Group No.	Roll No	Name of Student	Need Statement	Name of Mentor
B-1	1222	SAYYAD ABUBAKR AMIN ALI	**Design and development of wireless motor starter to control the motor from anywhere.**	**Prof.A.M.Biradar**
	1338	KHATKE ARJUN GAJANAN		
	1631	SALUNKE PRATHMESH V		
	1236	TADWI ASMA HARUN		
	1635	SHEWALKAR YOGESH MAHESH		
B-2	1150	NIKAM KRUSHNA KAKASAHEB	**Smart delivery robot with anti theft system**	**Prof.P.B.Mahadik**
	1303	AMBAT RUSHIKESH DHARMENDRA		
	1727	KOTHAWADE PIYUSH BAPU		
	1238	TUBA FIRDOUS AKIL AHMAD		
	1644	SURYAWANSHI GAYATRI SHAKARLAL		
B-3	1227	SHAIKH USMAN SULEMAN	**Dust cleaning system at Construction Site: To develop a product which helps to remove dust during construction activity so efficiency of labor get increase**	**Prof. S.P.Nirkhe**
	1417	RANJANIKAR PINGAKSHA A		
	1556	KHANKE MRUNAL VISHNU		
	1843	JADHAV VIVEK GANESH		
	1202	NAGLOT AKANSHA MADANSING		
B-4	1232	SIDDIQUI MUQSIT ULHAQUE MUBEEN	**To check the temperature of every person entering in the mall or any function. Design a system that will automatically check the temperature of the person coming and signal the alarm if the person exceed the specified temperature**	**Prof. R.V.Pande**
	1341	KOLTE GANESH BHAGWANRAO		
	1651	TAYADE UTKARSHA SUNIL		
	1131	JADHAV SHUBHAM SANJAY		
	1703	BAINADE VISHAL SUNLSINGH		
B-5	1768	SHINDE ANUJA SATISH	**Develop a system (App) which can Keep track of syllabus studied subject-wise (Study Monitoring System)**	**Prof.N.B.Chandodkar**
	1351	MOHAMMAD ASIF ARIF		
	1708	CHANDAK APEKSHA LAXMIKANT		
	1530	DURPADE DHANSHREE BABURAO		
B-6	1240	WAGH ASHWIN ARUN	**Design and development of an Anti Sleep Glasses by using Arduino. This glasses alerts the driver whenever he is getting into sleep while driving the vehicle**	**Prof.A.M.Biradar**
	1339	KSHIRSAGAR YASH RAMESH		
	1723	KASBEKAR VEDANT MAHENDRA		
	1733	MISAL TUSHAR MANOHAR		

B-7	**1753**	SHINGATE VISHAL RAJENDRA	**While filling fuel at station we don't get exact volume filled in our vehicle tank in liters develop a solution for this.**	**Prof.N.B.Chandodkar**
	1754	SIDDIQUI MOHAMMED MUJTABA		
	1148	MOHAMMAD ALTAMASH ARIF		
	1915	NETKE YASHRAJ BHAUSABHEB		
B-8	**1825**	GANORKAR SAMARTH NITIN	**Saftey is major concern against kidnapping. So devlop a system.**	**Prof.P.B.Mahadik**
	1760	TIKARI SAKSHI SANTOSH		
	1122	GANGARDE RUTUJA BHASKAR		
	1701	AHER VASUNDHARA SAHEBRAO		
	1350	MOGAL SURAJ ASHOK		
B-9	**1831**	GHULE SUMIT SANTOSH	**Multiple Device Mic Design for Seminar Hall**	**Prof.A. J.Punewale**
	1766	YELIKAR PRANAV SATISH		
	1527	DESHMUKH SHREYA GANESH		
	1423	SAIBEE PRITESH NANDKISHOR		
	1737	PATEL MOHAMMAD ISMAIL ABDUL JABBAR		
B-10	**1959**	THOMBRE ISHA GANESH	**The blind people can't navigate with speed and confidence on road without stick, so develop a system to detect the nearby obstacles to walk safely.**	**Prof.S.L.Nangrale**
	1560	KULKARNI GAURAVI MILIND		
	1705	BARADKAR SACHIN SHANTIKUMAR		
	1508	BAIJPAI SNEHA VIJAY		
B-11	**1849**	KAKDE NIVARUTTI HARIKRISHNA	**To save energy design dimmer circuit for LED lamp**	**Prof.K.B.Dandge**
	1745	SATHE SHRAVANI RAHUL		
	1646	SURYAWANSHI SATYAPRAKASH DEVIDAS		
	1401	BHOSLE JANVI GAJANAN		
	1558	KOLHE SAMRATHA SHAHU		
B-12	**1957**	TATDE ABHIJEET KESHVRAO	**To save smart city energy design smart street light controlling system**	**Prof.K.B.Dandge**
	1134	JAGDHANE KUNAL DADARAO		
	1720	KAMBLE VISHAL PARASRAM		
	1410	PARVE ABHISHEK SANJAY		
	1746	SHAIKH AMAAN MOHD ABDUL GAFFAR		
B-13	**1948**	SHIMPI PRACHI RAMAKANT	**Make a Medicine reminder alarm using Arduino Uno**	**Prof.V.S.Kolte**
	1934	RUSHIPATHAK UTKARSHA PRAJAKT		
	1729	KUMAVAT SHIVRATNA NARAYAN		
	1553	KHAN TABISHA SHOUKAT		

6. Survey Sheet Format:

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Deogiri Institute of Engineering and Management Studies, Aurangabad
Engineering Exploration

[Need Statement]

[Team Name, Team No]

This requirements specification is used to record the user requirements for a My Project

Customer /Client Interaction **Date:**

Req	Requirement Description
1.1	
1.2	
1.3	
1.4	
1.5	
1.6	
1.7	
1.8	

Considerations:

-
-
-
-

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Engineering Exploration

Objectives:

-
-
-
-

Customer /Client Details:

Full Name:

Mobile No:

Profession/Occupation:

Customer's/Clent's Remark (if Any)

Customer's/Client's Signature

Paste Your team's photo with Customer here

Team Member (Name & Signature)	Team Member (Name & Signature)	Team Member (Name & Signature)	Team Member (Name & Signature)	Guide/Mentor (Name & Signature)

M.S.P. Mandal's
Deogiri Institute of Engineering and Management Studies, Aurangabad

Activity: Engineering Exploration - Project Based Learning
Class: Second Year Engineering
Academic Year: 2021-2022

1. Introduction:

The industry in this competitive environment is in the need of skilled graduates possessing diverse persona which meet the industry demand. Present work environment has become more target oriented, quality determined, skill and competence driven. A multidisciplinary and application-oriented focus is required to make the students industry ready. National Board of Accreditation (NBA) has defined 12 Programme Outcomes (PO's), which are nothing but the graduate attributes. Though the education sector in India has seen tremendous development in the last few decades still there are lots of challenges in engineering education.

Challenges:

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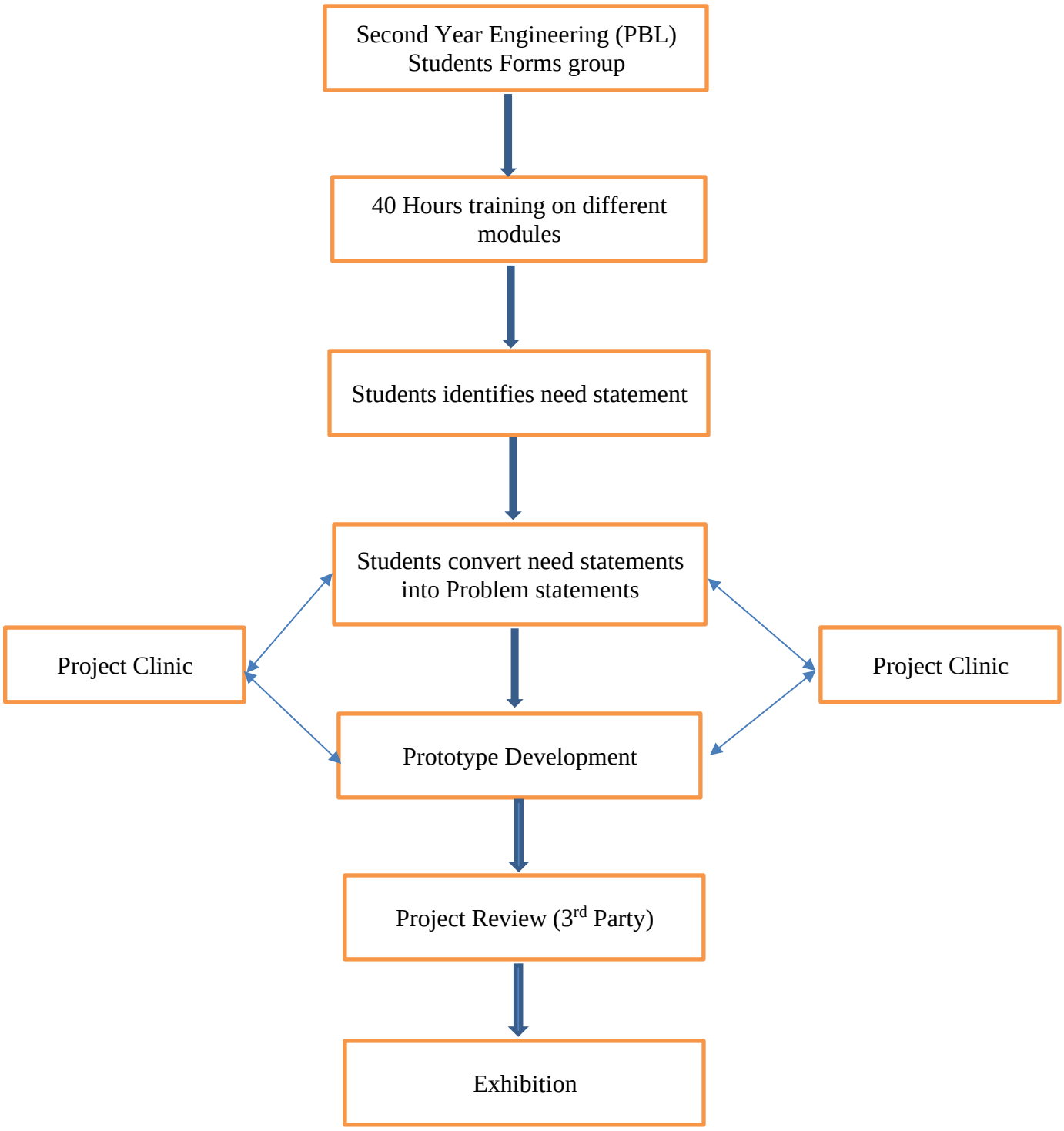
6. Gap between industry and academia practices
7. Student driven challenges.

To overcome the above-mentioned challenges and to improve skillset of students we have introduced "Engineering Exploration: Project Based Learning" course in academic year 2018-2019. For this course the faculties of institute have designed various activity-based learning training modules. Once the training part is going to complete the students of each department identifies need statements from the following domains and completes the projects under the guidance of mentors.

Sr. No.	Domain
1.	Agricultural
2.	Commercial
3.	Domestic
4.	Industrial
5.	Environmental
6.	Academia

2. Mechanism:


Second Year Engineering (PBL) Students Forms group
40 Hours training on different modules
Students identifies need statement
Students convert need statements into Problem statements
Project Clinic
Project Clinic
Prototype Development
Project Review (3rd Party)
Exhibition

3. Course Outcomes:

At the end of course the student should be able to

CO1	Explain the role of an Engineer as a problem solver
CO2	Identify multi-disciplinary approach required in solving an engineering problem
CO3	Build simple systems using engineering design process
CO4	Analyze engineering solutions from ethical perspectives
CO5	Analyze engineering solution from sustainability perspective
CO6	Use basics of engineering project management skills in doing projects
CO7	Demonstrate date acquisition and analysis skills using tools.

4. Training Modules:

MECHANICAL ENGINEERING DEPARTMENT	
Modules	**Hours**
Domain Specific Training: Project Design, Design of Mechanism, Workshop	20
Project Specific Training	20
ELECTRONICS AND TELECOMMUNICATION DEPARTMENT	
Domain Specific Training: Project Design, Android	20
Project Specific Training	20
COMPUTER SCIENCE ENGINEERING DEPARTMENT	
Domain Specific Training: Project Design, Python	20
Project Specific Training	20
CIVIL ENGINEERING DEPARTMENT	
Domain Specific Training: Project Design, Testing and Survey	20
Project Specific Training	20

5. Planning of PBL Activities 2021-22:

MECHANICAL ENGINEERING DEPARTMENT	
Activity	**Month**
Domain Specific Training: Project Design, Design of Mechanism, Workshop	10/11/2021 to 01/01/2022
Project Specific Training	04/01/2022 to 31/03/2022
Prototype Development	01/04/2022 to 30/06/2022
Project Review (Third Party)	16/07/2022
ELECTRONICS AND TELECOMMUNICATION DEPARTMENT	
Domain Specific Training: Project Design, Android	10/11/2021 to 01/01/2022
Project Specific Training	04/01/2022 to 31/03/2022
Prototype Development	01/04/2022 to 30/06/2022
Project Review (Third Party)	16/07/2022
COMPUTER SCIENCE ENGINEERING DEPARTMENT	
Domain Specific Training: Project Design, Python	10/11/2021 to 01/01/2022
Project Specific Training	04/01/2022 to 31/03/2022
Prototype Development	01/04/2022 to 30/06/2022
Project Review (Third Party)	16/07/2022
CIVIL ENGINEERING DEPARTMENT	
Domain Specific Training: Project Design, Testing and Survey	10/11/2021 to 01/01/2022
Project Specific Training	04/01/2022 to 31/03/2022
Prototype Development	01/04/2022 to 30/06/2022
Project Review (Third Party)	16/07/2022

6. Project:

6.1 Project Topics: Mechanical Engineering Department

Sr. No.	Name of Students	Project Title	Name of Guide
1.	Chavan Abhijeet Shivaji Gaurkar Ninad Arvind Bhale Ravi Baban Chavan Tushar Jitendra Bhakare Yash Vishnu Bapat Sumedh Sunil	Ladoo Maker	Prof. Harsh D. Sharma
2.	Shaikh Adnan Habib Shaikh Abu Sufiyan Shaikh Younus Mohammad Fasiullah Waseemullah	Automatic Loading and Unloading Machine for Industrial Purpose	Prof. Chetan D. Sagar
3.	Patil Harshvardhan Dyandev Sawant Yash Vishnu Kulkarni Varun Sanjay	Motor Starter using GSM Module	Prof. Chetan D. Sagar
4.	Ahirrao Sambhaji Shivaji Gaud Soham Amol Gangwe Manthan Rajesh Joshi Aniruddha Rajesh	Panipuri Dispenser	Prof. Harsh D. Sharma
5. 	Bhalerao Sachin Rajendra Shete Vaibhavi Sanjay Khandale Sachin Manikrao	UV Sanitization box	Prof. Amar B. Patil
6.	Pawar Rahul Krushna Jagtap Ramkrishna Harishchandra Yelhekar Antariksh Sanjay	Fertilizer Dispenser	Prof. Chetan D. Sagar

6.2. Problem Statements: Mechanical Engineering Department

Sr.No.	Problem Statement with Solution
1.	**Pneumatic Ladoo Maker**
	Most tedious step in Ladoo making is to give it a spherical shape. To meet this requirement, it is needed to make a cost effective and speedy mechanism. This can be easily achieved by using simple pneumatic mechanism.
2.	**Automatic Loading and Unloading Machine for Industrial Purpose**
	In industry loading and unloading machine is used to load the material and unload the product. Due concern of Industry 4.0 automation of all machines is important. Also, doing this job manually can cause the accident. This industrial project has been successfully implemented and prototype for the demonstration is built.
3.	**Motor Starter using GSM Module**
	In village side the power supply is the major issue. Power supply is available mainly during the night. Regular water to the crops in farm is very important to improve the productivity. In this project GSM module is used to automatically start and stop the motor by using the mobile call.
4.	**Pani Puri Dispenser**
	During pandemic days it is needed to avoid direct physical contact with food products in an unhygienic environment. Pani puri is a very popular street food in India and it is the need of the time to do simple automation in this field. By using simple proximity sensors, it can be easily achieved at a very low cost.
5.	**UV Sanitization box**
	In most of the sector's use of papers for the documentation is require i.e. banking. Handling of the paper without sanitization can spread the viruses and cause into harmful health effects. To overcome this problem UV sanitization box is designed. For loading the papers rack and pinion mechanism operated trolley is designed.
6.	**Fertilizer Dispenser**
	In agricultural sector the fertilizers are required. The distribution of fertilizer is mostly done manually. So, to avoid manual operation lower cost mechanically operated mechanism is required. In this project simple mechanism is used which basically carries the fertilizer as well as dispense it on the crops.

6.3. Project Topics: Civil Engineering Department

Sr. No.	Name of Students	Project Title	Name of Guide
1.	Chaitali Nirkhe	Inverted Arch Dam (By Ferrocement)	Prof. S.B.Salve
	Dhanashree Suryavanshi		
	Abhishek Deshmukh		
2.	Sakshi Shashimahal	Sewage Water Filter Unit	
	Thorat Pranjal		
	Pardeshi Nikita		
3.	Mamilwad Swanand	Hydraulic Lift	
	Ade Nileshkumar		
	Dukare Rohit		
4.	Mishra Rohan	Breathe Brick	
	Jawale Hariom		
	Mahale Himanshi		
	Dabhade Harshada		
5.	Sonawane Pradnya	Water Filter (Pipe Filter)	
	Pagare Vanita		
6.	Sanskruti Lad	Horizontal Water Treatment Unit	
7.	Bhalerao Anurag	Sand Siever	
	Targe Rohan		
	Gaikwad Swaraj		
8.	Shaikh Rahil Rizwanuddin	Brick Tonge	
	Potfode Aniket		

6.4. Problem Statements: Civil Engineering Department

Sr.No.	Problem Statement with Solution
1.	**Inverted Arch Dam (By Ferrocement)**
	While Construction of dam, huge mass concreting can be avoided by using ferrocement technology
2.	**Saline Water Filter Unit**
	Sea water is almost useless for any purpose, but using our recycling unit, we can recycle the sea water.
3.	**Hydraulic Lift**
	For pumping the water, it takes great amount of electricity, but using hydraulic ram phenomenon and pressure, water can lift to a great height.
4.	**Breathe Brick**
	Proper ventilation is very essential for any type of building unit, by using breath bricks air filtration and ventilation can be achieved.
5.	**Water Filter (Pipe Filter)**
	Rainwater harvesting has been applied in several countries in the world. This filter is designed for overcoming some physical and chemical contamination that occurs in the collected rainwater from the roof of a premise. The designed water filters are made of PVC pipes that have been modified, while the filter media was made from sand.
6.	**Horizontal Water Treatment Unit**
	Waste water from kitchen and wash basin can be treated with sand filter by using different filter media.
7.	**Sand Siever**
	Sand sieving machine has the function to sieve sand and stone that mixed together. The sand and the stone cannot process further if they mix. Thus, this machine will help operator work which was doing sieve.
8.	**Brick Tonge**
	On construction sites, Still brick lifting is done by labor on head which can lead to neck injury, but with brick tonge labors can lift the brick safely.

6.5. Project Topics: Electronics and Telecommunication Department

Sr. No.	Name of Students	Project Title	Name of Guide
1.	Harshada Chaudhari Sakshi Chowkade	Quiz App	Prof. K.B.Dandage
2.	Rutuja Mujmule Asavari Dahite	To Do List and Notice APP	Prof. K.B.Dandage
3.	Prathamesh Patil Subodh Dharmadhikari	Translator-Detector App	Prof. K.B.Dandage
4.	Aditya Simant	Freedom App	Prof. K.B.Dandage
5.	Pratik Gawande Rajas Kapre	3D Scanner	Prof. L.K.Shevada, Prof. U.A.Takte
6.	Tauhid Shaikh Wasim Khan Priti Sable Akshay Manza	Solar Car	Prof. L.K.Shevada, Prof. U.A.Takte
7.	Sarthak Bhole Akshay Peharkar Amol Mirge	Solar-Powered Animal Repellent Machine	Prof. L.K.Shevada, Prof. U.A.Takte

6.6. Problem Statements: Electronics and Telecommunication Department

Sr. No.	Problem Statement with Solution
1.	**Quiz App**
	Trend of online exams came due to pandemic situation as well as many government exams are carried out in online mode. For taking domain specific exam, quiz app is designed which is useful for students as well as organization.
2.	**To Do List and Notice APP**
	Private sector jobs are multitasking. Planning of work is very important to complete the assigned task. For making a list of daily work, to do list app is designed and for circulating notices, notice app is build.
3.	**Translator-Detector App**
	Multimedia application demands conversion of one media into another, For converting image into text, text to speech and for translation purpose, translator detector app is designed.
4.	**Freedom App**
	Online trading is used for earning money. Investing money without study can results into financial loss. For providing financial education for young minds, freedom app is designed.
5.	**3D Scanner**
	Many of the objects are designed with complicated shapes i.e. jewellery, home appliances. Getting dimension for reverse engineering is important. So, for visualization of object in the form of image 3D Scanner is designed.
6.	**Solar Car**
	Conventional fuel operated automobile will become obsolete in a future due to emission norms and depletion of fuel sources. The electric vehicle is the current trend. But to charge the electric vehicles power supply is require. To generate the power fuels like coals, charcoal are used, due to which emissions produced are more. So, renewable energy can be used to charge the battery and run the vehicle. Solar car is designed in-house with the available scrap material.
7.	**Solar Powered Animal Repellent Machine**
	To Protect Agricultural Crops from Monkeys and Birds various animal repellent devices are available in the market which are basically battery operated. In this project solar panel is mounted on machine which automatically charge the battery and serves its purpose. Though the initial cost is more but, it is long-lasting solution.

6.7. Project Topics: Computer Science Engineering Department

Sr. No	Name of Students	Project Title	Name of Guide
1.	Poornima Nalawade	E-Basket	Prof. Gopal Burkul
2.	Rachana Kulkarni Sandhya Bhujbal	Face Mask Detection	
3.	Vraj Makadia Pooja Banswal	E-Bottle	
4.	Rushikesh Patil Shrutika Soni	Pollution Meter	
5.	Rajeshwari Argulwar Sikta Sonawane	Dash Cam Sensor	
6.	Rajat Ghongte Tanmay Kathar	Home Automation	
7.	Sayali Kawale	Sign Translator	
8.	Kudsiya Kalburgi Mihir Pande	Google assistant for electric switches	
9.	Kaushal Kshirsagar Nikita Kshirsagar	Expression based music player	
10.	Om Jaiswal Yash Tupe	Face recognition using CCTV	

6.8. Problem Statements: Computer Science Engineering Department

Sr. No.	Problem Statement with Solution
1.	**E-Basket**
	The issue of waiting for long time in queues for billing in malls can be solved by the application E- Basket
2.	**Face Mask Detection**
	Based on the issue of pandemic face mask detection with temperature detection.
3.	**E-Bottle**
	The bottles available in the market can keep water cold or hot, for around 16 to 17 hrs but after a particular time water comes at normal temperature, the solution for that is the portable E-bottles.
4.	**Pollution Meter**
	For working on the issue of air pollution a device with a digital dashboard which detects the humidity and temperature of the surrounding and if it reaches the maximum level then it will start purifying the polluted air.
5.	**Dash Cam Sensor**
	Most of the dashcams are working 24x7 wasting electricity and storage space to optimize this we are making dashcam which will start by sensing human movement.
6.	**Home Automation**
	A device that can be hooked or attached to existing mechanism which will have the ability to be controlled from a central android device which will be safer, comfortable and more economical.
7.	**Sign Translator**
	To help ordinary people and deaf people simultaneously.
8.	**Google assistant for electric switches**
	To control the switchboard via google assistant to access switches through any place.
9.	**Expression based music player**
	Research shows that listening to random music that is unrelated to one's mood can have a stressful effect on people. As a result, listening to music to unwind after work can improve one's health.
10.	**Face recognition using CCTV**
	The problem of time management issues and the live attendance captured during working hours using face recognition attendance system (python).

7. Project Review (Third Party): Sample Copy of Sheet.

MSPM'S

DEOGIRI INSTITUTE OF ENGINEERING AND MANAGEMENT STUDIES, AURANGABAD

SECOND YEAR PROJECT BASED LEARNING A.Y. 2021-22

PROJECT EVALUATION PHASE -I

16.07.2022

SR.NO	PROJECT TITLE	MENTOR	REMARKS AND SUGGESTIONS
1	AUTOMATIC PANI-PURI MACHINE.	H.D. Sharma	1.WORKING FUNCTIONALITY: - automatic pani dispensing -
			2.FEATURES: Suggestion - Go with FRP / wooden frame instead of metal - Amount of liquid dispensed should be optimal
			3.PROTOTYPE ASTHETICS: - Over sized. - should be compact.

Gadhwa

MSPM'S

DEOGIRI INSTITUTE OF ENGINEERING AND MANAGEMENT STUDIES, AURANGABAD

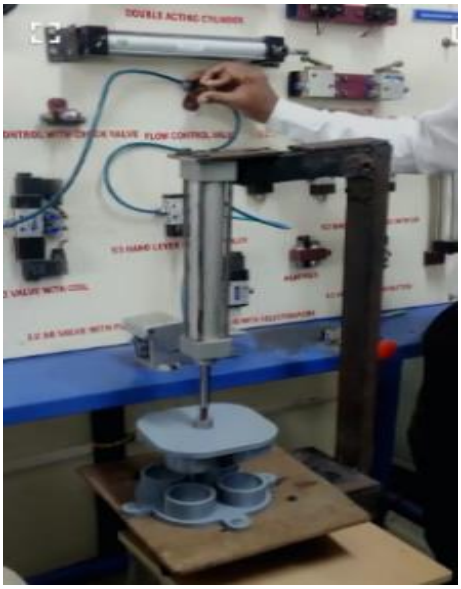
SECOND YEAR PROJECT BASED LEARNING A.Y. 2021-22

PROJECT EVALUATION PHASE -I

16.07.2022

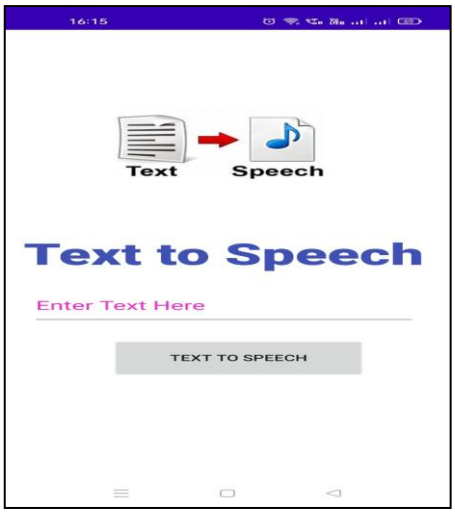
SR.NO	PROJECT TITLE	MENTOR	REMARKS AND SUGGESTIONS
4	3D. Scanner	Uday TAKTE. [ENTC]	1.WORKING FUNCTIONALITY: - Need to work on range. 2.FEATURES: - suggested to make BOM for $1m^3$ volume product. 3.PROTOTYPE ASTHETICS: —

8. Project Prototype Images:

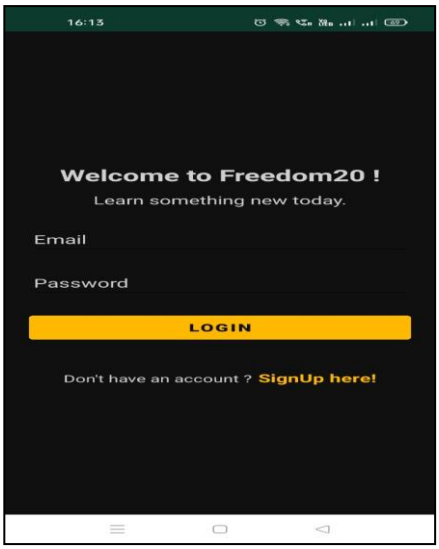


Ladoo Maker

Hydraulic Lift



Translator-Detector App



Freedom App

Breathe Brick

Fertilizer Dispenser