Mahatma Education Society's
PILLAI HOC POLYTECHNIC RASAYANI
Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: Automatic Electrical Steering System

GROUP MEMBER: 1) Shubham P. Patil 2)Achut D. Patil
3) Sangram S. Thale 4) Sagar D. Patil 5) Miheer N. Utekar

PROJECT GUIDE: Manasi Sarsar

RATIONALE: This kind of working model can be successfully utilized for reducing the effort of the driver. The main objective is to provide comfort to the driver. This phenomenon allows increasing the working range of device. Same set up can be used for many applications by introducing this steering system

OBJECTIVE: It is possible to replace completely conventional steering system (steering shaft, column, gear mechanism etc) with steer by wire system so as to have a future alternative to traditional steering systems.

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
Automatic Electrical Steering System	**1**	**3**	**3**	**3**	**1**	**-**	**-**	**3**	**2**	**2**	**-**	**3**	**2**

Mahatma Education Society's
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Mechanical Engineering Department
A.Y 2017-18

PROJECT BOOKLET

PROJECT TITLE: DESIGN AND DEVELOPMENT OF DUAL AXIS SOLAR TRACKING SYSTEM

GROUP MEMBER: 1) Hrishikesh Pawar 2) Nikhil Garud 3) Asif Sheikh 4) Chetana Patil

PROJECT GUIDE: Mr.Swapnil Salunkhe

RATIONALE: In day-to-day we see different solar tracking systems been used but they are expensive. In this project our focus is to reduce the cost of solar tracking systems. In academics there is no scope for solar tracking but our project aim is to provide basic fundamental knowledge about Solar tracking system

OBJECTIVE: The project was carried out to satisfy two main objectives: 1.Design a system that tracks the solar UV light for solar panels.
2. Prove that the tracking indeed increases the efficiency considerably. The range of increase in efficiency is expected to be between 30 and 40 per-cents.
3. To design and manufacture a system which would be cheap for domestic use

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO 4	P O5	PO 6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO3
Design and development of dual axis solar tracking system	1	1	3	2	1	1	1	2	2	2	1	1	1

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: DESIGN AND DEVELOP MODEL OF SEABIN FOR SEPARATION OF FLOATING DEBRIS

GROUP MEMBER: 1) 2)
3) 4)

PROJECT GUIDE: Mr. Sagar Sanjay Kadam

RATIONALE: Our oceans are a major source of food and other supplies that we utilize. That is why we need to keep it as clean as possible, and protect the creatures that live in it. Use of seabin we can prevent the pollution of marine environment. We can reduce the marine debris present in the ocean. The seabin is very efficient as it uses less energy than the other options available for cleaning the oceans. The seabin will provide a better future, it cannot solve the problem completely but it will able us to learn more and more about the ocean debris.

OBJECTIVE:

Design and develop the seabin which provide a better future, it cannot solve the problem completely but it will able minimize ocean debris.

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO4	P O5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO3
DESIGN AND DEVELOP MODEL OF SEABIN FOR SEPARATION OF FLOATING DEBRIS	1	3	3	4	2	2	1	3	2	2	1	1	1

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: SEMI-AUTOMATIC TRICYCLE

GROUP MEMBER: 1) Rushikesh.S.Deshmukh 2) Ajay.M.Deshmukh
3) Akshay.T.Fartade 4) Rohit.V.Thakur 5) Akash.D.Shinde

PROJECT GUIDE: Mr. Sagar Sanjay Kadam

RATIONALE: Traditional manual wheelchairs require considerable use and control of both arms for operation, thus adaptations are required for individuals with asymmetrical use of their arms. Building upon previous projects, the goal of this project was to create an accessory, to be installed on a standard wheelchair, which would allow full control of the wheelchair with only one arm/hand while addressing areas lacking in commercial products and previous designs, such as manufacture ability, attendant control, user comfort and ergonomics.

OBJECTIVE:

1. to provide a more stable and efficient arm propelled and arm steerable tricycle that can be safely be used by any person.
2. to make tricycle in which the steering as well as the accelerating function is done with the help of only one handlebar

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO3	P O4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
SEMI-AUTOMATIC TRICYCLE	1	3	3	3	2	1	-	3	3	2	2	2	-

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: ELECTROMAGNETIC BRAKING SYSTEM

GROUP MEMBER: 1) Harshavardhan Karale 2)Mahesh Ingale
3) Atish Dongare 4)Manish Patil

PROJECT GUIDE: Rutuja Pugaonkar

RATIONALE: When electromagnetic are used, control of the breaking action is made possible by varying the strength of the magnetic field of the electromagnets creates eddy currents in the discs. These eddy currents generate an opposing magnetic field (Lenz's law), which then resists the rotation of the discs, providing braking Electromagnetic brake works on the principle of electromagnetism. They are totally friction-less. Due to this they have longer life-span and durable. Less maintenance is required in these brakes. It can be used as supplementary brakes and can also use to stops rotating shafts of high-grade machines in industries. This brake uses both eddy current and attraction force of magnet to stop vehicle.

OBJECTIVE:

1. Design and establishment an infrared sensor based Electromagnetic disc braking system so as to have a future alternative to traditional breaking systems

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
ELECTROMAGNETIC BRAKING SYSTEM	1	3	3	3	1	-	-	3	2	2	-	3	2

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: ELLIPTI GO BICYCLE

GROUP MEMBER: 1)Pranay Patil 2) Akash Shedge
3)Ninad Shelke 4) Uzzair Shaikh

PROJECT GUIDE: Ms. Prajakta Thale

RATIONALE: Ellipti go is a tool used in training by fitness enthusiasts and athletes to improve their performance with an innovative engineering concept that combines the motion running, bycycling and elliptical machine. Elliptical cycling is for people who want to get physically fit, achieve their fitness goal and recover from hip and knee injuries. Its unique mechanism encourages maximum people to use this bike.

OBJECTIVE:

Design and develop the elliptical bicycle in an optimized manner by reducing its weight and cost in a such way that it has low impact, high performance, exciting outdoor workouts and has an significant role in human welfare.

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO 4	P O5	PO 6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO3
ELLIPTI GO BICYCLE	1	3	3	3	2	1	2	2	2	3	1	2	1

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: "DESIGN AND DEVELOPMENT OF AUTOMATIC BEVEL SCREW JACK"

GROUP MEMBER: 1) Sahil Mali 2) Chaitanya Patil
3) Rakesh Naik 4) Juili Gurav 5) Minal Thakur

PROJECT GUIDE: Shrisharada S Mhatre

RATIONALE: This project work titled "Automatic Bevel Screw Jack" has been conceived having studied the difficulty in lifting any type of light vehicles and Our survey in the regard in several automobile garages, revealed the facts that mostly some difficult methods were adopted in lifting the vehicles for reconditioning.

OBJECTIVE: Now a day we are using screw jack for lifting vehicles. With the increasing levels of technology, the efforts are being put to produce any kind of work that has been continuously decreasing. So we are modifying the normal screw jack into quick lifting automatic screw jack with advance technology.

MAPPING WITH PO:

Title of Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3
AND DEVELOPMENT OF AUTOMATIC BEVEL SCREW JACK	2	3	2	3	1	-	-	3	2	2	-	3	2

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Mechanical Engineering Department
A.Y 2017-18

PROJECT BOOKLET

PROJECT TITLE: TIDAL ENERGY GENERATION

GROUP MEMBER: 1) Mayur Patil 2) Vighnesh Nimse
3) Prasad Pawar 4) Jay Mundhe

PROJECT GUIDE: Shrisharada S Mhatre

RATIONALE: **Tidal energy,** sometimes called tidal power, is capturing the energy contained in moving water in tides and open ocean currents. About 71% of earth is surrounded by sea water, thus many mechanisms are used at seashores to generate energy. Many coastal sites worldwide are being examined for their suitability to produce tidal (current) energy. Our research work will focus on maximum tidal energy generation in India on sea shores.

OBJECTIVE: This project aim is to design and development of renewable energy source mechanisms. As compared to tidal turbines method of generating tidal energy, tidal energy generation by float & rack and pinion mechanism is easier, less costly and has simple construction. It gives desired output of tidal energy by using the tides on sea shore

MAPPING WITH PO:

Title of Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
TIDAL ENERGY GENERATION	1	3	3	3	2	2	-	3	2	3	-	3	2

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: "COIL WINDING MACHINE"

GROUP MEMBER: 1) Amey A. Tandel 2) Ashlesha R. Shinde
3) Hinduja R. Tandel 4) Hrishikesh G. Patil
PROJECT GUIDE: Tatyaso A. Garande

RATIONALE: In electrical engineering, coil winding is the manufacture of electromagnetic coils. Coils are used as components of circuits and to provide the magnetic field of electrical machines such as motors and generators, and in the manufacture of loudspeakers and microphones. The shape and dimensions of a winding are designed to fulfill the particular purpose. Parameters such as inductance, insulation strength, and strength of the desired magnetic field greatly influence the design of coil windings. Coil winding can be structured into several groups regarding the type and geometry of the wound coil. Mass production of electromagnetic coils relies on automated machinery which have more cost. But for small production requirements such machines are not economical, so this project tries to meet such requirements.

OBJECTIVE:

1. To design and build a coil winding machine that has a small-scale and at a lower cost.
2. To create a program that control stepper motor movement by using Icc circuit.
3. To make a learning tool for student to wind a small solenoid and transformer.

MAPPING WITH PO:

Title of Project	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
COIL WINDING MACHINE	1	2	2	2	2	1	1	3	2		1	1	1

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: "SAND SEPARATOR"

GROUP MEMBER: 1) Shrinivas K. Kumbhar 2) Manoj M. Jadhav
3) Parinita S. Padge 4) Viraj Padte

PROJECT GUIDE: Tatyaso A. Garande

RATIONALE: Sand is used in construction, manufacturing and many other industries. Determination of sand particle size distribution suffers from inherent flaws and difficulty is faced in defining the size of inherently shaped particles. It needs to be filtered according to their sizes such as 5mm, 10mm, 15mm 20mm, 40mm etc. for proper utilization. Our project puts forward a system that will filter and distinguish at the same time the sand particles with respect to their grade size with the sand that will be poured on it.

OBJECTIVE:
The objective of this project is to develop sand filtration machine and also to determine whether such systems would be appropriately suitable for circumstances and needs.

MAPPING WITH PO:

Title of Project	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
COIL WINDING MACHINE	1	2	2	2	2	1	1	3	2	1	2	1	2

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: SOLAR TRICYCLE

GROUP MEMBER: 1) Akshay. A. Bhagat 2) Manthan. S. Patil
3) Raj. M. Mhatre 4) Vineet. A. Kundal

PROJECT GUIDE: Mr. Rahul A. Bhosale

RATIONALE: Nowadays industries are trying to minimize their expenses to gain more and more profits. One of the major expenses is done on travelling purposes. This expenditure can be reduced with the help of using renewable resources such as solar energy in the form of solar tricycle. The solar vehicle is a step in saving some amount of capital, as the basic principle of solar tricycle is to use energy that is stored in battery during and after charging it from solar panel. The charged batteries are used to drive the motor which serves here as an engine and moves the tricycle in forward direction.

OBJECTIVE:
Design and develop Solae tricycle to provide an efficient vehicle for the industrial use, with this vehicle we can travel within the plant area without any effort.

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO 4	PO5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3
Solar Tricycle	2	3	3	3	2	3	1	3	2	3	1	3	3

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: Design & Development of Automatic Trash Cleaner

GROUP MEMBER: 1) Akshay Durgavale 2) Harshal Labde
3) Abhijeet Golsangi 4) Bhushan Deshmukh

PROJECT GUIDE: Mr. Kaustubh Bhagat

RATIONALE: Today's era reflects modernization on the one side and pollution on the other side.out of the major pollutions, water pollution is a major threat for the environment. This study lays emphasis on creation a prototype for automatic cleaning of gutters.

OBJECTIVE:
Design and develop prototype for man less cleaning of gutters.

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO 4	P O5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3
Solar Tricycle	2	3	3	2	1	2	1	3	3	3	1	3	2

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: Design of Four Wheel 90 degree Rotating stearing Mechanism

GROUP MEMBER: 1) Sahil Salunkhe 2) Venkatesh Pashilkar
3) Ajinkya sheramkar 4) Akshay kale
5) Allikatti Siddhu

PROJECT GUIDE: Mr. Kaustubh Bhagat

RATIONALE: Now a days due to increasing human population, there is tremendous rise in no. of cars thereby increasing traffic and causing parking problems. This project lays emphasis on creating an ability for a vehicle to move sideways for parking purpose which reduces human effort and stress and time used for parking also the vehicle requires less space for parking.

OBJECTIVE:
Design and develop prototype of a car moving sideways enabling ease for parallel car parking.

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO 4	PO5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3
Solar Tricycle	2	3	3	2	1	2	1	3	3	3	1	3	2

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: Fabrication of Portable Spot Welding Machine

GROUP MEMBER: Rohit Palkar, Shubham Ghavate, Vivek Bhalerao, Sandesh Chorghe, Akash Fakke

PROJECT GUIDE: Aniket Dumbre

RATIONALE: Presently the spot welding machines available are bulky so they are stationary. That means they cannot be moved from one place to another. Keeping this into mind we decided to make a portable spot welding machine. Although spot welding machines are available but they are costly. We had a vision to make a cheaper portable spot welding machine for general purposes, shop floor and hobby project uses.

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OBJECTIVE: The main objective of making a portable spot welding machine was divided in following parts. Firstly the study of working of Spot welding machine. This includes the study of transformers a transformer from an electric owen was taken into study. Then the casing of the machine, which was made of sheet metal. Making of welding tips, from copper rods. The lever arm mechanism for welding purpose, insulations, electrical connections and paint job. And finally the testing of the machine.

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3
Fabrication of Portable Spot Welding Machine	2	3	2	3	1	-	-	2	1	1	3	-	3

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: Automatic Conveyer Line with weight sorting.

GROUP MEMBER: Swapney Akre, Saurabh Naik, Shubham Yerunkar, Dipesh Khane

PROJECT GUIDE: Aniket Dumbre

RATIONALE: A conveyer belt which is a material handling device in many manufacturing units is use for long distance travel of finished products with in the manufacturing unit. Many operations of which Quality Assurance is carried out on the conveyer belt. This project is aimed to make a conveyer belt which works or moves only if any product is placed on it and remains still once it is removed. This is to save power. The other aim is to sort out any product which is less or more in weight to maintain stability in the products weight.

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OBJECTIVE: Major objectives here are the study of conveyer belts as a material handling device, study of sensors for detection of product that is placed on the line and the study of weight sensors for measuring weight and mechanism for removal of defective piece. A working model prototype will be developed for which designing of frames, bearings, positions of sensors, servo motors and actuator arm for sorting of weight and their electrical connections have to be performed.

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3
Automatic Conveyer Belt with weigh sorting.	1	3	2	3	-	1	-	2	1	2	1	2	3

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Mechanical Engineering Department
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PROJECT BOOKLET

PROJECT TITLE: Model of Electric Arc Furnace

GROUP MEMBER: 1) Sourav Londhe 2) Jidnesh Patil
3) Kunal Mhatre 4) Omkar Kothawale

PROJECT GUIDE: Sunilsing Rajput

RATIONALE: In actual practices so many arc furnaces are available, but they are very costly. we made a model of electric arc furnace on small scale for study purpose. It will melt around 5 to 10 grams of metal which will require about 30 to 40 seconds.

OBJECTIVE: To design & develop an electric arc furnace which can melt 5 to 10 grams of metal within 30-40 seconds.

MAPPING WITH PO:

Title of Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
Electric arc furnace	2	3	3	2	2	1	1	2	2	2	1	1	1

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: automated Green house effect model in home conditions

GROUP MEMBER: 1. Abhishek R. Barua 2. Omkar S. Chalke
3. Jishnu Manikandan 4. Swapnil S.Rajiwade
5. Saad Sh. khan

PROJECT GUIDE: Devendra Mishra

RATIONALE: Automated green house effect if created in normal atmospheric condition of Indian circumstances can be used to produce various kind of trees ,flower and fruits ,

OBJECTIVE:1. Sustaining rare breed of trees and flowers which can not be produce in normal Indian circuimstances through automated green house chamber.
2.Creating green house effect in home atmosphere.
3.Automated the process and maintaining the humidity and temperature for growth of plant twenty four hours.

MAPPING WITH PO:

Title of Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
Automated green house effect	3	1	2	2	3	3	1	2	1	2	1	1	1

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: **PNEUMATIC SCISSOR CRANE**

GROUP MEMBER: 1.Prasad prabhakar more 2.Omkar Krishna mhatre
3.Shriprasad rajendra bhole 4.Shreeraj vikas mhatre

PROJECT GUIDE: Devendra Mishra

RATIONALE: Crane manipulate the torque involved and enable construction engineers to lift heavy loads. A pulley serves its basic purpose, which is to distribute the amount of weight needed to lift an abject. Inclusion of electronic components has made cranes even easier to operate because the control remains no more manual. Our project is based on hi-tech crane will essentially be a combination of simpler systems integrated together.

OBJECTIVE:

1. Making The equipment's used in system are easy in working are easy to manufacture.
2. Making the total cost of system with maintenance cost low.
3. Making The response of the Pneumatic system is fast because of the less viscosity of the compressed air.
4. Making Leakage of air do not cause any harm or damage to the surrounding.
5. Making the machine is easy to operate.

MAPPING WITH PO:

Title of Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
Automated green house effect	**3**	**2**	**1**	**3**	**2**	**2**	**1**	**2**	**1**	**2**	**2**	**1**	**1**

Mahatma Education Society's
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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: Regenerative Braking System

GROUP MEMBER: 1) Suraj V. Mokal 2) Pranit G.Thakur
3) Suraj S.Patil 4) Leena L.Jitekar

PROJECT GUIDE: Mr. Swapnil Salunkhe

RATIONALE: The regenerative braking system delivers a no.of significance advantages over a card at only has friction brakes. This type of system can provide the majority of total braking force. This vastly improves fuel economy with a vehicle. The 80% of the energy produce is utilize to overcome the rolling and aerodynamic road force.

OBJECTIVE: To develop better system that captures more energy and stop faster.
To reduce fuel consumption and increase efficiency.
To increase the life of battery.
To reduce maintenance cost of vehicle

MAPPING WITH PO:

Title of Project	PO 1	PO 2	PO 3	PO 4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
Regenerative Braking System	1	1	1	2	1	-	-	3	2	2	-	2	2

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Mechanical Engineering Department
A.Y 2017-18
PROJECT BOOKLET

PROJECT TITLE: Pneumatic Shearing Machine

GROUP MEMBER: 1) Vipul Mhatre 2) Nandan Mokal
3) Patik Vichare 4) Mukul Thakur 5) Siddhesh Patil

PROJECT GUIDE: Sunilsing Rajput

RATIONALE: In actual practices so many cutting machines are available for sheet metal cutting. This project is about the design & fabrication of pneumatic shearing tool which is cheaper than hydraulic sheet shearing machine.

OBJECTIVE: To design & fabricate a simple punching tool that can be used with pneumatic system.

MAPPING WITH PO:

Title of Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2	PSO 3
Electric arc furnace	2	3	3	2	1	1	1	2	2	2	1	1	1