Holy-wood Academy, Kolhapur's
SANJEEVAN ENGINEERING AND TECHNOLOGY INSTITUTE
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Website : www.seti.edu.in Email : office@seti.edu.in / admission@seti.edu.in **EN 6315**

Department of Mechanical Engineering

Date- 13/05/2023

To,

A G Technique & Solutions

M.I.D.C. Shiroli, (Gat No.34)

Dist : Kolhapur

Maharashtra - 416229

Subject: Regarding Permission for Industrial Visit

Respected Sir,

Our institute is established in 2009 in a view to impart engineering education to under graduate and post graduate students. Mechanical Engineering is one of the six programs run by the institute for under graduate students.

As per of the curriculum of Dr. Babasaheb Ambedkar Technological University Lonere (D.B.A.T.U.), for Third Year Mechanical Engineering students, an industrial visit is required. This will help students to visualize the knowledge about EDM and Wire EDm which they have gained under the course of "Manufacturing Process-II".

In this regard, we would like to visit your esteemed organization. So, you are kindly requested to permit our students to visit your company preferably on 16th March, 2023.

Thanking you.

A G Technique & Solutions Director

A G Technique & Solutions

Prof. Praveen S. Atigre
Subject Incharge
Mechanical Engg. Department

MECHANICAL ENGINEERING DEPARTMENT SETI PANHALA

Prof. Sardar B. Deshmukh
HOD
Mechanical Engg. Department

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Department of Mechanical Engineering

Date- 13/05/2023

NOTICE

All the students of Third Year Mechanical Engineering are hereby informed that, an Industrial Visit for the subject Manufacturing Process-II is arranged. The details are as follows.

Name of Company	A G Technique & Solutions
Location	Shiroli MIDC (Gat No.34) Dist : Kolhapur Maharashtra - 416122
Day & Date	Tuesday 16/05/2023
Timing	1.30 pm
Subject & Content	Manufacturing Process-II (EDM machining & Wire EDM)

Attendance is compulsory for all Third Year Students.

P.S.Atigre

Prof. Praveen S. Atigre
Subject Incharge
Mechanical Engg. Department

Prof. Sardar B. Deshmukh
HOD
Mechanical Engg. Department

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Department of Mechanical Engineering

Industrial Visit (Attendance)

Name of Company : A.G. Technique & Solution **Date & Time : 16/05/2023 (1:00 pm to 3:00 pm)**

Class: TY Mechanical **Academic Year : 2022-23 Sem-II**

Roll No.	Name of Student	Signature	Roll No.	Name of Student	Signature
1	KHOCHIKAR AHAD SAMAD		37	LOHAR DHIRAJ SHIVAJI	
2	KADAM NIKHIL BHIMRAO		38	JADHAV NIRANJAN JAYWANT	–
3	MANE PRADIP SHAMRAO		39	MHAMULKAR ABHIJIT HINDURAO	–
4	KUMBHAR PRANALI BABASAHEB		40	KHOT SWAPNIL SHASHIKANT	–
5	GUJAR PRANAV JOTIRAM	–	41	NAGARI DIPAK DEVENDRA	–
6	MAGDUM PRATHMESH SUDHIR		42	BHAT SAHIL PUNDALIK	–
7	KHOT SHUBHAM TUKARAM		43	BAWALE VISHWESH PRASANNA	–
8	SHETE SHUBHAM MARUTI		44	PATIL NIKHIL DNYANDEV	–
9	SHINDE SIDDHESH SUNIL		45	SAWRATKAR VISHAL UTTAM	–
10	BENDHALE SIDDHESH SANTOSH		46	TARALEKAR PRUTHVIRAJ CHANDRAKANT	
11	POWAR SOURAV SHASHIKANT	–	47	JARAG SIDDESH VIKRAM	–
12	NAIK SHRIDHAR YUVRAJ	–	48	SHINDE CHAITANYA DILIP	–
13	SHIKHARE PRAMOD GUNDA	–	49	KHADE ROHIT VISHWAS	–
14	SHIKHARE NILESH SHIVAJI	–	50	SATHAM DIGAMBAR SUNIL	–
15	DHERE SAURABH SATISH	–	51	PADALKAR ANIKET ASHOK	–
16	DHERE HARSH SATISH	–	52	GHATAGE SARADAR KRUSHNAT	–
17	DESAI VISHWAJEET VIKAS	–	53	BAGADI DHAIRYASHIL HINDURAO	–
18	KADAVEKAR ANIKET RAJENDRA		54	PATIL SUSHANT SANJAY	–
19	SAWANT SUNIL BHAGAWAN		55	WAIKAR RAHIL ANIS	–
20	KHOT VIVEK MADHUKAR	V.M.Khot	56	PATIL SHUBHAM RAGHUNATH	–
21	ARAB MOHMADSAAD ZAKIRHUSEN	–	57	NAGARJI ADIL KASAM	–
22	JADHAV OMKAR	–	58	SAVARE AKANKSHA AKARAM	
23	JADHAV ALIAS MITHARI KAUSTUBH R.	–	59	KONDE SAMRUDDHI BABASAHEB	
24	GARAD NILESH JAYSING	–	60	WANGIKAR RUTUJA AAPPASO	–
25	PATIL ANISH VASANT	–	61	KUMBHAR ABHIJEET VILAS	–
26	KAMBLE SHUBHAM BAJIRAO		62	CHOUGULE SUMIT MANOHAR	
27	BAHADURE NITIN AMBADAS	–	63	KHOT RUSHIKESH NAMDEV	

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Department of Mechanical Engineering

Industrial Visit (Attendance)

Name of Company : A.G. Technique & Solution **Date & Time : 16/05/2023 (1:00 pm to 3:00 pm)**

Class: TY Mechanical **Academic Year : 2022-23 Sem-II**

Roll No.	Name of Student	Signature	Roll No.	Name of Student	Signature
28	POPHALE YASH PRAVIN	—	64	SASWADE SHRIKANT ARUN	
29	MANE PAVAN MAHADEV	—	65	POWAR SHUBHAM SANJAY	—
30	SHINDE SAHIL NITIN	—	66	CHOUGULE SHIDHARTH SAMBHAJI	—
31	SAPALE GAURESH RAJESH	—	67	MULLA JUBER SAMEER	—
32	KATE RAJVARDHAN KAMALAKAR		68	MOHITE VIVEK SHRIKANT	—
33	LOHAR PRATHAMESH MANIK	—	69	SHINDE PRATHAMESH BHAGAVAN	—
34	KADAM PRANAV JAGADISH	—	70	SATHE MAHESH SARJERAO	—
35	GURAV ROHIT HINDURAO		71	PATIL VAIBAV RANGRAO	—
36	JAGDALE ABHISHEK VIJAY	—			—
		—			

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Faculty Signature

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Department of Mechanical Engineering

Industrial Visit (Attendance)

Name of Company : Ruturaj Wirecut Industries **Date & Time : 16/05/2023 (3:00 pm to 4:30 pm)**

Class: TY Mechanical **Academic Year : 2022-23 Sem-II**

Roll No.	Name of Student	Signature	Roll No.	Name of Student	Signature
1	KHOCHIKAR AHAD SAMAD		37	LOHAR DHIRAJ SHIVAJI	
2	KADAM NIKHIL BHIMRAO		38	JADHAV NIRANJAN JAYWANT	—
3	MANE PRADIP SHAMRAO		39	MHAMULKAR ABHIJIT HINDURAO	—
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11	POWAR SOURAV SHASHIKANT	—	47	JARAG SIDDESH VIKRAM	—
12	NAIK SHRIDHAR YUVRAJ	—	48	SHINDE CHAITANYA DILIP	—
13	SHIKHARE PRAMOD GUNDA	—	49	KHADE ROHIT VISHWAS	—
14	SHIKHARE NILESH SHIVAJI	—	50	SATHAM DIGAMBAR SUNIL	—
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16	DHERE HARSH SATISH	—	52	GHATAGE SARADAR KRUSHNAT	—
17	DESAI VISHWAJEET VIKAS	—	53	BAGADI DHAIRYASHIL HINDURAO	—
18	KADAVEKAR ANIKET RAJENDRA		54	PATIL SUSHANT SANJAY	—
19	SAWANT SUNIL BHAGAWAN		55	WAIKAR RAHIL ANIS	—
20	KHOT VIVEK MADHUKAR		56	PATIL SHUBHAM RAGHUNATH	—
21	ARAB MOHMADSAAD ZAKIRHUSEN	—	57	NAGARJI ADIL KASAM	—
22	JADHAV OMKAR	—	58	SAVARE AKANKSHA AKARAM	
23	JADHAV ALIAS MITHARI KAUSTUBH R.	—	59	KONDE SAMRUDDHI BABASAHEB	
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Department of Mechanical Engineering

Industrial Visit (Attendance)

Name of Company : Ruturaj Wirecut Industries **Date & Time : 16/05/2023 (3:00 pm to 4:30 pm)**

Class: TY Mechanical **Academic Year : 2022-23 Sem-II**

Roll No.	Name of Student	Signature	Roll No.	Name of Student	Signature
28	POPHALE YASH PRAVIN	—	64	SASWADE SHRIKANT ARUN	Shrikant
29	MANE PAVAN MAHADEV	—	65	POWAR SHUBHAM SANJAY	—
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35	GURAV ROHIT HINDURAO		71	PATIL VAIBAV RANGRAO	—
36	JAGDALE ABHISHEK VIJAY	—			

P.S. Ahir

Faculty Signature

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Department of Mechanical Engineering

Date- 16/05/2023

To,
A G Technique & Solutions
M.I.D.C. Shiroli, (Gat No.34)
Dist : Kolhapur
Maharashtra - 416229

Respected Sir,

We would like to extend our sincere thanks to you for providing an opportunity to visit your esteemed and reputed organization on 16th March 2023. We are glad to say that the response from the students was enthusiastic. The information presented by you is definitely useful to our students for enhancing their knowledge about EDM & Wire EDM Machining.

We genuinely thank you once again for the support and time given by you and we sincerely hope that you would continue to extend your valuable support in our future initiatives as well.

Thanking you.

A G Technique & Solutions

P.S.Atigre

Prof. Praveen S. Atigre
Subject Incharge
Mechanical Engg. Department

MECHANICAL ENGINEERING DEPARTMENT SETI PANHALA

Prof. Sardar B. Deshmukh
HOD
Mechanical Engg. Department

INDUSTRIAL VISIT REPORT

Class:	T.Y. Mechanical
Subject:	Manufacturing Process-II
Industry Visited:	**1 AG Technique & Solution**
	Address : M.I.D.C. Shiroli, (Gat No.34) Dist : Kolhapur - 416229 Maharashtra, India
	2 Ruturaj Wirecut Industries
	Address : Plot No. C-31, M. I. D. C., Near M. I. D. C., Police Station, Shiroli, Kolhapur-416122, Maharashtra, India
Day & Date:	Tuesday 16/05/2023
Time:	1:00 pm to 3:00 pm
Faculty Members:	Prof. Praveen S. Atigre

Introduction :

An Industrial visit at AG Technique & Solution & Ruturaj Wirecut Industries (M.I.D.C. Shiroli) was organized by Department of Mechanical Engineering for Third Year Students on 16th May 2023. The industrial visit was witnessed by students of the Third Year Class, who were accompanied by the faculty Mr. Praveen S. Atigre.

Aim of the Visit:

Industrial visit is considered as one of the tactical methods of bridging the gap between theoretical and practical knowledge. The main aim of industrial visit is to provide an exposure to the students about practical working environment. Industrial visits also provide students a good opportunity to gain full awareness about industrial practices and new technologies. Through this industrial visit, the efforts are taken by the department to provide an exposure and live demonstration to students about Wire EDM machining processes.

About the Company:

A) AG Technique & Solution Company: It is 11 years old company (Registered in 2012) which has gained immense expertise in offering electrical wire cutting works, machinery works for wire cutting, press tool dies etc to the clients. This company is located in Shiroli M.I.D.C. Kolhapur, Maharashtra.

Basic Information of Company:

Nature of Business	Manufacturer (Wire EDM)
Company CEO	Mr. Ajay Govind Chikurdekar
Total Number of Employees	10
Year of Establishment	2012
Legal Status of Firm	Individual - Proprietor
Annual Turnover	Electrical Wire Cutting Works, Machinery Works For wire cutting of press tool, dies etc

B) Ruturaj Wirecut Industries

It is an ISO 9001-2000 company dedicated to the manufacturing of precision machined components, ferrous and non-ferrous castings, fabrication components, components for medical systems with the help of wire EDM & other machining facilities. This company was established in 1997 & it is located in Shiroli M.I.D.C. Kolhapur, Maharashtra.

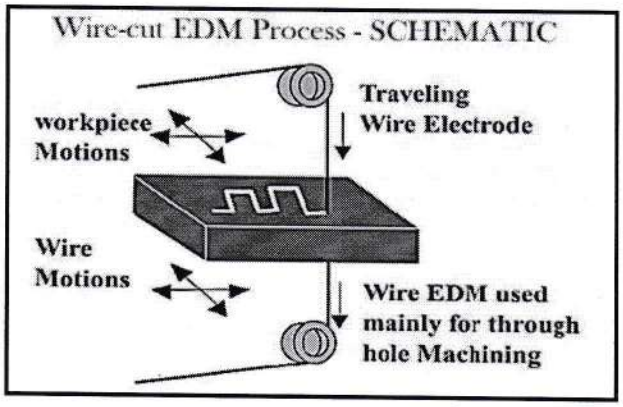
Nature of Business	Manufacturer
Company CEO	Mr. Srinivas Mane
Total Number of Employees	11 to 25 People
Year of Establishment	1997
Legal Status of Firm	Individual - Proprietor
Annual Turnover	Rs. 50 Lakh - 1 Crore

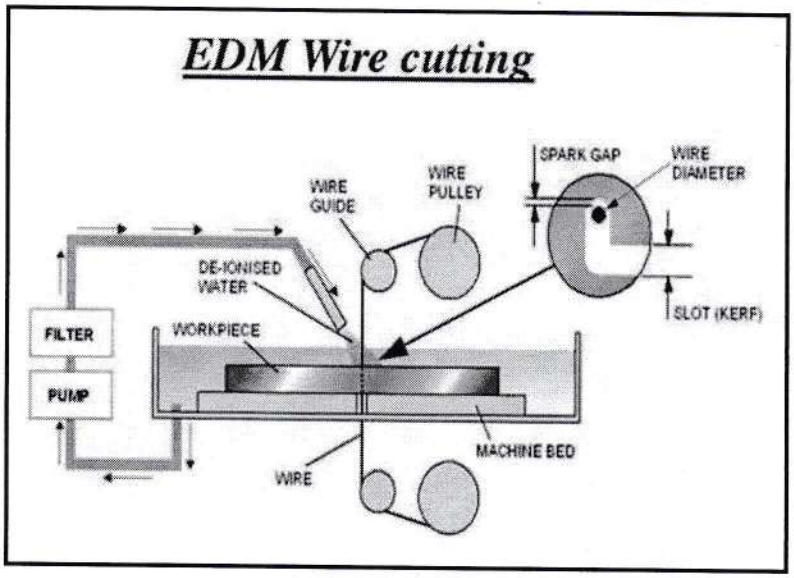
❖ **Introduction of Wire EDM:**

Wire EDM machining is an electro thermal production process where a thin single strand metal wire, along with de-ionized water (used to conduct electricity) allows the wire to cut through metal by the use of heat from electrical sparks, while preventing rust. Wire EDM machining works by creating an electrical discharge between the wire or the electrode and the work piece. As the spark jumps across the gap, material is then removed from the work piece and the electrode. Due to the inherent properties of the process, Wire EDM can easily machine complex parts and precision components out of hard conductive materials. To stop the sparking process from shorting out, a non-conductive fluid or dielectric is also used in the process. The waste

material is removed by the dielectric, and the process continues. A thin metallic wire is fed on-to the work piece, which is submerged in a tank of dielectric fluid such as deionized water. This process can also cut plates as thick as 300mm and is used for making punches, tools and dies from hard metals that are difficult to machine with other methods. The wire, which is constantly fed from a spool, is held between upper and lower diamond guides.

Guides are usually CNC-controlled and move in the x–y plane. On most machines, the upper guide can move independently in the axis, giving it a flexibility to cut tapered and transitioning shapes .Wires made of brass are generally preferred, (also uses copper or tungsten or brass coated and multi coated wires). Water helps in flushing away the debris from the cutting zone. Flushing also helps to determine the feed rates to be given for different thickness of the materials





Wire Cut EDM Machine

❖ Components of Wire EDM Machine

The machine comprises several parts that work together to give a material the desired shape. Below are the components of the machine.

1. CNC Tools

The CNC tools control the entire operation of the Wire EDM machining process. Controlling the entire operations include being in control of the sequencing of the wire path and being able to manage the cutting process automatically.

2. Power Supply

The power supply unit is the component that delivers pulses (from 100V to 300V) to the wire electrode and the work piece. Furthermore, it controls the frequency and strength of the electrical charges that pass through the wire electrode to interact with the workpiece. It is necessary to use a highly developed power supply unit to deliver the necessary quality and type of charges during Wire EDM machining.

3. Wire

The wire serves as the electrode to create the electrical discharge. The shape and thickness of the workpiece directly influence the wire's diameter. Typically, one can use wires with diameters ranging from 0.05 to 0.25mm. The main types of wires used include Brass Wires, Zinc Coated Wires, Diffusion-Annealed Wires.

To Choose the right wire we consider following points

- To choose the right EDM wire material for your project, consider the following
- Tensile Strength
- Fracture Resistance
- Conductivity
- Vaporization Temperature
- Hardness

4. Dielectric Medium

The wire-cut EDM process must be carried out in a tank filled with dielectric fluid. This liquid prevents the tiny particles from the workpiece from getting attached to the wire electrode. The most common medium is deionized water which cools the process and gives the workpiece a good surface finish.

5. Electrodes

The electrodes in the machine are the wire (cathode) and the workpiece (anode). The servo motor controls the wire electrode, ensuring it does not come in contact with the workpiece at any point during the wire EDM cutting process.

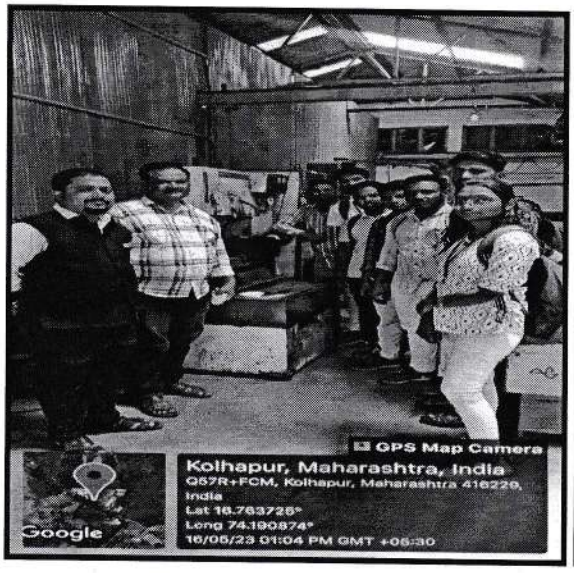
❖ Process of Material Removal in Wire Cut EDM

In the WEDM process, the motion of wire is slow. Wire is fed in the programmed path and material is cut/ removed from the work piece accordingly. Material removal takes place by a series of discrete discharges between the wire electrode and work piece in the presence of a di-electric fluid. Di-electric fluid gets ionized in between the tool-electrode gap thereby creating a path for each discharge. Area wherein discharge takes place gets heated to very high temperatures such that the surface gets melted and removed. Cut particles (debris) get flushed away by the continuously flowing dielectric fluid

❖ Applications of Wire EDM:

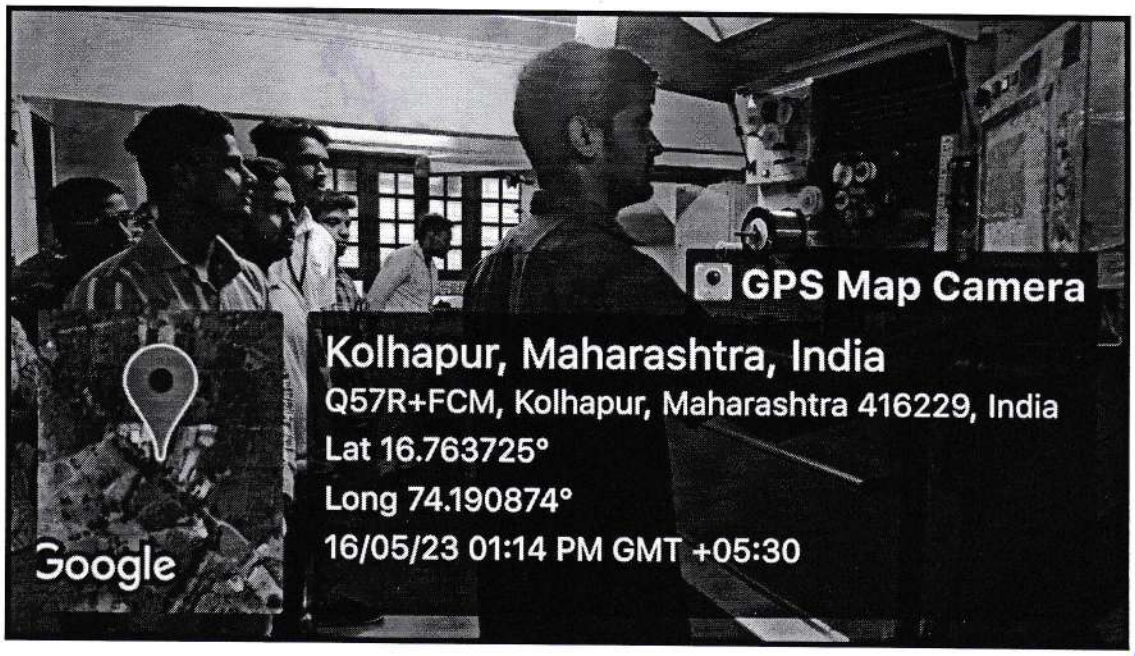
- Aerospace, Medical, Electronics and Semiconductor applications
- Tool & Die making industries.
- For cutting the hard Extrusion Dies
- In making Fixtures, Gauges & Cams
- Cutting of Gears, Strippers, Punches and Dies
- Manufacturing hard Electrodes.

Visit Photographs:



Visit at AG Technique & Solution

Visit at Ruturaj Wirecut Industries



Live Demonstration of Wire Cut EDM

Conclusion :

An Industrial visit at AG Technique & Solution and Ruturaj Wirecut Industries was successfully completed by the students of Third Year Mechanical Engineering on 16th May 2023. During the visit students observed different parts & functioning of different parts of Wire Cut EDM machine. Also they observed the actual working of Wire Cut EDM machine.

Students Name & Signature

P. S. Ali

Faculty Signature

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