SHIVAJI UNIVERSITY, KOLHAPUR

REVISED SYLLABUS AND STRUCTURE
FINAL YEAR (B. Tech.)

MECHANICAL ENGINEERING

To be introduced from the academic year 2021-22
(i.e. from June 2021) onwards

(Subject to the modifications will be made from time to time)

FINAL YEAR MECHANICAL ENGINEERING – CBCS PATTERN

SEMESTER –VII

Sr. No	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME											
		THEORY			TUTORIAL			PRACTICAL			THEORY					PRACTICAL			TERM WORK		
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max	Min
1	PCC ME401	3	3	3	-	-	-	1	2	2		CIE ESE	30 70	100	40	As per BOS Guidelines	25	10	2	25	10
2	PCC ME402	3	3	3	-	-	-	1	2	2		CIE ESE	30 70	100	40		25	10	2	25	10
3	PCC ME403	3	3	3	-	-	-	1	2	2		CIE ESE	30 70	100	40				2	25	10
4	PCE ME404	3	3	3	-		-	1	2	2		CIE ESE	30 70	100	40				2	25	10
5	PCE ME405	3	3	3	-	-	-	1	2	2		CIE ESE	30 70	100	40		-	-	2	25	10
6	PCC ME406	-	-	-	-	-	-	1	2	2									2	25	10
7	SI ME407	-	-	-				1	-	-		-	-	-	-		-	-	-	25	10
8	PW ME408	-	-	-				3	6	6		-	-	-	-		25	10		25	10
	TOTAL	**15**	**15**	**15**				**10**	**18**	**18**				**500**			**75**			**200**	

SEMESTER –VIII

1	PCC ME409	3	3	3	-	-	-	1	2	2		CIE ESE	30 70	100	40	As per BOS Guidelines	25	10	2	25	10
2	PCC ME410	3	3	3	-	-	-	1	2	2				100	40				2	25	10
3	PCC ME411	3	3	3	-	-	-	1	2	2		ESE	70	100	40		25	10	2	25	10
4	PCE ME412	3	3	3	-	-	-	1	2	2				100	40		-	-	2	25	10
5	PCE ME413	3	3	3	-	-	-	1	2	2		ESE	70	100	40		-	-	2	25	10
6	PCC ME***414	2	-	-	-	-	-	-	-	-		-	-	-					2	25	10
8	PW ME415	-	-	-	-	-	-	3	6	6		-	-	-	-		25	10	6	50	20
	TOTAL	**17**	**15**	**15**				**8**	**16**	**16**				**500**			**75**			**200**	

	TOTAL	**32**	**30**	**30**				**18**	**34**	**34**		**1000**		**150**		**400**	

CIE- Continuous Internal EvaluationESE – End Semester Examination

• Candidate contact hours per week : 30 Hours(Minimum)	• Total Marks for B.E. Sem VII & VIII :**1550**
• Theory/Tutorial Duration:60 Minutes and Practical Duration:120 Minutes	• Total Credits for B.E. Sem VII & VIII :**50**
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work)courses.	

Note:

1. Professional Core Courses-Mechanical Engineering (PCC-ME) are compulsory.
2. Professional Core Electives –Mechanical Engineering (PCE-ME) are compulsory.
3. Summer Internship -Mechanical Engineering (SI-ME) is compulsory.
4. Project Work Mechanical Engineering (PW-ME) is compulsory.
5. **PCC-ME***- Online Certificate Course.**

The Student should register the online course with Moodle/Swayam/MOOC/NPTEL. etc. of his interest in Recent Advances in Mechanical Engineering at a Start of his/her final year (i.e. at Semester VII.) and Same is intimated to Head of Department or Coordinator. For Term Work, Student has to Submit Completion Certificate of Course to the Department till end of Semester VIII. Term Work will be given at the end of Semester VIII. The Head of Department has to assign a Coordinator or Supervisor for Online Certificate Course.

Semester VII

Sr. No	Code No.	Subject	Credits
1.	PCC ME 401	Refrigeration and Air Conditioning	4
2.	PCC ME 402	Mechanical System Design	4
3.	PCC ME 403	Finite Element Analysis	4
4.	PCE ME 404	Elective I	4
5.	PCE ME 405	Elective II	4
6.	PCC ME 406	Seminar	1
7.	SI ME 407	Summer Internship @	1
8.	PW ME 408	Project Phase -I	3
		Total	25

Semester VIII

Sr. No	Code No.	Subject	Credits
1.	PCC ME 409	Mechatronics	4
2.	PCC ME 410	Energy and Power Engineering	4
3.	PCC ME 411	Noise and Vibration	4
4.	PCE ME 412	Elective III	4
5.	PCE ME 413	Elective IV	4
6.	**PCE ME414*** **	**Online Certificate Course**	**2**
7.	PW ME 415	Project Phase –II	3
		Total	25

SHIVAJI UNIVERSITY, KOLHAPUR,

Final Year B.Tech (Mechanical Engineering) **CBCS PATTERN Semester VII**

SUMMER INTERNSHIP

SUBJECT CODE: -SI ME 407

Teaching Scheme:

Credits: 01

Examination Scheme:
Term Work: 25 Marks

Course Objective:
The course aims to:

1. Familiar the students to realize an industrial work.

Course Outcomes:
Upon successful completion of this course, the student will be able to:

1. Comprehend the knowledge gained in the coursework
2. Create, select, learn and apply appropriate techniques, resources, and modern engineeringtools.

Industrial Training
The students have to undergo an industrial training of minimum two weeks in an industry preferably dealing with Mechanical engineering during the semester break after Sixth semester and complete within 15 calendar days before the start of seventh semester. The students have to submit a report of the training undergone and present the contents of the report before the evaluation committee constituted by the department. An internal evaluation will be conducted for examining the quality and authenticity of contents of the report and award the marks at the end of the semester.
It is expected that students should undertake small assignment or work related to any of the course related aspect. Report is based on compilation of work carried out related to facility and layout planning, Industrial engineering- time study and motion study, Line efficiency evaluation and improvement, Process capability evaluation, Industrial automation, Process or machinery modification as identified.

Industrial Training Report Format:
Maximum fifteen students in one batch, involving three groups of maximum five students, shall work under one Faculty. The same group shall work for project under the same guide. However, each student should have different industrial training and its presentation.
The report should be of 20 to 30 pages. For standardization of the report the following format should be strictly followed.

1. Page Size: TrimmedA4
2. Top Margin: 1.00Inch
3. Bottom Margin: 1.32Inches
4. Left Margin: 1.5Inches
5. Right Margin: 1.0Inch
6. Para Text: Times New Roman 12 Point. Font

7. Line Spacing: 1.5Lines
8. Page Numbers: Right Aligned at Footer. Font 12 Point. Times New Roman
9. Headings: Times New Roman, 14 Point ., Bold Face
10. Certificate: All students should attach standard format of Certificate as described by the department. Certificate should be awarded to batch and not to individual student. Certificate should have signatures of Guide, Head of Department and Principal/Director.

The entire report should be documented as one chapter with details like

1. "Name of Industry with address along with completed training certificate"
2. Area in which Industrial training is completed

All Students have to present their reports individually.

A

VOCATIONAL TRAINING REPORT

ON

VAKRATUND FASTNERS

Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR

In partial fulfillment of degree of

BACHELOR OF MECHANICAL ENGINEERING

Submitted by

Mr. Chaitanya Shahaji Tapase.

Under the Guidance of

Prof. J.G.Shinde

DEPARTMENT OF MECHANICAL ENGINEERING

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING,

KOLHAPUR.

(2021-22)

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR.

DEPARTMENT OF MECHANICAL ENGINEERING

CERTIFICATE

This is to certify that the training report entitled

VAKRATUND FASTNERS

Is a bonafide work of Mr.Chaitanya Shahaji Tapase **In the partial fulfillment of the requirements for the award of degree of bachelor of engineering in Mechanical Engineering of the Shivaji University, Kolhapur. He has carried out the work under my supervision and guidance, during academic year 2021-2022.**

Prof. J.G.Shinde
Project Guide

Prof. A.A.Desai
VTR Coordinator

Prof. Dr. S. J. Kadam
(Head of Department)

Dr. V. R.Ghorpade
Principal

DECLARATION

We hereby declare that the training report entitle "**VAKRATUND FASTNERS**" has been prepared by us under guidance and supervision of guide **Prof. J.G.Shinde** BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR in partial fulfillment of the degree of "BACHLOR OF ENGINEERING IN MECHANICAL ENGINEERING" is our original work and not directly copied from any source.

We understand that any copying is liable to be punished in a way the institute and University authorities deem fit.

Date:

Place: Kolhapur

Mr. CHAITANYA SHAHAJI TAPASE

ACKNOWLEDGEMENT

It is needed a great pleasure and proud privilege for me to present this training report at **"VAKRATUNDA FASTENERS"**, one of the pioneered industries in manufacturing. This training provides me with the first and the best opportunity to put my engineering knowledge to practical use.

I must be thankful to management of **"VAKRATUNDA FASTENERS"**, for giving me such opportunity.

I express my sincere gratitude to all departmental managers for not only guiding me through the training period but also sharing their immense knowledge and technical experience with me at every stage.

I am also thankful to all the friends who directly and indirectly inspired and helped me for completion of this training period.

Finally I shall remain grateful to my guide **Prof. J.G.Shinde** for supporting me and guiding me to prepare this training report.

VAKRATUND FASTENERS

Reg. Office: Plot No.: 1568, H. No. 1151, Datta Colony-Kaneri, Tal. Karveer
Dist. Kolhapur-416 234.
Works: Plot No. 106/529, Vijay Nagar, Nr. Prabhadevi Metal, MIDC, Gokul Sirgaon,
Kolhapur. Mob.: 9325005775/9423825775. vakratundfasteners@gmail.com

Date: 21/09/2021

CERTIFICATE OF INTERNSHIP

This is to certify that Mr. CHAITANYA SHAHAJI TAPASE of MECHANICAL ENGINEERING Department BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING KOLHAPUR. Has successfully completed his vocational training during the period 01 SEPT 2021 to 21 SEPT 2021. His performance during the training was satisfactory.

We wish him the best for his future career.

For Vakratund Fasteners

VAKRATUND FASTENERS • KOLHAPUR •

Mr. Prajendra D Salunkhe -Partner

INDEX

COMPANY PROFILE

COMPANY NAME	: VAKRATUND FASTENERS
COMPANY OWNER:	Prajendra Salunkhe and Muttappa Terani
LOCATION	: PLOT NO. 106/529 Vijay Nagar, MIDC, Gokul Shirgaon, Kolhapur 416204 M.S. (INDIA).
CONTACT No.	: 9325005775, 9423825775
EMAIL	: vakartundfasteners@gmail.com
ESTABLISH YEAR	: 2004
PLANT AREA	: 3,235 Sq. ft
PRODUCT MFG.	: Nut and Bolt
MACHINES	: Single Spindle Machine (2), 5 Spindle Trob Machine (2),Lathe Machine (5), Drilling Machine (2)
WORKERS	: 20

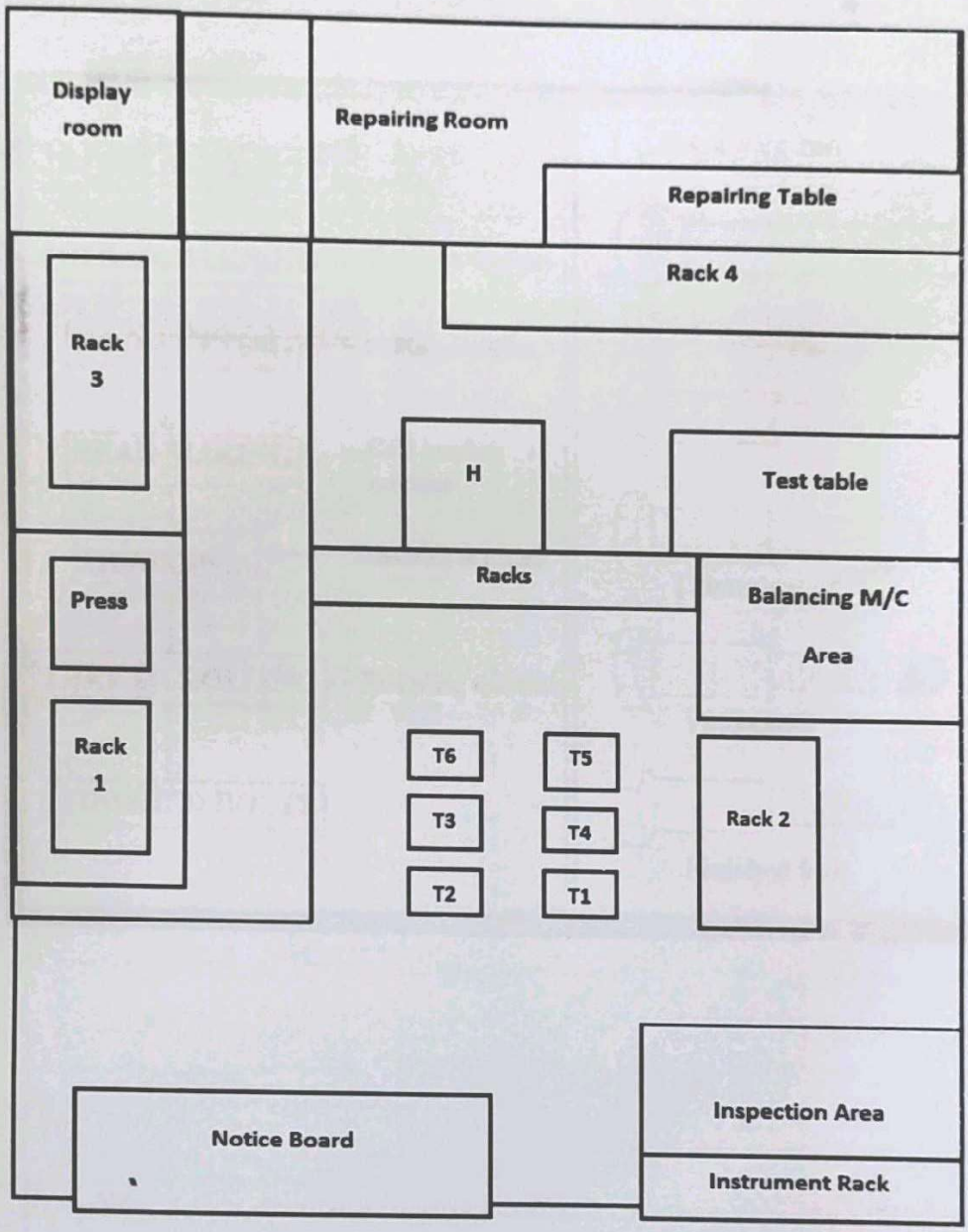
INTRODUCTION

VF roots in Kolhapur can be traced back to 1996, when a trading arm of VF Group was set up in Kolhapur. Since then VF has been serving the Kolhapur market with high quality nuts and bolts for over a decade. VF Kolhapur LTD was incorporated in the year 2004 .

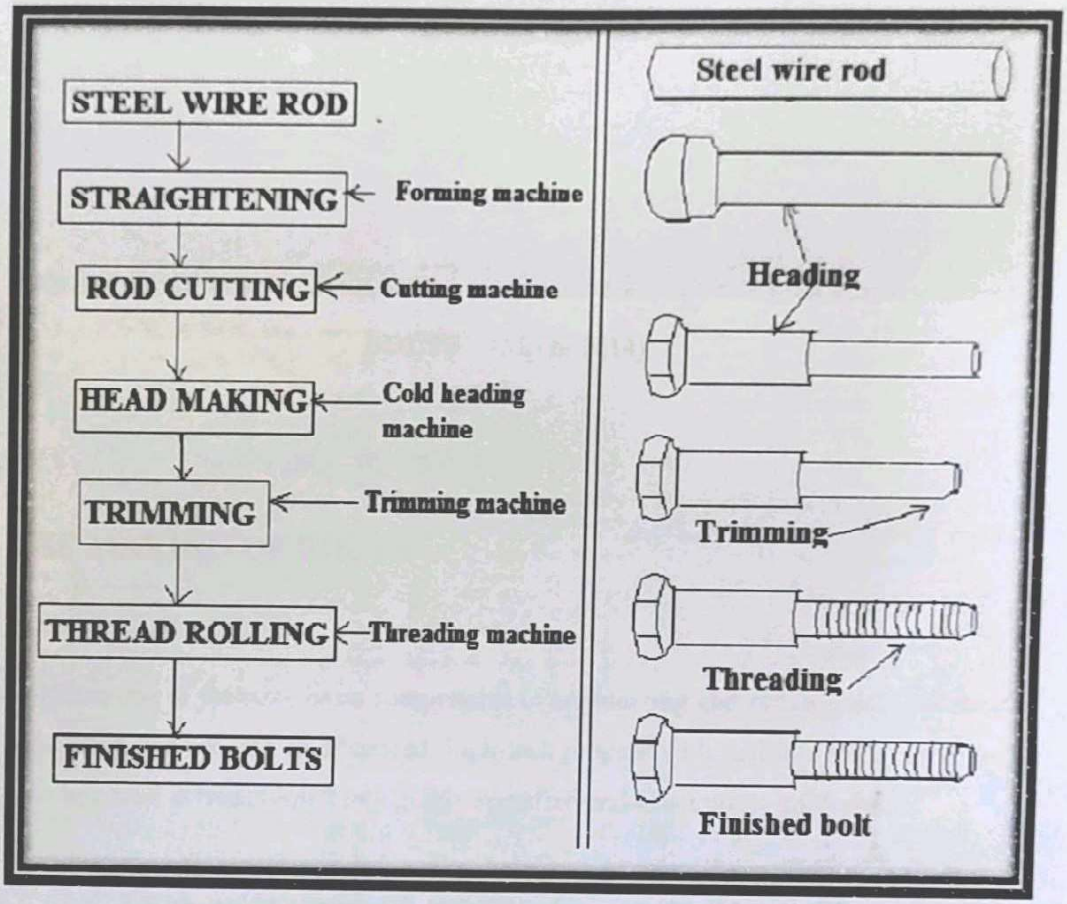
Over the years the company has evolved from being a pioneer nut and bolt manufacturing company to a knowledge driven integrated solutions provider, helping customers achieve sustainable and competitive advantage.

VF has been a leading technology provider since its foundation. Our fundamental strength is the ability to continuously develop new technologies- then use them to create products that offer competitive advantages to our customers. We achieve this by combining hands-on experience in several industries with our knowledge across the VF technology platforms :Nuts and bolts , lubricating oil. Our success is based on this knowledge, our people, and our commitment to VF Care principles.

Plant Layout



BOLT MANUFACTURING PROCESS



BOLTS (M3 to M14)

THE MAKING OF BOLTS

Bolts are one of the most basic components of engineering and construction, yet their production has become an advanced, high-tech process with multiple steps. Find out how raw steel is transformed into highly specified and exact metal implements.

Bolts can come in a wide range of different sizes and shapes, but the basic production process generally remains the same. It starts with cold forging steel wire into the right shape, followed by heat treating to improve strength and surface treating to improve durability, before being packed for shipment. However, for more advanced bolt designs, the production process can expand by a number of additional steps.

As one of the leading suppliers of fasteners to the automotive industry, VAKRATUND FASTENERS is highly proficient in every step and facet of bolt production. "VF do not produce catalogue parts – everything we produce is custom-designed, according to the customer's specifications,"

THE PRODUCTION PROCESS

Cold forging

Cold forging starts with large steel wire rods, which are uncoiled and cut to length. The grade of steel is standardized across the industry, according to the requirements of ISO 898- 1. Using special tooling, the wire is then cold forged into the right shape. This is basically where the steel is molded, while at room temperature, by forcing it through a series of dies at high pressure. The tooling itself can be quite complex, containing up to 200 different parts with tolerances of hundredths of a millimeter. Once perfected, cold forging ensures bolts can be produced quickly, in large volumes, and with high uniformity.

For more complex bolt designs, which cannot be contoured through cold forging alone, some additional turning or drilling may be needed. Turning involves spinning the bolt at high speed, while steel is cut away to achieve the desired shape and design. Drilling can be used to make holes through the bolt. If required, some bolts may also have washers attached at this stage of the process.

Heat treatment

Heat treatment is a standard process for all bolts, which involves exposing the bolt to extreme temperatures in order to harden the steel. Threading is usually applied before heat treatment, either by rolling or cutting when the steel is softer. Rolling works much like cold forging, and involves running the bolt through a die to shape and mold the steel into threads. Cutting involves forming threads by cutting and removing steel.

Since heat treatment will change the properties of the steel to make it harder, it is easier and more cost-effective to apply threading beforehand. However, threading after heat treatment will mean better fatigue performance.

"The heat treatment can cause heat marks and minor damage to the bolt," explains Henrik Oscarson. "For this reason, some customers demand threading after heat treatment, especially for applications like engine and cylinder head bolts. It's a more expensive process since you need to form hardened steel, but the threads will maintain their shape better."

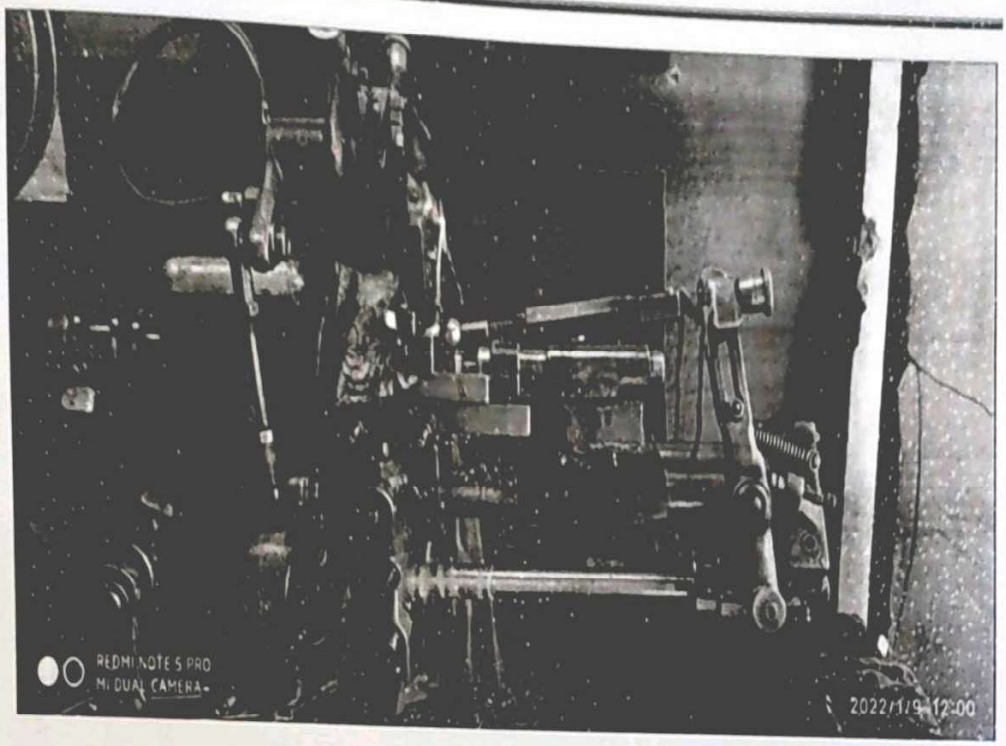
Size and surface

For long bolts, where the length is more than ten times the bolt's diameter, the heat treatment can have the effect of making the steel revert to the round shape of the original steel wire. Therefore, a process of straightening often needs to be applied.

The choice of surface treatment is determined by the bolt's application and the requirements of the customer. Often, the main concern for fasteners is corrosion resistance, and therefore a zinc-plated coating applied through electrolytic treatment is a common solution. This is a process whereby the bolt is submerged in a liquid containing zinc, and an electric current is applied so that the zinc forms a coating over the bolt. However, electrolytic treatment does come with an increased risk of hydrogen embrittlement. Another option is zinc flakes, which offer even higher corrosion resistance, albeit at a higher price.

When corrosion resistance is not an issue – such as inside an engine or an application that is regularly exposed to oil – using phosphate is a more cost-effective option. Once the surface treatment has been applied, standard bolts are typically ready to be packaged. However, more advanced designs may require some additional assembly, such as brackets. Other bolts will also require some form of patching, either a locking patch or a liquid patch. A locking patch consists of a thick nylon layer over the threads, which helps improve grip. A liquid patch will help improve thread-forming torque.

Once these steps are complete, the bolt is finished. Now all that remains is some form of quality control to ensure uniformity and consistency before the bolts can be packaged and shipped.



SINGLE SPINDLE MACHINE

A summary of the production process:

Wire - Uncoiled, straightened and cut to length.

Cold forging - Molding the steel into the right shape at room temperature.

Bolt head - Progressively formed by forcing the steel into various dies at high pressure.

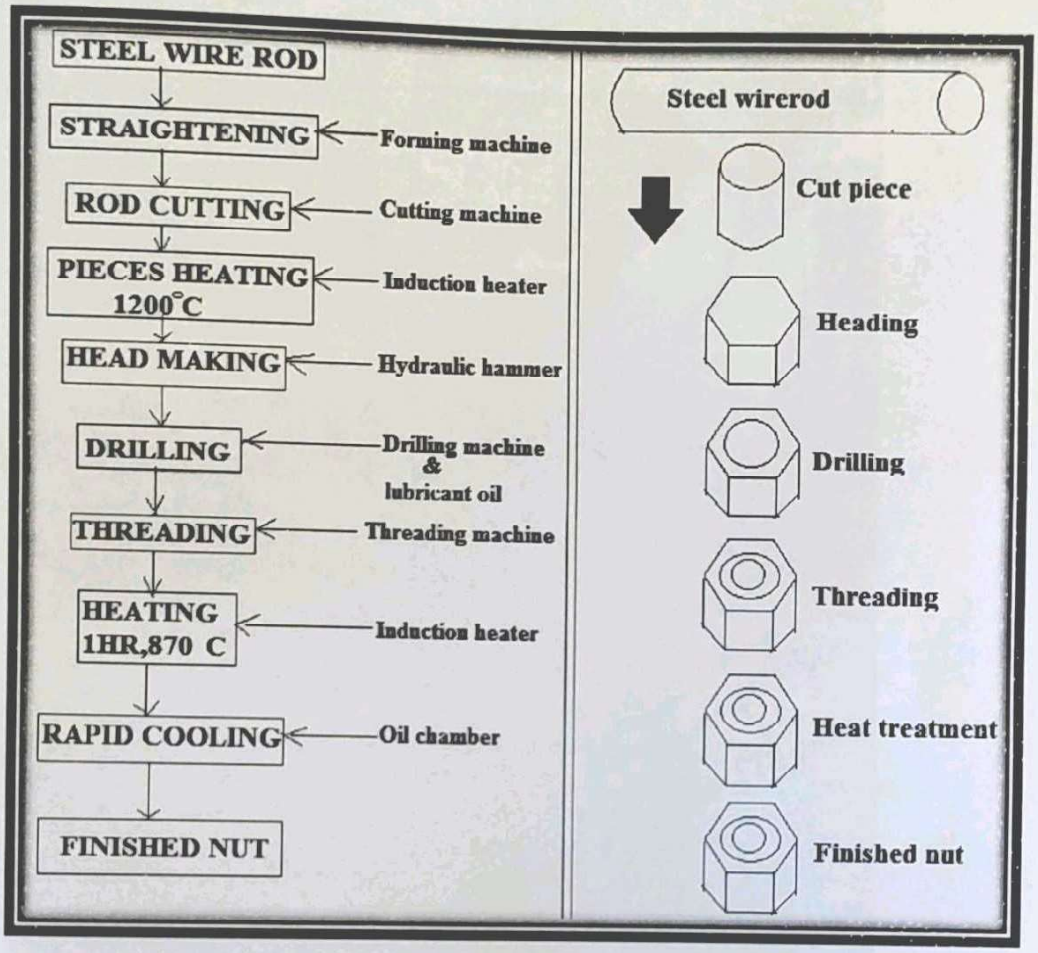
Threading - Threads are formed by rolling or cutting.

Heat treatment - The bolt is exposed to extreme heat to harden steel.

Surface treatment - It depends on the application. Zinc-plating is common to increase corrosion resistance.

Packing/stocking - After quality control to ensure uniformity and consistency, the bolts are packaged.

NUT MANUFACTURING PROCESS



5 SPINDLE TROB MACHINE

INTRODUCTION OF LATHE MACHINE

A lathe machine is a machine tool that is used to remove metals from a workpiece to give a desired shape and size. Lathe Machines are used in metalworking, woodturning, metal spinning, thermal spraying, glass working, and parts reclamation.

The various other operations that you can perform with the help of a Lathe Machine can include sanding, cutting, knurling, drilling, and deformation of tools that are employed in creating objects which have symmetry about the axis of rotation.

There are several components of a lathe, later on, I discuss the most important Parts of the Lathe with their function. It is also known as the father of all standard machine tools.

The function of Lathe is to remove the metal in the form of chips from a piece of work by mounting the same rigidly on a machine spindle and revolving at the required speed and the cutting tool is fed against the work either longitudinally or crosswise to make the work to the required shape and size.

PARTS OF LATHE MACHINE

1. Headstock
2. Bed
3. Tailstock
4. Carriage
5. Saddle
6. Cross-slide
7. Compound rest
8. Toolpost
9. Apron
10. Lead Screw
11. Feed rod
12. Chuck
13. Main spindle
14. Leg

Head Stock:

Head Stock is situated at the left side of the lathe bed and it is the house of the driving mechanism and electrical mechanism of a Lathe machine tool.

- It holds the job on its spindle nose having external screw threads and internally Morse taper for holding lathe center. And it is rotating at a different speed by cone pulley or all geared drive. There is a hole throughout spindle for handling long bar work.
- Head Stock transmit power from the spindle to the feed rod, lead screw and thread cutting mechanism.

Accessories mounted on headstock spindle:

1. Three jaw chuck
2. Four jaw chuck
3. Lathe center and lathe dog
4. Collect chuck
5. Faceplate
6. Magnetic chuck

A separate speed change gearbox is placed below the headstock to reduce the speed in order to have different feed rates for threading and automatic lateral movement of the carriage. The feed rod is used for most turning operations and the lead screw is used for thread cutting operations.

Bed:

It is the base of the lathe machine. It is made of the single-piece casting of Semi-steel (Chilled Cast Iron). The bed consists of two heavy metal slides running lengthwise, with ways or 'V' formed upon them and rigidly supported with cross girths.

- It is sufficiently rigid and good damping capacity to absorb vibration.
- It prevents the deflection produced by the cutting forces.
- It supports the headstock, tailstock, carriage and other components of the lathe machine.

Tail Stock:

Tail Stock is situated on the right side above the lathe bed.

It is used for:

- Support the long end of the job for holding and minimizes its sagging.
- It holds the tool for performing different operations like drilling, reaming, tapping, etc.

- And it is also used for a small amount of taper for a long job by offsetting the tailstock.

Carriage:

The carriage is used to support, guide, and feed the tool against the job when the machining is done.

- It holds moves and controls the cutting tool.
- It gives rigid supports to the tool during operations.
- It transfers power from feed rod to cutting tool through apron mechanism for longitudinal cross-feeding.
- It simplifies the thread cutting operation with the help of lead screw and half nut mechanism.

It is consists of:

1. Saddle
2. Cross-slide
3. Compound rest
4. Toolpost
5. Apron

It provides three movements to the tool:

1. Longitudinal feed-through carriage movement
2. Cross feed-through cross slide movement
3. Angular feed-through top slide movement

Saddle:

Generally, it is made up of 'H' shaped casting and it has a 'V' guide and a flat guide for mounting it on the lathe bed guideways.

Cross-slide:

It is assembled on the top of the saddle. The top surface of the cross-slide is provided with T-slot.

Compound rest:

It supports the tool post and cutting tool in its various positions. It can be swiveled at any desired position in the horizontal plane. It is necessary for turning angles and boring short tapers.

Tool post:

It is the topmost portion of the carriage and it is used to hold various cutting tools or tool holders.

There are three types of tool post commonly used and those are:

1. Ring and rocker tool post
2. Squarehead tool post
3. Quick change tool post

Apron:

An apron is a house of the feed mechanism. It is fastened to the saddle and hangover in front of the bed.

Lead screw:

A lead screw is also known as a power screw or a translation screw. It converts rotational motion to linear motion. Lead Screw is used for Thread Cutting operation in a lathe machine tool.

Feed Rod:

Feed rod is used to move the carriage from the left side to the right side and also from the right side to the left side.

Chuck:

Chuck is used to holding the workpiece securely.

There are generally 2 types of chucks:

1. 3 jaw self-centering chuck
2. 4 jaw independent chuck

Main Spindle:

The spindle is a hollow cylindrical shaft in which long jobs can pass through it.

It is designed so well that the thrust of the cutting tool does not deflect the spindle.

Leg:

Legs are carrying an entire load of a lathe machine tool and transfer to the ground. The legs are firmly secured to the floor by the foundation bolt.

OPERATION OF LATHE MACHINE

- Centering
- Facing
- Turning
- Chamfering
- Knurling
- Thread cutting
- Drilling
- Boring
- Reaming
- Spinning
- Tapping
- Parting off

Centering operation in the lathe:

Before continuing any operation in lathe we have to load the job and center it on the head-stock spindle.

We use this operation for producing a conical hole in the face of the job to make the bearing support of the lathe center when the job is to hold between two centers. (Head-stock and Tail-stock).

Facing operation in the lathe

Facing operation is for making the ends of the job produce a smooth flat surface with the axis of operation or a certain length of a job.

In this operation,

1. Hold the job on Head-stock spindle using Three or four-jaw chuck.
2. Start the machine on desire RPM to rotate the job.
3. Give a desirable feed on the perpendicular direction of the axis of the job.

Turning operation in the lathe:

The operation by which we remove the excess material from the workpiece to produce a cone-shaped or a cylindrical surface.

There are several types of turning operations, those are:

1. Straight turning
2. Shoulder turning
3. Rough turning
4. Finish turning
5. Taper turning
6. Eccentric turning

Straight turning:

This operation is done to produce a cylindrical surface by removing excess material from the workpiece.

It is done in the following ways:

1. Mount the job by suitable job holding device and check the trueness of the job axis with the lathe axis.
2. Hold the cutting tool on the tool post and set the cutting edge at the job axis or slightly above it.
3. Set the spindle as per the desired feed.
4. Give depth of cut as per finish or rough cut.
5. Start the machining.

6. Engage automatic feed to move the carriage with the tool to the desired length, then disengage the feed and carriage is brought back to its starting.
7. The process is repeated until the job finished.

Chamfering operation:

Chamfering is used for beveling the end of a job to remove burrs, to look better, to make a passage of the nut into the bolt.

This operation is done after thread cutting, knurling, rough turning.

Knurling operation:

It is the process of producing a rough surface on the workpiece to provide effective gripping.

The knurling tool is held rigidly on the tool post and pressed against the rotating job so that leaving the exact facsimile of the tool on the surface of the job.

Thread cutting operation :

It is the operation that is used to produce a helical groove on a cylindrical or conical surface by feeding the tool longitudinally when the job revolved between the two centres. Tool setting for thread cutting operation:

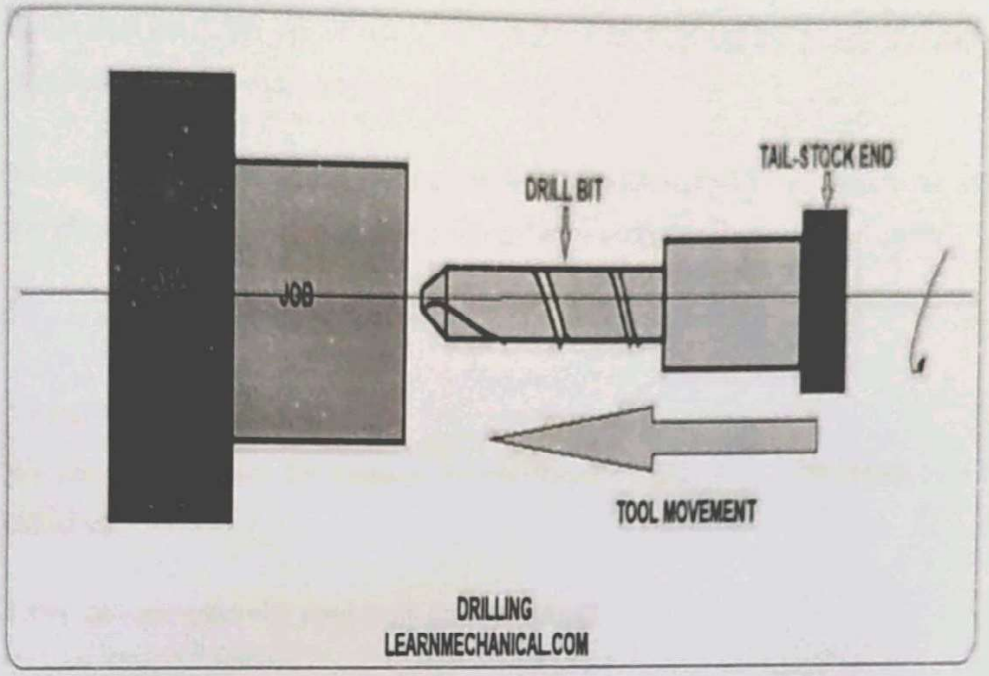
The tool should be set exactly to the height of the centreline of the job and at 90 degrees to the job.

Tool setting gauge is used for this purpose.

Drilling operation:

Drilling is an operation by which we can make holes in a job.

In this operation, the job is rotated at the turning speed on the lathe axis and the drilling tool is fitted on the tail-stock spindle. And the tail-stock is moved towards the job by hand feed.



Boring operation:

In this operation, we can enlarge the diameter of the existing hole on a job by turning inside with some farm tool known as a boring tool.

The boring tool is also fitted on tail-stock.

Reaming operation:

Reaming is the operation for sizing or finishing a drilled hole to the required size by a tool called a reamer.

This tool is fitted on tail-stock.

Spinning operation:

In this operation, the job of this sheet metal is held between the former and the tail-stock center rotates at high speed with the former.

the long round nose forming tool rigidly fixed on a special tool post presses the job on the periphery of the former. So the job is taken exactly the shape of the former.

This is a chipless machining process.

Tapping operation:

We use this operation for creating internal threads within a hole by means of a tool called tap.

Three taps are generally used in an internal thread.

1. Taper Tap
2. Second Tap
3. Plug Tap

Parting-off operation:

It is the operation of cutting off a bar-type job after completing the machining process.

In this operation a bar-type job is held on a chuck, rotates at turning speed, a parting-off tool is fed into the job slowly until the tool reaches the center of the job.

SPECIFICATION OF A LATHE

1. Swing- the largest work diameter that can be swung for the lathe bed.
2. The distance between the headstock and tailstock center.
3. Length of the bed in a meter.
4. The pitch of the lead screw.
5. Horsepower of the machine.
6. Speed range and the number of speeds of HS spindle.
7. The weight of the machine in a tonne.

CONCLUSION

During the training we have learnt following aspects of company.

1. Working of company

2. Manufacturing process: Nut and Bolts, Lubricating Oil, etc.

During training period I learned about complete manufacturing of nut and bolts, Lubricating oil, etc. and its use in industrial field.

During training period engineers and officials were kind enough and shared all possible information which they could. The training familiarized us about the working conditions that prevail in an industry and relation between management and operation.

During the training we have realized vase visualization of company with its large no. of machines and organisation with them. It was very interesting to understand whole plant with its element and modern technology adopted in some department.

We can conclude that its training is definitely useful to us in our future carrier, going through the vocational training at **VAKRATUND FASTNERS, KOLHAPUR.** This experience was a lesson which is surely bound to guide and asset is lifelong.

Vijay Ram Ghorpade

Digitally signed by Vijay Ram Ghorpade
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