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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Anvekar Shreyas Suresh**, Student of **4th Semester MBA** from **Acharya Institute of Technology , Bangalore**, has carried out his project work titled **“Study on Inventory Management”** in the Finance Department of our Company from **15/01/2018 to 24/03/2018**.

We wish him all success in his future endeavors.

Regards,

For **AUMA INDIA PRIVATE LIMITED**,


Vinay M S
Head - Human Resources



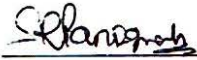
ACHARYA INSTITUTE OF TECHNOLOGY

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Date: 19/05/2018

CERTIFICATE

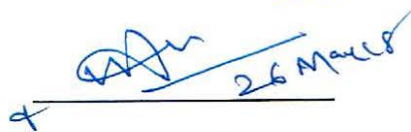
This is to certify that **Mr. Anvekar Shreyas Suresh** bearing USN **1AY16MBA08** is a bonafide student of Master of Business Administration course of the Institute 2016-18 batch, affiliated to Visvesvaraya Technological University, Belagavi. Project report on “**A Study on Inventory Management**” at **AUMA India Pvt. Ltd., Bangalore** is prepared by him under the guidance of **Prof. Swarupa Ranjan Panigrahi** in partial fulfillment of the requirements for the award of the degree of Master of Business Administration, Visvesvaraya Technological University, Belagavi, Karnataka.



Signature of Internal Guide



Signature of the Head of the Department
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26 May 18

Signature of Principal

PRINCIPAL

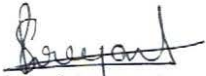
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DECLARATION

I **ANVEKAR SHREYAS SURESH** hereby declares that the project report entitled on “**Astudy on inventory management**” with reference to **AUMA INDIA PVT LTD** Bangalore prepared by me under the guidance of **Mr. Swarupa Ranjan Panigrahi** faculty of MBA Department in **ACHARYA INSTITUTE OF TECHNOLOGY** and external guidance by **NIKHIL PATIL Finance Manager, Auma India Pvt Ltd**. I also declare that this project work is towards the partial fulfillment of the university regulations for the award of degree of Master of Business Administration in Visveswaraya Technological University, Belgaum. I have undergone the project for the period of 10 weeks. I further declare that this project is based on the original study undertaken by me and not has submitted for the award of any degree/ diploma from any other university or institution.

Place: Bangalore

Date: 28/05/2018


Signature of the student

ACKNOWLEDGMENT

I would like to thank many people who have helped and supported me while doing the project, report and work. There is not enough work to offer my vote of thanks to Assistant Professor Mr. Swarupa Ranjan Panigrahi, Department of MBA AIT Bangalore for his help in initiating the project report in advance for the regular motivation, my guide Nikhil Patil Finance Manager at Auma India Pvt Ltd Bangalore and Dr. G Nijaguna HOD Professor of MBA Department, AIT Bangalore for their admirable help, suggestions and options on the contribution during and after the project period.

Thanks a lot, and appreciation to helpful nature of employees at Auma India Pvt Ltd for their support.

Place: Bangalore

Anvekar Shreyas Suresh

Date:

USN: 1AY16MBA08

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EXCECUTIVE SUMMARY

This project deals with inventory management process of manufacturing and engineering sector. It covers the basic introduction, future and key development of the sector. It has also explained about future growth of the company. There are certain terminologies, types, methods and policies of the inventory management are explained. Literature review are explained in detail about the inventory policies and controlling measures of the company. In this project, the main focus is to on-time delivery to the clients of the company. The tools are used in this project are EOQ model and ratios analysis. In this project time series analysis is used for study the efficiency of inventory management. The result shows poor inventory management in this organization. This project also suggests to the company about the future course of action for better inventory management.

CHAPTER1

INTRODUCTION

INDUSTRY PROFILE AND COMPANY PROFILE

INTRODUCTION TO INTERNSHIP

Internship is one of the important part of the MBA students in his curriculum. The topic for which I have chosen for the project is “A study on Inventory Management” in AUMA India Pvt Ltd Bangalore for 10 weeks. It is the concepts which helps to learn the practical knowledge, skills required to understand the concepts of inventory management. Inventory is one of the important assets for every company. It helps to learn various concepts of maintaining the inventory safely in the godown or warehouses. It helps to learn various problem related to the payment from the clients, poor quality of goods, delay of product etc. and along with this we can able to learn various technique of inventory concepts. This helps to contribute the profit and future prediction of the company and increase the stakeholders of the company.

INDUSTRY PROFILE

OVERVIEW OF MANUFACTURING AND ENGINEERING SECTOR

These sectors provide wide range of engineering jobs for graduates such as design, production, supply chain or logistics.

Manufacturing is the process where the raw materials are converted in to finished goods. In the manufacturing sector the engineers are responsible for safety of materials and well-organized planning, managing and maintaining the production method and processes. The area of work involves the following: -

Research:

It involves search for a new concept for the product which helps for the improvement in existing products. To find a new thing, an engineer should contribute to help the organization by giving ideas to improve product with advanced technology.

Design: -

Engineers design the product as per the requirement of the customers. The product should be designed in such a way that it should fulfill the customer requirement.

Development

The development takes place depending upon the proposal of design for the manufacturing product. It considers volume, availability of raw material, quality and overall cost.

Production

The process is taken for safety and efficiency. It manages production team, safety hazards, and production Line issue.

Quality: -

They should follow the policy of quality control. The engineer design and analyze the quality system to supervise the staff for the quality of product.

In the planning stage, AUMA engineers are in close with plant designers to satisfy the requirement in industrial processes. It is standard if the products are safety where the AUMA product range offer on optimum solution for the challenges.

According to the study conducted by Mckinsey and company said that the Indian manufacturing is going to expect the revenue of US \$ 1 Trillion by 2025. Industry experts recognize increase in the demand of manufacturing units and the desire for setting up low cost plant in India by MNC's for better development.

Key Market Drivers for Indian Manufacturing Industry

1. There is the demand for increase in the investment level of manufacturing sectors in India.
2. The manufacturing policy proposes to raise the GDP to 25% and creating 100 million jobs in coming decades.
3. A procurement policy suggests to incorporating the technology to endorse Micro, Small and Medium firms.

HISTORY

Manufacturing industry came in to existence in technological and socio-economic conversions in western Countries in the 18th -19th century. It is also called as industrial insurgency. It was started in Britain in labor intensive textile production by using fuels.

- Before the industrial revolution, most of the manufacturing process was done in rural areas. These were done in the houses.
- Toll manufacturing is the arrangement where the first firm processes the raw materials for a second firm.
- In the previous stage, the manufacturing was done by a single skilled person with assistants.

TECHNOLOGY

Development of Technology is very important for improvement of productivity, efficiency and competitiveness of industrial sector. These are classified in three levels:

- It involves ability to operate and uphold on new plant with imported technology.
- It consists of the ability to copy and modify the imported plant and elsewhere in the country or abroad.

- It involves the capability to start new design to develop new production system.

Factor costs are replaced by technology related factor such as zero deficit product quality and quality assurance system in determining international competitiveness. A large number of manufacturing firms are in the problem of basic or intermediate level of technological capabilities.

In India at present, there are firms which are nearer to international limit in terms of product design, technology, inferior quality and high costs. It effects on the organization which increases competition.

India has been spending 0.8% of its GDP in R&D activities which is less than other developed countries. China and Brazil spent more than India on R&D.

Today India is a diversified capital base competency to complex requirement and demand where the growth is driven in the other sectors.

Future Outlook

Engineering Sector is growing market due to favorable policies, government spending, and investment opportunities in this sector. Due to this it results in growth of engineering and manufacturing sector. Due to high spending in manufacturing services it is expected to rise US \$1.1 Trillion by 2020. As per union budget of 2014-2015 has allocated fund on the engineering sector. There are emerging trends like outsourcing which provides opportunities to the engineering sectors. In India, it is estimated that by 2020, India can be a USD 40 billion market for outsourcing services.

Industry Growth

- The export in India stood up to US \$ 65.23 billion in FY 17.
- It registered a growth at a CAGR of 7.61 percent.
- In August 2016, the total exports in India in 25places registered a growth of 5.8 percent in August 2015.
- It includes transport equipment's, capital goods, and other machinery equipment's.

- The export was USD 65.23 billion in financial year 2016-17 which beat shipments of USD 58.8 billion in 2015-16
- In 2016, engineering export was reached at US \$58.8 billion.
- Among the exports transport equipment's contributes highest in engineering sector. It holds 32.46 percent from total engineering exports.
- The markets available for engineering products are USA, China, Germany, UK Canada, France and many more.
- Export of iron and steel products holds a market share of 22.44 percent while industrial machinery included 23.85 percent of total export.
- Other commodities like hand tools, machine tools, office equipment's etc. having a share of 10percent of the exports from India in FY 17.

Key developments and investments

In this sector FDI flow during April 2000 to December 2013 were 2588.09 million dollars. Some of the major investments are follows

- Synergy Property development services Pvt Ltd has signed a design and project contract from Dubai to control the mixed-use development project worth 35 million dollars.
- Moog Inc have planned to manufacture equipment in the field of aerospace, defense, industrial application to expand R&D in India.
- L&T Construction has signed an engineering procurement order from Saudi Aramco for construction of 55 kilometer.
- Engineers India Ltd has won 139 million dollars from Nigerian company for providing consultancy for engineering, construction and procurement.
- Elecon Engineering company ltd had an order of Rs. 246.78 crore by national Thermal Power Corporation Ltd for supply of coal.
- Larsen and Toubro Ltd (L&T) has been awarded with projects worth Rs 2,170 crore (US\$ 336.93 million), which includes an order worth Rs 1,169 crore (US\$ 181.51 million) from Oman Electricity Transmission Company SAOC.

- South Korean electronics major, LG, is planning to make India as its export hub, on the back of improved ties between South Korea and India, as per Mr Ki Wan Kim, Managing Director, LG Electronics India (LGEI).
- Warburg Pincus collaborates with Tata Technologies to acquire up to 40 per cent minority stake for about Rs 2,300 crore (US\$ 357.11 million).
- L&T entered into a joint venture with European defense major Matra BAE Dynamics Alenia (MBDA) Missile Systems for development of missiles in India. L&T will own 51 per cent stake in the JV named L&T MBDA Missile Systems and the rest 49 with the European partner.
- There was an agreement with US Navy and Reliance Defense and Engineering Ltd for care and renovation of Seventh Fleet of US Navy at the Reliance Shipyard at Pipavav in Gujarat.

COMPANY PROFILE

Auma India Pvt Ltd is a one of the Auma group, which can be abbreviated as **Armaturen Und Maschinen Antriebe**, where the headquarters is situated in Mulheim, Germany, which is known for largest manufacturer of electric actuator and gear boxes for automation of all types of valves and dampers. These manufactured goods are majorly used in power, water, cement, steel, oil and gas and nuclear sector in India.

Auma India was built-in the year 1983 and started production in the year 1986 in peenya, Bangalore. The company has more than 250 employees in two branches situated in pune and New Delhi. The annual Turnover of the company is Rs. 900 million.

Today Auma India provides a high-level solution for the major organization like BHEL, NTPC, SAIL, ONGC and NPCIL. These are the major project advisor for the company like EIL, MECON, and Fitcher.

This company is situated in No.38-A and 39-B, 2nd Phase, Peenya Industrial area Bangalore-560058. Peenya is one of the largest industrial areas in India which is situated in North of Bangalore.

The company normally serves the key infrastructure sector like power, cement and steel, petrochemical, nuclear and waste water. The electric actuators include for regulating and separation of duty applications.

They provide the service by installing product all over the country. Other services like periodic overhauls, annual maintenance, and training program to technicians.

Auma India main aim is to increase the demand by continuous investment and product improvement. Today India is giving main concern to the infrastructure as economic driver. In 2008, it increased the installed capacity by renovating the facility.

Auma India has been certified for the quality management as per ISO 9001 standards. Before dispatching the goods to the customers, they check 100% for the better functioning of the product.

The company modifies the industry protocols like Modbus, Profibus for monitoring the actuators. The company offers product to the Indian market whenever necessary. Reaction from the customers and purchaser are constantly considered for product improvement.

List of promoters

Auma Armaturentriebe GmbH, Germany is the parent company who promoted the company.

Vision and Mission

Mission

- Be immediate to customer needs and develop, manufacture and supply high technology quality product and services to develop the productivity and reduce costs.
- It provides growth learning environment, training and motivation to all employees by encouraging support team and there should be mutual cooperation to achieve buzzing performance.
- Encourage innovation and creativity to stay ahead of the competition.
- Give compulsory support to the supplier's sub-contractors and business associates to meet our requirement on the repeated basis.
- Control pollution and environmental deterioration for improving quality of life.
- Meet commitments to the government and society at large.

Vision

- To maintain a leading position in the design, development, manufacture and marketing of electric actuators value and damper gear boxes.
- To offer products to meet the developing requirements of customers and grow with the customers.
- To provide total engineering clarification to the customers.
- To offer product in terms of quality and features to meet international standards.
- To provide opportunities to its employees for internal growth and maintain positive work environment.
- To maintain long term collaboration with the suppliers.

- To be aware of external environment and work towards fulfilling Corporate Social Responsibility.

Quality Policies

We provide quality product and services to complete the needs of the customers and strive to achieve customer's happiness. Quality is ensured in all processes from product development to the after sales services.

All the employees and suppliers of the organization are involved and committed to the quality of product and services.

- Certified with quality management with ISO 9001 standards since 1995.
- The products are inspected before it is dispatched.
- Proper evaluation of product and improve it.
- Proper feedback from customer constantly.

Product Profile

1) Multi turn actuators SA, SAR, SAEx, SA@ Ex, Combination SA.... GK/GST

Electric multi actuators by AUMA India used for automation of all types of industrial valves like OPEN CLOSE Duty or regulating duty or higher torque requirement or for explosive areas which are available.

- Whether proof actuators

Open Close duty actuators

Regulating duty actuators.

- Explosion proof actuators (SAEx©-SAEx©100,
- SAREx©3-SAREx©100
- High torque actuators

To meet the entire torque requirement for valuation automation, combination of multi turn actuators SA...with multi turn gear boxes are used.

- Multi turn actuator combination with worm gear boxes GSD
- Multi turn actuator combination with worm gear boxes GSD
- Multi turn actuator combination with spur gear boxes GST

2) Part turn actuators (SA with worm gear boxes GS)

It is a combination of multi turn actuators SA with worm gear boxes GS. By combining the multi turn actuators SA with the worm gear boxes GS they are turned in to electric part actuators for high torque requirement.

- Torque range up to 360000 Nm.
- Swing angles 80*-135*.
- Wide range of operating time for various applications.
- Self-retaining
- Hand wheel for manual Operation
- Fill worm wheel design

3) Linear actuators

It is a combinations multi turn actuators with linear thrust unit LTU. To perform linear movements e.g. in case of global valves the multi turn actuators SA/SAR are combined with linear thrust units.

4) Lever actuators (SA with lever gearboxes GF)

The combination of multi turns actuators SA with lever gear boxes GF results in lever actuators. For higher torque requirement, the multi turn actuators can be combined with lever gearboxes.

5) Actuator controls

The advantage of the actuator controls is to reduce planning, installation, commissioning time and costs for the end user.

- Epac

Epac is modular in construction and consists of power supply module, relay module and programmable logic control module.

- Semipact

It is a basic actuator with additional features of selector switch and push button station. Motor control and switch gear are external to the actuators and are in customer scope. This is available for both isolation and regulating duty services.

- Wall mountable controls

AUMA India actuators with integral starter can also be provided with the distinctive feature of wall bracket mounting.

- AUMA India master Station

An AUMA India master station is used to integrate actuators in to an automation environment. It has a modular design suitable for Open protocols such as MODBUS RTU. It has GUI interface and can be completed to most conditions while using identical interface. It is a significant part of commissioning support system, network manager, which can be integrated to any DCS using open industrial protocols.

6) Multi turn gearboxes

- Bevel gearboxes GK 10.1- GK 40.1

AUMA India Bevel Gearboxes are designed to operate all types of rising or non rising stem valves and gate valves where thrust may or may not be taken by the gear box.

- Worm gear boxes GSD

AUMA India GSD type Worm gearboxes for without end stops are designed for multi turn applications.

7) Part turn gearboxes

- Worm gearboxes

AUMA India GS type are designed for rotation up to 135* with end stop from operation of Ball, Valves, Butterfly, valves Plug valves or 360* for operation of gates dampers etc.

- Lever gearboxes GF 63.2-GF 125.2 GF160- GF 315

GF series of gearboxes are specially used for actuation of Louvers, dampers and Butterfly Valves which require quarter turn application. Clockwise rotation at the input shaft results in clockwise movement at the lever.

- Worm gear boxes with Limit switch assembly GS 63.2-Gs 125.2, GS 160 GS 500

AUMA India GS type Worm gearboxes with limit switch assembly are designed for part turn application. Limit switch is provided for either indication of end position of valves or for generation or an end position signal for swivel movement of transmission room.

Service Profile

- Installation and commissioning.
- Training
- Maintenance
- Repair
- Provision of Spare Parts

Area of Operation

- Pune
- New Delhi
- Bangalore
- Noida
- Chennai

Infrastructural Facilities

The company is situated in peenya which deals with production of actuators and gear boxes. The materials which are required in production process are safely maintained in the separate warehouse. The raw materials which are required for the production are maintained in the separate shelf with certain code numbers and article number. The labors working in the production house are meant to wear safety shoes and jacket. The company provides canteen facility and lunch facility to all the employees. The company has divided its work on different section based on their talents. The work has been divided to the various workers depending upon various skills of employees.

Competitor's information

- Rotork India
- Limatorque India
- Marsh Automations

SWOT Analysis

Strength

- 1) Reasonable Price and Good quality

The goods which are provided to the customers or clients should be satisfied in terms of good quality of product and reasonable price to the customer by quick payment from clients.

2. Loyal to the customer

There is wide connection with customer where it is not concentrated on single customer.

3. Responsible

It provides support warranty and gives priority on the customer issue.

Weakness

1. Customer Understanding

2. Correction

3. Response

Opportunities

- 1 Developing Market
- 2 New Technology
- 3 Trade fair Programmers

Threats

- 1) Competitors
- 2) New regulation
- 3) Price war

Future Growth and Prospects

During the last 50 years the company has become the market leader in the field of electric actuators and value gear boxes supported by individual group members brand like AUMA, DREHMO, GFC, Haselhofer and SIPOS. From January 2015, AUMA now offers its comprehensive product and service portfolio for all the brands for single source. Their main prospect is to increase infrastructure in solar, water segment, drinking water etc.

CHAPTER 2

CONCEPTUAL BACKGROUND AND LITERATURE REVIEW

CONCEPTUAL BACKGROUND OF THE STUDY

INTRODUCTION

How much inventory should I hold? It is the major principle of supply of goods in the market. To satisfy the needs of the customers the company should make use of enough stock. There should be right quantity of stock to satisfy the customer by minimizing the cost. It will be complex when there will be multiple storage to be maintained. The best way to understand how much stock you should have is determinant how much it costs you. It is very important what types of costs are involved.

There must be proper accuracy of stock that when the stock records are wrong then there will be problem. To manage a better inventory level of the stock we should follow the methods like vendor managed inventory, postponement logistics etc. In our company, there are certain items like spare parts etc.

In this concept, there are various factors implementing effective inventory management system to understand fully how to design and develop a software which provides better services for their current problem. Certain challenges will be faced by the inventory management which provides better solution. The solution requires proper analysis, development of systematic to the problem in general.

To satisfy the productivity level, they should satisfy the needs of the inventory level without any risk.

The work evaluation will provide a detail about Inventory Management that why the business needs to achieve the inventory benefits and objectives, intentions with best practices in inventory management. Then there will be detailed conversation on the future inventory management.

Inventory management

Inventory means managing of materials on it, or it is anxious with procurement, storage handling, and usage of inventory so as to certify availability of inventory when needed, provide

suitable cushion for contingencies and denying same for the maximum economic benefits and minimizing wastage and losses. “Inventory is the life blood of every manufacturing business”.

For every successful business, there should be optimum way of managing inventory. Inventory is one of the major assets for every business considering manufacturing, wholesale or retail sector. The goods which are available as per demand of the customer should be fulfilled as per company policy without any unnecessary costs and risks. The inventory level of the company depends upon proper usage and sale of the finished goods.

Types

Inventory can be classified in terms of different types: -

I. Raw materials

These are the elements which are converted into components or product. Manufacturing process is applied to raw material to produce desired finished product. The business gives proper weightage for the raw material as an inventory to protect any stoppage in production planning. The raw materials which can be offered with price discounts on bulk purchase guard against market storage situation.

II. Work in Progress

It is partly completed goods on the shop floor. These are the items which are in the process of being converted into finished product. These are also called as semi- finished goods. The inventory level should be kept low as possible. Since a lot of money is sterile over a period of time otherwise it would achieve better return. Speeding up the manufacturing process, proper production planning customer and supplier system integration can diminish the level of WIP.

III. Finished Goods

Goods completed but not yet sold. These are the items which are already ready for sale or consumption. These goods have been inspected and have been passed final inspection requirement so that they can be transferred out of WIP into finished goods inventory. Any item that does not have a parent can be classified as finished goods.

How Inventories are evaluated

1. LIFO (Last in First Out) Method

It is the method where the last item of the inventory is first one to be used for the determination of value of inventory. In other words, the last things of inventory are purchased and the first one will be sold. Using this method, it helps to moderate and manage the inventory which can get the tax advantageous and it can increase the tax liability. It helps to keep the track of cost and value the inventory.

This method is used only in United States where or which is governed and established by GAAP. With the use of this method there are the chances of liquidation. It occurs if the current sales are higher than the purchase of inventory, as a result forces the liquidity which are not sold in the previous period.

2. FIFO (First in First out) Method

The goods which are manufactured at the first and they are to be sold in the first stage. In other words, the first item in the inventory are the first one to be used. Cost of older inventory is assigned to cost is assigned to ending inventory. Assets that remain in inventory are the most recent purchased or produced. At the first older goods are removed from inventory. It helps to condense the inflation where the older goods are sold at current and inflation and marked price. This method is very helpful in cost flow statement. Throughout the time of production, the finished goods items are sold where they recognize as expense. The value of total inventory decreases when inventory has removed from company ownership.

3. Average cost Method

It is a method of transfer of inventory cost to sales units which are divided by number of units available to determine per unit cost prior to each sale and then it is multiplied by units sold to yield cost of the sale. The customer has to deal with product offered by the businesses and inventory should be bought from the manufacturer and supplier depending upon the price of the product. It is the least uncomfortable of all method. In this method, income cannot be easily manipulated. Companies which sell the product that are identical from each other to find it difficult and find the cost associated with individual units. With the large item of inventory, it consumes time to track individual item.

4. Specific Cost method

It is a method of keeping path of all items in all inventories. These methods are often used for large items such as furniture, or vehicle. These methods are appropriate to those industries which carry individual job or contract against specific orders. This method is unrealistic to use if purchase and issues are frequent and the material issue cannot be identified.

Common Terminologies

1. Ordering Costs

These are the expenses incurred to create an ordering process an order to suppliers. It includes EOQ of inventory items. If the order cost of business increases with number of order placed. There is an inverse relationship between inventory carrying cost and ordering cost which should monitor properly to minimize ordering costs.

2. Holding Costs

It is also called as carrying costs. It includes rent, salaries, and financial costs such as opportunity cost and inventory cost related to shrinkage, theft, insurance etc. It is responsible to change the requirement as per customer. When there are no transaction costs then the costs are minimized.

3 Shortage Costs

It means it reflects the loss of sale revenue or profit. There is the chance of losing the customer. It is associated with the running the materials.

4 Lead Time

It is the time period between placement of order and deliver of order. It is the delay applicable for inventory control purposes. It is the supply delay, or time taken by the supplier to deliver the goods once the order is placed and the reordering delay which is until the ordering opportunity arises again.

5 Bin Cards

A document records the status of a goods held in a stock room. A distinctive retailing business with a large stock room will use a bin card to record a running balance on stock on hand, in addition to information about problem associated with stock items.

Inventory policies

1. EOQ (Economic Order Quantity)

It explains that when we order the goods how much precisely inventory should be bought. If we buy little and if the demand of the product increases this may not be available to the customer then the customer may reject the vendor to purchase from them. If the goods are too much which incurs more shortage costs, where the product can be obsolete. It is one of the oldest models which were developed by Ford W Harris in 1913.

It says that when the demand for the product is constant over the year and each new order is delivered when inventory reaches to zero. It helps to minimize the sum of holding and ordering costs. There is the fixed cost for each order placed for number of units to order so as to minimize the total cost associated with the purchase, delivery and storage of goods.

It is one of the important tools for management to minimize the cost of inventory and the amount of cash tied up with the inventory balance. Inventory is one of the largest asset balance owned by the company and they need to carry sufficient inventory to meet the needs of the customer. If EOQ can help to minimize the inventory, then the cash savings can be used for some business purpose. There are several variations which depend upon the assumptions made on the inventory system. As order size increases fewer order are required causing the order cost to decline whereas the average amount of inventory on hand will resulting in an increase in carrying costs.

2. ABC Analysis

ABC Analysis is a business tool used for segmenting inventory. It is a method which provides mechanism for identifying items that will have significant impact on overall inventory costs. Not all parts are created equal and not all parts require the same management action. It also helps to identify those parts that need the most attention. It is also used as a tool for determining what policies and method are used for other related activities such as procurement. It is suggested that inventories of the organization are not at all equal. We are excising the control of materials into 3 categories.

“A” Category: - It is having high costs or a complex part which requires more attention. It has few high impacts which are included. It is highly important materials because they use less quantity of 10% having 70% of value. It is a constant control where there will be strict control, budgets, evaluate ratio.

“B” Category: - It is a moderate impact item where there are automated controls. It is moderate important materials because there is a constant value and quantity of materials used for 20%. It is need-based materials.

“C” Category: - It is a minor impact which reduces wastages, time and attention. It is a least important material where the value of the material is 10% where 70% of quantity is used. It has little control over them and focuses on the saving associated costs.

Advantages of Inventory Management

Cost Savings

The inventory of every organization comprises of various maximum investment with workforce to maintain in the best possible manner by avoiding unnecessary wastage of inventory. If the goods are stored in their own warehouses then there is the chances of cost savings in inventory.

Saves Time

If the inventory records are managed in a systematic way, then there will be good advantage where the deal will be saved where the capital will be properly utilized which helps to save time.

Increases Efficiency

With the help of inventory system, it increases the efficiency by decreasing the tax and there will be automation on the records maintained which increases the information and with the help of software many prerogative work ore done like collecting data, printing invoice.

Warehouse Organization

The business distributes the goods to retailer by organizing warehouses. The profit can be earned with the demand where the warehouses are managed in a systematic manner. If the goods are stored in a warehouse in bulk quantity then it can be managed properly.

Data security

Since the records are automated the materials which are saved and gets the records of availability of raw materials in the warehouses which will be secured and which will be not in loss due to theft.

Disadvantages of Inventory Management

Expensive

It makes the business more efficient but all this come at a cost where you will definitely pay for it.

Complexity

The use of inventory makes quite easy but it requires special training session and manner should be added in order to successfully operate this system

Literature Reviews

1. Bansal (1976) “A case study on material management in BHEL Bhopal unit” explains that the need for automatic replenishment system in undertaking the study in ABC analysis and EOQ techniques in inventory control. He focuses on the accumulation of surplus stores and absolute stores will be no longer required to be disposed as early as possible for the best price. He further explains that there was a monthly class wise inventory statement for control of unnecessary usage of stock and spares which happens due to misappropriation of spares and consumption levels.

2. Sambashiva Rao K (2002) “A case study with special reference to Hindustan Shipyard Ltd Vishakhapatnam on his study on Material management in Public Sector Ship Building Industry explains that the performance of material management and identifies some problem faced by the material management in engineering industry. It involves the documentary evidences and survey of expert opinion. He evaluates the existing purchasing system and lead time involved in procurement of materials and suggests the long lead time should be reduced. He also highpoints some of the problem in material management like delay on the part of customers in supplying their own material, existence and discarding of surplus and non-moving items undue lead time and extreme dependence on imports. According to him the administrative and procurement lead times on the company on the higher side due to peculiar nature of industry.

3. Hari R Swami (1999) in his research work in material management in public undertakings evaluates the performance of material management in the central public undertakings in Rajasthan. The study covers a variety of aspects of material management from 1977-78 to 1981-82. It includes questionnaire interview on the spot study and desk work technique etc. It is applied that the cost of material accounts for more than 50% of total production of the study. The study reveals that the lead time in the selected public enterprises is significantly long and suggests the decrease of organizational lead time by expediting purchase matters. He suggests that inventory worth can be condensed by adopting an integrated system of material management, appointing trained and qualified inventory managers, reducing lead times and setting and regulating consumption and stocking norms of raw materials and by applying modern techniques.

4. Ram Krishna Rao (1977) “Inventory control in public sector units” highlights the problem on inventory control and classifies the cause of inventory accumulations as internal and external. According to him Unrealistic Government policies with regard to import license and erratic delivery schedule and long lead times are responsible for inventory accumulations.

5. Dr. Mohammed Shafi (2014) “A research review of management inventories in textile industry” in Singaporean journal of business economics and management studies explains the performance of inventory management in textile industry which increases the level of business and optimize the size of inventory for smooth performance. There are various methods of inventory models, various terminologies to understand the concept which one is better to increase profitability. It is also concerned about proper maintenance of inventory as per the future demand of the products.

6. Dr. Ashok Kumar Panigrahi (2013) “Relationship between Inventory Management and profitability” in Asian Journal of Marketing and Management review clarifies and gives the depth review on the inventory management practice and its impact on working capital efficiency. Its main objective is to provide the best customer service within the lowest inventory cost. They have used certain data by applying through certain regression concepts. Its main purpose is to examine the relationship between inventory conversion period and firm’s profitability.

7. Balkrishna V Selvaraj (2014) “Inventory Management of Cement industries” explains about how to manage inventory with the objective of evaluating and examining the inventory with 5 samples. The samples indicate through accounting and statistical tools. They have compared the inventory ratio of 5 different companies for 10 years which have proven that relation between the cost of goods sold and inventory which is highly positive and concluded as satisfactory.

8. SW Pereria emphasizes on Spare parts Management transport undertakings materials budgeting has strained on spare parts Management Transport undertakings material Budgeting. He states that more than lacks of buses will be owned either by Government or Quasi Government undertakings. He suggests that extending the life of the vehicles by proper use of spares which would therefore would be important. He also scares that the financial resources and low internal generation of funds in the transport sector, it becomes high level of inventory levels in material management.

9. Eleonora Kontus (2014) “Management of Inventory in Company” explains about dependency between company level of inventory and profitability. The article has been calculated as per the statistical formula. The aim of the paper is to contribute the analysis with inventory and profitability where higher inventory costs results in increased costs and contributes for their net earnings.

10. P.C Basu in his paper ‘better Stores management-An urgent necessity for Industrial development of India’. Has confirmed the planned stock of raw materials is very important for carrying on production function efficiently. He observes that allocated importance has not been close to the aspect of Inventory Management in India until now and has stated that such a situation has arisen mainly because of the fact that the managers of the Indian Industries in general are not aware on the impact on the cost structure of the commodities produced by them and it results from the mismanagement of Raw materials Inventory. He has also stated the events to achieve the objectives such as efficient planning of procurement and storing functions and adopting measures of cost control in the area of purchasing, storing and consumption.

11. Moon, Ilkyeong (2001) published the paper on the titles “Inventory Management and Production planning and scheduling” which explains about the techniques of stock control and manufacturing preparing released in 1979 and 1985. Bob Pyke became a co-author for this version and performed the key version in compromising significant up to date of several actions such as supply chain management multi echelon stocks, just in time and ERP.

12. Stephen A Takim (2014) “Optimization of Inventory controls and Management in Manufacturing Industry” identifies about the effective inventory management and control using flour mill company. It helps to learn about the ability to achieve inventory level with the measurement like inventory ratio. The research helps to investigate effective inventory controls which identifies the performance of the inventory by applying Just in Time Method and taking the samples and getting the results through the questionnaire and through accounting analysis.

13. K. Nisar Ahmed in his study “Review of Inventory control at National Cooperative Sugar Mills Ltd” has undergone different technique used in the organization with favor to inventory control and discover to slow moving items and stock outs for three years.

14. C.D.M Dinakaran in his study” A study of Inventory control of stores and spares in centenary Mills Madura coasts” has suggested that how the inventories are maintained to provide better services to the user department in Centenary mills Madura coasts.

15. P. Radhakrishnan in his study “**Study of slow moving and non-moving inventory in BHEL**” has explains to find out the total number of slow moving and nonmoving inventory items which has been arranged in book value and suggested the feasibility of ordering them.

16. Dr. Srinivasa Rao Kasisomayajula (2014) “**An Analytical study on Inventory Management in commercial vehicle Industry in India**” explains about the association between inventory and sales of the company where it helps to analyze size growth of the inventory during the period of the study.

17. Adishesh Lyer discusses the method on the valuating the inventories and feels that the work in progress inventories has been valued as per cost account ledger and instead of physical valuation.

18. Gour Chandra Mahanta in 2013 suggest that inventory model for items received with imperfect quality and shortage backordering in the unclear sense, where upon the arrival of lot transmittion performance is performed and the item of defective quality of goods which are sold at discounted price, prior to receiving the next shipment. It limits optimal backordering quantity and optimal order size to maximize annual total profit.

19. Abdul –Nasser El- Kassar in 2009 suggests that EOQ model with imperfect quality are sold at a discounted price and the demand for both perfect and imperfect quality terms are continuous during inventory cycle.

20. Ceder P (2005) Considers necessary stock control model highlighting three sorts of requesting cost capacities, connecting each kind of capacity with an ideal choice manage having a specific structure.

21. Diana Xia (2006) Consider a model with capacitated “in-house” creation and an incapacitated “outsourcing decision”. I their default setting the cutoff level waves self assertively and their settled cost of outsourcing and also for every unit cost.

22. Crazy Whitaker (2002) The main optimality verification we have found that permits a requesting cost work with any number of direct pieces in it under the limited skyline add up to expected cost model.

23. Anonymous (2003) Inventory Management was explained as the suitable plans to keep away from bottlenecks of inventory and avoid safety margins for the members of the

panel/channel. Further, the buyer need the product and places the order. Inventory department knows when to order and how much will the information accessible.

24.. **Crary Whitaker (2002)** The main optimality proof we found that permits a requesting cost work with any number of direct pieces is in under the limit skyline add up to predictable cost paradigm.

CHAPTER 3

RESEARCH DESIGN AND METHDODOLOGY

Statement of the problem

The problem of poor quality product, unnecessary delay of product, for the useful inventory control system. There will be a continuous measurement where manager should monitor the inventory position. In this system, demand is uncertain and lead time also varies. The managers maintain safety stocks to avoid shortage. To minimize the total cost there should be proper order quantity and reorder points.

Proper inventory management is necessary for obsolescence, wastage of materials, deterioration. Their main aim is to improve on quality of product, savings in materials cost, increased production and large scale. The finance manager plays an important role in the management of inventory system.

There are the chances of wrong debit of raw materials, which results in decrease or increase in the inventory level of business. If the quality of the materials is not measured properly then the quality of the product will decrease. The materials required for the finished goods may be delayed due to which production of the goods will slow down. There are the chances of increase in the price of raw materials, where the price of the product will increase. With this entire problem, it says that as the raw materials are quickly available the inventory and production of the product will be up to the mark.

Need of the study

Inventory is an essential part of every organization. Optimal Inventory management is the ultimate goal of the inventory planner. In this section, there will be the cause of both financial impact and health of the business as well as effect business opportunities.

- To understand the price fluctuation of the inventory levels.
- To get the knowledge on the materials used for production process.
- Proper maintenance of inventory level as per demand for customer.
- To understand the inventory level to contributes the profitability of firm.

Objectives of the study

- To evaluate the EOQ of the selected raw materials consumed.
- To examine the consumption level of raw materials, WIP, and finished goods for 5 years.
- To study the inventory position for the period of 5 years.
- To study the inventory turnover ratio of company.

Significance of the study

The study on inventory system will help us in following manner. Some of them are: -

- It helps to get the knowledge valuating inventory, knowledge of material required for the production process.
- It helps to determine the costs of the inventory.
- It estimates the future sales of the business.
- The purchase procedure will influence the inventory level of the business.
- It will get the knowledge of proper selection of customer and vendors for the inventory purchase.

Scope of the study

1. This study has taken the data of 5years. I.e. 2012-16.
2. It reveals to classify and study on the EOQ model, inventory position, and inventory turnover ratio for the past 5years.
3. The project has covered the EOQ model in AUMA India Pvt Ltd.
4. The data has been received from the finance department and stores department.
5. It helps to understand the position of sales and inventory, raw material turnover ratio, inventory conversation period, inventory holding period.

Research methodology

It is an analytical research where the inventory position is identified through tables and graphs.

Primary Data

The data can be collected through interactions and discussion with the executives working in division.

Secondary Data

The data can be collected through annual reports, magazines, published through the required information.

Hypothesis

Ho: - There is no significant relationship between low productivity and poor inventory management.

Hi: - There is the significant relationship between low productivity and poor inventory management.

Limitations

- The study was limited only to the engineering sector.
- The study was primarily concerned with inventory concepts.
- Some of the information was confidential.
- As it is an engineering sector it was very difficult to understand the inventory materials.
- More study on secondary data.

CHAPTER 4

ANALYSIS AND INTERPRETATION

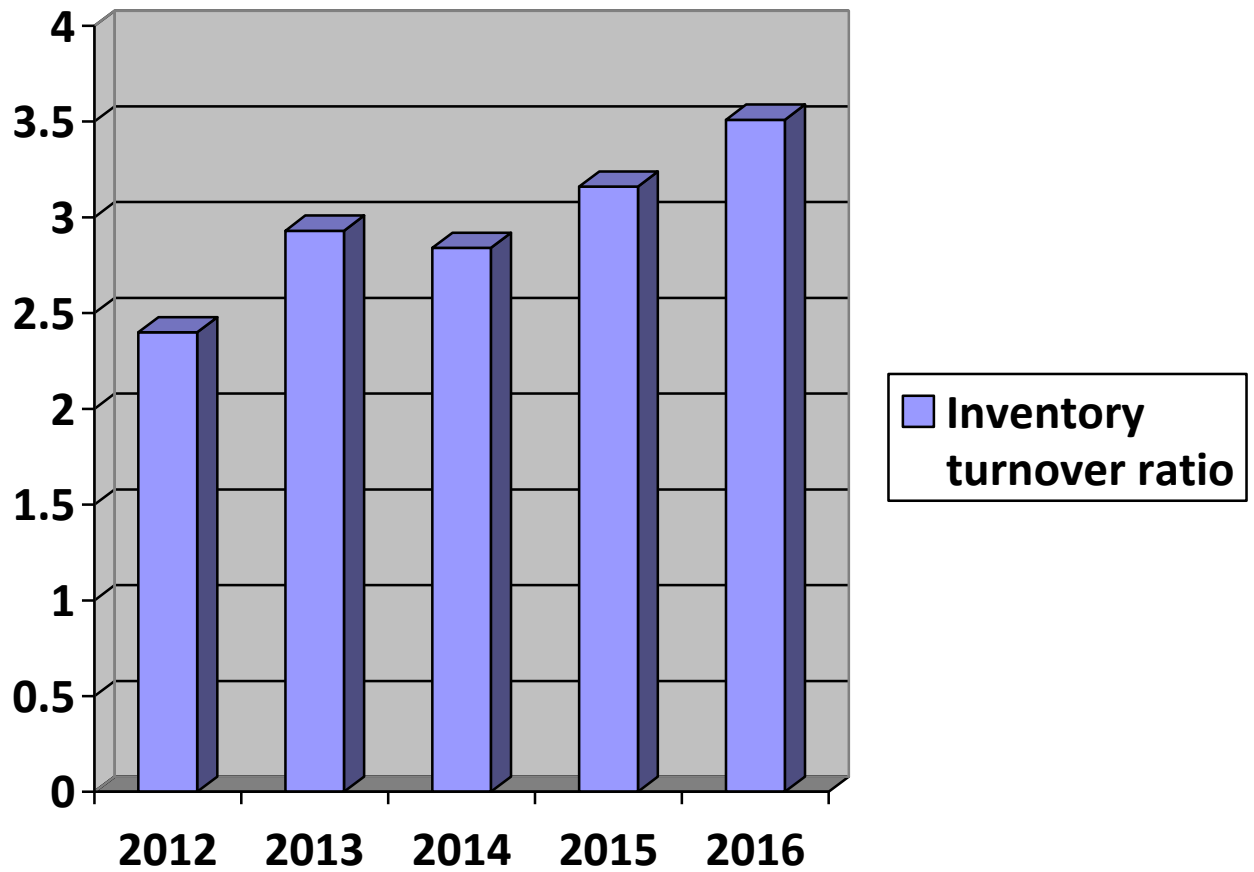
DATA ANALYSIS AND INTERPRETATION

4.1 Inventory turnover Ratio

S. No	Year	Cost of Goods Sold (in lakhs)	Average inventory (in lakhs)	Inventory Turnover Ratio
1	2012	5831	2430	2.40
2	2013	7354	2506	2.93
3	2014	7242	2546	2.84
4	2015	8174	2589	3.16
5	2016	9018	2533	3.51

Inventory turnover ratio= $\frac{\text{Cost of sales}}{\text{Average stock}}$

In the above table, it reveals about the turnover ratio of the company where in 2012 it was 2.36 which was increasing year by year but in 2014 it was slightly came down to 2.84 then it increased year by year and in 2016 it became 3.51. It explains that as turnover ratio of the inventory increases or high efficient inventory control, good sales policies, reputation in the market or if the ratio decreases then there will be less selling policy, over investment of stocks etc.



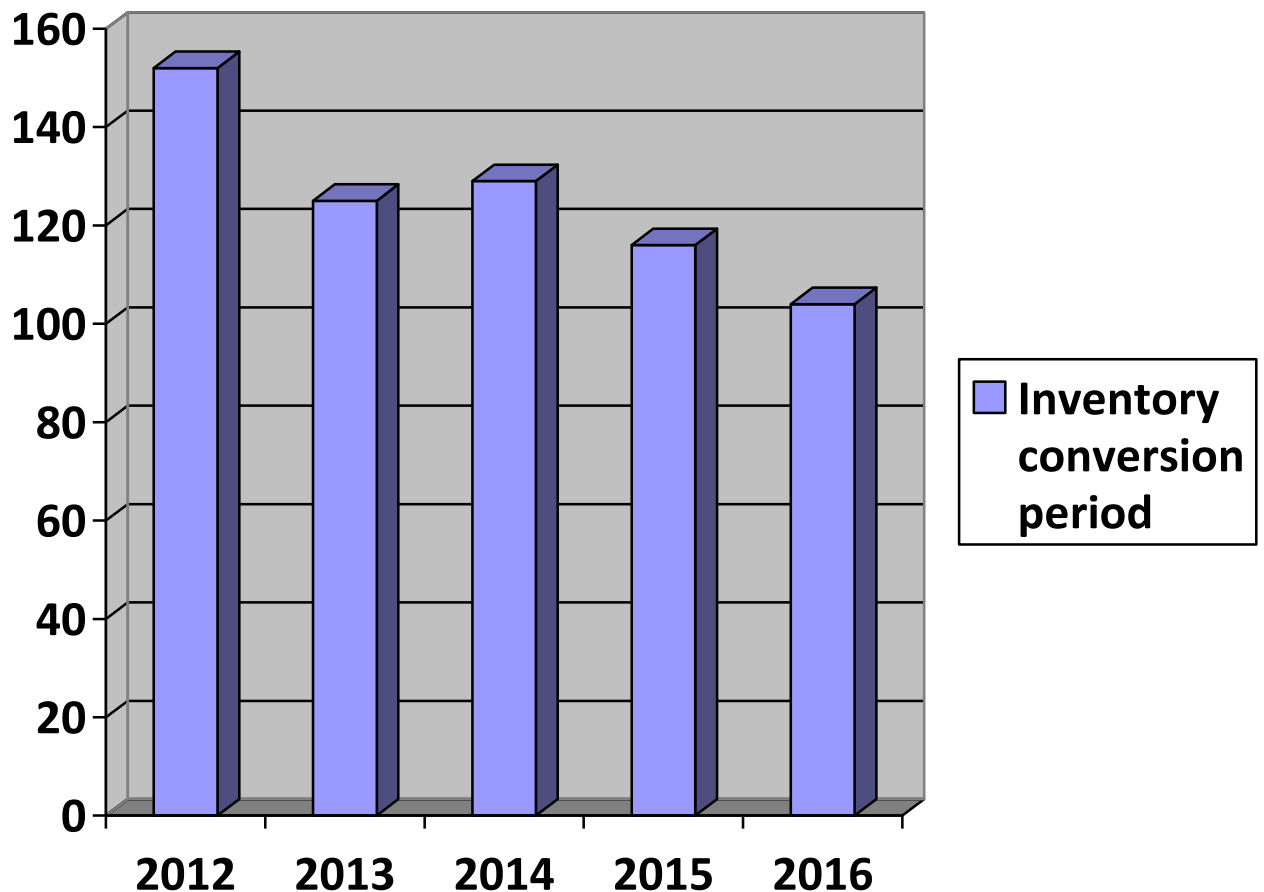
4.2 Inventory conversion Period

S No	Year	Inventory Turnover ratio	No of days in a year	Inventory conversion period (in days)
1	2012	2.40	365	152
2	2013	2.93	365	125
3	2014	2.84	365	129
4	2015	3.16	365	116
5	2016	3.51	365	104

Inventory conversion period= No of days in a year

ITR

In the above table, it reveals about how much days were taken to dispose the average materials. In 2012 the conversion period was 152 days and then for the further years it was decreased and it came till 104 days in 2016. As the days of the inventory conversion period decreases the manufacturing process tends to finish quickly and send it to the ultimate customer. In 2012, the conversion period was 152 days which took too long for completion of the product and selling it. By 2016, the days were decreased to 104 days which explains that the demand has been increasing and where the products are manufactured and sold for a short period of time.



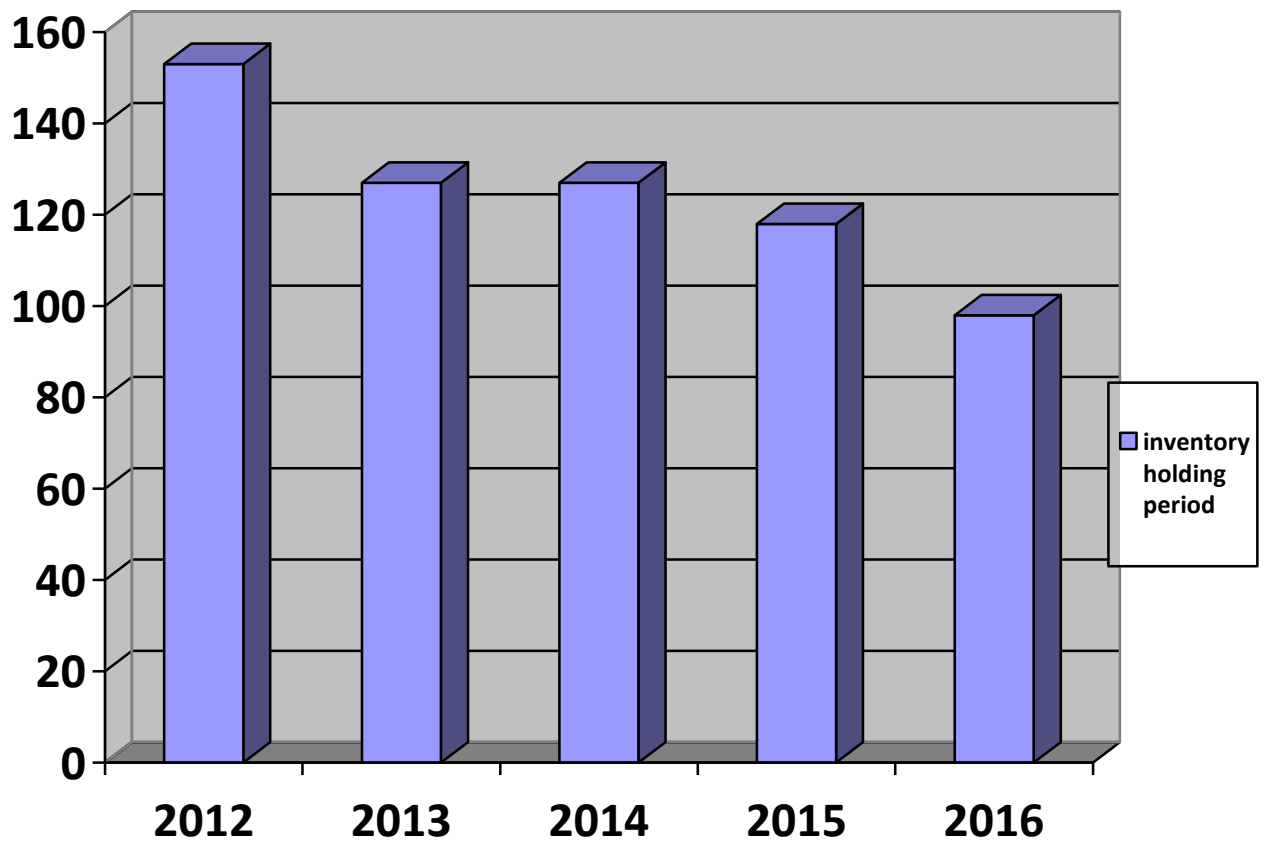
4.3 Inventory holding period

S.no	Year	Cost of Sales (in lakhs)	Inventory (in lakhs)	Inventory holding period
1	2012	5831	2444	153
2	2013	7354	2567	127
3	2014	7242	2525	127
4	2015	8174	2653	118
5	2016	9018	2413	98

Inventory holding period= $\frac{\text{Inventory} \times 365}{\text{Cost of goods sales}}$

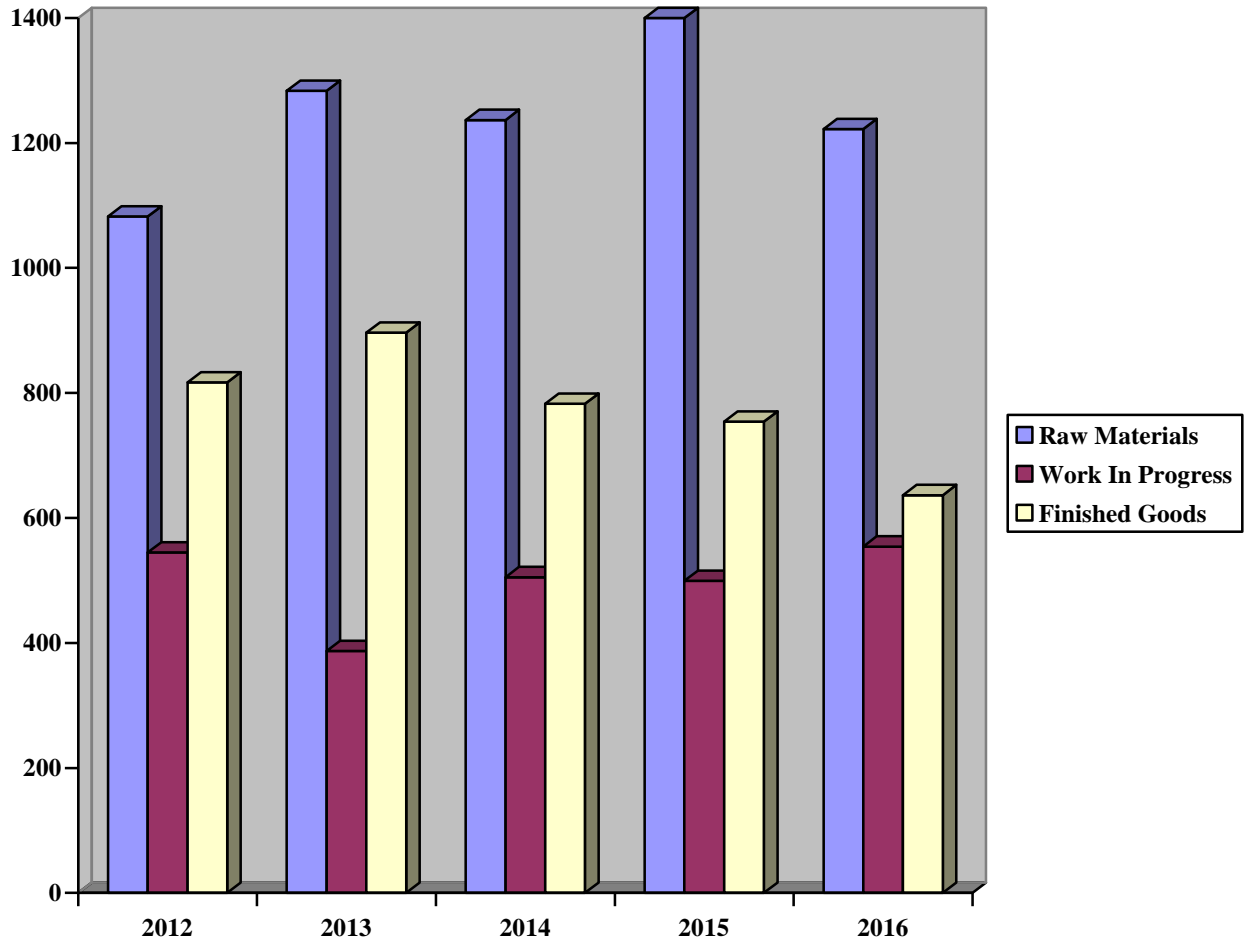
Cost of goods sales

In the above table, it reveals about the holding period of the inventory which is maintained by the business. In 2012 the holding period was 153 days which was higher compared to next 4 years. In 2016, it was decreased to 98 days. It explains that if the holding period is higher that indicates the unnecessary investment in the inventory which has been improving year by year.



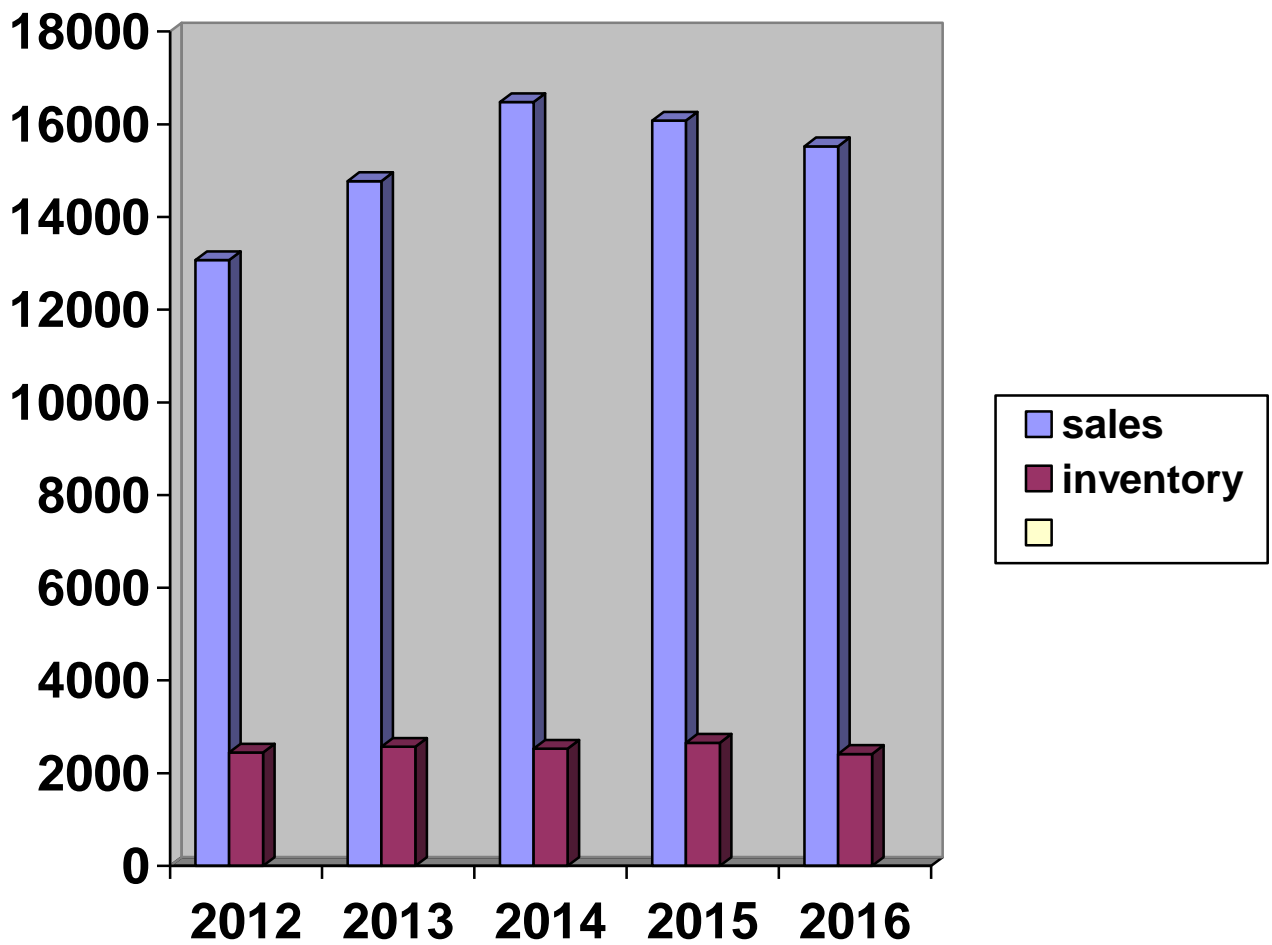
4.4 Value of Inventory (in lakhs)

S. No	Particulars	2012	2013	2014	2015	2016
1	Raw Materials	1082.47	1283.62	1236.72	1400	1222.02
2	Work in Progress	544.85	387.11	505.26	499.21	554.21
3	Finished Goods	816.70	896.64	782.61	753.94	636.43



4.5 Position of Sales and Inventory (in lakhs)

Year	2012	2013	2014	2015	2016
Sales	13069.04	14775.03	16481.08	16079.29	15526.08
Inventory	2444.02	2567.38	2524.60	2653.15	2412.67

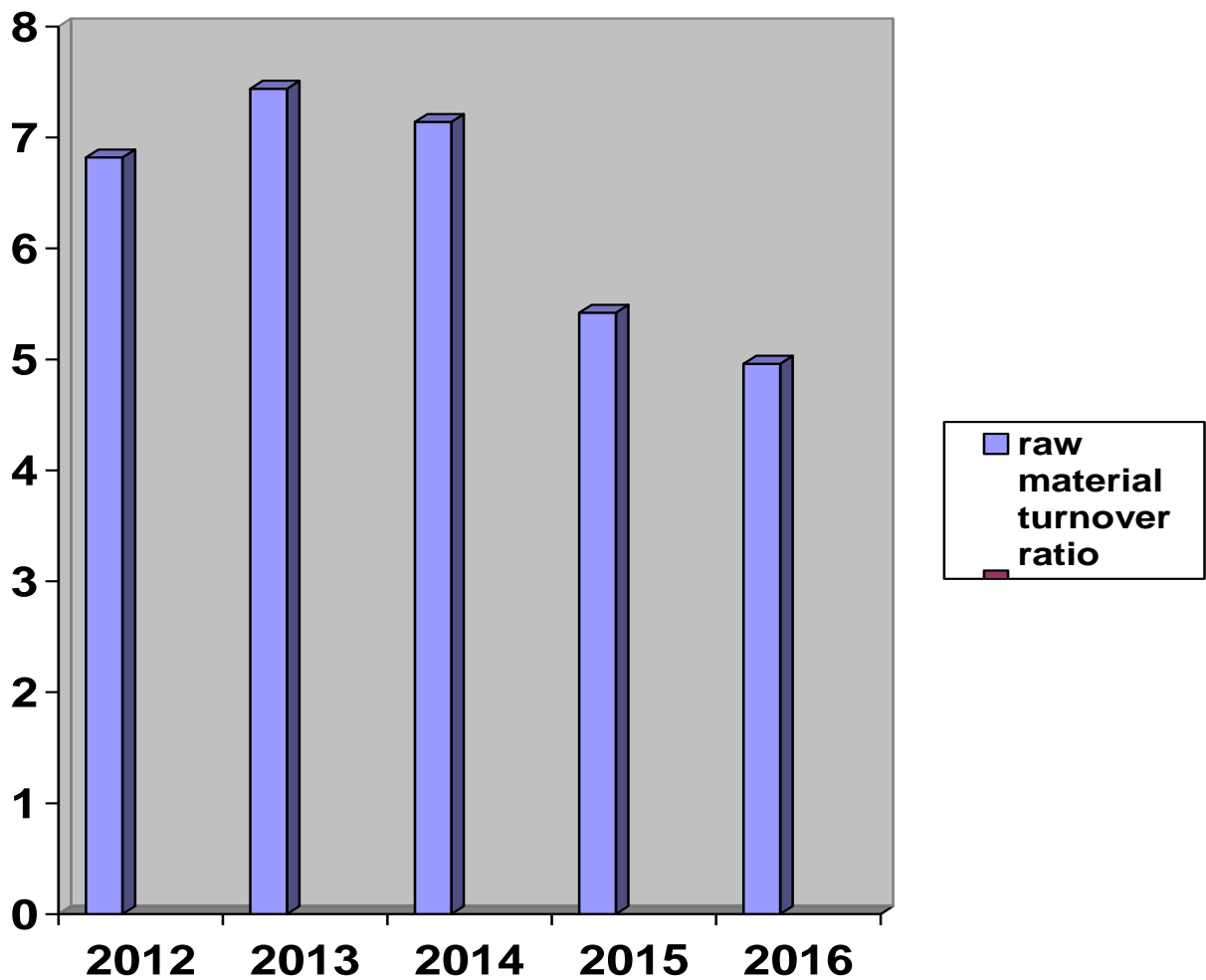


4.6 Raw material Turnover Ratio

Year	2012	2013	2014	2015	2016
R.M consumed (in lakhs)	8208.38	8807.39	9000.73	7140.85	6502.63
Average stock of Raw material (in lakhs)	1202.98	1183.05	1260.17	1318.36	1311.01
Ratio	6.82	7.44	7.14	5.42	4.96

$$\text{Raw material turnover ratio} = \frac{\text{RM consumed}}{\text{Average stock of raw materials}}$$

In the above table it explains about the raw material turnover ratio. In 2012, the ratio was 6.82 which was increased year by year of 2013 and 2014 with 7.44 and 7.14. Then it decreased with 5.42 and 4.96 in 2015 and 2016. It means in 2012, it explains that 6.82 times of the raw materials is consumed for the production. As in 2013, 7.44 times of the raw materials were consumed and the consumption level of the raw materials decreased till 4.96 in 2016.



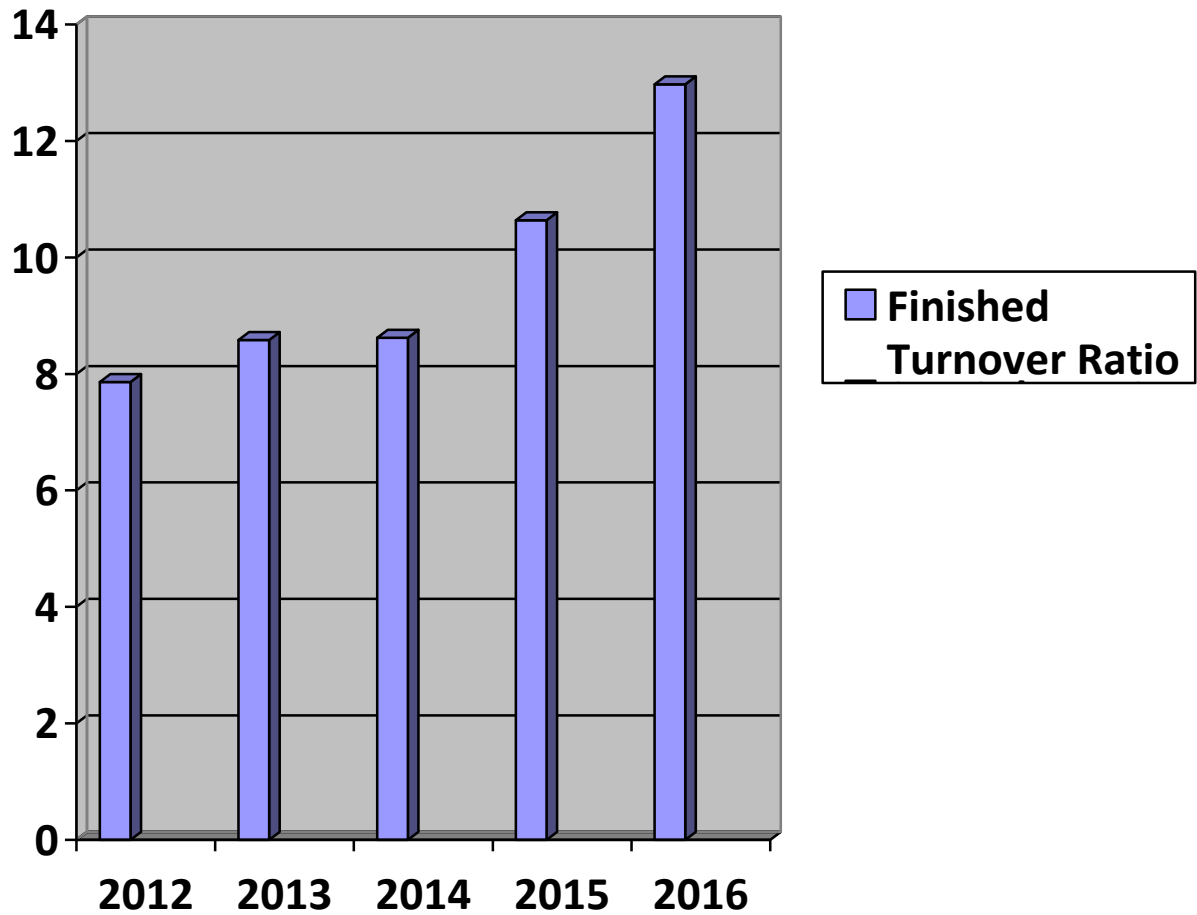
4.7 Finished Goods Turnover Ratio

Year	2012	2013	2014	2015	2016
Cost of Goods Sold (in lakhs)	5831	7354	7242	8174	9018
Average Finished Goods (in lakhs)	742.28	857	840	768.27	695.18
Turnover Ratio	7.86	8.58	8.62	10.64	12.97

Finished goods turnover ratio= $\frac{\text{Cost of goods sold}}{\text{Average finished goods}}$

Average finished goods

In the above table it reveals about the finished goods turnover ratio. In 2012, it was 7.86 which means the goods which are fast selling inventory. As following in 2013 it became 8.58 times the goods were sold to the customers. Then in the further year the goods were sold and in 2016 it came till 12.97 in 2016.

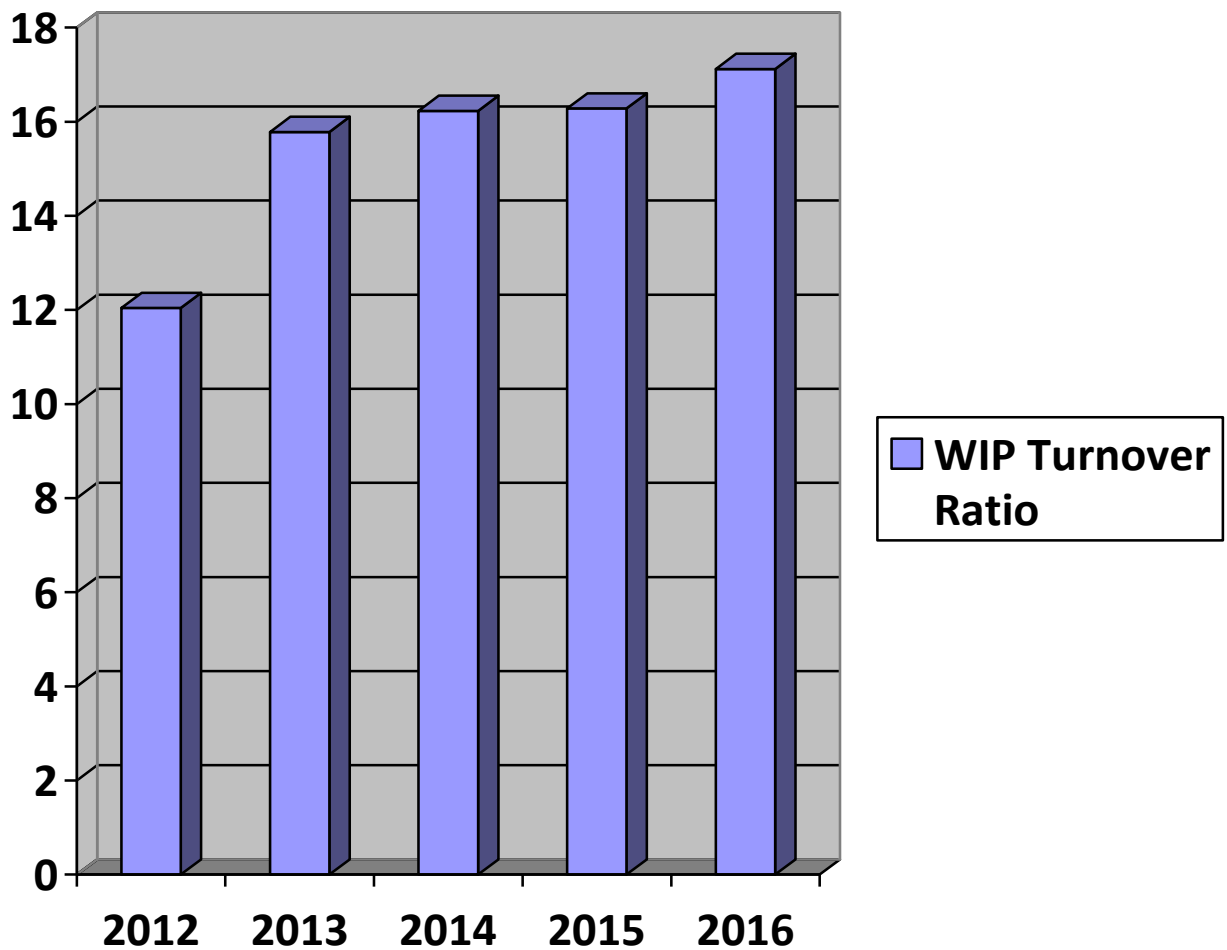


4.8 Work in Progress Turnover Ratio

Year	2012	2013	2014	2015	2016
Cost of Goods Sold (in lakhs)	5831	7354	7242	8174	9018
Average WIP (in lakhs)	484.23	465.98	446.19	502.23	526.71
WIP Turnover Ratio	12.04	15.78	16.23	16.28	17.12

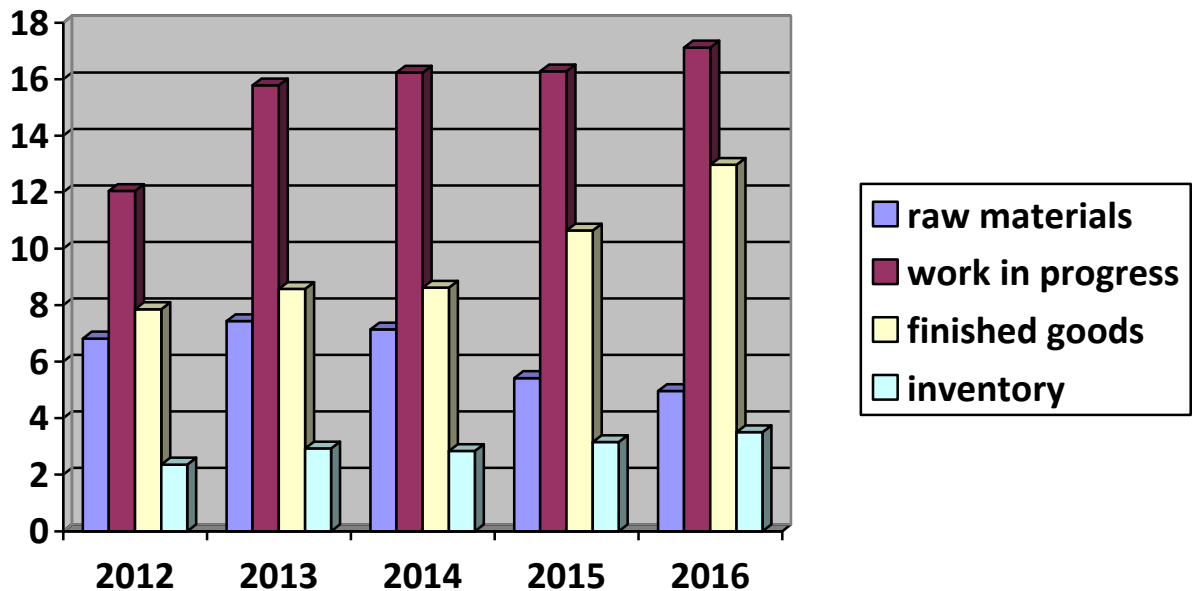
$$\text{Work in progress turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average WIP}}$$

In the above table it reveals about the ratios which are higher which indicates about the goods which have incurred more expenses like labor and overhead. In 2012, the turnover was 12.04 which was increasing year by year and in 2016 it came till 17.12. this explains about the expenses incurred for the product which were not yet finished.



4.9 Comparison of Turnover Ratio

Year	2012	2013	2014	2015	2016
Raw material Turnover Ratio	6.82	7.44	7.14	5.42	4.96
WIP turnover Ratio	12.04	15.78	16.23	16.28	17.12
Finished Goods Turnover Ratio	7.86	8.58	8.62	10.64	12.97
Inventory Turnover Ratio	2.36	2.93	2.84	3.16	3.51



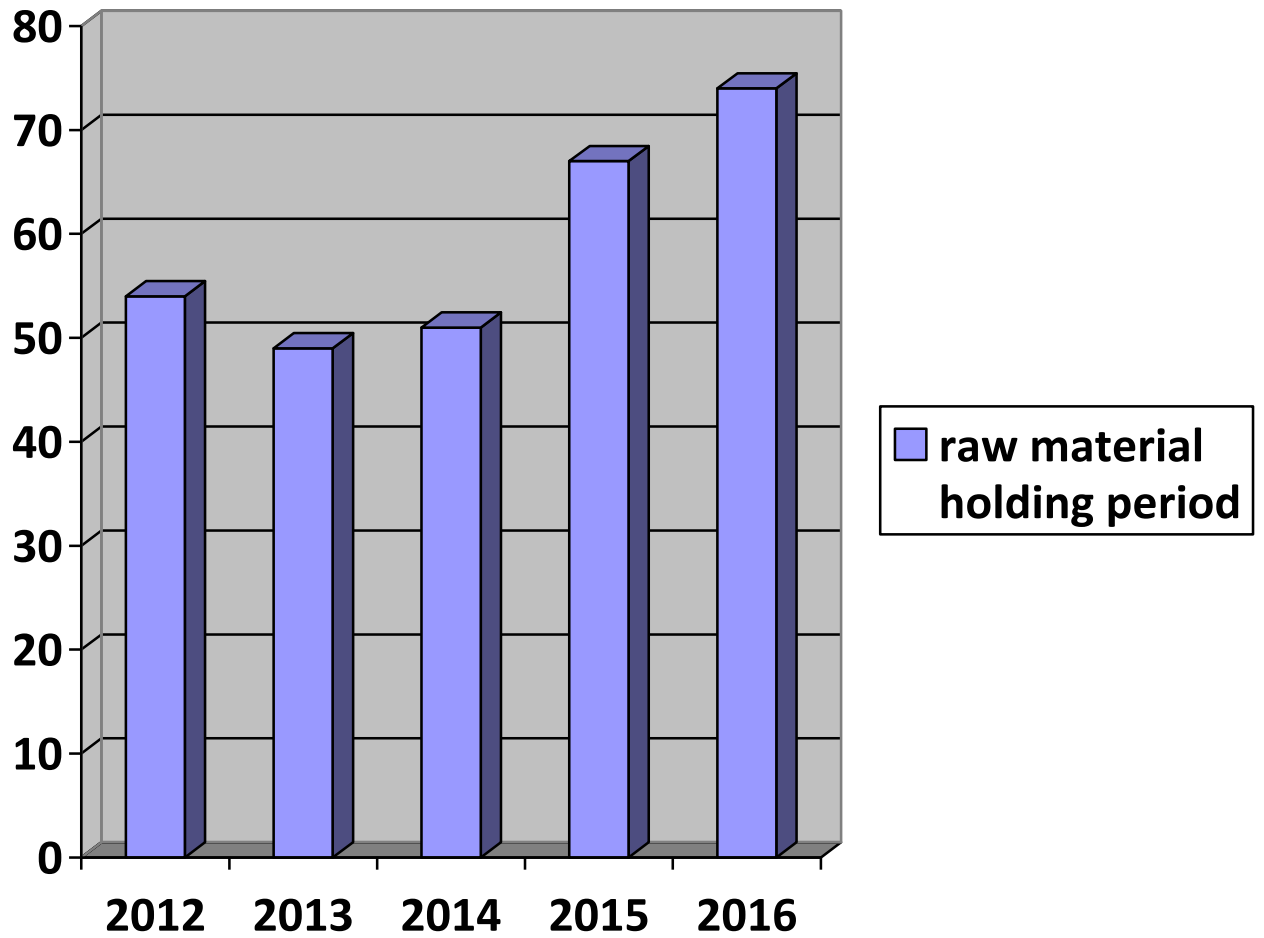
4.10 Raw Materials Holding Period (in days)

Year	2012	2013	2014	2015	2016
Days in a year	365	365	365	365	365
Raw materials Turnover Ratio	6.82	7.44	7.14	5.42	4.96
Raw materials Holding period	54	49	51	67	74

Raw materials holding period= No of days in a year

Raw material turnover ratio

In the above table it reveals about the holding period of the raw materials where in 2012 it was 54 days. It means the raw materials which are available in warehouses and the goods are sent for the production for these much days. Then in 2013 it was 49 days which increased from 51 days, 67 and 74 days in 2014, 2015 and 2016.



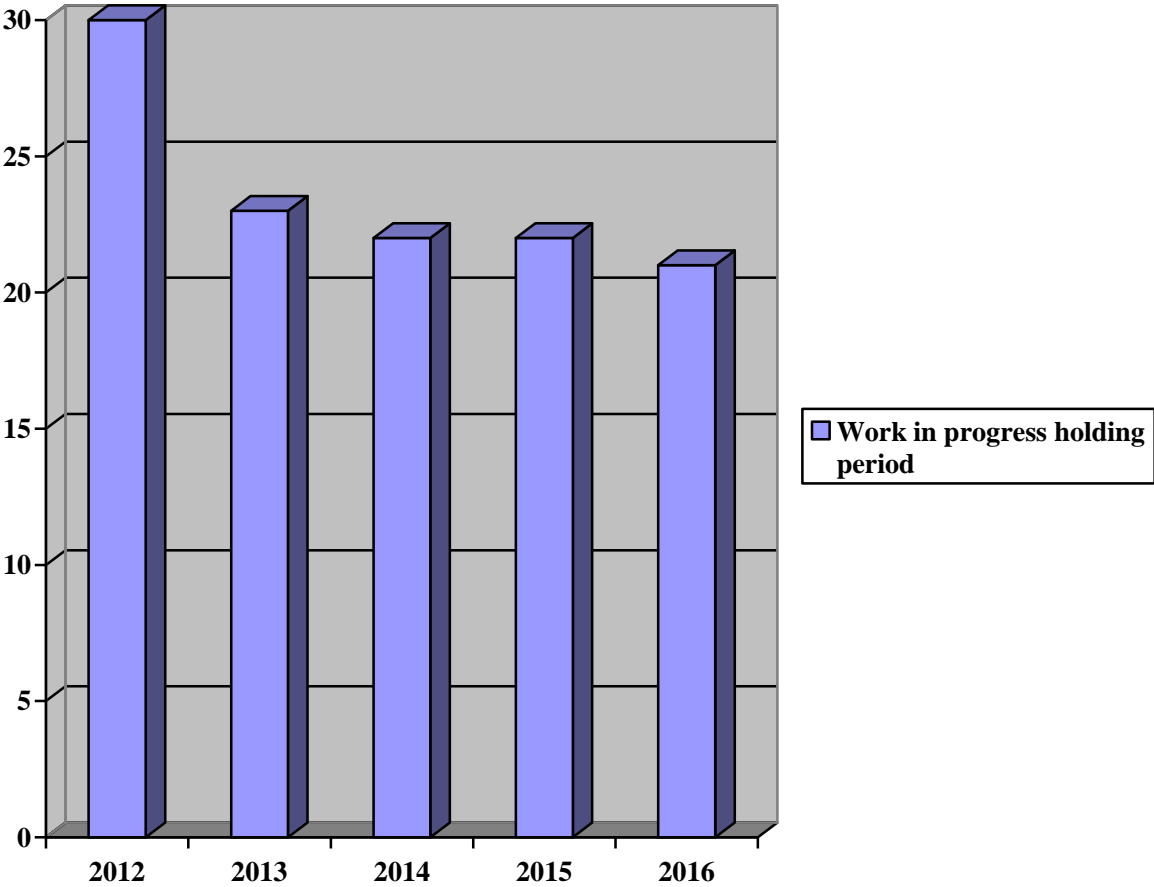
4.11 Work In progress holding Period (in days)

Year	2012	2013	2014	2015	2016
Days in a year	365	365	365	365	365
Work in Progress Turnover Ratio	12.04	15.78	16.23	16.28	17.12
Work in Progress Holding Period	30	23	22	22	21

Work in progress holding period= No of days in a year

Work in progress turnover ratio

In the above table it reveals about the holding period of the WIP. In this the days are low compared to raw materials holding period where it took many days for production. In this table the goods which are not fully produced which takes less time to complete the work. In 2012, it was 30 days which was decreased in 23 days in 2013 and 22 days in 2014 and 2015 and 21 days in 2016



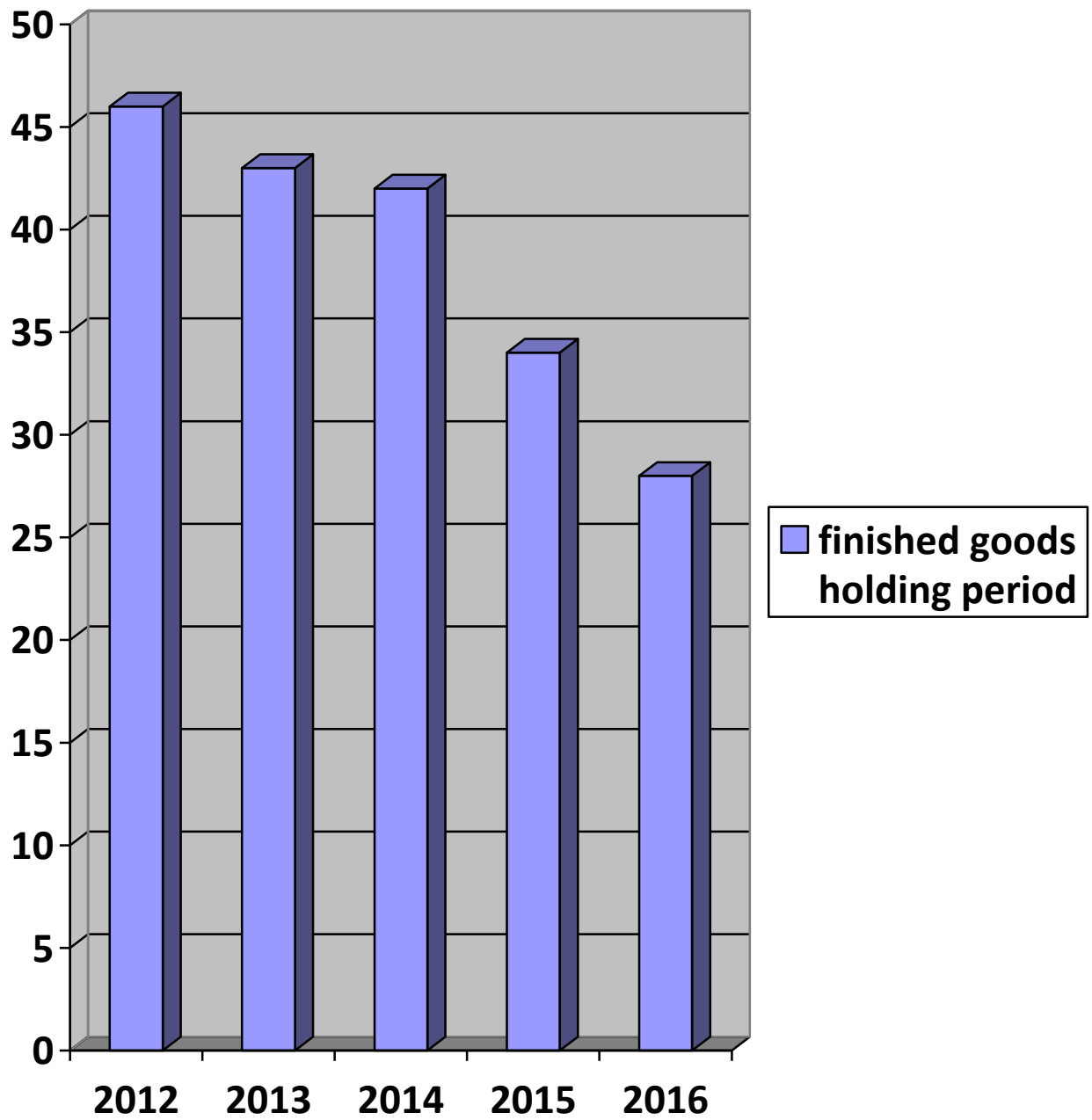
4.12 Finished Goods holding Period (in days)

Year	2012	2013	2014	2015	2016
No of days in a year	365	365	365	365	365
Finished Goods Turnover Ratio	7.86	8.58	8.62	10.64	12.97
Finished Goods holding Period	46	43	42	34	28

Finished goods holding period= No of days in a year

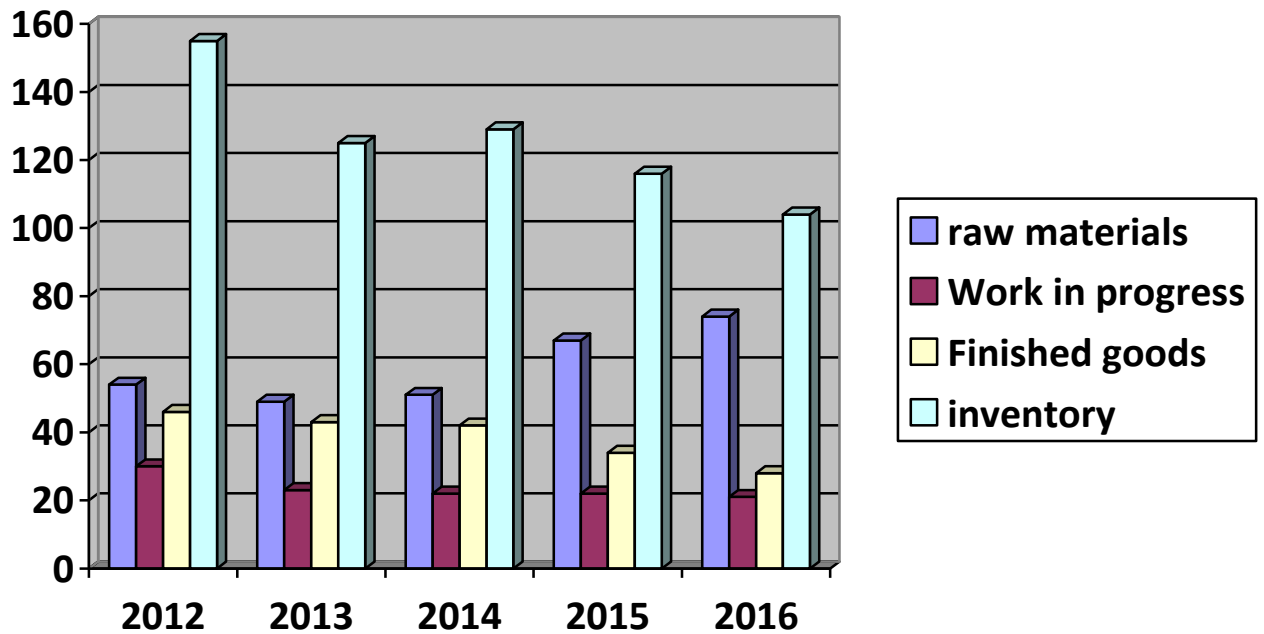
$$\frac{\text{No of days in a year}}{\text{Finished goods turnover ratio}}$$

In the above table it reveals about the holding period of the finished goods. In 2012, it 46 days to complete the finished goods and the sold to the customer. In 2013, it became 43 days than 42 days in 2014 where the days were decreasing so it results about the quick work flow of the workers and trying to fulfill the needs of the clients. Then in 2015 & 2016 it became as 34 and 28 days.



4.13 Comparison of Inventory Holding Period (in days)

Year	2012	2013	2014	2015	2016
Raw materials	54	49	51	67	74
Work in Progress	30	23	22	22	21
Finished goods	46	43	42	34	28
Inventory	155	125	129	116	104



4.14 EOQ ANALYSIS FOR THE YEAR 2013-14

Annual Consumption	605
Ordering Costs	14.87
Purchase price for the year	743.61
Carrying Cost	11.15
EOQ	41

Calculation of EOQ

$$A= 605$$

$$O= 14.87$$

$$C= 11.15$$

$$\begin{aligned} \text{➤ EOQ} &= \sqrt{2AO/C} \\ &= \sqrt{2*605*14.87/11.15} \\ &= 41 \end{aligned}$$

➤ Number of orders for the year= Annual Demand for the year/EOQ

$$= 605/41$$

$$= 14.75 \text{ or } 15 \text{ orders}$$

➤ Total Annual Cost= Carrying Cost + Ordering Cost

$$=3327.88 + 223.05$$

$$=3550.93$$

➤ Carrying Cost= Carrying Cost per ton*Average inventory

$$= 11.15*302.5$$

$$=3327.88$$

➤ Order Size= Annual Demand for the year/No of orders

$$=605/15$$

$$= 40$$

➤ Ordering Costs=Cost per order*No of orders

$$=14.87* 15$$

$$=223.05$$

4.15 EOQ ANALYSIS FOR THE YEAR2014-15

Annual Consumption	1359
Ordering Costs	14.66
Purchase price for the year	733.10
Carrying Costs	11
EOQ	61

Calculation of EOQ

$$A= 1359$$

$$O= 14.66$$

$$C= 11$$

$$EOQ=61$$

➤ $EOQ=\sqrt{2*1359*14.66/11}$

$$= 61$$

➤ Number of orders for a year= Annual Demand for the year/EOQ

$$= 1359/61$$

$$=22.27$$

➤ Total Annual Cost= Carrying Cost + Ordering Cost

$$=7474.5 + 326.48$$

$$=7800.98$$

➤ Carrying Cost= Carrying Cost per ton * Average inventory

$$=11*679.5$$

$$=7474.5$$

➤ Order Size= Annual Demand for the year / No of orders

$$=1359/22.27$$

$$=61$$

➤ Ordering cost = Cost per order*No of orders

$$=14.66*22$$

$$=326.48$$

4.16 EOQ ANALYSIS FOR THE YEAR 2015-16

Annual Consumption	1581
Ordering Costs	12.71
Carrying Costs	9.53
Purchase price for the year	635.60
EOQ	65

$$A=1581$$

$$O=12.71$$

$$C=9.53$$

$$EOQ=65$$

$$\begin{aligned} \text{➤ } EOQ &= \sqrt{2 * 1581 * 12.71 / 9.53} \\ &= 65 \end{aligned}$$

$$\text{➤ } \text{Number of orders for a year} = \text{Annual Demand for a year} / EOQ$$

$$= 1581 / 65$$

$$= 24$$

$$\text{➤ } \text{Total annual cost} = \text{Carrying Cost} + \text{Ordering Cost}$$

$$= 7533.46 + 1581.12$$

$$= 9114.58$$

$$\text{➤ } \text{Carrying Cost} = \text{Carrying Cost per ton} * \text{Average inventory}$$

$$= 9.53 * 790.5$$

$$= 7533.46$$

$$\text{➤ } \text{Ordering Cost} = \text{Cost per order} * \text{No of orders}$$

$$= 12.71 * 24$$

$$= 305.04$$

4.17 EOQ ANALYSIS FOR THE YEAR 2016-17

Annual consumption	220
Ordering costs	14.16
Carrying costs	10.62
Purchase price for the year	708
EOQ	24

$$A=220$$

$$O=14.16$$

$$C=10.62$$

$$EOQ=24$$

$$\begin{aligned} \text{➤ } EOQ &= \sqrt{2 * 220 * 14.16 / 10.62} \\ &= 24 \end{aligned}$$

$$\text{➤ } \text{Number of orders for a year} = \text{Annual demand for a year} / EOQ$$

$$= 220 / 24$$

$$= 9.16 \text{ or } 10$$

$$\text{➤ } \text{Total Annual Cost} = \text{Carrying cost} + \text{Ordering Cost}$$

$$= 1168.2 + 141.6$$

$$= 1309.8$$

$$\text{➤ } \text{Carrying Cost} = \text{Carrying Cost per ton} * \text{Average inventory}$$

$$= 10.62 * 110$$

$$= 1168.2$$

$$\text{➤ } \text{Ordering Cost} = \text{Cost per order} * \text{No of order}$$

$$= 14.16 * 10$$

$$= 141.6$$

\

4.18 Table showing the EOQ Analysis

Year	Units	Ordering Cost	Carrying Cost	EOQ
2013	605	14.87	11.15	41
2014	1359	14.66	11	61
2015	1581	12.71	9.53	65
2016	220	14.16	10.62	24

In the above table it reveals about the increase in the EOQ of 41 units in 2013 which was increased from 61 and 65 units in 2014 and 2015. Then it drastically decreased 24 units in 2016. As following to ordering cost and carrying cost in 2014 and 2015 the expenses were 326.48 and 305.04 rupees and carrying cost was 7474.5 and 7533.46 rupees. It happens depending upon the orders placed by the company. As per the orders taken the production is carried.

CHAPTER 5

FINDINGS, CONCLUSION AND SUGGESTIONS

FINDINGS

1. The inventory turnover ratio of the company was increased from 2.40 to 2.90 in 2012 and 2013. Then in 2014, it was decreased to 2.84 and then it increased with 3.16 and 3.51 in 2015 and 2016.
2. The inventory conversion period of the company was 152 days in 2012 which came to 104 days in 2016. In 2014, it was increased to 125 and in 2015 it was 116 days.
3. The inventory holding period was too high in 2012 compared to other year. In 2012, it was 153 days which was decreased to 98 days in 2016.
4. During the financial year of 2012 the value of raw materials were 1082.47 lakhs which was increasing up to 1500 lakhs till 2015. Then it was suddenly decreased to 1222.02 lakhs.
5. During the financial year of 2012, the value of WIP were 544.85 lakhs which was decreased in 2013 which was 387.44 lakhs. Then it was increased at 505.26 lakhs in 2014. Every year it tends to decrease and increase.
6. During the financial year of 2012, the value of finished goods was 816.70 lakhs and it was increased to 782.61 lakhs in 2013 and then it was decreasing year by year by 782.61 lakhs to 636.43 lakhs in 2014 and 2016.
7. Comparison of sales and inventory suggests that sales value in the year was 13069.04 lakhs in 2012 which was increasing year by year for which the inventory value was also increasing. Then it was decreased to 15526.08 lakhs in 2016. The sales percent was increased to 13.05% in 2014 and decreased up to 4.55% in 2016.
8. The raw material turnover ratio in 2012 was 6.82 which was increased by 7.44 in 2013 which was decreased up to 5.42 and 4.96 in 2015 and 2016.
9. The finished goods turnover ratio in 2012 was 7.86 in 2012 which was increasing year by year till 12.97 in 2016.

10. There was a holding period calculated on the raw materials WIP and finished goods. There was a holding period of raw materials which was increased from 2014 and 2016 at 51 and 74 days and it was decreased at 2013 at 49 days. The WIP holding period in 2012 were 30 days which was decreased year by year and it came till 21 days in 2016. The finished goods holding period in 2012 was 46 days which was decreasing and in 2016 it came till 28 days.
11. The EOQ Model was prepared on Housing Sa6 article. The annual consumption was fluctuating year by year where in 2013 the consumption was 605 units which was increased 1359 units in 2014. Then it suddenly decreased up to 220 in 2016. The EOQ of the article in 2013 was 41 units and in 2014 it was 61, in 2015 it was 65 and in 2016 it was 24 units. In this, total ordering cost and carrying cost has been calculated along with order size and order quantity.

SUGGESTIONS

1. For the upcoming demand for the product to make the work easier for the employee for the future estimation of the product which requires raw materials, they should apply certain inventory methods like ABC Analysis, EOQ model etc.
2. The EOQ Model has been taken from the article product raw materials SA6 Housing which is a part of raw materials for every actuator where the demand for the product should be maintained stably for every year.
3. The holding period of the raw materials, WIP and finished goods should be minimum because which incurs more cost for maintaining inventory.

CONCLUSIONS

Inventory Supervision is an important tool and technique for the proper use of resources for manufacturing the product. It indicates that the EOQ of the product was drastically changing due to the demand for the product every year. It can be said that the inventory has been increased due to which sales and inventory value are increased year by year parallelly. The inventory holding for the year were increasing and holding period was decreasing year by year where the cost of maintaining the inventory was reduced. The inventory level of raw materials WIP and finished goods were compared where it was fluctuating which tends to increase or decrease. The turnover ratio of the company was compared where it was increased which indicates reputation, good sales policy etc.

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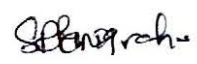

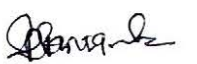


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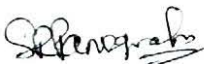
ACHARYA INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MBA


PROJECT WEEKLY REPORT (14MBAPR407)

Name of the Student :Anvekar Shreyas Suresh
Internal Guide :Prof. Swarupa Ranjan Panigrahi
USN No :1AY16MBA08
Specialization :CoreFinance
Title of Project : "A Study on Inventory Management"
Company Name :AUMA India Pvt Ltd

Week	Work undertaken	External Guide Signature	Internal Guide Signature
15-01-2018 to 19-01-2018	Understanding about the type of industry, structure, and functions of the organization.		
22-01-2018 to 26-01-2018	Knowing about products and services of the company.		
29-01-2018 to 02-02-2018	Visit of godown to understand the safety of materials.		
05-02-2018 to 09-02-2018	Presentation of research instruments.		
12-02-2018 to 16-02-2018	Collecting the primary and secondary data of the study		

19-02-2018 to 23-02-2018	Data Collection.		
26-02-2018 to 02-03-2018	Analysis of data collected in different statistical tools.		
05-03-2018 to 09-03-2018	Analysis of findings, suggestions and conclusions.		
12-03-2018 to 16-03-2018	Preparation of final Report		
19-03-2018 to 23-03-2018	Submission of Final Report		


Internal Guide


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For AUMA INDIA PRIVATE LIMITED


NIKHIL PATIL
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Company seal

