

An Implementing Energy Management System in Mechanical Workshop of Government Engineering College, Valsad

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ABSTRACT

One of the main pillars of the modern industry is the uninterrupted supply of energy with a reasonable price. The energy production is based mostly on non-renewable energy resources that are getting more expensive progressively. This increase in energy cost consequently leads the companies to a more expensive production of goods. Therefore, it has been established that energy efficiency is not only very important for the environment but also for the sustainable production in the manufacturing companies.

Despite the importance of this issue, there is no precise and unanimous definition for energy management practices. Effective energy management plays an important role in the necessary increase of energy efficiency in industry. This paper aims to identify, classify and characterize energy management practices through their definition, with respect to energy efficiency, that could take place in a foundry industry.

Furthermore, this paper presents a methodology which can be used by organizations to systematically implement energy management system.

Keyword: - Energy Management System, Energy Audit

1. INTRODUCTION

Improved energy efficiency (EE) is recognized as an essential strategy in energy and climate change mitigation policies. However, the benefits of using energy more efficiently include not only greenhouse gas (GHG) emissions reductions, but also reducing investments in energy infrastructures, lower fossil fuel dependency, increased competitiveness and improved consumer welfare.

Even though improved energy efficiency (EE) becomes of an increased importance for manufacturing industries, a number of barriers exist which inhibits deployment of the potential for improved energy efficiency (EE).

Several studies have identified a low status of Energy Management (EnM) in industrial companies to be a barrier to energy efficiency (EE). Implementing Energy Management can be a way to improve energy efficiency (EE) and to reduce the related CO₂ emissions and overcome barriers to energy efficiency (EE). O'Callaghan and Probert (1977) define 'Energy Management' as addressing "resources, as well as the supply, conversion and utilization of energy". Energy management practices (EnMPs) thus help to improve energy efficiency (EE) in industries by a systematized and continuous way of dealing with energy related aspects. However, despite of quite big attempts to classify Energy management practices (EnMPs) for improving energy efficiency (EE) in manufacturing industries there is still a room for improvements.

The fundamental goal of energy management is to produce goods and provide services with the least cost and least environmental effect.

1.1. Energy management system

Energy management system is the system which manage the source of energy how to use and where to use. A framework that helps companies manages their energy systems and plan better to save energy and to reduce pollution as well as costs.

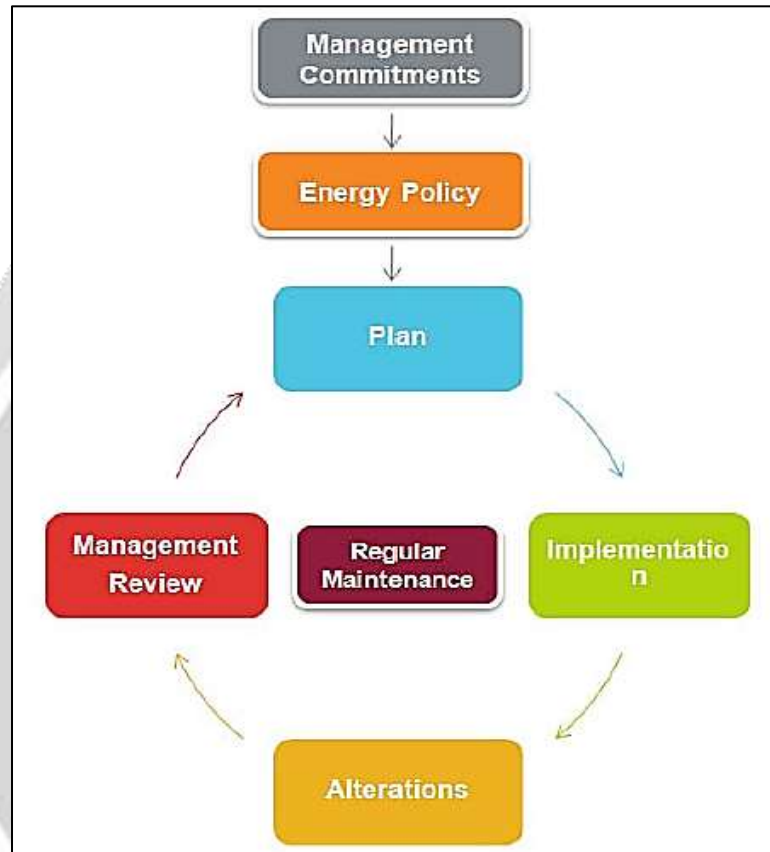


Fig -1: Energy management system

1.2. The Energy management system provides the following benefits

- Resolves energy efficiency problems
- Improves energy usage of energy-consuming assets
- Estimates environmental impact of greenhouse gases;
- Improves energy management and communication;
- Provides best practices for energy efficiency;
- Prioritizes new energy-saving technology;
- Improves energy efficiency of supply chains; and
- Details greenhouse gas reduction plans

1.3. Location

A mechanical workshop of GEC Valsad having a numbers of machines which are operated at heavy loading condition. That all machines are not working together at right time and not working at full day and not in all days in

weeks. Fig. 2 shows that the layout of the mechanical workshop which shows that at which types of the machines are used and how many machine are used in the workshop.

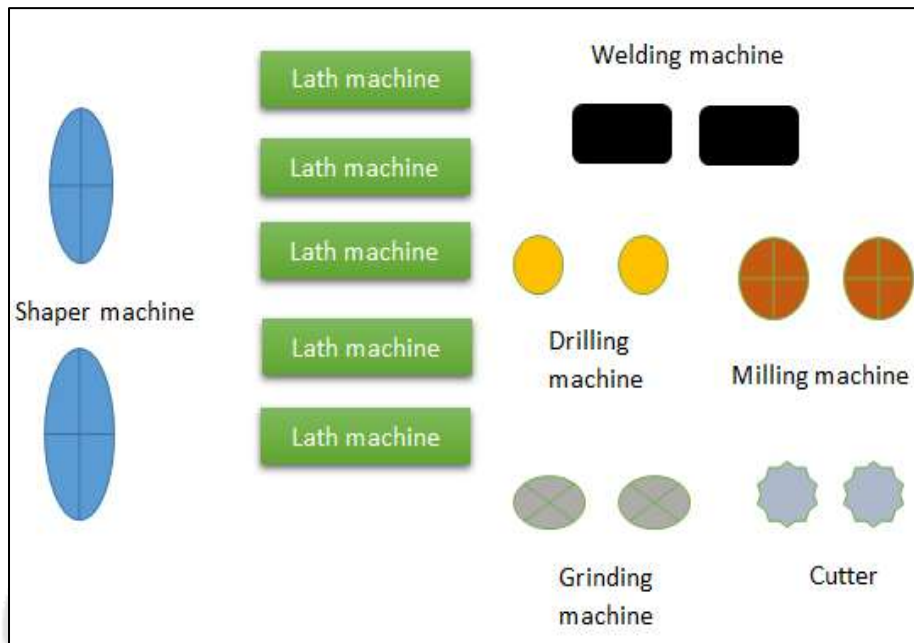


Fig -2: Layout of workshop

The workshop is used by students of the college, for the learning the different types of the shop manufacturing which are included in the learning schemes. Fig 3 shows that the overall usage of the workshop machines.

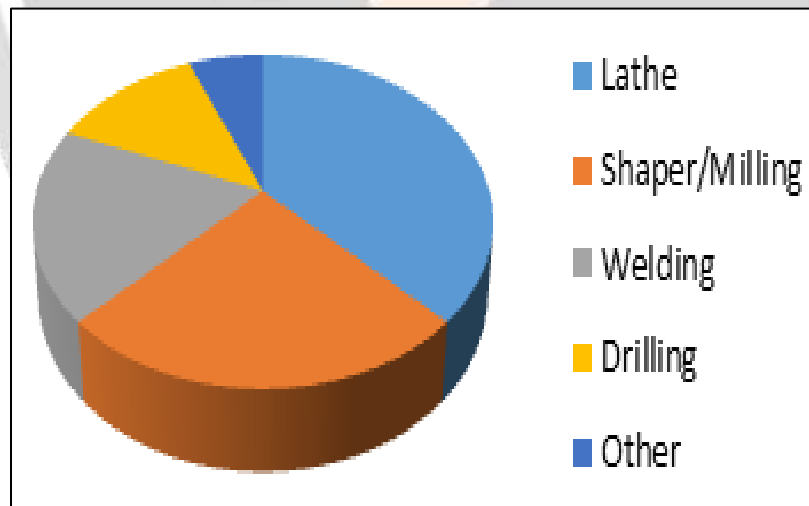


Fig -3: Overall usage of the workshop machines

The workshop is used in the particular lecture or session not a full day, so that the their will be somewhat ideal time for the machines. The workshop is not used in the during year because of the teaching schemes of the students. The teaching schemes are divided the year in to the two semesters. And the workshop subject is not available during the all semesters.

So that the overall usage of workshop during the year shown in fig.4

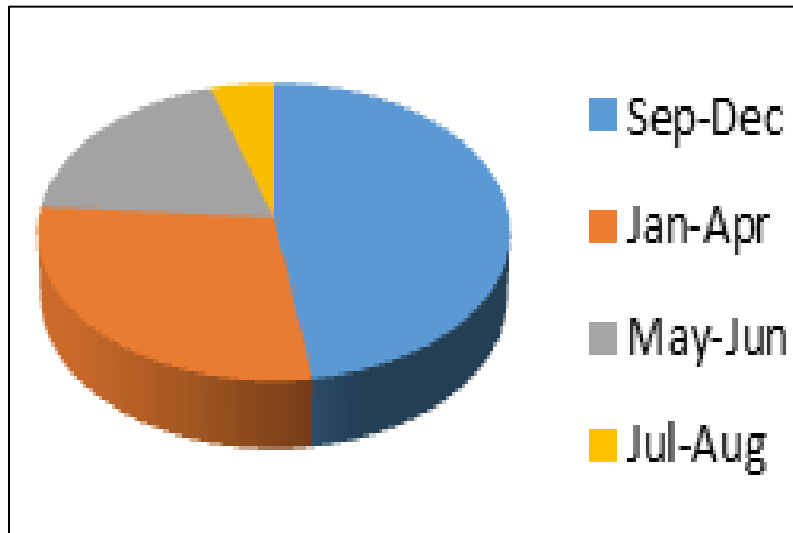


Fig -4: Overall usage of the workshop during the year

The students are used the machines for the learning so that the machine is rapidly start and stop by them and they do practice on that so that the machine do not worked at prescribed level as it works in the industry. Because of that the machine efficiency and work ability both are reduced. And component or products made by student are accurate or not.

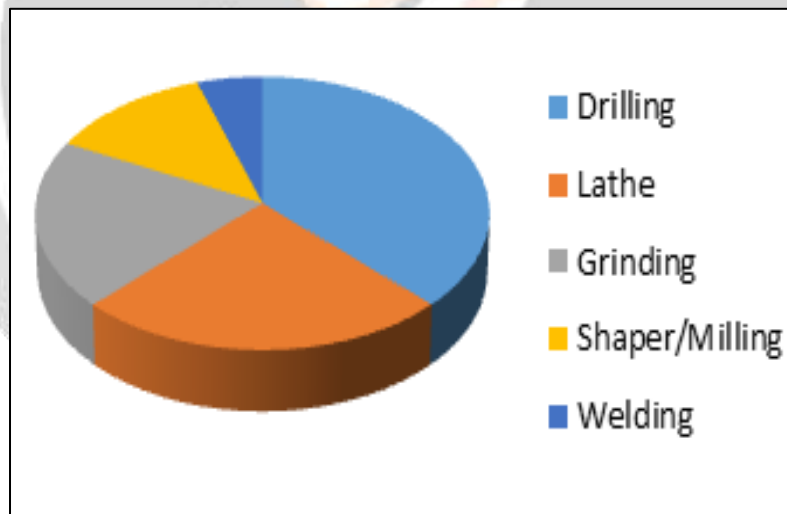


Fig -5: Overall efficiently machine worked by student

2. RESULTS AND DISCUSSION

When Energy management system is applied on the workshop so that the how much energy is supplied and how much energy is used by the machine to carry the maximum load and work efficiently.

Use the necessary machine at right time for right job and don't use more machining if it is not necessary. Don't go for the over loading condition. Follow the all guidelines before the use of machines so that there is no waste of material, time, and money.

3. CONCLUSION

After applying the energy management on the mechanical workshop we conclude following things, Use the maximum energy sources. Do not waste the energy if it is not necessary. Do the job for the student by using the optimal way of machining for the Producing the efficient jobs. If there will be supplement provide by the collage for the student of that work, and they invite the tenders for the different production of job and they distribute to efficient student for the producing the efficient job so that which can be sell in market and college earn some money in accordance with the used energy sources.

4. REFERENCES

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