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18/ENG01/027

CHEMICAL ENGINEERING

SUBMITTED TO

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Question

You have been invited by the current president of Nigeria, General Muhammadu Buhari to make an argument for the optimization of engineering resources in the country.  As an aspiring Engineer, briefly discuss your view on this and make viable recommendations that will facilitate timely completion of engineering projects within the allocated budget without jeopardizing economic and legal regulations of Nigeria

ENGINEERING is a course which deals with the use of resources (raw materials) in order to manufacture, produce or build other resources. The resources used are gotten through different means and therefore it is important that they are optimized

A successful engineer must be able to know how to optimize the resources also known as raw materials in order to reduce waste, increase profits and reduce cost of purchase of resources

Optimization is the use of techniques, models, designs in order to achieve design goals with the appropriate use of resources. Engineering optimization from Wikipedia is the use of optimization techniques to achieve design goals in engineering, it is also referred to as design optimization. Engineering optimization is achieved by using a combination of judgement, experience and modelling and its purpose is to achieve the best design relative to a set of prioritized criteria of constraints, this include maximizing factors such as productivity, strength, reliability, longevity, utilization and efficiency

As an aspiring engineer the importance of optimization of resources is of high importance to me as this will help produce, manufacture or build products at low cost therefore maximizing profits and I have been able to come up with some steps in order to ensure optimization of resources is carried out, which includes;

Due to the continuous growth of industries and companies the complexity of work is being increased therefore a faster and more reliable method is needed which will help eliminate errors and increase speed of production therefore I suggest the use of robots and machine controlled by automated systems as this will help to achieve all stated above as robots do not make mistakes if well programmed and do not need break

In order to fully optimize the use of robots a well-structured manner of production should be put in place as it is not just about working smart but handling resources in the right way. The arrangement of robots and machines in a way in which time and wastage of materials is put into consideration, in order to perform this, I advise that companies build models and create flow charts and find the best models to work with

Also in order to make sure resource optimization is carried out it is important to carry out energy and water and audits to calculate the amount of water and energy used by the company. reports can be carried out monthly or yearly and data checked to ensure it aligns with the stipulated or set out data

Some of my recommendations for timely completion of projects include;

CLEARLY DEFINE THE SCOPE OF YOUR PROJECT

We know that a problem – or in this case, the project’s scope – well stated is half-solved. No matter how you do it, it pays to be clear about your objectives, scope, budget, and methodology right out of the gate. One way to do this is through a meeting or forum, depending on who your project is ultimately going to serve.

CAREFULLY SELECT THE MEMBERS OF YOUR TEAM

Once you’ve clearly defined the scope of the project, identifying the talents needed to execute your vision becomes easier. Carefully select the individuals who will make up your team, and delegate tasks and activities to people best suited for each. Proper task delegation can come off as a show of confidence in your team members’ inherent abilities, which then boosts morale and becomes instrumental in bringing about the best possible project results – a domino effect, if you will.

OUTLINE YOUR GOALS AND KEEP THEM SMART

Having a clear idea of what to expect for a final product allows you to create short-term goals. Outline goals that are specific, measurable, attainable, realistic and timely. After delegating the appropriate tasks to your team members, have each of them list down subtasks that will serve as milestones towards their final goal, and then, let them set their own deadlines for each milestone. These deadlines, of course, have to coincide with the project’s overall time targets.

MANAGE YOUR DATA

Data storage is getting more and more affordable and more easily accessible. However, with easier accessibility, security issues arise. While most cloud-based data management solutions keep a close eye on data security, which is one of their major selling points, things can sometimes get out of hand. To be doubly sure, it’s imperative that you manage file permissions, document ownerships, and monitor data versions on a consistent basis.

ENGENDER INTERNAL MOTIVATION IN YOUR TEAM

When it comes to motivating teams, awarding members for good performance takes the cake over punishing those that underperform. As each team member achieves a milestone, recognize their accomplishments through team R&R (rewards and recognition) sessions, or even one-on-one, as knowing their contributions are valued by the company makes people more inclined to perform. Also, it’s worth noting that some individuals may like the attention of being acknowledged publicly, and some prefer to have their accomplishments recognized by their leaders privately.

MANAGE YOUR RESOURCES WISELY AND PRUDENTLY

Book or acquire the resources you will need before diving headfirst into the project. Resources include budget allocation, venues in the case of focus groups, conferences or events you’ll need to hold, tools that your team members will require, and human resources in the case of third-party specialists and consultants. Booking resources ahead of time can also help you more easily manage your project’s budget.