# OUTLINE

- Professional ethics and conducts
- Engineers' professional responsibilities
- Developing new technologies
- Protecting intellectual property rights
- Human, Energy resources and Project Management

# PROFESSIONAL ETHICS AND CONDUCT

- Ethics deals with ideas about or principles of good and bad behaviour or that which is morally right or wrong.

- Ethical standards must be secular as it involves people with different cultural and religious background.

- Ethics is concerned with the standards that everyone must be honest, fair and civil in dealing with people, kind, respectful and trustworthy.

# PROFESSIONAL ETHICS AND CONDUCT

- Not all standards are ethical standards because people have their own personal values.

- Certain standards or value may be legal, but unethical (e.g. gas flaring).

- A standard can only be considered ethical if it has significant effect on the lives of people in general.

- Ethical standards must supersede legal standards or otherwise both of them must be in close harmony with each other.

# PROFESSIONAL ETHICS AND CONDUCT

- The following are some of the aims and purposes of engineering ethics:
- To enable the engineer use his skills for the advancement of human welfare.
- To make the profession worthy of public esteem.
- To promote self discipline, prudent behaviour and productivity
- To make the engineer trustworthy, good and noble citizens with dignity and integrity
- For effective engineering practice and development of the country.

# PROFESSIONAL ETHICS AND CONDUCT

- Ethics is divided into: meta-ethics and normative ethics.
- Meta ethics is concerned with the studies of the nature of ethics. It is divided into:
- **Skepticism:** the belief that ethical standards are essentially a matter of personal opinion, hence no justifiable ethical standard.
- **Relativism:** the belief that ethical standard is relative to society or culture.
- **Absolutism:** the belief that the same ethical standards apply to all society or culture.

# PROFESSIONAL ETHICS AND CONDUCT

- Normative ethics involves recommendation of appropriate standards for good behaviour which can be done in the following way:

- **Egoism:** acting in one's own self interest.

- **Utilitarianism:** doing something that is good as long as it will produce the greatest amount of good for the greatest number of people

- **Pragmatism:** anything or whatever works.

# PROFESSIONAL ETHICS AND CONDUCT

- Engineering has no universal ethical code. Different engineering regulatory bodies have their own ethical codes which may also differ from one country to another.
- The basic rules that govern the conduct of engineers (Engineering Ethics) are summarized as follows:
- Hold paramount the safety, health and welfare of the public.
- Perform services only in areas of their competence.

# PROFESSIONAL ETHICS AND CONDUCT

- Issue public statements only in an objective and truthful manner.

- Act for your employers as faithful agents or trustees.

- Avoid deceptive acts.

- Conduct themselves in such a way as to always enhance the reputation of the profession.

# ENGINEERS' PROFESSIONAL RESPONSIBILITIES

- The engineer has the following obligations to the public: the engineer should

- act consistently in public interest.

- always act in a manner that is in the best interest of their employers and clients, consistence with public interest.

- should ensure and promote ethical approach to development and execution of engineering projects.

- should be fair to and supportive of their professional colleagues.

# ENGINEERS' PROFESSIONAL RESPONSIBILITIES

- should be committed to a lifelong learning to promote an ethical approach to the practice of their profession.

- should always work to advance the integrity and reputation of the profession consistent with public interest.

# DEVELOPING NEW TECHNOLOGIES

- New product development is the process of bringing an original product idea to the market.
- Product development is crucial to business growth and profitability.
- Although it differs by industry, it can be broken down into six stages:
- **Ideation:** this is the process of forming and relating ideas. A product idea may be entirely new or it could be a an improvement of an existing one.

# DEVELOPING NEW TECHNOLOGIES

- **Costing:** this is the process of taking all of the information gathered so far and adding up to determine what your cost of goods would be, so you can attach a selling price and the calculate profit on each unit that would be sold.

# DEVELOPING NEW TECHNOLOGIES

- **Research:** this involves validating your product and doing competitive analysis to enable you gauge market demand and also the level of competition that exists before planning.

- **Planning:** this involves making a sketch of what your product will look like with labels explaining the various features and functions, price and category your product will fall into.

# DEVELOPING NEW TECHNOLOGIES

- **Prototyping:** the goal here is to create a finished product to use as a sample for mass production. It involves experimenting with several versions of your product, eliminating options and making improvements until you get a final product.

- **Sourcing:** this involves gathering materials and securing the partners needed for production.

# PROTECTING INTELLECTUAL PROPERTY RIGHTS

- Intellectual property is anything that is developed through intellectual and creative processes. It includes trade secrets, trade marks, copyrights and patents.
- However, not all creations of the mind (eg. business ideas) are regarded intellectual property laws in Nigeria.
- Protecting intellectual property rights is important because companies usually much time and resources in developing new products.
- It would not be worth the investment if competitors could reproduce these inventions without permission or compensation to the owners.

# PROTECTING INTELLECTUAL PROPERTY RIGHTS

- **Trade Secrets:** confidential information regarding business ideas may be protected as trade secrets if they are commercially valuable, not known to the public and reasonable steps have been taken by the owner to maintain their secrecy.

- Some of the items relating to business ideas that may be protected as trade secrets are business, marketing, advertising strategies and distribution methods.

- The trade secret of a company may be obtained through research and development, reverse engineering or market analysis.

# PROTECTING INTELLECTUAL PROPERTY RIGHTS

- **Trademarks:** the name, logo, slogan, or hashtags of a company maybe protected as trademarks. A trademark can be obtained at the Nigerian Trade Mark Registry or through continuous use.

- A proprietor who has acquired a trademark through the latter may not be able to institute a legal action for trademark infringement as this is only reserved for owners of registered trademarks.

# PROTECTING INTELLECTUAL PROPERTY RIGHTS

- **Copyrights:** business ideas, when fixed in any definite medium of expression now known or later to be developed, from which they can be perceived, reproduced or otherwise communicated either directly or with the aid o any machine or device, may be protected as copyright.

- The author of a concept that has been fixed in any medium of expression is guaranteed automatic copyright protection over his works if sufficient effort has been made to make it original.

# PROTECTING INTELLECTUAL PROPERTY RIGHTS

- Examples of definite mediums of expressions which may be utilized by owners of business ideas are photographs, videos, audios, texts, etc.
- Although there is no requirement by law for copyright registration, the Nigerian Copyright Commission has established a voluntary copyright notification scheme for owners of copyrights to notify the commission o its creation and existence to maintain an effective database o their copyrighted works.

# PROTECTING INTELLECTUAL PROPERTY RIGHTS

- **Patent and Design:** these intellectual property protections can only be utilized where the business idea have been generated into actual products or inventions.
- a business concept may be patented if it is new, involves a step that is not obvious to people knowledgeable in the field and is capable of industrial application or if it consists of an improvement on a previously patented invention which must also be new…
- Plant or animal varieties, inventions that are contrary to public, scientific principles and discoveries are not patentable.

# Human, Energy Resources and Project Management

- **Human Resource Management** is the process of hiring and managing people to achieve better performance in an organisation.
- It involves recruiting, selecting, inducting, orienting, training, compensating, making policies, appraising, retaining and ensuring the welfare and safety of people.
- HRM is important because behind every product or service there is a human effort.
- It is meant or proper utilization of available skilled workforce and also to make efficient use o existing human resource in the organisation.

# Human, Energy Resources and Project Management

- World energy consumption has increased due to population increase, economic growth and lifestyle changes, hence the need or the its efficient use.

- Most of the world's energy consumption comes from fossil which is mainly oil and it is non-renewable.

- There is need for energy saving which mean switching to other forms of energy such as renewables.

# Human, Energy Resources and Project Management

- **Project management** is the art and science of organizing and managing resources (humans, material, equipment, time and funds) in such a way that a project is completed within defined scope, quality, time and cost constraints.

- It uses a set of tools, techniques and principles for planning and executing the project effectively with the objective of completing the project in time according to specifications and within budgetary provisions.