ENGINEER IN SOCIETY

CVE 101

Engineering Discipline and Division

- ✓ The advancement in the field of engineering saw the growth and increase in the number of discipline based on specialization.
- ✓ These disciplines include:
  - Civil Engineering
  - Electrical Engineering
  - Chemical Engineering
  - Marine Engineering
  - Mechanical Engineering
  - Computer Engineering
  - Mining Engineering
  - Aeronautic and Aerospace Engineering
  - Agriculture and Bio-Environmental Engineering
  - Marine Engineering
  - Petroleum Engineering

- ✓ Civil, Mechanical, Electrical, chemical and Industrial Engineering emerged prior to the time of the First World War.
- ✓ Engineering is a practise that demands and involves team work.
- ✓ This Engineering Team comprises many cadres and division depending on training, expertise and skill with the Engineer as the team leader.
- ✓ The following cadres are involved in this team:
  - **Engineer**
  - **Technologist**
  - **Technician**
  - **Craftsmen**

Progression along the Cadres

- ✓There is also the provision for gradual progression from one cadre to a higher one.
- ✓Qualification for Engineers requires that a minimum duration of Engineering and Technology programmes be five years for candidates who enter with Senior Secondary School Certificate or GCE O-Level.
- ✓Candidates with relevant passes in Mathematics, Physics and Chemistry at GCE A levels or equivalent will spend a minimum of four years provided that they satisfy other University requirements.
- ✓The implication of the above requirement is that colleges of Technology and Polytechnic graduates are not considered as Engineers but as Technologists and Technician for HND and OND levels respectively.

- ✓ The training of the Engineer and probably the Technologist involves that attention be given to the physical potentials of materials, the logic of mathematical analysis and the operational principles of processes and systems.
- ✓ A consideration must also be given to the scarcity and or the constraints of human resources and economics.
- ✓ His training also involves the social and environmental context of the society in which he practices his profession.
- ✓ The training of the engineer is such that he is probably equipped to solve problems emanating from his immediate environment.
- ✓ This is achieved through the practical component of the training.

- ✓ The three parts of the practical training involves:
  - Part 1: 3 months duration expected to be in the university
  - Part 2: 3 months in the industry
  - Part 3: 6 months in the industry.
- ✓ As a result of the limitations in the university in terms of equipment and skilled workshop instructors, many universities have resorted to sending their students to the industry for the part 1 practical training.
- ✓ The 6 months practical training is funded by the Government through the Industrial Training Fund (ITF) under its Students Industrial Work Experience Scheme (SIWES).

Roles of Engineers

- ✓ Graduates in Engineering amongst many other points are expected to play the following roles:
  - To design engineering projects and supervise their construction.
  - To design and make components, machines, equipment and system.
  - To design and develop new products and production techniques in industries.
  - To install and maintain complex engineering systems so that they can perform optimally in our environment.
  - To adapt and adopt indigenous technologies in other to solve local engineering problems.

Roles of Technologist

- ✓ On the other hands, graduates of technology are expected to play the following roles:
  - To be conversant with all the materials, components, machine, equipment, production techniques and systems in their area of specialization.
  - To man and maintain the specific production equipment in their area of specialization.
  - To plan, manage and be responsible for quality control of the products and processes in the plant or factory.
  - To adapt and adopt indigenous technologies in other to solve technical problems.

Roles of Technicians

- ✓ The technician works hand in hand with the technologist and is therefore expected to perform the following:
  - To apply proven techniques and procedures to the solution of practical problems.
  - The technician must be responsible for the repair and maintenance of equipment, machines and system in his area of specialization.
  - He must assist the Engineer and Technologist in the performance of engineering functions.

Roles of Craftsmen

- The craftsman must have the skill for recognizing, using and maintenance of Engineering tools and materials needed in Engineering projects and works.
- He plays a supportive role to the technician as regards the execution of specific assignments in engineering works.