**NAME: OJUKWU ZENITA NGOZI**

**DEPARTMENT: CHEMICAL ENGINEERING**

**MATRIC NUMBER:15/ENG01/011**

**COURSE: CHE512**

**ASSIGNMENT**

1. **HAZARD OPERABILITY TECHNIQUE:**

This, otherwise known as HAZOP is the study which identifies hazard and operability problems in a process plant, it is a tool for the identification of hazards due to process parameter deviation. This involves investigating how the plant might deviate from the design intent. In doing this, several experts with different backgrounds can interact and identify more problem together than working separately. The method is applied to complex 'processes' for which sufficient design information is available, and not likely to change significantly. This range of data should be explicitly identified and taken as the ‘design intent’ basis for the HAZOP study. For example, a prudent designer will have allowed for foreseeable variations within the process creating a larger design envelope than just the basic requirements and the HAZOP will be looking at ways in which this might not be sufficient.

1. **SIGNIFICANCE OF HAZOP**

HAZOP studies have been used with great success within chemical and the petroleum industry

1. To investigate how the system or plant deviate from the design intent.
2. To avoid creating risk for personnel and equipment and operability problems.
3. To obtain safer, more efficient and more reliable plants.

HAZOP has become a standard method in the design of process system .

1. **COMPONENTS OF HAZARD OPERABILITY**

Preventive safeguard

hazard

Enabling condition

design intent

Conditional factors

consequences

Mitigation safeguard

1. Establishing the “Design Intent” for the process, including the desired and/or safe ranges for each of the operating parameters.
2. Applying the Guide Words (No, Less, More, Reverse, etc.) to each of the Process Parameters (Temperature, Pressure, Flow, Level, etc.), to identify deviations from the design intent.
3. Determining if the control system and emergency systems are adequate and are sufficiently reliable to prevent each deviation from escalating to an undesirable process incident.
4. Estimating the severity of the consequences of each undesired incident.
5. Estimating the likelihood of occurrence of each undesired incident.
6. Utilizing a Risk Matrix to determine the relative risks of the undesired incidents.
7. Comparing the risk of occurrence for each incident with corporate guidelines for process risk.
8. Determining the number and types of safeguards and/or process improvements that would be needed to reduce the risks to tolerable levels.