

Offshore Structures

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It would not be surprising when people say that they get an inspiration from iconic structures like the Empire State building in New York City or the Colosseum in Rome. They are spectacular and relatively easy to spot. But how many people realize that lying deep in the ocean far away from shore, there are at least a thousand offshore structures awaiting to be known. They might not be comparable in term of aesthetic but from engineering point of view they are not less intriguing.

The offshore structures of interest are used in oil and gas industry either in exploration or production. There are many types of structures to choose from depending on the location and situation. In shallow water, fixed platforms can be used anchoring directly to the seafloor. But as oil and gas development expands deeper and deeper in the ocean, it is no longer economical to extend the platform that long.

The concept of floating offshore structures are then introduced. The structures are designed to have sufficient buoyancy such that they can float. They also have mooring system connecting the structures to the seafloor to limit horizontal and vertical movement of the structures such that the equipments can be installed for drilling the wells or extracting oil and gas from the sources up to a few thousand meters below sea level in a safely manner. Some structures need to be stable for the operation but also flexible to move around as they tend to stay at one location for a short period while some other structures stay at one location for many years withstanding rough seas and violent storms. These pose different challenges to the design engineers when they are combining knowledge from different field of engineerings. How could people not be inspired from these awesome structures?