Postgraduate Certificate in Advanced Subsea Engineering for Oil and Gas

and Flowlines

Flowlines are pipes that transport fluids, such as oil, gas, and water, from a subsea well to a production facility. They are a critical component of subsea systems used in the oil and gas industry. In this explanation, we will discuss key terms and vocabulary related to flowlines in the context of the Postgraduate Certificate in Advanced Subsea Engineering for Oil and Gas.

1. Flowline: A flowline is a pipe that transports fluids from a subsea well to a production facility. It is typically made of steel or composite materials and can be several kilometers long.
2. Riser: A riser is a pipe that connects a subsea flowline to a production facility. It is typically larger in diameter than a flowline and is designed to withstand the pressure and movement caused by waves and currents.
3. Jumper: A jumper is a short pipe that connects a subsea flowline to a riser or a subsea manifold. It is typically several meters long and is designed to withstand the pressure and movement caused by waves and currents.
4. Subsea Manifold: A subsea manifold is a structure that distributes fluids from multiple subsea wells to a production facility. It typically includes valves, chokes, and other equipment used to control the flow of fluids.
5. Pig: A pig is a device that is inserted into a flowline to clean or inspect the pipe. It is typically cylindrical in shape and has brushes or scrapers that remove deposits or debris from the pipe walls.
6. Corrosion: Corrosion is the deterioration of a material, such as steel, due to chemical reactions with its environment. In the context of flowlines, corrosion can weaken the pipe and cause leaks or failures.
7. Erosion: Erosion is the wearing away of a material due to the movement of fluids or particles. In the context of flowlines, erosion can cause pitting or grooving in the pipe walls, reducing its strength and increasing the risk of leaks or failures.
8. Fatigue: Fatigue is the weakening of a material due to repeated stress or strain. In the context of flowlines, fatigue can occur due to the cyclic loading caused by waves and currents, reducing the pipe's strength and increasing the risk of leaks or failures.
9. Free Span: A free span is a section of a flowline that is not supported by the seabed or a structure. Free spans can occur due to scouring or other geological processes and can cause vibrations or excessive movement in the pipe, increasing the risk of leaks or failures.
10. Tie-in: A tie-in is the connection of a new flowline to an existing system. It typically involves the installation of a jumper or a riser and requires careful planning and execution to ensure the integrity of the system.
11. Riser Analysis: Riser analysis is the engineering evaluation of the behavior of a riser under various loads and environmental conditions. It is used to ensure the safety and reliability of the riser system and to optimize its design.
12. Flow Assurance: Flow assurance is the discipline concerned with ensuring the safe and reliable flow of fluids through a pipeline. It involves the analysis and mitigation of factors that can cause blockages, leaks,

or other flow problems.
13. Pigging: Pigging is the process of cleaning or inspecting a pipeline using a pig. It is an important maintenance activity that helps to ensure the integrity and efficiency of the pipeline system.
14. Leak Detection: Leak detection is the technology used to identify leaks in a pipeline. It typically involves the use of sensors, acoustic detection, or other methods to detect changes in pressure, flow rate, or temperature that indicate a leak.
15. Repair and Maintenance: Repair and maintenance are the activities involved in maintaining the integrity and efficiency of a pipeline system. They include inspections, cleaning, repairs, and replacements of components as needed.

Flowlines are critical components of subsea systems used in the oil and gas industry. They are designed to transport fluids from a subsea well to a production facility, and their integrity is essential for the safe and efficient operation of the system. In this explanation, we have discussed key terms and vocabulary related to flowlines, including flowline, riser, jumper, subsea manifold, pig, corrosion, erosion, fatigue, free span, tie-in, riser analysis, flow