Design of Subsea Pipelines

Course content - lecturewise break-up

Topic of lecture(s)	Description	Lecture Duration
Introduction, design review	Course agenda, introduction of subsea filed and production Systems	2
Routing design	Discussion of issues related to pipe route design with typical examples etc.	2
Hydraulics	Discusses the diameter sizing of pipeline. Exercise	4
Structural Strength Design	Introduction to pipeline wall thickness design with respect to the design code DNV-OS-F101 Issues related to reeling of rigid pipe and description of analysis method. Exercise	6
On-bottom Stability	Deals with issues related to on bottom stability of pipe after the lay and discussion of analysis methods and relevant code. Exercise	6
Materials & welding and corrosion	Introduction to coating design and cathodic protection. Why, where, how much etc. Short introduction to welding and material issues related to rigid pipe.	4
Pipeline Freespan and VIV	Discussion of what is free Span? What are the cases of freespan? What might span be problem and Design issues	4
Pipeline Expansion & Buckling and walking	Short description of issues related to global buckling of pipelines, analysis, mitigation and crossing design. Exercise	6
Installation	Description of Objectives and issues of pipelay analysis. Introduction to analysis methods, typical load cases, software etc. Description of typical pipeline installation and laydown operation	4
Riser Design	Discussion of what the riser is, design drivers of risers, factors influencing riser selection & material and Design guidelines	6
Revision	Summary of the complete course	4
Total		**48 hrs**

Reference books
1. Palmer AC, King RA. Subsea Pipeline Engineering, PennWell Books, 2008, Tulsa, Oklahoma, USA.
2. Bai Y, Bai Q. Subsea Pipelines and Risers, Elsevier, 2005, Oxford, UK.