Lesson plan 4 Snubbing Level 2					
Time	Lecture	Content	Delivery Method	Teaching Aids	Assessing Understanding
8: 00 - 8: 30		**Homework revision**	Check the answers for yesterday homework with students and discuss the correct answers.	Verbal White board	Discussion
08: 30 - 09: 00	4.1	**Application SN** When snubbing is used	Explain when snubbing is used	Verbal Power point	Open Question Q & A
	4.2	**Equipment SN** The snubbing equipment in different operating environments	From a given surface layout diagram, identify the snubbing components used in well intervention (including escape systems)	Power point Video	Discussion
9: 00 - 10: 00	4.3	**Surface PCE Stack SN** PCE required for snubbing operations	From a given diagram or description identify the function and positioning of the surface PCE components required for snubbing operations	Power point	Open QuestionQ & A
	4.4	**Primary Barrier Elements SN** Primary barrier elements used during snubbing operations	From a given diagram or description, identify the function and positioning of primary barrier elements used during snubbing operations: - Stripper bowl or annular preventer - Stripper BOP	Power point Video White board	Group discussion
10: 00 - 10: 15		Coffee Break			

10: 15 - 12: 00	4.5	**Primary Barrier Elements SN** Primary barrier element integrity during snubbing operations	Outline the factors that can affect the integrity of the primary barrier elements during snubbing operations. - Hydraulic pressure - Roughness of the workstring - Fluid composition - Maintenance - Running speeds	Power point Video White board	Open Question Q & A
	4.6	**Secondary Barrier Elements – BOPs (Ram Type Preventers) SN** Secondary barrier elements (snubbing BOPs) used during snubbing operations	From a given diagram or description, identify the function and positioning of secondary barrier elements (snubbing BOPs) used during snubbing operations. Explain why it is important to consider equipment access for loading various tool string configurations	Power point Manual	Open Question Q & A
	4.7	**Secondary Barrier Elements – BOPs (Ram Type Preventers) SN** BOP ram configurations for different snubbing operations	Explain why BOP ram configurations must change for different types of snubbing operations	Power point	Open Question Q & A
12: 00 - 12: 30		Lunch Break			
12:30 - 14: 00	4.8	**Shearing Devices SN** Snubbing shearing devices	Explain the function and positioning of snubbing: - Shear ram - Shear/seal ram/valve	Power point Video	Open Question Q & A
14: 00 - 14:30	4.9	**PRESSURE CONTROL (BARRIER ELEMENTS and ENVELOPES) PRINCIPLES SN** Grouping barrier elements into barrier envelopes during snubbing operations	From a given snubbing situation or surface rig-up diagram, identify primary barrier elements and group them into envelopes	Power point	Open Question Q & A
	4.10	**Safely repair or replace failed primary**	Explain why maintaining	Power	Discussion

		barrier element SN The reasons for changing worn elastomers and temporary suspension of Work	elastomer integrity is important	point manual	
14:30 - 14: 45		Coffee Break			
14:45 - 15:00	4.11	**Safely repair or replace failed primary barrier element SN** Secondary barrier elements and envelopes for snubbing if a primary barrier element fails	Describe the use of equipment as secondary barrier elements/envelopes during snubbing operations. From a given diagram or description identify double barrier protection while repairing and/or replacing failed components	Power point Video White board	Open Question Q& A
15: 00 - 15: 30	4.12	**Safely repair or replace failed primary barrier element SN** Maintaining a double barrier when changing the annular element during intervention	Explain why two barriers must be maintained when changing annular element during intervention in line with industry good practice	Power point Manual	Open Question Q & A
15: 30 - 16: 00	4.13	**Operational Considerations (with well control consequences) SN** The forces on the workstring created by well pressure	Explain the forces on the workstring created by well pressure: - Pipe light and pipe heavy - Buckling	Manual	Group discussion
16: 00 - 16: 30	4.14	**Operational Considerations (with well control consequences) SN** Snubbing pipe in and out of a live well (with square collars/ram to ram)	From a given diagram or description, explain how the components of the jacking system work to snub the pipe with square collars in and out of a live well	Power point Manual	Open Question Q & A
16: 30 - 17: 00	4.15	**Controlled Well Shut in SN** How to shut in the well quickly and safely with or without work-string in the	Outline why it is important to safely shut in the well during a	Power point Manual	Discussion

		hole.	snubbing operation: - With workstring in the hole - Without workstring in the hole	White board	
		Snubbing Shear Ram Equipment Operating Limit Explain how running different types of tool string through the shearing device can affect its shearing capability.			
30 min		Homework (multi-choices) exercises		Exercises Book	To be discussed next day.