

Contens	pages
1 Basics of Petroleum Geology	6
1.1. Petroleum System	6
1.2. Organic matter and source rock formation	6
1.3. Petroleum source rocks and hydrocarbon generation process	7
1.4. Subsurface pressures	14
1.5. Primary migration	16
1.6. Reservoir rocks and their petrophysical properties	17
1.7. Secondary migration	23
1.8. Petroleum seal rocks	26
1.9. Trap formation	27
1.10. Hydrocarbon accumulations	30
1.11. Natural drive mechanisms	35
1.12. Hydrocarbon reserve calculation	36
1.13. Destruction of hydrocarbon accumulations – dysmigration	38
2 Drilling related rock mechanics	39
2.1. Stress State	39
2.2. Wellbore Stability	46
2.3. Determination of Stress in Directional Wells.....	49
2.4. Calculation of the stability of the hole according to the modified criteria Lade'a	51
2.5. Calculation of the stability of the hole according to the criterion of Mohr–Coulomb'a	53
3 Rig types and their Components	55
3.1 Land rigs	55
3.2 Offshore rigs	57
3.2.1 Barge	57
3.2.2 Jack – Up	57
3.2.3 Fixed Platform	58
3.2.4 Piled Steel Platforms	58
3.2.5 Gravity Structures	60
3.2.6 Semi-Submersible	60
3.2.7 Drillship	62
4 Drilling technique and technology	64
4.1. Drill string	64
4.2. Casing of oil and gas industry wellbore	74
4.3. Drilling bit	84
4.4. Drill bit Operating Parameters	107
4.5. Units in drilling	112
5 Oil reservoir production	130
5.1. Reservoir and fluid properties - characteristics and method of determination	131
5.2. Primary Recovery Mechanisms	140
5.3. Methods of oil exploitation	146
5.4. Reservoir Deliverability	150
5.5. Artificial Lift Methods	155
A Glossary of Petroleum Engineering Terms, Abbreviations and Acronyms	158