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Course Details

Units of Credit 6

Summary of the Course

Components of the petroleum production systems. Well, flow performance and deliverability analysis. Production from both saturated and undersaturated oil reservoirs. Production from two phase reservoirs. Production from gas reservoirs. Pseudo critical properties of natural gases; as well as deliverability for non-Darcy flow. The near-wellbore condition and wellbore skin characterisation. Wellhead surface gathering systems. Artificial lift systems. Horizontal well production. Production chemistry basics for wax, scale, corrosion, emulsions).

Course Aims

The aim of this course is to provide insight into the basic physics that governs the process and common problems associated with oil and gas production.

Course Learning Outcomes

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competences
1. The production flow system from reservoir to surface	PE1.3, PE1.4, PE1.5, PE1.6, PE2.1, PE2.2, PE2.3
2. The mechanical energy balance equation associated with production engineering	PE1.1, PE1.2, PE1.3, PE2.1, PE2.2, PE2.3
3. Artificial lift and various pumping methods)	PE1.3, PE1.4, PE1.5, PE1.6, PE2.1, PE2.2, PE2.3
4. Problems associated with production of formation fluids	PE1.3, PE1.4, PE1.5, PE1.6, PE2.1, PE2.2, PE2.3
5. Formation damage/production impairment prediction, prevention and removal	PE1.3, PE1.4, PE1.5, PE1.6, PE2.1, PE2.2, PE2.3
6. Problem Diagnosis and workover	PE1.3, PE1.4, PE1.5, PE1.6, PE2.1, PE2.2, PE2.3

Teaching Strategies

Please refer to the information in Moodle

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@UhY Gui Va]gg]cb cZ Ub 5gg][ba Ybh

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K cf_ gui Va]hYX`UZhYf`Zj Y`XUmg`f%&\$`\ci fgŁk]``bch VY`UWWYdhYX`UbX`U`a Uf_`cZnYfc`k ]``VY`Uk UfXYX`Zcf h\Uh UggYgga Ybh]hYa "

: cf`gca Y`UggYgga Ybh]hYa g`gž U``UhY`dYbU`hm]a UmbchVY`Uddfcdf]UhY"H\YgY`k ]``VY`]XYbh]Z]YX`]b`h\Y Wci fgY ci h`]bYž UbX`gi W\ UggYgga Ybhg`k]``fYWY]jY`U`a Uf_`cZnYfc`]Zbch Wca d`YhYX Vmh\Y`gdYW]Z]YX XUhY" 9l Ua d`Yg`]bW u XY.

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- Cb`]bY`ei]nnYg`k \YfY`Ubgk Yfg UfY`fY`YUgYX`hc`ghi XYbhg`cb`Wca d`Yh]cbžcf`DfcZYgg]cbU` UggYgga Ybh`HUg_g žk \YfY`h\Y`]bhYbh]cb`]g hc`VYfYUhY`Ub Uu h\Ybh]WUggYgga Ybh`h\Uh\Ug Ub`UVgc`u hY gui Va]cb XUhYžcf`DUgg#U`UggYgga Ybh HUg_g"

K Y`u bXYfghUbX`h\UhUhh]a Yg`mci `a Umbch VY`UV`Y`hc`gui Va]hUb Ugg][ba Ybh cb`h]a Yž UbX`h\Y GVXcc`k]``UWWca a cXUhY`UbmZ]f`UbXfYUgcbUV`Y`Yi h]bg]cb"K Y`k ci `X`fUWca a YbX`mci `fYj ]Yk `h\Y`I BGK `GdYW]U` 7cbg]XYfUh]cb`[u]XY]bYg–gYY`gYVh]cb VY`ck "

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- 5‌W‌]XYa‌]W‌G‌_]`g‌`Gi‌ddcfh! _\‌h‌h‌dg.#‌#k_k_k_"gh‌i‌XYbh‌`i‌bgk‌"YX‌i‌"U‌i_#g‌_]`g_
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9‌ei‌]h‌UV‌`Y‌`@‌YUfb‌]b[‌`GYfj‌]W‌Y‌g‌`U]a‌g‌`h‌c‌`dfcj‌]XY‌`U‌``gh‌i‌XYbh‌g‌`k‌]h\‌`U‌`Z‌YYY‌`UbX‌`W‌c‌b‌Z‌]XYbh‌]U‌`gYfj‌]W‌Y‌`h\‌Uh‌
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=Zˈmci ˈbYYX gca Y UXX]h]cbU`ˈgi ddcfh]h\ ˈmci fˈUWUXYa]Wˈ]Wg_]``gžd`YUgYˈWcbhUWhˈh\Yˈ5WUXYa ]WˈG_]``g Gi ddcfhˈcfˈj]Yk ˈgca Y cZ h\YˈfYgci fWYgˈcb h\Yfˈk YVg]hYˈ[\hhdg.#kkk "ghi XYbh"i bgk "YXi "Ui #g_]``g "](\hhdg.#kkk "ghi XYbh"i bgk "YXi "Ui #g_]``g ")H\Yˈ5WUXYa]WˈG_]``g HYUa ˈWUb dfcj ]XYˈfYgci fWYgžgi ddcfhˈUbX Ugg]ghUbWYˈhc\Y`d mci a dfcj Y mci fˈUWUXYa ]WˈG_]``g"ˈGca Y ghi XYbhg i gY ˈh\Y 7 YbhfYˈgYfj]WYgˈVYWUi gYˈh\Ym UfYˈZ]bX]b[ˈh\Yˈf Ugg][ba Ybhg U

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Acknowledgements

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