

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	AL-Ayen University
2. University Department/Centre Department	College of Engineering/Petroleum
3. Course title/code	Production I
4. Modes of Attendance offered Tutorial	Online Education/On campus
5. Semester/Year	Fall-2022 to Spring-2023
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification 3/11/2021	
8. Aims of the Course	
	<ul style="list-style-type: none">• Assess and recommend geometrical configurations for drilled wellbores for both production and injection applications.• Identify, evaluate and recommend functional capability of completion strings for a variety of situations.• Describe the purpose and generic operating principles for major completion equipment components.

- Identify limitation of well completion schematically designs and potential failure mechanisms/operational problems with equipment.
- Assess well safety requirements and capabilities inherent in well design.
- Describe the options, and their inherent constraints / advantages, for producing multiple reservoir units.
- Propose general completion schematic options for producing two, three or more zones simultaneously.
- Define the equipment requirements in terms of packers, tubing hangers and Xmas trees for multiple completion strings.
- Describe the equipment used for wireline servicing of completion components.

9. Learning Outcomes, Teaching , Learning and Assessment Methode

A- Cognitive goals .

The development of a hydrocarbon reservoir requires a large number of wells to be drilled and completed to allow the structure to be depleted. The drilling and completion operations are crucial to the long-term viability of the well in meeting its specified objectives. The design and completion of both production and injection wells must:

- Provide optimum production/injection performance.
- Ensure safety (both pressure and fluid containments).
- Maximize the integrity and reliability of the completion over the envisaged life of the completed well
- Minimize the total costs per unit volume of fluid produced or injected, i.e. minimize the total costs of initial completion, maintaining production and remedial measures
- Other criteria e.g. control sand production depending upon the particular reservoir characteristics or development constraints.

The completion design involves four principal decision areas, that together

provide a conceptual design.

- Specification of the bottom hole completion technique
- Selection of the production conduit
- Assessment of completion string facilities
- Evaluation of well performance / productivity-injectivity

B. The skills goals special to the course.

B1. Simulation

B2- Reservoir Management

B3-Economic Evaluation

Teaching and Learning Method

Assessment methods

- Formation evaluation. Developing and refining the geological model of the field.
- Well log analysis and interpretation. Core analysis. Well correlation. Mapping of reservoir rock properties.
- Estimation of oil and gas reserves. Reserves audits by Russian and Western standards.
- Geologic evaluation and recommendations for development targets. Geological data preparation for the purposes of field development planning.

C. Affective and value goals

C1.Academic honesty

C2-Logic

C3-Critical Thinking

Teaching and Learning Methods

- Simulation
- Field data
- Government reports

Assessment methods

1-Weekly Reports

2-Quizes

3- Exams

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- D1. Strong English Language
- D2. Professional Investigation
- D3. Team Work
- D4. Software skills

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1-4	10	Introduction to Production	1-4	Software simulation	Assignments and quizzes
5-7	6	Flow regimes	5-7	Field data	Assignments and quizzes
8-10	4	Well completion	8-10	Experimental data	Assignments and quizzes
10-15	10	Well hardware	10-15	Simulation	Assignments and quizzes
15-20	10	Separators	15-20	Governmental reports	Assignments and quizzes
20-25	10	Transportations	20-25	Field data	Assignments and quizzes
25-30	10	Gathering systems	25-30	Simulation	Assignments and quizzes

11. Infrastructure

1. Books Required reading:	Economides, et al, Petroleum Production Systems, Prentice Hall, 1994. Other handouts will be posted on Blackboard to supplement this text.
2. Main references (sources)	SPE Electronic papers: www.onepetro.org
A- Recommended books and references (scientific journals, reports...).	SPE Electronic papers: www.onepetro.org
	www.onepetro.org

B-Electronic references, Internet: www.onepetro.org
sites...

12. The development of the curriculum plan
Adding some modern concepts in the oil production technology.

