

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 / College of Petroleum Engineering
2.	University Department / Center	Petroleum Engineering
3.	Course Title / Code	Production I
4.	Program(s) to which it contributes	B.Sc. in petroleum Engineering
5.	Modes of Attendance offered	Class attendance
6.	Semester/Year	1st and 2nd, 2023
7.	Number of hours tuition (total)	60
8.	Date of production/revision of this Specification	Jan. 2023
9.	Aims of the Course: The student will know the following: 1. Assess and recommend geometrical configurations for drilled wellbores for both production and injection applications. 2. • Identify, evaluate and recommend functional capability of completion strings for a variety of situations. 3. • Describe the purpose and generic operating principles for major completion equipment components. 4. • Identify limitation of well completion schematically designs and potential 5. failure mechanisms/operational problems with equipment. 6. • Assess well safety requirements and capabilities inherent in well design. 7. • Describe the options, and their inherent constraints / advantages, for 8. producing multiple reservoir units. 9. • Propose general completion schematic options for producing two, three or	

	10. more zones simultaneously. 11. • Define the equipment requirements in terms of packers, tubing hangers 12. and Xmas trees for multiple completion strings. 13. • Describe the equipment used for wireline servicing of completion 14. components.	
10.	Learning Outcomes, Teaching, Learning and Assessment Methods	
	A	Knowledge and understanding: This course aims to 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
	B	Subject-specific skills: The student will have sufficient skills to manage successful production operations, diagnose production problems, and deal with them according to international standards.
	C	Assessment methods: The assessment method is divided into three parts; quizzes, monthly exams, and final exams.
	D	Thinking Skills: Providing a skilled staff to the scientific community that can effectively contribute to develop and tackle the relevant engineering problems.
	E	Teaching and learning methods: The teaching is performed theoretically based upon theoretical concepts of SOR
	F	General and Transferable Skills (other skills relevant to employability and personal development): The most important skills are the knowledge and capability to provide scientific proposals to tackle a given engineering problem.

9• Learning Outcomes, Teaching, Learning and Assessment Methods

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

Teaching and Learning Methods

Theoretical lectures and the use of paper and electronic books with the use of data show display media.

Assessment methods

The evaluation is based on written exams, classroom activities, quizzes, and practical tests in the laboratory.

Teaching and Learning Methods

Lectures, discussion, dialogues, questions, group work

Assessment method

Homework, midterms, final exams

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

12.	Infrastructure
Required reading: •CORE TEXTS •COURSE MATERIALS • OTHER	Economides, et al, Petroleum Production Systems, Prentice Hall, 1994. Other handouts will be posted on Blackboard to supplement this text. Main references (sources) SPE Electronic papers: www.onepetro.org
Community-based facilities) include for example, guest Lectures, internship, field studies)	SPE Electronic papers: www.onepetro.org