

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 program specification.

1. Teaching Institution	University of Diyala - College of Engineering
2. University Department/Centre	Chemical Engineering Department
3. Course title/code	Natural Gas Processing / Ch. E.413
4. Modes of Attendance offered	Yearly system with full study
5. Semester/Year	2 nd Semester/Academic Year 2020 – 2021
6. Number of hours tuition (total)	30 hrs (2 hrs per week)
7. Date of production/revision of this specification	12/6/2021
8. Aims of the Course	Learn the basics of natural gas, processing methods, purification and increasing its efficiency.

9. Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

1. Definition the basics of natural gas.
2. Classification of natural gas.
3. Natural gas utilization.
4. Natural gas reservoirs.
5. Natural gas processing.
6. Liquefying and compressing the natural gas.
7. Heating value of natural gas.

B- Subject-specific skills

1. Calculating the heating value for the natural gas.
2. Separation units used in the natural gas processing.

C- Thinking Skills

1. The ability of characterization the natural gas type.
2. The ability to know the importance of the natural gas processing.

D- General and Transferable Skills (other skills relevant to employability and personal development)

1. Activity with society.
2. The work with a team.
3. How engineering is benefit for society and environment.
4. Calculating the heating value for the natural gas from the experimental data.

Teaching and Learning Methods

1. Lectures
2. Presenting Power point (PPT) slides
3. Problems discussion (Tutorial)

Assessment methods

1. Daily exams
2. Monthly exams
3. Home work
4. Final exams

Week	Hours	Unit/Module or Topic Title	ILOs	Teaching Method	Assessment Method
1	2	1. Natural gas definition. 2. Chemical composition of natural gas.	Introduction	1.Lectures (PPT) 2. Tutorial	Oral exam
2	2	1. Classification of natural gas. 2. Natural gas utilization.	Classification of natural gas	1.Lectures (PPT) 2. Tutorial	Oral exam
3	2	1. Natural gas reservoirs. 2. Natural gas properties.	Gas Reservoirs	1.Lectures (PPT) 2. Tutorial	Quiz
4	2	1. Impurities in the natural gas. 2. Impurities effects.	Impurities	1.Lectures (PPT) 2. Tutorial	Monthly exam
5	2	1. World picture of natural gas. 2. Importance of the natural gas processing	Importance of natural gas	1.Lectures (PPT) 2. Tutorial	Oral exam
6	2	1. Condensate and Water Removal.	Natural gas processing	1.Lectures (PPT) 2. Tutorial	Oral exam
7	2	1. Acid Gas Removal.	Natural gas processing	1.Lectures (PPT) 2. Tutorial	Oral exam
8	2	1. Sulfur Recovery Unit	Natural gas processing	1.Lectures (PPT) 2. Tutorial	Oral exam
9	2	1. Dehydration	Natural gas processing	1.Lectures (PPT) 2. Tutorial	Monthly exam
10	2	1. Mercury Removal from Natural Gas.	Natural gas processing	1.Lectures (PPT) 2. Tutorial	Oral exam
11	2	1. Nitrogen Rejection.	Natural gas processing	1.Lectures (PPT) 2. Tutorial	Oral exam
12	2	1. NGL Recovery.	Natural gas processing	1.Lectures (PPT) 2. Tutorial	Oral exam
13	2	1. Natural Gas Liquids Fractionation	Natural gas processing	1.Lectures (PPT) 2. Tutorial	Quiz
14	2	1. Liquefied Natural Gas. 2. Compressed Natural Gas.	Trnsportation of natural gas	1.Lectures (PPT) 2. Tutorial	Oral exam
15	2	1. Heating Value of Fuel.	Fuel evaluating	1.Lectures (PPT) 2. Tutorial	Monthly exam

11. Infrastructure	
<p>Required reading:</p> <ol style="list-style-type: none"> 1. Himmelblau David M. "Basic Principles and Calculations in Chemical Engineering". 7th Ed. 2003. Prentice Hall PTR. 2. Felder Richard M., Rousseau Ronald W. "Elementary Principles of Chemical Processes" 3rd Ed. 2001. John Wiley & Sons. 3. Reklaitis G.V., Schneider Daniel R. "Introduction to Material and Energy Balances" 1983. John Wiley & Sons. 4. Hougén Olaf A., Watson Kenneth M. "Chemical Processes Principles". 2004, John Wiley and Sons & CBS Publishers. <p>Others Lecture notes Students answers for problems</p>	
Special requirements (include for example workshops, periodicals, IT software, websites)	Internet knowledge for chemical engineering
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internship, field studies

12. The development of the curriculum plan