



— University of Mosul —
College of Petroleum & Mining Engineering



“Reservoir modelling and simulation”

Petroleum Reservoir Simulation
Lecture ...(2)....

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LECTURE CONTENTS

- ☐ Definition.
 - Homogeneity and heterogeneity.
 - Multiphase flows.
 - Miscibility.
 - Porosity.
 - Mobility and Mobility Ratio.
- ☐ The mathematical approach.
- ☐ The Engineering approach.

Hydrocarbons are mixtures of organic compounds that can exist in different phases, according to the pressure and temperature conditions at what they are found. As fluids, they can exist as liquid and gas. When hydrocarbons are produced from a reservoir and transported to the surface, they experience changes in their pressure and temperature conditions affecting their flowing characteristics and their composition. Understanding of this is necessary for predicting how fluids would behave at any position and conditions of the production system facilities.

Reservoir engineering is defined as “the application of scientific principles to the drainage problems arising during the development and production of oil and gas reservoirs” The main task of reservoir engineering is the optimization of the oil and gas extraction process.