This thesis comprises of **two** sections.

Section 1: The objective of writing the thesis is to study and analyze the various derivative instruments available on the global financial market and to present practical examples for hedging crude oil price risks in accordance with broad-based hedging strategies.

The solution provides **3 hedging strategies** using forwards and futures | options | swaps to counter with rapidly fluctuating crude prices.

Section 2: This thesis presents a linear programming formulation that addresses the simultaneous optimization of the supply chain distribution and blending problem in oil-refinery applications.

It provides a solution **effective blending ratio** of different crude types like the arabian light, iranian heavy, kuwait crude, dubai crude and bonney light to get maximum profits at current market prices.

This thesis uses **Microsoft excel** and **AMPL** studio for calculations.