



<b>Course Code</b> OGEE-525DL	<b>Course Title</b> LPG Systems	<b>ECTS Credits</b> 7.5
<b>Department</b> Engineering	<b>Semester</b> Fall, Spring	<b>Prerequisites</b> None
<b>Type of Course</b> Elective	<b>Field</b> Oil, Gas and Energy Engineering	<b>Language of Instruction</b> English
<b>Level of Course</b> 2 <sup>nd</sup> Cycle	<b>Year of Study</b> 1 <sup>st</sup> /2 <sup>nd</sup>	<b>Lecturer(s)</b> Dr. Constantinos Hadjistassou
<b>Mode of Delivery</b> Distance Learning	<b>Work Placement</b> N/A	<b>Co-requisites</b> None

### Objectives of the Course:

The main objectives of the course are to:

- Introduce students to Liquid Petroleum Gas (LPG) as a developing alternative fuel system for engines which can provide its emission benefits and the power of a gasoline engine
- Provide solid knowledge on the Modeling of the fuel system to predict and analyze its state as well as to ensure the fuel in the proper phase during the injection
- Develop the tools for quantitative and qualitative performance analysis using new dynamic and steady state models of thermodynamic fluids
- Provide solid technical knowledge by taking into account a series of experiments to verify the accuracy of the models and to investigate the causes of different fuel pressure fluctuations

### Learning Outcomes:

After completion of the course students are expected to:

- Explain the main characteristics of the LPG as an alternative fuel system
- Use engineering tools to analyze and modeling of the fuel system during the injection
- Evaluate the natural resources of a particular site and provide quantified analysis for the potential performance of solar, wind, and biomass energy systems
- Perform calculations for performance analysis using models of thermodynamic fluids

### Course Contents:

- Autogas the basic facts
- Properties of LPG Autogas
- Environmental Impact of Autogas Powered Vehicles

- Autogas Installation in Gasoline Vehicles
- LPG Powered Diesel Vehicles
- Application and Future Development of Autogas Sector
- Natural Gas Vehicles

**Learning Activities and Teaching Methods:**

Lectures, Online Questions, Projects, Discussion

**Assessment Methods:**

Assignments, Online Exercises, Final Exam

**Required Textbooks/Reading:**

<b>Authors</b>	<b>Title</b>	<b>Publisher</b>	<b>Year</b>	<b>ISBN</b>
Eero Teene	Modeling of a Liquid Phase LPG Fuel Injection System: Development, Modeling, and Experimentation	Oxford University Press	2008	

**Recommended Textbooks/Reading:**

<b>Authors</b>	<b>Title</b>	<b>Publisher</b>	<b>Year</b>	<b>ISBN</b>
F.Mustovic	Autogas Propulsion Systems for Motor Vehicles	UIT Cambridge	2011	