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## Multiphase & Wet-Gas Flow Measurement Training Course

### About the Course

The demand to measure multiphase and wet-gas flows is increasing in the oil and gas industry worldwide. This interactive one day training course aims to provide an extensive overview of multiphase and wet gas flow metering to meet these requirements and discuss issues encountered and future challenges. The course will provide an understanding of the complexities of multiphase and wet-gas flows, effective metering techniques, selection and testing of meters and flow assurance strategies.

National  
Measurement  
System

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## Introduction & Objectives

The demand to measure multiphase and wet-gas flows is increasing in the oil and gas industry worldwide. Multiphase meters can offer a range of cost effective options from periodic monitoring of well production to their use in shared pipeline allocation systems including fiscal allocation. Each application will have specific measurement criteria, budget and uncertainty targets. The cost of meters and their complex integration of measurement technologies can add pressure to the selection of suitable meters especially for more challenging conditions, e.g. subsea installations.

To meet the increasing demand for wet-gas and multiphase flow measurement, there is a growing requirement for engineers to understand the complexities of multiphase and wet-gas flows, effective metering techniques, selection and testing of meters and flow assurance strategies. This interactive training course aims to provide an extensive overview of multiphase and wet-gas flow metering to meet these requirements and encourage discussion on issues encountered and future challenges. Key areas will be covered ensuring attendees are well equipped and knowledgeable to deal effectively with measuring these flows.

## Who Should Attend

- Metering engineers
- Pipeline engineers
- Production engineers
- Instrumentation engineers
- R&D researchers
- Quality and technical managers

## Enquiries

The course is delivered regularly at various international locations, but is also available as an in-company (private) course. It includes comprehensive course notes which will form useful reference material in the future. Enquiries about course dates and delegate fees can be made by emailing [events@tuvnel.com](mailto:events@tuvnel.com) or by telephoning the Events Team on **+44 (0) 1355 593704**.

## About NEL

NEL is a leading provider of measurement services to the world's Oil and Gas Industry, and is the custodian of the UK's National Standard for Flow Measurement. We provide services in;

- Measurement consultancy
- Meter development and calibration
- Flow metrology research and development
- Multiphase and wet gas testing
- Erosion
- Environmental
- CFD modelling
- Training and knowledge transfer



## Multiphase and Wet-Gas Flow Measurement Training Course

### Course Programme (Illustrative)

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0830 – 0845     **REGISTRATION AND COFFEE**

#### **Module 1: Terminology and Characterisation**

- Covers the basics of multiphase and wet-gas flow regimes, how flows behave, how to describe them and the general equations used

#### **Module 2: Wet-Gas Flow Measurement**

- The effect of wet-gas flows when using differential pressure meters and the appropriate corrections needed

1005 – 1025     **COFFEE**

#### **Module 3: Multiphase Metering Technology**

- Understanding the technology used within multiphase meters to aid meter selection

1225 – 1310     **LUNCH**

#### **Module 4: Commercial Meters**

- Overview of common meters available and how they work

#### **Module 5: Validation of Meters**

- Assessment of metering technology, factory acceptance testing and the different approaches to analysing data from meters

1430 – 1450     **COFFEE**

#### **Module 6: Meter Selection**

- Factors to consider when selecting a meter for a variety of applications and locations to ensure it is fit for purpose

#### **Module 7: Flow Assurance Issues**

- Main issues and how meters can be affected

#### **Final Group Discussion and Questions**

1630     **SUMMARY AND CLOSE**



To enquire about this Course  
please contact:

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