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Intelligent Energy  Europe

5th Course: Training the designers
Programme Designers

GEO-EDUCATION FOR A SUSTAINABLE GEOHERMAL HEATING AND COOLING MARKET

Project: IEE/07/581/S12.499061

FIFTH COURSE: TRAINING THE DESIGNERS

Venue:

**Devonshire Building
Newcastle University
Newcastle upon Tyne, UK
14-16 April 2010**

Aim of the course:

The Geotrainet project is supported by the European Commission's IEE programme ("Altener"), to establish a European training framework for GSHP designers and drillers. The long term aims of the project include the raising of standards in this growing industry with a view to protecting the environment and ensuring a high quality of installation for customers. Further information may be found at www.geotrainet.eu.

This training course will be of interest to those who have existing experience of the design of ground source heating and cooling (GSHC) systems and to those who are intending to develop professional competence in this field. The course will focus primarily on closed loop GSHC systems.

Delegates will be provided with a complete set of presentations made during the course for future reference during their careers. This course will be part of an ongoing process towards the creation of a European Certification Framework for shallow geothermal installers, and raising and coordinating national and European standards in GSHP systems.



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PROGRAMME FOR DESIGNERS (1) Room G21/G22

Programme - 14 April 2010

| | |
|-------|---|
| 09:00 | Registration |
| | Section A: Fundamentals and Constraints |
| 09.30 | Overview of Shallow Geothermal Energy Systems - <i>Burkhard Sanner</i> |
| 10.00 | Limiting conditions – <i>David Banks</i> |
| 10.30 | Economic and Policy Constraints – <i>Robin Curtis (TBC)</i> |
| 11.00 | --- COFFEE BREAK --- |
| 11.15 | The UK Geological and Hydrogeological Framework for Ground Source Heat Pumps – <i>David Banks</i> |
| 11.45 | The UK Regulatory Framework for Ground Source Heat Pumps – <i>Angela Haslam</i> |
| | Section B: Feasibility |
| 12.15 | Concept and Feasibility Study - <i>Burkhard Sanner</i> |
| 13.15 | --- LUNCH --- |
| 14.15 | Site Investigation and Thermal Response Tests – <i>David Banks</i> |
| | Section C: Introduction to Design |
| 14.50 | Design Fundamentals - <i>Göran Hellström</i> |
| 15.25 | --- COFFEE BREAK --- |
| 15.40 | Design Fundamentals - <i>Göran Hellström</i> |
| 16.10 | The Borehole Heat Exchanger - <i>Göran Hellström</i> |
| 16.45 | Ground Loop Hydraulics – <i>Robin Curtis (TBC)</i> |

PROGRAMME FOR DESIGNERS (2)

Room G21/G22

| Programme - 15 April 2010 | |
|--|--|
| Section D: Practical and Industry Perspective | |
| 09.00 | Installation Quality Control: Grouting, Flow and Pressure Testing, Commissioning, System Control, Monitoring and Maintenance – <i>Walter Eugster</i> |
| 10.15 | The UK Ground Source Heat Pump Industry – <i>Nic Wincott</i> |
| 10:45 | --- COFFEE BREAK --- |
| 11.00 | Drilling Borehole Heat Exchangers in the UK – <i>speaker TBC</i> |
| Section E: System Alternatives | |
| 11.30 | System Alternatives - <i>Göran Hellström</i> |
| 12.30 | --- LUNCH --- |
| Section F: Technical Tour | |
| 13.30 | Details to be confirmed |

PROGRAMME FOR DESIGNERS (3)

Room G21/G22

| Programme - 16 April 2010 | |
|---|--|
| Section G: Integration with the Building | |
| 09:00 | Heat Pump Technology – <i>Javier Urcheguia</i> |
| 09.45 | Heating and Cooling Loads - <i>Javier Urcheguia</i> |
| Section H: Closed Loop System Design | |
| 10.30 | Detailed Design, Design Criteria and Ground Loop Sizing - <i>Göran Hellström</i> |
| 11.30 | --- COFFEE BREAK --- |
| Section I: Practical Session | |
| 11.45 | Practical Session |
| 12.45 | --- LUNCH --- |
| 13.45 | Practical Session |



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LIST OF TEACHERS

| Title | Name | Affiliation |
|-------|--------------------|---|
| Dr. | Burkhard Sanner | EGEC, Brussels, Belgium UBeG GbR, Wetzlar, Germany |
| Mr. | David Banks | Newcastle University, UK Director, Holymoor Consultancy Ltd., UK |
| Dr. | Robin Curtis (TBC) | Director, Earth Energy Ltd., UK |
| Ms. | Angela Haslam | Environment Agency, UK |
| Mr. | Nic Wincott | Ground Source Heat Pump Association, UK |
| Dr. | Walter J Eugster | Polydynamics Engineering Zurich, Switzerland |
| Dr. | Göran Hellström | Lund University, Sweden |
| Dr. | Javier Urchueguia | Universidad Politécnica de Valencia, Valencia, Spain |
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