

CelSian – NCNG International Glass Technology Course

**for the
Glass Industry in the UK**

Sheffield, Society of Glass Technology / British Glass building

20th to 24th March, 2017

In cooperation with:



Simpson Combustion and Energy Ltd

Introduction & Summary

CelSian Glass & Solar B.V. organizes regularly a five-day highly technical, comprehensive Glass Technology training course focused on industrial glass production. This course was developed in cooperation with the NCNG (National Committee Netherlands Glass industry).

The next region dedicated CelSian – NCNG International Glass Technology Course is scheduled from **Monday, 20th March to Friday 24th March 2017** (5 days) in Sheffield, a central place for glass science and industry in the UK. The course is open for the employees of the glass producing industry and related suppliers. The training course is hosted at the building of SGT and British Glass in Chapeltown, Sheffield.

This in-depth course covers many aspects of glass and glass production: from raw materials to formed product, including glass structure & properties and mainly concentrates on glass melting technology. Originally started in 1990, the course has been attended by more than 1200 employees from the worldwide glass industry. All presentations are formatted in PowerPoint and are given in the English language.

The registration fee for the five-day training course is £2950,- per participant. GlassTrend member companies benefit from a reduced fee of only £2450,- per participant.

All participants receive:

- A 5-day classical course dedicated to glass technology for glass industries
- An introductory on-line e-learning course in the 2 week-period preceding the classical course
- A comprehensive textbook on industrial glass production, glass properties and glass technology of (about 800 pages)
- The Power Point presentations (pdf formatted presentations)
- Lunches, beverages and 2 informal evening dinners

Hotel accommodation and travel costs are not included.

All attendants receive access to our interactive e-learning course, giving the opportunity to watch 11 short films online (trailer available on <https://youtu.be/plDOPYsBlbQ>). The movies are accompanied by multiple choice questionnaires accessible to the participants for a period of 2 weeks preceding the classical course. This way the participants can become acquainted with the terminology and the basics of the course. The time required to take this introductory course is about 2 hours.

Once registered we apply the following cancellation rules:

- Before Jan. 27th, 2017: free of charge
- Jan 28th – Feb 19th, 2017: 50% of the registration fee will be charged
- Feb 20th – March 20th 2017: 75% of the registration fee will be charged
- No show: full registration fee will be charged

The tentative program can be found on pages 4 & 5, with more details on the content per subject on pages 6 & 7.

Target group

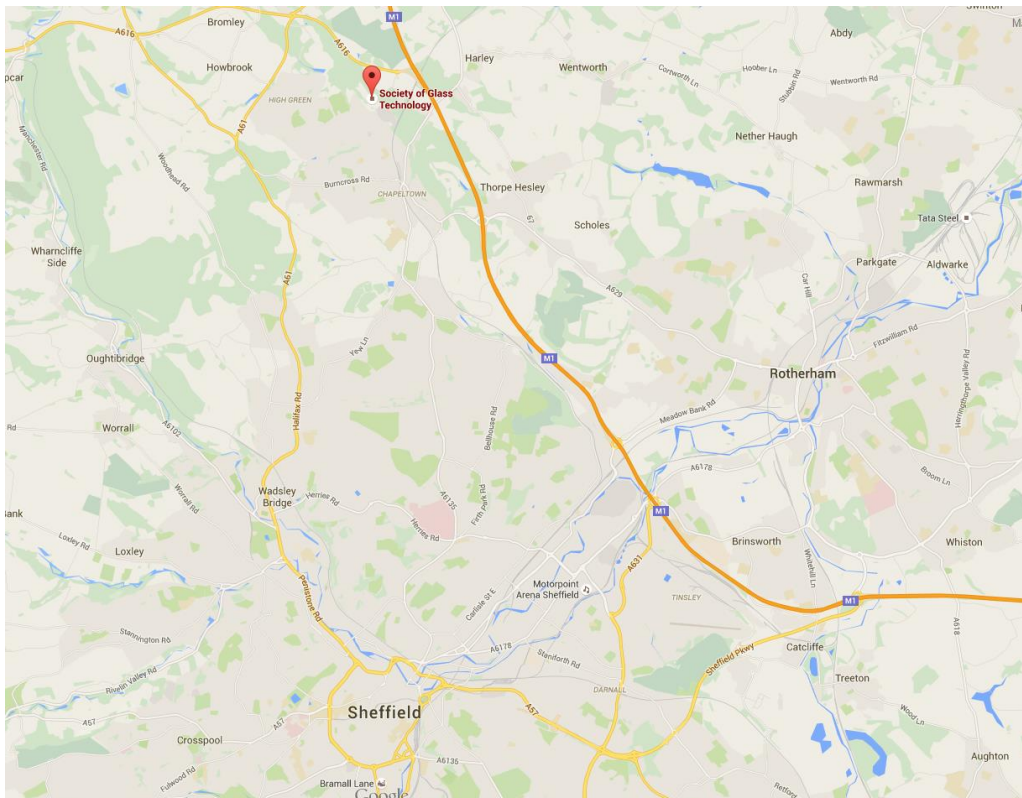
The course is meant for experienced engineers in the glass industry to receive a more detailed understanding of the glass production, entrants in the glass producing industry and related suppliers and young glass technologists and scientists. Level: high technical and academic.

Registration is now open (online registration only)

<http://tinyurl.com/UKcourse2017-Registration>

(GlassTrend website, www.glasstrend.nl, Tab Events & Agenda)

The number of places available is limited to 25.



Location: at the **Society of Glass Technology / British Glass Building**
9 Churchill Way
Sheffield, South Yorkshire, UK

Please make your own hotel room reservations.

Preliminary Program Glass Technology Course

20/3 – 24/3 2017

Host: Society of Glass Technology and British Glass
Place: Sheffield, UK
Location: SGT/ British Glass building, 9 Churchill Way

Program

Monday, 20 March 2017

08.30 – 09.15 hrs.	Welcome & Introduction
09.15 – 12.30 hrs.	Module on Glass Structure & Properties, part 1
12.30 – 13.30 hrs.	Lunch
13.30 – 17.30 hrs.	Module Glass Structure & Properties, part 2

Tuesday, 21 March 2017

09.00 – 12.30 hrs.	Module on Raw Materials & Batch Preparation
12.30 – 13.30 hrs.	Lunch
13.30 – 17.30 hrs.	Module on Glass Furnaces, part 1
18.30 – 21.30 hrs.	Informal dinner in Sheffield area <i>(At the invitation of CelSian Glass & Solar)</i>

Wednesday, 22 March 2017

09.00 – 12.15 hrs.	Module on Glass Furnaces, part 2
12.15 – 13.00 hrs.	Lunch
13.00 – 18.00 hrs.	Visit to DSF Refractory plant in Newhaven, Derbyshire

Thursday, 23 March 2017

09.00 – 12.30 hrs.	Module on Melting and Fining Processes, part 1
12.30 – 13.30 hrs.	Lunch
13.30 – 15.00 hrs.	Module on Melting and Fining Processes, part 2
15.00 – 17.30 hrs.	Module on Energy and Emissions, part 1
18.30 – 21.30 hrs.	Informal dinner in Sheffield area <i>(At the invitation of CelSian Glass & Solar)</i>

Friday, 24 March 2017

09.00 – 12.30 hrs.	Module on Energy and Emissions, part 2 Module on Recycling
12.30 – 13.30 hrs.	Lunch
13.30 – 16.00 hrs.	Module on Glass Defects

Course will finish at ±16.00 hrs.

The arrangement of the different modules and the program of the visits may be subject to changes. The final program will be communicated to all the confirmed participants approximately one week prior to the beginning of the course.

More info about the content of the course can be found in the following pages.

For registration, please fill in the form online:

<http://tinyurl.com/UKcourse2017-Registration>

Content of the course:

The course includes the following subjects:

1. Glass structure and Glass (melt) properties (1 day)
 - a. Glass Chemistry and Physics
 - b. Optical properties
 - c. Mechanical properties
 - d. Physical properties
 - e. Flow properties
 - f. Heat conduction
 - g. Chemical resistance of glass
 - h. Colouring of glass

2. Raw materials for glass (1/2 day)
 - a. Raw material evaluation
 - b. Selection criteria
 - c. Batch preparation and transport
 - d. Batch compositions

3. Melting processes in glass furnaces (3/4 day)
 - a. Melting and fusion of raw materials
 - b. Sand grain dissolution
 - c. Removal of gases (bubbles) – fining, foaming and refining
 - d. Redox chemistry and colour issues
 - e. Homogenisation

4. Glass furnace design, operation and control (1 day)
 - a. Furnace designs
 - b. Refractories and behaviour refractory in glass furnaces
 - c. Combustion systems
 - d. Furnace operation & control

5. Energy efficiency of glass furnaces & emissions (1/2 day)
 - a. Energy balances & Energy saving methods
 - b. Emissions and their sources
 - c. Chemistry of flue gases
 - d. Air pollution Control

6. Recycling of glass (1/2 day)
 - e. Purification of waste glass
 - f. Recycling technologies
 - g. Redox sensors & organic materials in recycled glass

7. Glass defects and glass quality (1/2 day)
 - h. Gas bubbles and their origin
 - i. Knots and their origin
 - j. Stones
 - k. Cords
 - l. Investigation methods for glass faults (defects)