



# The Scandinavian School of Brewing



## Course Programme 2010 - 2012

<b>Diploma Master Brewer Courses</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<u>M1</u> : Raw materials & Wort Production	16 Aug -24 Sep	15 Aug -23 Sep	13 Aug -21 Sep
<u>M2</u> : Fermentation	04Oct -12 Nov	03 Oct -11 Nov	01 Oct -09 Nov
<u>M3</u> : Packaging & Soft drinks	11 Jan -12 Feb	10 Jan -11 Feb	09 Jan -10 Feb
<u>M4</u> : Utilities	22 Feb – 16 Mar	21 Feb -15 Mar	20 Feb -13 Mar
<b>Course for commercial managers</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Brewing Course	31 May – 4 June	09 – 13 May	16 – 20 April
<b>Executive in Beverage industry Supply Chains</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<u>M1</u> :	21 – 25 June	4 – 8 April	
<u>M2</u> :	22 – 26 Nov.	8 – 12 August	
<b>Diplombrygger</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<u>M1</u> :	23 – 27 Aug	17 – 21 Jan	20 – 24 Aug
<u>M2</u> :	15 – 19 Nov	21 – 25 March	12 – 16 Nov
Beer Flavour Session	3 Feb	27 Apr	1 Feb
<u>M3</u> :	4 – 5 Feb	28 – 29 Apr	2 – 3 Feb



# Diploma Master Brewer Course

## The Diploma Master Brewer Course 20½ weeks:

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1. Raw materials & Wort Production	6 weeks
2. Fermentation	6 weeks
3. Packaging & Soft Drinks	5 weeks
4. Utilities	3½ weeks

Dates: Ref Course calendar on front page.

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The Diploma Master Brewer Course is a post-graduate study. The curriculum focuses on practical malting - and brewing science, technology, packaging and soft drinks.

### The entry qualifications are:

- A university degree, a B.Sc. in chemical engineering, food science, pharmacy or the equivalent
- At least nine month of documented extensive brewing experience, before graduating
- A good command of English

Each module is self-contained, thus an additional number of students can attend the individual modules as a separate course, provided a total number of 20 participants is not exceeded.

The teaching load is about 30 lectures per week, including laboratory work and technical visits.

The composition of each module is 50% Technology and the rest is divided between Brewing Chemistry, Brewing Analyses, Microbiology & Microbiological Control, and other topics. Each module is concluded with a written examination.

A four member censor committee (one member appointed by each of the Nordic Brewers' Associations) ensures that the successful candidates' knowledge is of high standard and relevant to the brewing industry.

### Flexibility

It is recommended to attend the modules from M1 to M4 in that order. However, it is possible for candidates who are already working in the brewing industry to follow the modules in any order of the education scheme. This flexibility of the modular system has encouraged several companies to consider this opportunity. SSB requires the four modules completed within duration of no more than five years.

### Practical experience - requirements

The practical experience must to the extent possible prepare the student for the lectures taught at SSB. Read information in details on [www.brewingschool.dk](http://www.brewingschool.dk).

### Participation in individual modules:

As each module is self-contained, it is possible for candidates who already have working experience in the brewing industry to follow only the modules specific within their area of interest. In this case it is possible to exempt from the requirement of a university degree. A certificate is issued after each module.

### Language:

The teaching is conducted in English.

### Application:

Please use the Registration Form available at [www.brewingschool.dk](http://www.brewingschool.dk) or e-mail directly. Application forms can also be sent by request.

#### When to apply:

The number of participants are limited and as they are enrolled on "first-in" basis, it should be as soon as possible and not later than six weeks before beginning of module in question.

### Course fee :

The fee is DKK 14,400.-/week per participant. For companies world-wide who are affiliated Nordic Member Breweries the course fee is DKK 12,300.-/ week. For Member Breweries the course fee is DKK 10,200.-/ week.

### Payment:

Minimum 14 days before course start.

### Accommodation:

Accommodation is at the account of the participating person (Brewery/Company).

A number of possibilities exist:

- Carlsberg Stable Guest Rooms. 12 guestrooms are available, and can be rented at a low price.
- Other accommodation in Copenhagen/Valby area, including breakfast, no special luxury but adequate for studying.
- First class hotel accommodation can also be arranged.

The Scandinavian School of Brewing can recommend suitable accommodation.

### For further information:

Contact to: The Scandinavian School of Brewing, Gamle Carlsberg Vej 16, DK-2500 Valby, Denmark. Phone: +45 33 27 24 00, Fax +45 33 27 24 01. E-mail: [ssb@brewingschool.dk](mailto:ssb@brewingschool.dk)



# Diploma Master Brewer Course

## Module 1: Raw Materials and wort production

This module (6 weeks) covers the raw materials used in brewing and the malting process. It includes the following subjects:

Barley and Barley Breeding and Genetics  
Malt and Special Malts  
Malting technology  
Adjuncts – Sugar, Syrup, Maize, Grits, Rice etc.  
Hop and Hop products  
Brewing Water – Composition, Supply, Treatment  
Brewing Chemistry in theory and practice  
Microbiology  
Raw materials and wort analyses in theory and practice  
Audits  
Malt purchase  
Visit to Malting Plant  
Brewhouse technology  
Dry and wet milling of malt incl. Hammermills  
Mashing in theory and practice  
Mashing Methods  
Brewing with or without adjuncts and/or enzymes  
Wort Separation – Mash Filters and Lautertuns  
Wort boiling, clarification and cooling  
Cleaning and optimising Brewhouse  
Brewhouse operations and Brewhouse process calculations  
Brewing Chemistry in theory and practice  
Energy savings and Brewhouse yield  
Pilot Brewing from raw materials to start of fermentation  
Basic brewery statistics, theory and use of software tools

## Module 2: Fermentation

This module (6 weeks) covers beer processing from primary fermentation to bright beer stage. It includes the following subjects:

Wort handling  
Yeast, yeast taxonomy and yeast breeding  
Yeast propagation  
Fermentation and maturation of malt worts and ciders  
Yeast Handling  
Recovered beer treatment  
Beer stabilisation  
Filtration in theory and practice  
Types of filters  
Design of a filter line  
Design of Bright Beer Tanks  
Future filtration systems  
Plate pasteurisation  
Biological Control  
Microorganisms in the Brewery  
Microbiology and Laboratory Exercises  
Brewing Analyses in theory and practice  
Brewing Chemistry in theory and practice  
Low Alcohol and Non Alcohol Beer  
Tank Construction  
Flavor evaluation in theory and practical taste testing of beer  
Cleaning and disinfection  
Statistical Process Control (SPC)  
Brewery Dimensioning

## Module 3: Packaging & Soft Drinks

This module (5 weeks) covers bottling, canning, kegging, beer drive and dispatch of beer in bulk. The individual steps in a plant from depalletizer and its proper inspection and maintenance to finished products are covered. It includes the following subjects:

Packaging technology  
Trends in packaging  
Conveyors, Speed Control and Accumulation  
Planning and design of packaging lines  
Inspection systems in bottling lines  
Machine Capacity and Line Efficiency  
Filling technology  
Labeling technology  
Bottle washers  
Pasteurisation theory and machinery  
Packaging materials  
Canning  
Brewing and packaging chemistry and analyses  
Quality Management  
Warehousing  
Beer Drive  
Keg plants  
Draught Beer dispensing  
Biological Control  
Flavor evaluation in theory and practice  
Noise abatement  
Production planning  
Warehouse management  
Supply Chain Management and KPI's  
Continuous Improvement (CI) concepts and tools

A flavor house part with:

- Raw Materials
- Design of Soft Drinks
- Preparation of Soft Drinks

A syrup room part with:

- Equipment
- Carbon Dioxide
- Production

It also includes:

- Calculations
- Post mix and pre mix systems
- Soft drinks, RTD and cider analyses
- Microbiology and quality assurance
- Quality control

## Module 4: Utilities

This module (3½ weeks) covers the energy supply plants and systems, energy consumption and emissions, maintenance, basic economics and standard accounts of consumption and production costs. Further, it gives an understanding of how the different sections of the brewery are connected and depend on each other. This is illustrated by calculating a "Standard Brewery".

It includes the following subjects:

Standard Brewery Basic calculations - projecting & designing a brewery

- Utilities
- Heating
- Cooling
- CO<sub>2</sub> recovery
- Electricity supply & treatment
- Compressed air
- Building installations

Hydraulics/ Pumps/ Valves/ Pipes

Process control

Environmental Management and reporting

Environmental Impact and Waste Water Treatment

Resources Management and Recovery

Maintenance

Business Economics

Standard Brewery Basic calculations - projecting & designing a brewery

- Investments evaluations
- Financial control
- Feasibility study introducing new products