DESIGNING – AND BREWING – A BEER FROM SCRATCH

At SSB, we look at how to take teaching out of the classroom and how to prepare our students for their future careers as master brewers in a brewery. Relatively early in our syllabus, we challenge our students to design their own beer recipe; from raw materials to fermentation and dispense on tap.

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Our main lecturer for this activity (supported, however, by lecturers in brewing chemistry, beer calculations, brewing analysis, etc.) is Master Brewer Anders Kissmeyer from Nørrebro Bryghus, who teaches theory in class and later puts his microbrewery at our disposal for pilot brewing.

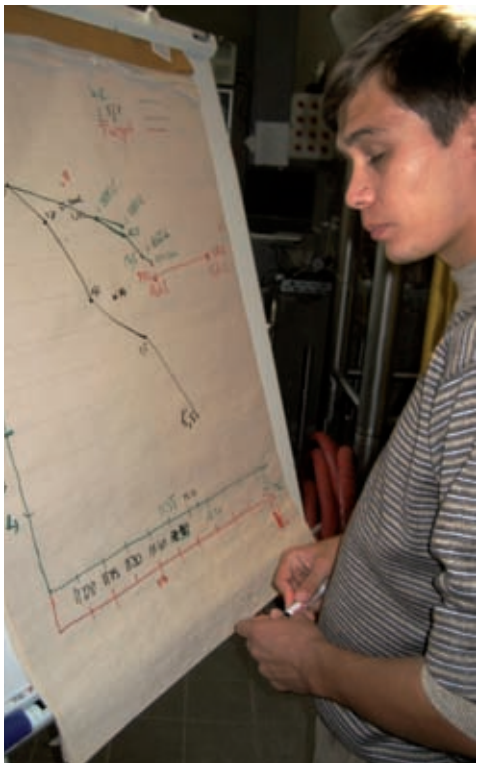
The subject 'recipe formulation' is usually a popular one, and it takes the students' minds to foreign places through Europe, USA and Asia. Subjects addressed are brewing liquor (salt balances), malts, hops, yeast, the process and any other ingredients like herbs and spices.

The multinational class was split into two teams and were presented with a choice of beer styles. The categories from which the students could choose were a dry Irish stout, a Bavarian helles or a Belgian brune.

The winning team, yes, a competition in the class makes it all the more challenging, had decided on a Belgian brune. They explored the internet and the literature and had to recognise that a Belgian brune comes in many forms. The key parameters and the basic recipe composition could begin: Malt grist composed by 60 per cent pale malt, 15 per cent melanoid malt, 12 per cent dark wheat malt and smaller quantities of other malts, i.e. chocolate malts. Two hops were selected; Goldings East Kent as bitter hops and Saaz as aroma hops. The yeast type selected was a true Trappist ale yeast, and fermentation took place at 20 degrees Celsius. The amounts were calculated for the size of the brewhouse, the expected extract losses, the hops utilisation, and the boiling capacity at Nørrebro Bryghus, where the actual brewing was to take place. The result was a Belgian brune named The Viking Brune.

The Viking Brune was in tight competition with the nominee from the other team of the class who had worked to design a Bavarian helles. After some thorough thinking the winning recipe was The Viking Brune.

Brewing the beer was a hands-on experience, practical to the point of physical exercises!
Early Monday morning, we arrived at Nørrebro Bryghus, located in Copenhagen and known to many SBR readers. After a brief introduction to the microbrewery, it was time to go and manually weigh some 300 kilos of malt, preparing for the milling. Meanwhile, other students calibrated the pH-meter, the Anton Paar hand-held densitometer, and checked the iodine solutions' freshness. →

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Mashing-in could commence and after the saccharification check, run-off to the lauter tun could start. Samples for wort strength were taken with short intervals to ensure extract yield of last runnings and wort strength in the wort kettle. Other students had calculated the amount of hops pellets to add to the wort kettle, based upon alfa-acid contents in the hops used and on the microbrewery's utilisation degree of hopping.

Wort samples were taken after the boil and stored in the fridge for later analysis in the laboratory.

The brewing day ended after the boiled wort had been cooled and transferred to an empty fermenter, yeast had been pitched at the calculated amount, and all vessels had received a thorough good clean.
Cleaning is time-consuming and a daily 'reward' in the brewery.

It was a fun day with many brewers crammed into the small brewhouse; a practical day and an opportunity to experience what actually goes on in the brewhouse.

Next stop was the Scandinavian Brewery Laboratory the day after the actual brewing.
This was once again a day with hands-on experience. It was a multinational lab crew eager to analyse.
The wort samples from Nørrebro Bryghus and the malts were examined in the laboratory. The malt was analysed for size, purity, moisture content, degree of modification, and a congress mash was made. The congress mash and the wort from the brewery were analysed for viscosity, colour, extract, β-glucan and bitterness. All methods were carried out in accordance to EBC standards.
This part is equally important, as many students may not do this kind of analytical jobs themselves once they have become master brewers.

Weeks later, the final beer was sampled by the students on location at Nørrebro Bryghus. The beer was found satisfactory by the students and, just as important, by Nørrebro Bryghus, who had the challenge of selling 16 hectolitres of our students' pilot brew.

The process from design of beer style to sampling the end product is a 6-week journey that challenges the students, but in a way he or she will remember for some time. Later on, they will probably move on to a large-scale brewery which may not offer the opportunity to follow each process step quite as closely.