

THE INSTITUTE OF BREWING & DISTILLING

THE MASTER BREWER PROGRAMME

INTRODUCTION

The Master Brewer (M.Brew) Programme will be part of your Continuing Professional Development. The Programme of recommended experience and acquisition of competence in the technical management of the beer process is precisely detailed on approx. 100 pages, divided into 4 Modules.

Progressive acquisition of the competencies described on each page builds up to a permanent personal record of achievement, yielding Certificated Qualifications in their own right through success in each Module Examination.

The title of Master Brewer is awarded following completion of 5 Module Examinations (including a cross-modular paper, known as the Case Study).

The Diploma in Brewing Examination Qualification, acquired through study of the basic principles of Brewing Science and Technology, is a pre-requisite for sitting the M.Brew Examination.

That qualification ensures the grounding of knowledge and comprehension necessary to undertake the interpretative skill development in practical situations required by the M.Brew Examinations.

The Programme has been designed as far as possible to be wholly relevant to international brewing practices.

In the case of Module 3 (Packaging and Beer Dispense) candidates will be examined in their national packaging and beer dispense practices.

The Module 3 Examination Paper will be the same for all candidates, but contain enough question options to allow for this. (See the first page of Module 3 for more detailed guidance.)

ADVICE TO CANDIDATES

It is recommended that you acquire a Mentor for each Element of the Programme. Ideally, a single experienced Mentor capable of giving general direction, support and assessment of progress through a Module will give the greatest opportunity for success in the Examinations.

Combined with the need for specialist tuition and training in many Elements, the Programme can be the ideal channel for technical training and development in the brewery.

The Programme is modular, in order to allow you to sit the Examinations when your experience is fresh, and to progress through the Programme alongside normal career development.

The Programme is a carefully designed compendium of technical management responsibility, experience and study which can be undertaken with the minimum of disruption to your full-time job, whilst you acquire the stated competencies Element by Element.

You need to make use of the spaces allotted on every sheet for recording your acquired competencies, signed off by your Mentor or Senior responsible for your training. Not only will this allow you to plan your progress, but also to establish the record of your personal achievements, and to give confidence of readiness to sit each Module Examination.

The Experience details are only recommended and you must satisfy yourself of the time you require for each activity. However, the words of the Recommended Experience define the competencies that the Examiners will test, and the statements below (what the candidate should be able to do) define the scope of the Examination questions.

The quality and accuracy of your records are your responsibility. Please note that you may be required to submit copies of your Module sheets to the IBD, prior to sitting the Examination. These will not be marked, but will be used by the Examiners as a supplementary aid to assessing the underlying quality of

examination answers. *Nothing will be gained by mis-recording quality of experience.*

You should make use of the "Shortfall in Experience" boxes as your personal guide to future Continuing Professional Development.

Circumstances will sometimes arise when some recording of acquired competencies will need to be entered retrospectively. In this event, you must satisfy your Mentor or Senior responsible for your training that such experience is valid for signing off.

In order to assist consistent comprehension of the Recommended Experience, the following broad definitions are offered:

"Technical Management"	means	gaining competence largely through line responsibility.
"Direct Experience"	means	gaining competence by work experience, but not necessarily with line responsibility.
"Familiarisation"	means	gaining competence from specialists, but not necessarily working with them for fixed periods of time.
"Evaluate"/"Compare"	means	gaining competence through observation, interpretation and making your own judgements.
"Study"	means	to acquire knowledge and comprehension.

During the course of the Programme you are expected to keep up-to-date with the literature concerning novel plant and processing techniques across the whole syllabus, and to demonstrate this in the appropriate examination answers. Certain Elements in the Programme specify up-to-date knowledge.

You are strongly advised to keep copious personal notes of your experience through the Programme.

For those aspiring to the full Master Brewer Qualification, candidates must successfully complete all 4 Modules AND the all-embracing Case Study.

The Case Study will require the candidate to integrate the skills acquired in the 4 Modules, by interpreting broad process issues involving inter-relationships between all the Elements of the syllabus. No additional experience or study should be necessary.

The Case Study Examination will be "Open Book" until 2002, the breadth of the questioning being best tackled by candidates referring to good quality personal notes, rather than expecting to find answers in text books.

EXAMINATION DETAILS

Qualification to sit the M.Brew Examinations is membership of The Institute of Brewing & Distilling throughout the Programme, and to be an Associate Member at the time of sitting a M.Brew Examination.

The five Modules and their Examinations may be tackled in any order.

There is no time limit between Registration onto the Programme and sitting one or all of the Module Examinations.

The Case Study may be taken at any time during the Programme, although the title Master Brewer will only be awarded on completion of all five Modules.

REGISTRATION FOR EXAMINATIONS

The M.Brew Modular Examinations will take place in June of each year.

Candidates must register with the IBD before the 1st November of the previous year.

Registration fees and any special conditions are published regularly in the IBD's publications.

ISSUE OF CERTIFICATED QUALIFICATIONS

Each Module Examination success is individually Certificated as a self-standing Qualification (except the Case Study), testifying to the highest professional competence in technical management in that area of brewery operations.

The Certificate and Title of Master Brewer recognises the highest professional competence in technical management of the beer production process, and is a comprehensive Qualification of international standing.

EXAMINATION ENQUIRIES:

Please address all enquiries and correspondence to:

**The Examinations Department
The Institute of Brewing & Distilling
33 Clarges Street
London
W1J 7EE**

Tel: +44 (0)20 7499 8144
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MASTER BREWER PROGRAMME

SYLLABUS

MODULE 1 - MATERIALS & WORT PRODUCTION

UNIT 1.1 **Basic Raw Materials - Malt**

- Element*
- 1.1.1 Selection of barleys for malting
 - 1.1.2 The malting process
 - 1.1.3 Storage, quality control and specifications

UNIT 1.2 **Basic Raw Materials - Hops**

- 1.2.1 Selection of hops for brewing
- 1.2.2 Hop products

UNIT 1.3 **Basic Raw Materials - Adjuncts**

- 1.3.1 Selection of non-malt brewhouse adjuncts
- 1.3.2 Other brewing extracts and quality control procedures

UNIT 1.4 **Basic Raw Materials - Water**

- 1.4.1 Supply and control of potable quality
- 1.4.2 Treatment of brewing waters

UNIT 1.5 **Brewhouse Practice**

- 1.5.1 Materials and composition of wort
- 1.5.2 Selection, design and layout of plant
- 1.5.3 Technical management of wort production
- 1.5.4 General management
- 1.5.5 Management of utilities usage
- 1.5.6 Control of hygiene
- 1.5.7 Quality control procedures
- 1.5.8 Control of costs

MODULE 2 - BEER PROCESSING

UNIT 2.1 **Fermentation**

- Element*
- 2.1.1 Design of product and process specifications
 - 2.1.2 Selection, design and layout of plant
 - 2.1.3 Yeast management
 - 2.1.4 Yeast propagation
 - 2.1.5 Technical management of fermentation
 - 2.1.6 General management
 - 2.1.7 Management of utilities usage
 - 2.1.8 Control of hygiene
 - 2.1.9 Quality control procedures
 - 2.1.10 Control of costs

UNIT 2.2 **Maturation and Conditioning**

- 2.2.1 Design of product and process specifications
- 2.2.2 Selection, design and layout of plant
- 2.2.3 Technical management of conditioning
- 2.2.4 General management
- 2.2.5 Management of utilities usage
- 2.2.6 Control of hygiene
- 2.2.7 Quality control procedures
- 2.2.8 Control of costs

UNIT 2.3 **Filtration and Clarification**

- 2.3.1 Design of product and process specifications
- 2.3.2 Selection, design and layout of plant
- 2.3.3 Technical management of filtration
- 2.3.4 General management
- 2.3.5 Management of utilities usage
- 2.3.6 Control of hygiene
- 2.3.7 Quality control procedures
- 2.3.8 Control of costs

MODULE 3 - PACKAGING & BEER DISPENSE

Candidates may be examined only within the scope of their national brewing practices.

UNIT 3.1 **Keg Beer Packaging**

- Element*
- 3.1.1 Beer and container specifications
 - 3.1.2 Selection, design and layout of plant
 - 3.1.3 Technical management of keging
 - 3.1.4 Supply and control of packaging materials
 - 3.1.5 General management
 - 3.1.6 Management of utilities usage
 - 3.1.7 Control of hygiene
 - 3.1.8 Quality control procedures
 - 3.1.9 Control of costs

UNIT 3.2 **Cask Conditioned Beer**

- 3.2.1 Beer and container specifications
- 3.2.2 Selection, design and layout of plant
- 3.2.3 Technical management of cask beer
- 3.2.4 Supply and control of packaging materials
- 3.2.5 General management
- 3.2.6 Management of utilities usage
- 3.2.7 Control of hygiene
- 3.2.8 Quality control procedures
- 3.2.9 Control of costs

- UNIT 3.3 **Canning**
- 3.3.1 Beer and container specifications
 - 3.3.2 Selection, design and layout of plant
 - 3.3.3 Technical management of canning
 - 3.3.4 Supply and control of packaging materials
 - 3.3.5 General management
 - 3.3.6 Management of utilities usage
 - 3.3.7 Control of hygiene
 - 3.3.8 Quality control procedures
 - 3.3.9 Control of costs
- UNIT 3.4 **Bottling**
- 3.4.1 Beer and container specifications
 - 3.4.2 Selection, design and layout of plant
 - 3.4.3 Technical management of bottling
 - 3.4.4 Supply and control of packaging materials
 - 3.4.5 General management
 - 3.4.6 Management of utilities usage
 - 3.4.7 Control of hygiene
 - 3.4.8 Quality control procedures
 - 3.4.9 Control of costs
- UNIT 3.5 **Beer Dispense and Cellar Management**
- 3.5.1 Selection of primary beer dispense equipment
 - 3.5.2 Cellar design and layout in retail outlets
 - 3.5.3 Beer management in the retail outlet

MODULE 4 - CENTRAL FUNCTIONS

- UNIT 4.1 **Supply and Control of Utilities**
- Element*
- 4.1.1 Steam raising and distribution
 - 4.1.2 Electricity supply and distribution
 - 4.1.3 Refrigeration
 - 4.1.4 CO₂ and N₂ supply and distribution
 - 4.1.5 Compressed air supply and distribution
 - 4.1.6 Effluent and solid waste disposal
- UNIT 4.2 **Plant Maintenance**
- 4.2.1 Organisation and planning
 - 4.2.2 Efficiency and cost control
- UNIT 4.3 **Capital Projects**
- 4.3.1 Project justification
 - 4.3.2 Project management
- UNIT 4.4 **Health and Safety**
- 4.4.1 Regulatory activity
 - 4.4.2 Management controls

UNIT 4.5 **Central Quality Functions**

- 4.5.1 Quality systems
- 4.5.2 Laboratory services

UNIT 4.6 **Budgetary Control**

- 4.6.1 Principles of revenue budgeting
- 4.6.2 Management accounting in practice
- 4.6.3 Management of volume demand

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.1 **BASIC RAW MATERIALS - MALT**
 ELEMENT: 1.1.1 **Selection of Barleys for Malting**

Recommended Experience

- 1.1.1.1 Study up-to-date literature on the major world-wide sources of barleys of malting quality.
- 1.1.1.2 Familiarisation with barley selection based on grain physiology, agronomic factors that affect economy and quality, geographical area and availability of processing aids during malting.
- 1.1.1.3 Familiarisation with barley quality specifications necessary to attain the typical range of brewers' malts.
- 1.1.1.4 Direct experience of brewing with malts prepared from a range of barley varieties, noting the specification characteristics and brewing controls relevant to barley selection.

The candidate should be able to demonstrate a wide knowledge of sourcing barley of malting quality, and to quantify relationships between wort/beer specifications and barley quality.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.1.1.1				
1.1.1.2				
1.1.1.3				
1.1.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING

THE MASTER BREWER PROGRAMME

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.1 BASIC RAW MATERIALS - MALT
 ELEMENT: 1.1.2 The Malting Process

Recommended Experience

- 1.1.2.1 Study at least two different systems of malting, comparing materials of construction, flexibility, efficiencies, quality and cost factors.
- 1.1.2.2 Familiarisation with the process variables under the Maltster's control, including processing aids and the effects of any environmental constraints.
- 1.1.2.3 Visit production of several different malt types, noting the range of specifications and tolerances attainable for specific brewhouse usages.
- 1.1.2.4 Evaluate the relationships that exist between the potential of the raw barley, the malting process control variables, and meeting a detailed malt specification at an acceptable cost.

The candidate should be able to demonstrate the malting procedures required to meet a full malt specification, and to interpret the effects of process control variables on malt quality.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.1.2.1				
1.1.2.2				
1.1.2.3				
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Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.1 BASIC RAW MATERIALS - MALT
 ELEMENT: 1.1.3 Storage, Quality Control and Specifications

Recommended Experience

- 1.1.3.1 Study barley intake at a maltings, evaluating storage, drying, pest control and stability requirements.
- 1.1.3.2 Familiarisation with sampling procedures and analytical techniques at barley intake and during the malting process.
- 1.1.3.3 Direct experience of sampling procedures and analytical techniques for finished malt, and deriving full malt specifications (including tolerances) for a wide range of beer flavours and types.

The candidate should be able to demonstrate knowledge of modern scientific control in a maltings and be able to derive malt specifications and tolerances relevant to both maltster and brewer, for a wide range of beer types.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.1.3.1				
1.1.3.2				
1.1.3.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.2 **BASIC RAW MATERIALS - HOPS**
 ELEMENT: 1.2.1 **Selection of Hops for Brewing**

Recommended Experience

- 1.2.1.1 Visit hop producers to study selection of varieties based on agronomic factors, disease and pest control, growing and harvesting techniques.
- 1.2.1.2 Evaluate the varieties and their characteristics most suited for the brewhouse and/or subsequent processing into the various commercially available hop products.
- 1.2.1.3 Study the literature on current world patterns of hop production and evaluate which characteristics are relevant to local beer production.

The candidate should be able to specify a choice of hop variety and specification characteristics relevant to local brewing requirements, and to demonstrate a broad understanding of the world hop scene.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.2.1.1				
1.2.1.2				
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Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.2 BASIC RAW MATERIALS - HOPS
 ELEMENT: 1.2.2 Hop Products

Recommended Experience

- 1.2.2.1 Study the active ingredients, stability, method of use, contribution to beer flavour and quality, of all the types of hop products described in the literature and which are widely available commercially.
- 1.2.2.2 Visit production sites of at least two processed hop products, evaluating the course of conversion and/or removal of undesired/desired components, and the associated specifications and quality control procedures. Extend this experience to a study of other hop products.
- 1.2.2.3 Direct experience of in-brewery quality control procedures, storage techniques, usage, efficiency and cost.

The candidate should be able to make well-reasoned appraisals for hop product usage in a range of beers, covering contribution to beer quality, methods of application and efficiency in use.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.2.2.1				
1.2.2.2				
1.2.2.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.3 **BASIC RAW MATERIALS - ADJUNCTS**
 ELEMENT: 1.3.1 **Selection of Non-Malt Brewhouse Extract**

Recommended Experience

- 1.3.1.1 Technical management of wort production using at least two non-malt sources of extract.
- 1.3.1.2 Study the ingredients, stability, method of use, extract efficiency and contribution to wort and beer quality of all the liquid and solid adjuncts in common use.
- 1.3.1.3 Visit production sites of two commonly used adjuncts, evaluating the raw materials, process techniques, quality control procedures and product specifications.
- 1.3.1.4 Extend existing experiences to a wider comparative study of quality and cost factors in using other adjuncts.

The candidate should be able to provide a well-reasoned, detailed proposal for a production regime involving the use of adjuncts to meet a particular wort/beer specification and production cost requirement.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.3.1.1				
1.3.1.2				
1.3.1.3				
1.3.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.3 **BASIC RAW MATERIALS - ADJUNCTS**
 ELEMENT: 1.3.2 **Other Brewing Extracts and Quality Control Procedures**

Recommended Experience

- 1.3.2.1 Direct experience of using solid or liquid sugar-based products as sweetening, colouring or for other uses in beer.
- 1.3.2.2 Study the availability, suitability and specifications of the range of sugars and caramels as beer additions. Include efficiency in use.
- 1.3.2.3 Direct experience of intake, storage and use of all brewery adjuncts, including dilution techniques, hygiene control and quality control procedures.

The candidate should be able to demonstrate expertise in selection of sugars and caramels, and their efficient preparation for subsequent use in wort or beer.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.3.2.1				
1.3.2.2				
1.3.2.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.4 **BASIC RAW MATERIALS - WATER**
 ELEMENT: 1.4.1 **Supply and Control of Potable Quality**

Recommended Experience

- 1.4.1.1 Direct experience of supply of purchased or own water into a brewery, including local regulations, legal requirements and distribution system.
- 1.4.1.2 Study the environmental factors related to supply of raw water, including the types of sources; supply and quality hazards; the ranges of chemical, physical and biological composition suitable for subsequent use in the brewery; and compare costs.
- 1.4.1.3 Evaluate the various systems for upgrading raw water to potable standards.

The candidate should be able to assess and interpret all factors involved in organising a brewery's water supply and raising it to potable quality.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.4.1.1				
1.4.1.2				
1.4.1.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.4 BASIC RAW MATERIALS - WATER
 ELEMENT: 1.4.2 Treatment of Brewing Waters

Recommended Experience

- 1.4.2.1 Technical management of using brewing waters of fixed specifications, including for mashing, sparging, diluting and CIP systems.
- 1.4.2.2 Evaluate and compare at least two systems for treating water to brewing standards, including plant design, operating techniques, reliability, capital and maintenance and running costs. Extend study to other common treatment systems.
- 1.4.2.3 Study the establishment of specifications and quality control procedures for all water uses in the brewery.

The candidate should be able to propose a quality and cost-effective water treatment system from intake of raw water of a given analytical range, delivered to all points of the brewery to specified volume and quality requirements.

Note: Module 2 covers the subsequent treatment of water for high gravity dilution.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.4.2.1				
1.4.2.2				
1.4.2.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.5 **BREWHOUSE PRACTICE**
 ELEMENT: 1.5.1 **Materials and Composition of Wort**

Recommended Experience

- 1.5.1.1 Technical management of brewing finished worts to specification, interpreting variations from the norm into corrective action.
- 1.5.1.2 Evaluate the effect of variations in materials and wort composition on subsequent processing and beer quality. Determine acceptable tolerances of materials and finished wort specifications.
- 1.5.1.3 Determine the unit cost of extract (or active ingredient) of a wide range of raw materials used in the brewhouse.

The candidate should be able to present well-reasoned, cost-effective specifications for the materials, wort production process and finished wort for a range of common beer types, to include worts for top and bottom fermentations, high and low alcohol beers.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.5.1.1				
1.5.1.2				
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Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.5 **BREWHOUSE PRACTICE**
 ELEMENT: 1.5.2 Selection, Design and Layout of Plant

Recommended Experience

- 1.5.2.1 Familiarisation with the materials of construction, design and functions of a brewhouse layout and utilities distribution, researching the merits of each item of plant.
- 1.5.2.2 For each main part of the process, evaluate alternative methods, and types of individual plant items, comparing for quality, cost, efficiency attributes.
- 1.5.2.3 Study through capital project specialists the features of special relevance for deriving a valid design and layout plan.
- 1.5.2.4 Study the current literature on the latest brewhouse technology and practice.

The candidate should be able to present well-reasoned, up-to-date designs of individual plant items, and outline layout proposals for complete brewhouse plant, with particular emphasis on wort quality, management of product flow, utilities usages, efficiencies and costs (capital and running).

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.5.2.1				
1.5.2.2				
1.5.2.3				
1.5.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.5 **BREWHOUSE PRACTICE**
 ELEMENT: 1.5.3 **Technical Management of Wort Production**

Recommended Experience

- 1.5.3.1 Technical management, using all the available treatment and control variables and their typical ranges, to attain specified parameters and efficiencies. To include constant observation, interpretation and taking corrective actions in the course of water treatment, milling, mashing/cooking, mash filtration, boiling, hop/trub separation and wort cooling.
- 1.5.3.2 Evaluate the merits and common usages of the available range of brewhouse processing aids.
- 1.5.3.3 Evaluate the range of available instrumentation and process control systems with a detailed study of one.
- 1.5.3.4 Familiarisation with the techniques of wort production for the range of different beers not covered by direct experience in this Element. Essential to include top and bottom fermentation, high and low alcohol beers, and several extraction and mash filtration processes.

The candidate should be able to present a detailed, reasoned proposition on any aspect of technical management of wort production, whether of a process design, quality, efficiency or corrective action nature

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.5.3.1				
1.5.3.2				
1.5.3.3				
1.5.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. MATERIALS & WORT PRODUCTION
 UNIT: 1.5 BREWHOUSE PRACTICE
 ELEMENT: 1.5.4 General Management

Recommended Experience

- 1.5.4.1 Direct experience of stock control of brewing raw materials, including evaluation of techniques to maximise efficiency.
- 1.5.4.2 Direct experience of efficient Brewing Programme design and operation, including evaluation of the options for accommodating cleaning and maintenance downtime.
- 1.5.4.3 Direct experience of managing relevant Taxation, Health, Employment, Safety and Environmental requirements in brewhouse operations.
- 1.5.4.4 Direct experience of disposal of brewhouse waste and by-products, including the means of minimising disruption to the process and costs of disposal.

The candidate should be able to relate key aspects of general management to their effects on the efficient running of the process, and will be expected to give them due weighting in answering examination questions of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.5.4.1				
1.5.4.2				
1.5.4.3				
1.5.4.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.5 **BREWHOUSE PRACTICE**
 ELEMENT: 1.5.5 **Management of Utilities Usage**

Recommended Experience

- 1.5.5.1 Technical management of usage of steam, electricity, water, refrigeration, compressed air and discharging effluent.
- 1.5.5.2 Evaluate and compare the available means of measuring and controlling consumption of these utilities, including energy management techniques and elimination of waste.
- 1.5.5.3 Determine the relative contribution of each utility to the cost of the brewhouse operation.

The candidate should be able to give due weighting to utility usage and economy when developing reasoned proposals of an operational efficiency nature.

Where relevant, the effect of local regulations on energy or waste needs to be included.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.5.5.1				
1.5.5.2				
1.5.5.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.5 **BREWHOUSE PRACTICE**
 ELEMENT: 1.5.6 **Control of Hygiene**

Recommended Experience

- 1.5.6.1 Technical management of brewhouse cleaning and sterilising equipment, processes and procedures.
- 1.5.6.2 Evaluate alternative designs of brewhouse cleaning systems and practices, including composition and control of use of cleansing agents. Compare for efficiency and cost (capital and running).
- 1.5.6.3 Direct experience of setting standards of physical and microbiological cleanliness, including interpretation of microbiological data.

The candidate should be able to design sound hygiene procedures and practices, and interpret data therefrom for maintenance of hygiene standards, and for problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.5.6.1				
1.5.6.2				
1.5.6.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. MATERIALS & WORT PRODUCTION
 UNIT: 1.5 BREWHOUSE PRACTICE
 ELEMENT: 1.5.7 Quality Control Procedures

Recommended Experience

- 1.5.7.1 Technical management of quality control procedures in the brewhouse.
- 1.5.7.2 Evaluate alternative designs for QC sampling plans and procedures, distinguishing between operator-controlled procedures/analysis, in-line quality controls and laboratory sampling/analysis.
- 1.5.7.3 Evaluate in the laboratory the accuracy, cost and value of all analyses supplied to the Department.
- 1.5.7.4 Direct experience of interpreting QC procedures and data in problem solving situations.

The candidate should be able to present a detailed, reasoned proposition on any aspect of using efficient scientific controls for quality maintenance or improvement, and effectiveness in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.5.7.1				
1.7.5.2				
1.5.7.3				
1.5.7.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 1. **MATERIALS & WORT PRODUCTION**
 UNIT: 1.5 **BREWHOUSE PRACTICE**
 ELEMENT: 1.5.8 **Control of Costs**

Recommended Experience

- 1.5.8.1 Familiarisation with management accounting reports of departmental operating costs, and taking appropriate action to correct variances from budget.
- 1.5.8.2 Evaluate the relative contributions that the main components of departmental costs make to product unit costs. Distinguish between fixed and variable costs.
- 1.5.8.3 Evaluate practically and financially the effects on quality and product unit costs of the major factors under technical control, eg brewing materials costs and extract efficiencies, plant utilisation, losses, labour costs, utilities, etc.

The candidate should be able to demonstrate the principles and practice of cost control by giving due weighting to costs when developing a reasoned proposition of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
1.5.8.1				
1.5.8.2				
1.5.8.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.1 **Design of Product and Process Specifications**

Recommended Experience

- 2.1.1.1 Technical management of the process from cold wort control to the end of primary fermentation, interpreting variations from the norm into corrective action.
- 2.1.1.2 Evaluate the effect of variations in wort composition on fermentation performance and beer quality.
- 2.1.1.3 Evaluate the effect of temperature profiles, pitching conditions, processing aids and other control variables on fermentation performance and beer quality.
- 2.1.1.4 Determine acceptable specifications and tolerances for wort, process conditions, additions and finished beer, for a range of common beer types.

The candidate should be able to present well-reasoned specifications and tolerances for an efficient fermentation process, and for product quality from wort intake to conditioning, for a range of common beer types, including top and bottom fermented, high and low alcohol beers.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.1.1				
2.1.1.2				
2.1.1.3				
2.1.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.2 Selection, Design and Layout of Plant

Recommended Experience

- 2.1.2.1 Familiarisation with the materials of construction, design and functions of fermentation plant, associated yeast handling plant and utilities distribution, researching the merits of each item of plant. Include environmental and safety factors.
- 2.1.2.2 Evaluate alternative types of individual plant items, comparing for quality, cost, efficiency attributes.
Note: CO₂ collection is included in Module 4.
- 2.1.2.3 Study through capital project specialists the features of special relevance for deriving a valid design and layout plan.
- 2.1.2.4 Refer constantly to the current literature on the latest fermentation technology and practice.

The candidate should be able to present well-reasoned, up-to-date designs of individual plant items and outline layout proposals for complete top and bottom fermentation plant, with particular emphasis on beer quality, utilities usage, efficiencies and costs (capital and running).

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.2.1				
2.1.2.2				
2.1.2.3				
2.1.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.3 **Yeast Management**

Recommended Experience

- 2.1.3.1 Technical management of yeast handling, including procedures for yeast cropping, storage, pitching and waste disposal/recovery.
- 2.1.3.2 Evaluate the options available for maintenance and standardisation of yeast quality during collection and storage, defining acceptable specifications and tolerances for the quantity, quality and condition of yeast at pitching into a range of common wort types.
- 2.1.3.3 Evaluate the means available to control pitching rate, comparing for accuracy, reliability, efficiency and cost.
- 2.1.3.4 Evaluate the options available for separation of beer from waste yeast and its subsequent use, comparing for effect on quality, cost and efficiency.

The candidate should be able to present a detailed proposition on any aspect of yeast handling, up to the provision of pitching yeast at a closely defined quality specification for a range of common beer types, including top and bottom fermentation, high and low alcohol beers.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.3.1				
2.1.3.2				
2.1.3.3				
2.1.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.4 **Yeast Propagation**

Recommended Experience

- 2.1.4.1 Direct experience of operating a Yeast Propagation Plant.
- 2.1.4.2 Evaluate two types of propagation plant, comparing for quality, cost, efficiency attributes.
- 2.1.4.3 Evaluate the available means of storage and provision of yeast cultures for routine propagation, comparing for reliability and cost.
- 2.1.4.4 Define specifications and tolerances for quality and condition of the yeast culture ex propagator, and the design features of the propagator that are essential to meet these specifications.

The candidate should be able to present a detailed proposition on any aspect of the provision of a propagated yeast culture destined for pitching on the commercial scale.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.4.1				
2.1.4.2				
2.1.4.3				
2.1.4.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.5 **Technical Management of Fermentation**

Recommended Experience

- 2.1.5.1 Technical management using all the available beer treatment and control variables, and their typical ranges, to attain specified parameters and efficiencies. To include constant observation, interpretation and taking corrective action in the course of wort collection, pitching, fermentation and preparation of the beer for subsequent processing.
- 2.1.5.2 Evaluate the merits and common usages of the available range of fermentation processing aids.
- 2.1.5.3 Evaluate the techniques of fermentation for a range of different beers, especially top and bottom fermentations, high and low alcohol products, noting special demands on plant, services and/or quality implications.
- 2.1.5.4 Evaluate the available range of instrumentation and process control systems, with a detailed study of one.

The candidate should be able to present a detailed proposition on any aspect of technical management of the fermentation process, whether of a process design, quality, efficiency or corrective action nature, for a range of common beer types, including top and bottom fermentations, high and low alcohol beers.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.5.1				
2.1.5.2				
2.1.5.3				
2.1.5.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.6 **General Management**

Recommended Experience

- 2.1.6.1 Direct experience of stock control of product in process, including techniques to satisfy the requirements of the Brewing Programme, call-off to conditioning, optimum vessel turnround, and product quality.
- 2.1.6.2 Evaluate the management options for accommodating cleaning and maintenance downtime in relation to optimum operational efficiency.
- 2.1.6.3 Direct experience of managing relevant Taxation, Health, Employment, Safety and Environmental requirements.
- 2.1.6.4 Direct experience of disposal of waste and by-products, including the means of minimising costs.

The candidate should be able to relate key aspects of general management to their effects on the efficient running of the process, and will be expected to give them due weighting in answering examination questions of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.6.1				
2.1.6.2				
2.1.6.3				
2.1.6.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.7 **Management of Utilities Usage**

Recommended Experience

- 2.1.7.1 Technical management of usage of steam, electricity, water, refrigeration, compressed air and discharging effluent.
- 2.1.7.2 Evaluate and compare the available means of measuring and controlling consumption of these utilities, including energy management techniques and elimination of waste.
- 2.1.7.3 Determine the relative contribution of each utility to the costs of the fermentation operation.

The candidate should be able to give due weighting to utility usage and its economy when developing reasoned proposals of an operational efficiency nature. Where relevant, the effects of local regulations on energy or waste need to be included.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.7.1				
2.1.7.2				
2.1.7.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

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MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.8 **Control of Hygiene**

Recommended Experience

- 2.1.8.1 Technical management of cleaning and sterilising equipment processes and procedures in fermentation, yeast handling and associated plant.
- 2.1.8.2 Evaluate alternative designs of cleaning systems and practices, including composition and control of use of cleansing and/or sterilising agents, comparing for efficiency and cost (capital and running).
- 2.1.8.3 Direct experience of setting standards of physical and microbiological cleanliness, including interpretation of microbiological data.

The candidate should be able to design sound hygiene procedures and practices, and interpret data therefrom for maintenance of hygiene standards, and for problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.8.1				
2.1.8.2				
2.1.8.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.9 **Quality Control Procedures**

Recommended Experience

- 2.1.9.1 Technical management of quality control procedures in fermentation, yeast handling and associated processes.
- 2.1.9.2 Evaluate alternative designs for QC sampling plans and procedures, distinguishing between operator-controlled procedures/analysis, in-line quality controls and laboratory sampling/analysis. Include all aspects of flavour assessment.
- 2.1.9.3 Evaluate in the laboratory the accuracy, cost and value of all analyses supplied to the Department.
- 2.1.9.4 Direct experience of interpreting QC procedures and data in problem solving situations.

The candidate should be able to present a detailed, reasoned proposition on any aspect of using efficient scientific controls for maintenance or improvement of quality, and effectiveness in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.9.1				
2.1.9.2				
2.1.9.3				
2.1.9.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.1 **FERMENTATION**
 ELEMENT: 2.1.10 **Control of Costs**

Recommended Experience

- 2.1.10.1 Familiarisation with management accounting reports of Departmental operating costs, and taking appropriate action to correct variances from budget.
- 2.1.10.2 Evaluate the relative contributions that the main components of Departmental costs make to product unit costs. Distinguish between fixed and variable costs.
- 2.1.10.3 Evaluate practically and financially the effects on quality and/or unit costs of the major factors under technical control, eg plant utilisation, losses, labour, beer recovery, utilities, consumables, etc.

The candidate should be able to demonstrate the principles and practice of cost control by giving due weighting to costs when developing a reasoned proposition of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.1.10.1				
2.1.10.2				
2.1.10.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.2 MATURATION AND CONDITIONING
 ELEMENT: 2.2.1 Design of Product and Process Specifications

Recommended Experience

- 2.2.1.1 Technical management of the process from the end of primary fermentation to presentation for filtration, interpreting variations from the norm into corrective action. **Note:** Module 3 covers post-fermentation beer treatments prior to cask racking.
- 2.2.1.2 Evaluate the effects of variations in beer composition and quality ex fermenter on conditioning requirements and final beer quality.
- 2.2.1.3 Evaluate the effect of temperature profiles, additions, processing aids and other control variables on maturation and conditioning efficiency.
- 2.2.1.4 Determine acceptable specifications and tolerances for beer quality at intake, additions, process conditions and finished beer, for a range of common beer types.

The candidate should be able to present well-reasoned specifications and tolerances for an efficient maturation and conditioning process, and for beer quality from intake to presentation for filtration. The candidate needs to include the processing of beers ranging from high to the lowest alcohol content, and to be familiar with common techniques and processes for alcohol removal; beer stabilisation and clarification; hop, sweetness and other flavour additions.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.2.1.1				
2.2.1.2				
2.2.1.3				
2.2.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.2 MATURATION AND CONDITIONING
 ELEMENT: 2.2.2 Selection, Design and Layout of Plant

Recommended Experience

- 2.2.2.1 Familiarisation with the materials of construction, design and functions of conditioning, associated plant and utilities distribution, researching the merits of each item of plant. Include environmental and safety factors.
- 2.2.2.2 Evaluate alternative types of individual plant items, comparing for quality, cost efficiency attributes.
- 2.2.2.3 Study through capital project specialists the features of special relevance for deriving a valid design and layout plan.
- 2.2.2.4 Refer constantly to the current literature on the latest conditioning technology and practice.

The candidate should be able to present well-reasoned, up-to-date designs of individual plant items, and outline layout proposals for complete conditioning plant, with particular emphasis on beer quality, utilities usage, efficiencies and costs (capital and running).

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.2.2.1				
2.2.2.2				
2.2.2.3				
2.2.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.2 MATURATION AND CONDITIONING
 ELEMENT: 2.2.3 Technical Management of Conditioning

Recommended Experience

- 2.2.3.1 Technical management using all the available beer treatment and control variables and their typical ranges to attain specified parameters and efficiencies. To include constant observation, interpretation and taking corrective actions in the course of centrifugation, storage and the various treatments.
- 2.2.3.2 Direct experience of preparing and making additions to close quality specifications, processing tank bottoms and recycling beer. Evaluate and compare alternative methods for quality, efficiency and cost.
- 2.2.3.3 Direct experience of at least one technique for alcohol removal; beer stabilisation; beer clarification; hop/other flavour additions. Familiarisation with all the main alternatives.
- 2.2.3.4 Evaluate the range of available instrumentation and process control systems, with a detailed study of one.

The candidate should be able to present a detailed, reasoned proposition on any aspect of technical management of maturation and conditioning, including alcohol removal, whether of a process design, quality, efficiency or corrective action nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.2.3.1				
2.2.3.2				
2.2.3.3				
2.2.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.2 MATURATION AND CONDITIONING
 ELEMENT: 2.2.4 General Management

Recommended Experience

- 2.2.4.1 Direct experience of stock control of product in process, including techniques to satisfy the requirements of the Fermentation Department, call-off for filtration/packaging, optimum vessel turnround, and product quality.
- 2.2.4.2 Evaluate the management options for accommodating cleaning and maintenance downtimes, and fluctuations in product demand, in relation to optimum operational efficiency.
- 2.2.4.3 Direct experience of managing relevant Taxation, Health, Employment, Safety and Environmental requirements.
- 2.2.4.4 Direct experience of disposal of waste and by-products, including the means of minimising costs.

The candidate should be able to relate key aspects of general management to their effects on the efficient running of the process, and will be expected to give them due weighting in answering examination questions of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.2.4.1				
2.2.4.2				
2.2.4.3				
2.2.4.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.2 MATURATION AND CONDITIONING
 ELEMENT: 2.2.5 Management of Utilities Usage

Recommended Experience

- 2.2.5.1 Technical management of usage of steam, electricity, water, refrigeration, compressed air and discharging effluent.
- 2.2.5.2 Evaluate and compare the available means of measuring and controlling consumption of these utilities, including energy management techniques and elimination of waste.
- 2.2.5.3 Determine the relative contribution of each utility to the costs of the conditioning operation.

The candidate should be able to give due weighting to utility usage and its economy when developing reasoned proposals of an operational efficiency nature. Where relevant, the effects of local regulations on energy or waste need to be included.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.2.5.1				
2.2.5.2				
2.2.5.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.2 MATURATION AND CONDITIONING
 ELEMENT: 2.2.6 Control of Hygiene

Recommended Experience

- 2.2.6.1 Technical management of cleaning and sterilising equipment, processes and procedures in the conditioning operation.
- 2.2.6.2 Evaluate alternative designs of cleaning systems and practices, including composition and control of use of cleansing and/or sterilising agents, comparing for efficiency and cost (capital and running).
- 2.2.6.3 Direct experience of setting standards of physical and microbiological cleanliness, including interpretation of microbiological data.

The candidate should be able to design sound hygiene procedures and practices, and interpret data therefrom for maintenance of hygiene standards, and for problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.2.6.1				
2.2.6.2				
2.2.6.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.2 MATURATION AND CONDITIONING
 ELEMENT: 2.2.7 Quality Control Procedures

Recommended Experience

- 2.2.7.1 Technical management of quality control procedures in conditioning and associated processes.
- 2.2.7.2 Evaluate alternative designs for QC sampling plans and procedures, distinguishing between operator-controlled procedures/analysis, in-line quality controls and laboratory sampling/analysis. Include all aspects of flavour assessment.
- 2.2.7.3 Evaluate in the laboratory the accuracy, cost and value of all analyses supplied to the Department.
- 2.2.7.4 Direct experience of interpreting QC procedures and data in problem solving situations.

The candidate should be able to present a detailed, reasoned proposition on any aspect of using efficient scientific controls for maintenance or improvement of quality, and effectiveness in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.2.7.1				
2.2.7.2				
2.2.7.3				
2.2.7.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.2 MATURATION AND CONDITIONING
 ELEMENT: 2.2.8 Control of Costs

Recommended Experience

- 2.2.8.1 Familiarisation with management accounting reports of Departmental operating costs, and taking appropriate action to correct variances from budget.
- 2.2.8.2 Evaluate the relative contributions that the main components of Departmental costs make to product unit costs. Distinguish between fixed and variable costs.
- 2.2.8.3 Evaluate practically and financially the effects on quality and/or unit costs of the major factors under technical control, eg plant utilisation, losses, labour, beer recovery, utilities, consumables, etc.

The candidate should be able to demonstrate the principles and practice of cost control by giving due weighting to costs when developing a reasoned proposition of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.2.8.1				
2.2.8.2				
2.2.8.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. BEER PROCESSING
 UNIT: 2.3 FILTRATION AND CLARIFICATION
 ELEMENT: 2.3.1 Design of Product and Process Specifications

Recommended Experience

- 2.3.1.1 Technical management of the filtration and associated processes and plant, interpreting variations from the norm into corrective action.
- 2.3.1.2 Evaluate the effect of variations in beer composition and quality presented for filtration on filter efficiency and final beer quality.
- 2.3.1.3 Evaluate the effects of filtration medium selection, processing temperatures and other control variables, on beer quality and process efficiency. Include high gravity filtration with subsequent dilution.
- 2.3.1.4 Determine acceptable specifications and tolerances for beer quality at receipt; additions; process conditions; and for beer ready for packaging, for a range of common beer types. Include high gravity dilution.

The candidate should be able to present well-reasoned specifications and tolerances for an efficient filtration process, and for beer quality from receipt to being ready for packaging. The candidate needs to include the processing of beers ranging from high to the lowest alcohol content, the common CO₂ ranges for keg and smallpack, and the requirements for sterile packaging, flash pasteurisation and post-packaging pasteurisation.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.3.1.1				
2.3.1.2				
2.3.1.3				
2.3.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.3 **FILTRATION AND CLARIFICATION**
 ELEMENT: 2.3.2 **Selection, Design and Layout of Plant**

Recommended Experience

- 2.3.2.1 Familiarisation with the materials of construction, design and functions of filtration, high gravity dilution and associated plant and utilities distribution, researching the merits of each item of plant. Include environmental and safety factors.
- 2.3.2.2 Evaluate alternative types of individual plant items, comparing for quality, cost efficiency attributes.
- 2.3.2.3 Study through capital project specialists the features of special relevance for deriving a valid design and layout plan.
- 2.3.2.4 Refer constantly to the current literature on the latest filtration technology.

The candidate should be able to present well-reasoned, up-to-date designs of individual plant items, and outline layout proposals for complete filtration plant, with particular emphasis on beer quality, utilities and filter medium usage, efficiencies and costs (capital and running).

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.3.2.1				
2.3.2.2				
2.3.2.3				
2.3.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.3 **FILTRATION AND CLARIFICATION**
 ELEMENT: 2.3.3 **Technical Management of Filtration**

Recommended Experience

- 2.3.3.1 Technical management using all the beer treatment and control variables and their typical ranges to attain specified parameters and efficiencies. To include constant observation, interpretation and taking corrective actions in the course of filtration and its associated processes and treatments.
- 2.3.3.2 Direct experience of at least one technique for each of the following: plate and frame, screen, candle and sterile filtration; preparation and use of high gravity dilution water; automatic CO₂ adjustment. Familiarisation is necessary with the principles and plant required for all the main alternative techniques.
- 2.3.3.3 Direct experience of controlling filtration waste and recycling product, evaluating and comparing alternative methods for quality, efficiency and cost.
- 2.3.3.4 Evaluate the range of available instrumentation and process control systems with a detailed study of one.

The candidate should be able to present a detailed, reasoned proposition on any aspect of technical management of filtration, whether of a process design, quality, efficiency or corrective action nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.3.3.1				
2.3.3.2				
2.3.3.3				
2.3.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.3 **FILTRATION AND CLARIFICATION**
 ELEMENT: 2.3.4 **General Management**

Recommended Experience

- 2.3.4.1 Direct experience of the product stock planning requirements of the Conditioning and Packaging Departments and devising optimum filtration programmes to meet those and the Filtration Department's objectives.
- 2.3.4.2 Evaluate the management options for accommodating cleaning and maintenance downtime in relation to optimum operational efficiency.
- 2.3.4.3 Direct experience of managing relevant Taxation, Health, Employment, Safety and Environmental requirements.
- 2.3.4.4 Direct experience of disposal of waste and by-products, including the means of minimising costs.

The candidate should be able to relate key aspects of general management to their effects on the efficient running of the process, and will be expected to give them due weighting in answering examination questions of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.3.4.1				
2.3.4.2				
2.3.4.3				
2.3.4.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.3 **FILTRATION AND CLARIFICATION**
 ELEMENT: 2.3.5 **Management of Utilities Usage**

Recommended Experience

- 2.3.5.1 Technical management of usage of steam, electricity, water, refrigeration, compressed air and discharging effluent.
- 2.3.5.2 Evaluate and compare the available means of measuring and controlling consumption of these utilities, including energy management techniques and elimination of waste.
- 2.3.5.3 Determine the relative contribution of each utility to the costs of the filtration operation.

The candidate should be able to give due weighting to utility usage and its economy when developing reasoned proposals of an operational efficiency nature. Where relevant, the effects of local regulations on energy or waste need to be included.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.3.5.1				
2.3.5.2				
2.3.5.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.3 **FILTRATION AND CLARIFICATION**
 ELEMENT: 2.3.6 **Control of Hygiene**

Recommended Experience

- 2.3.6.1 Technical management of cleaning and sterilising equipment, processes and procedures in the filtration operation.
- 2.3.6.2 Evaluate alternative designs of cleaning systems and practices, including composition and control of use of cleansing and/or sterilising agents, comparing for efficiency and cost (capital and running).
- 2.3.6.3 Direct experience of setting standards of physical and microbiological cleanliness, including interpretation of microbiological data.

The candidate should be able to design sound hygiene procedures and practices, and interpret data therefrom for maintenance of hygiene standards, and for problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.3.6.1				
2.3.6.2				
2.3.6.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.3 **FILTRATION AND CLARIFICATION**
 ELEMENT: 2.3.7 **Quality Control Procedures**

Recommended Experience

- 2.3.7.1 Technical management of quality control procedures in filtration operations and associated processes.
- 2.3.7.2 Evaluate alternative designs for QC sampling plans and procedures, distinguishing between operator-controlled procedures/analysis, in-line quality controls and laboratory sampling/analysis. Include all aspects of flavour assessment.
- 2.3.7.3 Evaluate in the laboratory the accuracy, cost and value of all analyses supplied to the Department.
- 2.3.7.4 Direct experience of interpreting QC procedures and data in problem solving situations.

The candidate should be able to present a detailed, reasoned proposition on any aspect of using efficient scientific controls for maintenance or improvement of quality, and effectiveness in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.3.7.1				
2.3.7.2				
2.3.7.3				
2.3.7.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 2. **BEER PROCESSING**
 UNIT: 2.3 **FILTRATION AND CLARIFICATION**
 ELEMENT: 2.3.8 **Control of Costs**

Recommended Experience

- 2.3.8.1 Familiarisation with management accounting reports of Departmental operating costs, and taking appropriate action to correct variances from budget.
- 2.3.8.2 Evaluate the relative contributions that the main components of Departmental costs make to product unit costs. Distinguish between fixed and variable costs.
- 2.3.8.3 Evaluate practically and financially the effects on quality and/or unit costs of the major factors under technical control, eg plant utilisation, losses, labour, beer recovery, utilities, consumables, etc.

The candidate should be able to demonstrate the principles and practice of cost control by giving due weighting to costs when developing a reasoned proposition of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
2.3.8.1				
2.3.8.2				
2.3.8.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

MODULE 3

PACKAGING AND BEER DISPENSE

SPECIAL NOTICE TO POTENTIAL EXAMINATION CANDIDATES

THIS MODULE INCLUDES MOST OF THE IMPORTANT NATIONAL AND INTERNATIONAL PACKAGING AND BEER DISPENSE PRACTICES.

THE QUALIFICATION BY EXAMINATION FOR THIS MODULE REQUIRES CANDIDATES TO HAVE GAINED EXPERIENCE IN AT LEAST THREE OF THE PACKAGING TYPES - KEGGING, CASK CONDITIONED BEER, CANNING AND BOTTLING.

IN EXCEPTIONAL CIRCUMSTANCES, FOR EXAMPLE WHERE CANDIDATES HAVE NO POSSIBLE ACCESS TO THREE TYPES IN THEIR COUNTRY, IT WILL BE PERMISSIBLE TO BE EXAMINED IN TWO TYPES ONLY (ONE LARGE PACK, ONE SMALL PACK) BUT THERE WILL BE LITTLE OR NO CHOICE OF QUESTIONS. SUCH CANDIDATES MUST JUSTIFY A REQUEST TO BE EXAMINED IN THIS WAY, WHEN REGISTERING FOR THE EXAMINATION.

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.1 **Beer and Container Specifications**

Recommended Experience

- 3.1.1.1 Technical management of beer processing to specification from intake through the entire packaging and warehouse operation.
- 3.1.1.2 Determine acceptable beer quality specifications and tolerances from intake to final package for a range of beer types. Include specifications and procedures for any beer additions or treatments.
- 3.1.1.3 Evaluate the relative merits of the common alternative materials of construction of containers and closures.
- 3.1.1.4 Familiarisation with the supply of containers and closures, including visits to manufacturers regarding specifications, tolerances, critical dimensions, fault identification.

The candidate should be fully conversant with beer, container and closure specifications and be able to describe in detail the reasons behind, and the effects in practice of critical specifications and their tolerances.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.1.1				
3.1.1.2				
3.1.1.3				
3.1.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.2 **Selection, Design and Layout of Plant**

Recommended Experience

- 3.1.2.1 Familiarisation with the materials of construction, design, layout and utilities distribution of a complete packaging line, researching the merits of each choice of equipment. Include environmental and safety features.
- 3.1.2.2 For each main part of the process, evaluate alternative types of individual plant items, comparing for quality, cost, efficiency attributes.
- 3.1.2.3 Study through capital project specialists the features of special relevance for deriving designs and layout plans for efficient packaging lines. Include the practicalities of versatility for beer types, pack sizes and types on a single line.
- 3.1.2.4 Refer constantly to the latest developments in packaging technology reported in the literature.

The candidate should be able to present well-reasoned, up-to-date designs of individual plant items, and outline layout proposals for complete packaging plant, with particular reference to beer quality, management of product flow, utilities consumption, line efficiencies and costs (capital and running).

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.2.1				
3.1.2.2				
3.1.2.3				
3.1.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.3 **Technical Management of Kegging**

Recommended Experience

- 3.1.3.1 Technical management using all the beer treatment and control variables, and their typical ranges, to attain specified parameters throughout the packaging and warehouse operations. To include constant observation, interpretation and taking corrective actions in the course of every beer and container process, treatment and check.
- 3.1.3.2 Technical management responsibilities for efficient running of the packaging operation, including interpretation and corrective action from commonly used line efficiency reporting systems.
- 3.1.3.3 Study in detail an alternative packaging plant in use, evaluating and comparing operational efficiency, instrumentation, process and line control systems, and quality attributes.
- 3.1.3.4 Direct experience of controlling waste, and recycling product, evaluating and comparing alternative techniques for quality, efficiency and cost attributes.

The candidate should be able to present a detailed, reasoned proposition on any aspect of efficient technical management, whether of a process design, quality, efficiency or corrective action nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.3.1				
3.1.3.2				
3.1.3.3				
3.1.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.4 **Supply and Control of Packaging Materials**

Recommended Experience

- 3.1.4.1 Direct experience of specifying, ordering, quality checking, stock control and using packaging materials.
- 3.1.4.2 Study modern material supply and stock control systems.
- 3.1.4.3 Evaluate the options available between manufacturers' and own quality checking of delivered materials.
- 3.1.4.4 Determine criteria for inspection of returned containers and the various courses of action to deal with faults.

The candidate should be able to present full proposals for packaging material specifications and tolerances, together with supply, stock control and efficient quality checking procedures.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.4.1				
3.1.4.2				
3.1.4.3				
3.1.4.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.5 **General Management**

Recommended Experience

- 3.1.5.1 Direct experience of stock control of finished product, including evaluation of means to optimise efficiency.
- 3.1.5.2 Direct experience of managing relevant Taxation, Health, Safety and Environmental aspects of the packaging and warehouse operations, both legal and good practice.
- 3.1.5.3 Direct experience of efficient packaging programme design and operation, including evaluation of options for accommodating cleaning, changeover and maintenance downtime.
- 3.1.5.4 Direct experience of disposal of waste, including means of minimising cost.

The candidate should be able to relate key aspects of general management to their effects on the efficient running of the packaging process, and will be expected to give them due weighting in answering examination questions of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.5.1				
3.1.5.2				
3.1.5.3				
3.1.5.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.6 **Management of Utilities Usage**

Recommended Experience

- 3.1.6.1 Technical management of using steam, electricity, water, refrigeration, compressed air, and discharging effluent.
- 3.1.6.2 Evaluate and compare the available means for measuring and controlling consumption of utilities.
- 3.1.6.3 Determine the relative contribution of these utilities to the costs of the packaging operation.

The candidate should be able to give due weighting to utility usage and its economy when developing reasoned proposals of an operational nature. Where relevant, the effects of local regulations on energy or waste need to be included.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.6.1				
3.1.6.2				
3.1.6.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.7 **Control of Hygiene**

Recommended Experience

- 3.1.7.1 Technical management of cleaning and sterilising equipment, processes and procedures.
- 3.1.7.2 Evaluate alternative designs of cleaning and sterilising systems and practices for beer lines and containers, including composition and control of use of cleaning and/or sterilising agents. Compare for efficiency and cost (capital and running).
- 3.1.7.3 Direct experience of setting standards of physical and microbiological cleanliness, including interpretation of microbiological data.

The candidate should be able to design sound hygiene procedures and practices, and interpret data therefrom for maintenance of hygiene standards, and in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.7.1				
3.1.7.2				
3.1.7.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.8 **Quality Control Procedures**

Recommended Experience

- 3.1.8.1 Technical management of quality control procedures in the packaging and warehouse operation.
- 3.1.8.2 Evaluate designs for QC sampling plans and procedures, from beer reception to final despatch ex warehouse, distinguishing operator-controlled procedures/analysis, in-line quality control and laboratory sampling/analysis. Include all aspects of flavour assessment.
- 3.1.8.3 Evaluate in the laboratory the accuracy, cost and value of analyses supplied to the Department.
- 3.1.8.4 Direct experience of interpreting QC procedures and data in problem solving situations.

The candidate should be able to present a detailed, reasoned proposition on any aspect of using efficient scientific controls for maintenance or improvement of quality, and effectiveness in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.8.1				
3.1.8.2				
3.1.8.3				
3.1.8.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.1 **KEG BEER PACKAGING**
 ELEMENT: 3.1.9 **Control of Costs**

Recommended Experience

- 3.1.9.1 Familiarisation with management accounting reports of departmental costs of the operation, and taking appropriate action to correct variances from budget.
- 3.1.9.2 Evaluate the relative contributions that the main components of departmental costs make to product unit costs. Distinguish between fixed and variable costs.
- 3.1.9.3 Evaluate practically and financially the effects on quality and/or product unit costs of the major factors under technical control, eg line efficiencies, beer losses, material waste, changeover times, labour and utilities usage.

The candidate should be able to demonstrate the principles of cost control by giving due weighting to costs when developing a reasoned proposition of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.1.9.1				
3.1.9.2				
3.1.9.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.1 Beer and Container Specifications

Recommended Experience

- 3.2.1.1 Technical management of beer processing to specification post-fermentation and through the entire packaging and warehouse operation.
- 3.2.1.2 Determine acceptable post-fermentation beer quality and process specifications and tolerances through to final package for a range of beer types. Include specifications and procedures for any beer additions or treatments, and product quality changes through to the point of sale.
- 3.2.1.3 Evaluate the relative merits of the common alternative materials of construction of containers and closures.
- 3.2.1.4 Familiarisation with the supply of containers and closures, including visits to manufacturers regarding specifications, tolerances, critical dimensions, fault identification.

The candidate should be fully conversant with beer, container and closure specifications and be able to describe in detail the reasons behind, and the effects in practice of critical specifications and their tolerances.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.1.1				
3.2.1.2				
3.2.1.3				
3.2.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.2 Selection, Design and Layout of Plant

Recommended Experience

- 3.2.2.1 Familiarisation with the materials of construction, design, layout and utilities distribution of a complete packaging line, researching the merits of each choice of equipment. Include environmental and safety features.
- 3.2.2.2 For each main part of the process, evaluate alternative types of individual plant items, comparing for quality, cost, efficiency attributes.
- 3.2.2.3 Study through capital project specialists the features of special relevance for deriving designs and layout plans for efficient packaging lines. Include the practicalities of versatility for beer types, pack sizes and types on a single line.
- 3.2.2.4 Refer constantly to the latest developments in packaging technology reported in the literature.

The candidate should be able to present well-reasoned, up-to-date designs of individual plant items, and outline layout proposals for complete packaging plant, with particular reference to beer quality, management of product flow, utilities consumption, line efficiencies and costs (capital and running).

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.2.1				
3.2.2.2				
3.2.2.3				
3.2.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.3 Technical Management of Cask Beer

Recommended Experience

- 3.2.3.1 Technical management using all the beer treatment and control variables, and their typical ranges, to attain specified parameters post-fermentation and through the packaging and warehouse operations. To include constant observation, interpretation and taking corrective actions in the course of every beer and container process, treatment and check.
- 3.2.3.2 Technical management responsibilities for efficient running of the packaging operation, including interpretation and corrective action from commonly used line efficiency reporting systems.
- 3.2.3.3 Study in detail an alternative packaging plant in use, evaluating and comparing operational efficiency, instrumentation, process and line control systems, and quality attributes.
- 3.2.3.4 Direct experience of controlling waste, and recycling product, evaluating and comparing alternative techniques for quality, efficiency and cost attributes.

The candidate should be able to present a detailed, reasoned proposition on any aspect of efficient technical management, whether of a process design, quality, efficiency or corrective action nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.3.1				
3.2.3.2				
3.2.3.3				
3.2.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.4 Supply and Control of Packaging Materials

Recommended Experience

- 3.2.4.1 Direct experience of specifying, ordering, quality checking, stock control and using packaging materials.
- 3.2.4.2 Study modern material supply and stock control systems.
- 3.2.4.3 Evaluate the options available between manufacturers' and own quality checking of delivered materials.
- 3.2.4.4 Determine criteria for inspection of returned containers and the various courses of action to deal with faults.

The candidate should be able to present full proposals for packaging material specifications and tolerances, together with supply, stock control and efficient quality checking procedures.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.4.1				
3.2.4.2				
3.2.4.3				
3.2.4.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.5 General Management

Recommended Experience

- 3.2.5.1 Direct experience of stock control of finished product, including evaluation of means to optimise efficiency.
- 3.2.5.2 Direct experience of managing relevant Taxation, Health, Safety and Environmental aspects of the packaging and warehouse operations, both legal and good practice.
- 3.2.5.3 Direct experience of efficient packaging programme design and operation, including evaluation of options for accommodating cleaning, changeover and maintenance downtime.
- 3.2.5.4 Direct experience of disposal of waste, including means of minimising cost.

The candidate should be able to relate key aspects of general management to their effects on the efficient running of the packaging process, and will be expected to give them due weighting in answering examination questions of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.5.1				
3.2.5.2				
3.2.5.3				
3.2.5.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.6 Management of Utilities Usage

Recommended Experience

- 3.2.6.1 Technical management of using steam, electricity, water, refrigeration, compressed air, and discharging effluent.
- 3.2.6.2 Evaluate and compare the available means for measuring and controlling consumption of utilities.
- 3.2.6.3 Determine the relative contribution of these utilities to the costs of the packaging operation.

The candidate should be able to give due weighting to utility usage and its economy when developing reasoned proposals of an operational nature. Where relevant, the effects of local regulations on energy or waste need to be included.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.6.1				
3.2.6.2				
3.2.6.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.7 Control of Hygiene

Recommended Experience

- 3.2.7.1 Technical management of cleaning and sterilising equipment, processes and procedures.
- 3.2.7.2 Evaluate alternative designs of cleaning and sterilising systems and practices for beer lines and containers, including composition and control of use of cleaning and/or sterilising agents. Compare for efficiency and cost (capital and running).
- 3.2.7.3 Direct experience of setting standards of physical and microbiological cleanliness, including interpretation of microbiological data.

The candidate should be able to design sound hygiene procedures and practices, and interpret data therefrom for maintenance of hygiene standards, and in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.7.1				
3.2.7.2				
3.2.7.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.8 Quality Control Procedures

Recommended Experience

- 3.2.8.1 Technical management of quality control procedures in the packaging and warehouse operation.
- 3.2.8.2 Evaluate designs for QC sampling plans and procedures, from beer reception to final despatch ex warehouse, distinguishing operator-controlled procedures/analysis, in-line quality control and laboratory sampling/analysis. Include all aspects of flavour assessment.
- 3.2.8.3 Evaluate in the laboratory the accuracy, cost and value of analyses supplied to the Department.
- 3.2.8.4 Direct experience of interpreting QC procedures and data in problem solving situations.

The candidate should be able to present a detailed, reasoned proposition on any aspect of using efficient scientific controls for maintenance or improvement of quality, and effectiveness in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.8.1				
3.2.8.2				
3.2.8.3				
3.2.8.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.2 CASK CONDITIONED BEER
 ELEMENT: 3.2.9 Control of Costs

Recommended Experience

- 3.2.9.1 Familiarisation with management accounting reports of departmental costs of the operation, and taking appropriate action to correct variances from budget.
- 3.2.9.2 Evaluate the relative contributions that the main components of departmental costs make to product unit costs. Distinguish between fixed and variable costs.
- 3.2.9.3 Evaluate practically and financially the effects on quality and/or product unit costs of the major factors under technical control, eg line efficiencies, beer losses, material waste, changeover times, labour and utilities usage.

The candidate should be able to demonstrate the principles of cost control by giving due weighting to costs when developing a reasoned proposition of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.2.9.1				
3.2.9.2				
3.2.9.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.1 Beer and Container Specifications

Recommended Experience

- 3.3.1.1 Technical management of beer processing to specification from intake through the entire packaging and warehouse operation.
- 3.3.1.2 Determine acceptable beer quality specifications and tolerances from intake to final package for a range of beer types. Include specifications and procedures for any beer additions or treatments.
- 3.3.1.3 Evaluate the relative merits of the common alternative materials of construction of containers and closures.
- 3.3.1.4 Familiarisation with the supply of containers and closures, including visits to manufacturers regarding specifications, tolerances, critical dimensions, fault identification.

The candidate should be fully conversant with beer, container and closure specifications and be able to describe in detail the reasons behind, and the effects in practice of critical specifications and their tolerances.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.1.1				
3.3.1.2				
3.3.1.3				
3.3.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.2 Selection, Design and Layout of Plant

Recommended Experience

- 3.3.2.1 Familiarisation with the materials of construction, design, layout and utilities distribution of a complete packaging line, researching the merits of each choice of equipment. Include environmental and safety features.
- 3.3.2.2 For each main part of the process, evaluate alternative types of individual plant items, comparing for quality, cost, efficiency attributes.
- 3.3.2.3 Study through capital project specialists the features of special relevance for deriving designs and layout plans for efficient packaging lines. Include the practicalities of versatility for beer types, pack sizes and types on a single line.
- 3.3.2.4 Refer constantly to the latest developments in packaging technology reported in the literature.

The candidate should be able to present well-reasoned, up-to-date designs of individual plant items, and outline layout proposals for complete packaging plant, with particular reference to beer quality, management of product flow, utilities consumption, line efficiencies and costs (capital and running).

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.2.1				
3.3.2.2				
3.3.2.3				
3.3.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.3 Technical Management of Canning

Recommended Experience

- 3.3.3.1 Technical management using all the beer treatment and control variables, and their typical ranges, to attain specified parameters throughout the packaging and warehouse operations. To include constant observation, interpretation and taking corrective actions in the course of every beer and container process, treatment and check.
- 3.3.3.2 Technical management responsibilities for efficient running of the packaging operation, including interpretation and corrective action from commonly used line efficiency reporting systems.
- 3.3.3.3 Study in detail an alternative packaging plant in use, evaluating and comparing operational efficiency, instrumentation, process and line control systems, and quality attributes.
- 3.3.3.4 Direct experience of controlling waste, and recycling product, evaluating and comparing alternative techniques for quality, efficiency and cost attributes.

The candidate should be able to present a detailed, reasoned proposition on any aspect of efficient technical management, whether of a process design, quality, efficiency or corrective action nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.3.1				
3.3.3.2				
3.3.3.3				
3.3.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.4 Supply and Control of Packaging Materials

Recommended Experience

3.3.4.1 Direct experience of specifying, ordering, quality checking, stock control and using packaging materials.

3.3.4.2 Study modern material supply and stock control systems.

3.3.4.3 Evaluate the options available between manufacturers' and own quality checking of delivered materials.

The candidate is expected to be able to present full proposals for packaging material specifications and tolerances, together with supply, stock control and efficient quality checking procedures.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.4.1				
3.3.4.2				
3.3.4.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.5 General Management

Recommended Experience

- 3.3.5.1 Direct experience of stock control of finished product, including evaluation of means to optimise efficiency.
- 3.3.5.2 Direct experience of managing relevant Taxation, Health, Safety and Environmental aspects of the packaging and warehouse operations, both legal and good practice.
- 3.3.5.3 Direct experience of efficient packaging programme design and operation, including evaluation of options for accommodating cleaning, changeover and maintenance downtime.
- 3.3.5.4 Direct experience of disposal of waste, including means of minimising cost.

The candidate should be able to relate key aspects of general management to their effects on the efficient running of the packaging process, and will be expected to give them due weighting in answering examination questions of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.5.1				
3.3.5.2				
3.3.5.3				
3.3.5.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

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Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.6 Management of Utilities Usage

Recommended Experience

- 3.3.6.1 Technical management of using steam, electricity, water, refrigeration, compressed air, and discharging effluent.
- 3.3.6.2 Evaluate and compare the available means for measuring and controlling consumption of utilities.
- 3.3.6.3 Determine the relative contribution of these utilities to the costs of the packaging operation.

The candidate should be able to give due weighting to utility usage and its economy when developing reasoned proposals of an operational nature. Where relevant, the effects of local regulations on energy or waste need to be included.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.6.1				
3.3.6.2				
3.3.6.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

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HE THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.7 Control of Hygiene

Recommended Experience

- 3.3.7.1 Technical management of cleaning and sterilising equipment, processes and procedures.
- 3.3.7.2 Evaluate alternative designs of cleaning and sterilising systems and practices for beer lines and containers, including composition and control of use of cleaning and/or sterilising agents. Compare for efficiency and cost (capital and running).
- 3.3.7.3 Direct experience of setting standards of physical and microbiological cleanliness, including interpretation of microbiological data.

The candidate should be able to design sound hygiene procedures and practices, and interpret data therefrom for maintenance of hygiene standards, and in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.7.1				
3.3.7.2				
3.3.7.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.8 Quality Control Procedures

Recommended Experience

- 3.3.8.1 Technical management of quality control procedures in the packaging and warehouse operation.
- 3.3.8.2 Evaluate designs for QC sampling plans and procedures, from beer reception to final despatch ex warehouse, distinguishing operator-controlled procedures/analysis, in-line quality control and laboratory sampling/analysis. Include all aspects of flavour assessment.
- 3.3.8.3 Evaluate in the laboratory the accuracy, cost and value of analyses supplied to the Department.
- 3.3.8.4 Direct experience of interpreting QC procedures and data in problem solving situations.

The candidate should be able to present a detailed, reasoned proposition on any aspect of using efficient scientific controls for maintenance or improvement of quality, and effectiveness in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.8.1				
3.3.8.2				
3.3.8.3				
3.3.8.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.3 CANNING
 ELEMENT: 3.3.9 Control of Costs

Recommended Experience

- 3.3.9.1 Familiarisation with management accounting reports of departmental costs of the operation, and taking appropriate action to correct variances from budget.
- 3.3.9.2 Evaluate the relative contributions that the main components of departmental costs make to product unit costs. Distinguish between fixed and variable costs.
- 3.3.9.3 Evaluate practically and financially the effects on quality and/or product unit costs of the major factors under technical control, eg line efficiencies, beer losses, material waste, changeover times, labour and utilities usage.

The candidate should be able to demonstrate the principles of cost control by giving due weighting to costs when developing a reasoned proposition of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.3.9.1				
3.3.9.2				
3.3.9.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

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Position.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.1 Beer and Container Specifications

Recommended Experience

- 3.4.1.1 Technical management of beer processing to specification from intake through the entire packaging and warehouse operation.
- 3.4.1.2 Determine acceptable beer quality specifications and tolerances from intake to final package for a range of beer types. Include specifications and procedures for any beer additions or treatments.
- 3.4.1.3 Evaluate the relative merits of the common alternative materials of construction of containers and closures.
- 3.4.1.4 Familiarisation with the supply of containers and closures, including visits to manufacturers regarding specifications, tolerances, critical dimensions, fault identification.

The candidate should be fully conversant with beer, container and closure specifications and be able to describe in detail the reasons behind, and the effects in practice of critical specifications and their tolerances.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.1.1				
3.4.1.2				
3.4.1.3				
3.4.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.2 Selection, Design and Layout of Plant

Recommended Experience

- 3.4.2.1 Familiarisation with the materials of construction, design, layout and utilities distribution of a complete packaging line, researching the merits of each choice of equipment. Include environmental and safety features.
- 3.4.2.2 For each main part of the process, evaluate alternative types of individual plant items, comparing for quality, cost, efficiency attributes.
- 3.4.2.3 Study through capital project specialists the features of special relevance for deriving designs and layout plans for efficient packaging lines. Include the practicalities of versatility for beer types, pack sizes and types on a single line.
- 3.4.2.4 Refer constantly to the latest developments in packaging technology reported in the literature.

The candidate should be able to present well-reasoned, up-to-date designs of individual plant items, and outline layout proposals for complete packaging plant, with particular reference to beer quality, management of product flow, utilities consumption, line efficiencies and costs (capital and running).

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.2.1				
3.4.2.2				
3.4.2.3				
3.4.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.3 **Technical Management of Bottling**

Recommended Experience

- 3.4.3.1 Technical management using all the beer treatment and control variables, and their typical ranges, to attain specified parameters throughout the packaging and warehouse operations. To include constant observation, interpretation and taking corrective actions in the course of every beer and container process, treatment and check.
- 3.4.3.2 Technical management responsibilities for efficient running of the packaging operation, including interpretation and corrective action from commonly used line efficiency reporting systems.
- 3.4.3.3 Study in detail an alternative packaging plant in use, evaluating and comparing operational efficiency, instrumentation, process and line control systems, and quality attributes.
- 3.4.3.4 Direct experience of controlling waste, and recycling product, evaluating and comparing alternative techniques for quality, efficiency and cost attributes.

The candidate should be able to present a detailed, reasoned proposition on any aspect of efficient technical management, whether of a process design, quality, efficiency or corrective action nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.3.1				
3.4.3.2				
3.4.3.3				
3.4.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.4 **Supply and Control of Packaging Materials**

Recommended Experience

3.4.4.1 Direct experience of specifying, ordering, quality checking, stock control and using packaging materials.

3.4.4.2 Study modern material supply and stock control systems.

3.4.4.3 Evaluate the options available between manufacturers' and own quality checking of delivered materials.

The candidate is expected to be able to present full proposals for packaging material specifications and tolerances, together with supply, stock control and efficient quality checking procedures.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.4.1				
3.4.4.2				
3.4.4.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.5 **General Management**

Recommended Experience

- 3.4.5.1 Direct experience of stock control of finished product, including evaluation of means to optimise efficiency.
- 3.4.5.2 Direct experience of managing relevant Taxation, Health, Safety and Environmental aspects of the packaging and warehouse operations, both legal and good practice.
- 3.4.5.3 Direct experience of efficient packaging programme design and operation, including evaluation of options for accommodating cleaning, changeover and maintenance downtime.
- 3.4.5.4 Direct experience of disposal of waste, including means of minimising cost.

The candidate should be able to relate key aspects of general management to their effects on the efficient running of the packaging process, and will be expected to give them due weighting in answering examination questions of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.5.1				
3.4.5.2				
3.4.5.3				
3.4.5.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.6 **Management of Utilities Usage**

Recommended Experience

- 3.4.6.1 Technical management of using steam, electricity, water, refrigeration, compressed air, and discharging effluent.
- 3.4.6.2 Evaluate and compare the available means for measuring and controlling consumption of utilities.
- 3.4.6.3 Determine the relative contribution of these utilities to the costs of the packaging operation.

The candidate should be able to give due weighting to utility usage and its economy when developing reasoned proposals of an operational nature. Where relevant, the effects of local regulations on energy or waste need to be included.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.6.1				
3.4.6.2				
3.4.6.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.7 **Control of Hygiene**

Recommended Experience

- 3.4.7.1 Technical management of cleaning and sterilising equipment, processes and procedures.
- 3.4.7.2 Evaluate alternative designs of cleaning and sterilising systems and practices for beer lines and containers, including composition and control of use of cleaning and/or sterilising agents. Compare for efficiency and cost (capital and running).
- 3.4.7.3 Direct experience of setting standards of physical and microbiological cleanliness, including interpretation of microbiological data.

The candidate should be able to design sound hygiene procedures and practices, and interpret data therefrom for maintenance of hygiene standards, and in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.7.1				
3.4.7.2				
3.4.7.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.8 **Quality Control Procedures**

Recommended Experience

- 3.4.8.1 Technical management of quality control procedures in the packaging and warehouse operation.
- 3.4.8.2 Evaluate designs for QC sampling plans and procedures, from beer reception to final despatch ex warehouse, distinguishing operator-controlled procedures/analysis, in-line quality control and laboratory sampling/analysis. Include all aspects of flavour assessment.
- 3.4.8.3 Evaluate in the laboratory the accuracy, cost and value of analyses supplied to the Department.
- 3.4.8.4 Direct experience of interpreting QC procedures and data in problem solving situations.

The candidate should be able to present a detailed, reasoned proposition on any aspect of using efficient scientific controls for maintenance or improvement of quality, and effectiveness in problem solving situations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.8.1				
3.4.8.2				
3.4.8.3				
3.4.8.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.4 **BOTTLING**
 ELEMENT: 3.4.9 **Control of Costs**

Recommended Experience

- 3.4.9.1 Familiarisation with management accounting reports of departmental costs of the operation, and taking appropriate action to correct variances from budget.
- 3.4.9.2 Evaluate the relative contributions that the main components of departmental costs make to product unit costs. Distinguish between fixed and variable costs.
- 3.4.9.3 Evaluate practically and financially the effects on quality and/or product unit costs of the major factors under technical control, eg line efficiencies, beer losses, material waste, changeover times, labour and utilities usage.

The candidate should be able to demonstrate the principles of cost control by giving due weighting to costs when developing a reasoned proposition of an operational nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.4.9.1				
3.4.9.2				
3.4.9.3				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.5 **BEER DISPENSE AND CELLAR MANAGEMENT**
 ELEMENT: 3.5.1 **Selection of Primary Dispense Equipment**

Recommended Experience

- 3.5.1.1 Evaluate the common types of draught (cask-conditioned, keg and bulk tank) beer dispense systems for delivering from container into the glass, comparing for suitability, limitations, efficiency and cost in their various applications.
- 3.5.1.2 Evaluate and compare the common systems for controlling temperature and gas content of draught beer in the retail outlet, and the effects on design of pipe sizes, pressures and speed of service.
- 3.5.1.3 Evaluate the range of materials of construction available in draught beer dispense equipment. Include any legislative requirements.
- 3.5.1.4 Evaluate the range of equipment available for optimum storage and presentation of bottled and can beers to the customer.

The candidate should be able to propose complete draught beer dispense line specifications which accommodate common technical requirements and beer specifications.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.5.1.1				
3.5.1.2				
3.5.1.3				
3.5.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.5 **BEER DISPENSE AND CELLAR MANAGEMENT**
 ELEMENT: 3.5.2 **Cellar Design and Layout in Retail Outlets**

Recommended Experience

- 3.5.2.1 Determine the key features of installation of electrical and gas supplies and distribution systems in a draught beer cellar.
- 3.5.2.2 Visit a variety of retail outlets, determining the health, safety and environmental requirements of a cellar, both legal and good practice.
- 3.5.2.3 Evaluate and compare cleaning systems, cleansing agents and hygiene techniques in a variety of working cellar and bar situations.
- 3.5.2.4 Study the layout of draught beer storage and dispense lines, with emphasis on space utilisation, optimum cost (capital and running), and ease of access for day-to-day management of the cellar and bar.

The candidate should be able to present a complete design and layout for a beer cellar which details the principles of beer storage, temperature controls, electrical and gas distribution, beer dispense lines and equipment, hygiene and safety requirements.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.5.2.1				
3.5.2.2				
3.5.2.3				
3.5.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

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Position.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 3. **PACKAGING & BEER DISPENSE**
 UNIT: 3.5 **BEER DISPENSE AND CELLAR MANAGEMENT**
 ELEMENT: 3.5.3 **Beer Management in the Retail Outlet**

Recommended Experience

- 3.5.3.1 Direct experience of retail outlet cellar management, and dispensing draught beers to consumers.
- 3.5.3.2 Direct experience of using all the equipment and available technical controls for ensuring optimum draught beer presentation, including fault finding and corrective action using practical and theoretical knowledge of the relationships between temperatures, pressures, pipe sizes, flow rates and gas concentrations.
- 3.5.3.3 Direct experience of stock control and beer handling techniques in the cellar, including routine QC procedures.
- 3.5.3.4 Direct experience of storage, stock control, display and presentation of beer dispensed from bottles and cans.

The candidate should be able to present a detailed, reasoned proposal on any aspect of technical control of beer and its dispense, whether of a process design, quality, efficiency or corrective action nature.

No.	Notes On Competence Acquired	Confirmed	Position	Date
3.5.3.1				
3.5.3.2				
3.5.3.3				
3.5.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.1 **SUPPLY AND CONTROL OF UTILITIES**
 ELEMENT: 4.1.1 **Steam Raising and Distribution**

Recommended Experience

- 4.1.1.1 Direct experience of the daily management of steam raising, including calculation of the unit cost of steam.
- 4.1.1.2 Study the effect of safety and environmental regulations on design, operation and costs.
- 4.1.1.3 Compare alternative types of steam raising and fuels, including capital costs, maintenance, reliability, environmental controls and running costs.
- 4.1.1.4 Study the factors affecting selection of plant, and details of distribution, including siting, sizing, efficiency, losses, steam quality at points of use, and unit costs.

The candidate should be able to demonstrate practical knowledge of the safe, efficient provision of steam in a brewery, and to incorporate such knowledge into propositions involving the design, effectiveness or efficiency of the production process.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.1.1.1				
4.1.1.2				
4.1.1.3				
4.1.1.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

Senior's Signature.....

Date.....

Position.....

Date.....

THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

NAME.....

MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.1 **SUPPLY AND CONTROL OF UTILITIES**
 ELEMENT: 4.1.2 **Electricity Supply and Distribution**

Recommended Experience

- 4.1.2.1 Familiarisation with the main components of a power distribution system in a brewery, including mechanisms for protection.
- 4.1.2.2 Evaluate the effects of safety regulations on design, operation and costs.
- 4.1.2.3 Survey the range of voltages found in a brewery, their typical uses, and key features of switches/connections made by operators.
- 4.1.2.4 Evaluate the impact on energy costs and the opportunities for electrical energy management for the principal users of electricity in a brewery.

The candidate is expected to be able to demonstrate practical knowledge of the safe, efficient provision of electricity in a brewery and to incorporate such knowledge into propositions involving the design, effectiveness or efficiency of the production process.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.1.2.1				
4.1.2.2				
4.1.2.3				
4.1.2.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

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Date.....

Position.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.1 **SUPPLY AND CONTROL OF UTILITIES**
 ELEMENT: 4.1.3 **Refrigeration**

Recommended Experience

- 4.1.3.1 Direct experience of the daily management of refrigeration plant, including calculation of the cost of refrigeration.
- 4.1.3.2 Evaluate the implications of demand profiles on the design and selection of refrigeration plant, and the means of distribution and control.
- 4.1.3.3 Evaluate several means of chilling and cooling in a brewery, comparing for suitability of application, design requirements of the process plant, efficiencies and costs.
- 4.1.3.4 Determine the practical opportunities for measuring and controlling refrigerant uses and costs. Include energy management, and cost-benefit implications of insulation selection.

The candidate should be able to demonstrate practical knowledge of the safe, efficient provision and distribution of refrigerants in a brewery, and to incorporate such knowledge into propositions involving the design, effectiveness or efficiency of the production process.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.1.3.1				
4.1.3.2				
4.1.3.3.				
4.1.3.4				

Shortfalls In Experience

No.	Description

Candidate's Signature.....

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THE INSTITUTE OF BREWING & DISTILLING**THE MASTER BREWER PROGRAMME**

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.1 **SUPPLY AND CONTROL OF UTILITIES**
 ELEMENT: 4.1.4 **CO₂ and N₂ Supply and Distribution**

Recommended Experience

- 4.1.4.1 Familiarisation with systems for storage, vaporisation and distribution of CO₂ and N₂ in a brewery. Evaluate the design of available plant for collecting and reusing CO₂, with particular reference to practicality, quality and economic considerations.
- 4.1.4.2 Study the effects of safety regulations on design, operation and costs of CO₂ and N₂ supplies.
- 4.1.4.3 Evaluate the principal uses of CO₂ and N₂, and their implications for the design of distribution systems and process plant.
- 4.1.4.4 Quantify the practical opportunities for overall control of CO₂ and N₂ costs.

The candidate should be able to demonstrate practical knowledge of the safe, efficient provision and distribution of CO₂ and N₂ in a brewery, and to incorporate such knowledge into propositions involving the design, effectiveness or efficiency of the production process.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.1.4.1				
4.1.4.2				
4.1.4.3				
4.1.4.4				

Shortfalls In Experience

No.	Description

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.1 **SUPPLY AND CONTROL OF UTILITIES**
 ELEMENT: 4.1.5 **Compressed Air Supply and Distribution**

Recommended Experience

- 4.1.5.1 Familiarisation with a supply, storage and distribution system of compressed air in a brewery, including main items of equipment, control systems and running costs.
- 4.1.5.2 Study the effects of safety regulations on design, operation and costs.
- 4.1.5.3 Evaluate the principal uses of compressed air, with particular reference to the quality and volume requirements for each application.
- 4.1.5.4 Study several different items of equipment which are air-operated, with particular reference to their means of operation, and air quality requirements.

The candidate should be able to demonstrate practical knowledge of the safe, efficient provision, distribution and use of compressed air in a brewery, and to incorporate such knowledge into propositions involving the design, effectiveness or efficiency of the production process.

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4.1.5.1				
4.1.5.2				
4.1.5.3				
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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.1 **SUPPLY AND CONTROL OF UTILITIES**
 ELEMENT: 4.1.6 **Effluent and Solid Waste Disposal**

Recommended Experience

- 4.1.6.1 Direct experience of the daily management of effluent and solid waste disposal.
- 4.1.6.2 Study alternative methods for brewery effluent disposal, ranging from direct discharge to public services, to in-house treatment to the highest standards. Compare for suitability and costs (capital and running).
- 4.1.6.3 Evaluate the overall opportunities for economy in a brewery's total effluent and solid waste disposal. Quantify any effects of combining effluents, and the potential savings in costs through controlling effluent volumes and strengths.
- 4.1.6.4 Direct experience of environmental considerations in the field of effluent and solid waste disposal, including sound management practice in addition to specific local regulations.

The candidate should be able to demonstrate practical knowledge of controlling the generation and safe, efficient disposal of solid and liquid waste from a brewery.

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4.1.6.1				
4.1.6.2				
4.1.6.3				
4.1.6.4				

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.2 **PLANT MAINTENANCE**
 ELEMENT: 4.2.1 **Organisation and Planning**

Recommended Experience

- 4.2.1.1 Evaluate the principal advantages and disadvantages of Breakdown, Planned Preventative and Conditioned-based Maintenance, comparing costs, effects on production scheduling and suitability for the various brewery production areas.
- 4.2.1.2 Evaluate the advantages and disadvantages of computer vs. paper-based maintenance systems, and the merits of keeping plant history records.
- 4.2.1.3 Study the principles of inherent plant reliability, and when plant modification is more appropriate than on-going maintenance.
- 4.2.1.4 Study the skill requirements in a maintenance operation, including evaluation of what levels of integration of maintenance into production teams are appropriate in the various brewery production areas.

The candidate should be able to outline reasoned optimum maintenance structures, organisations and scheduling to meet particular operational circumstances in a brewery.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.2.1.1				
4.2.1.2				
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4.2.1.4				

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.2 **PLANT MAINTENANCE**
 ELEMENT: 4.2.2 **Efficiency and Cost Control**

Recommended Experience

- 4.2.2.1 Direct experience of controlling mechanical efficiencies and maintenance downtime, and of their effects on production capacity, targets and efficiencies.
- 4.2.2.2 Evaluate alternative methods of calculating plant mechanical efficiencies, and the value of such data as a means of controlling breakdowns and maintenance schedules.
- 4.2.2.3 Evaluate the implications of different levels of maintenance service, including the advantages and disadvantages of in-house vs. contract maintenance.
- 4.2.2.4 Study the principles and common techniques used for deciding stock levels of engineering spares.

The candidate should be able to demonstrate practical knowledge of the key relationships between production efficiency and maintenance types, levels and costs; and to incorporate such knowledge into propositions involving the effectiveness and efficiency of the production process.

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4.2.2.1				
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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.3 **CAPITAL PROJECTS**
 ELEMENT: 4.3.1 **Project Justification**

Recommended Experience

- 4.3.1.1 Study the key elements of a capital project justification for a project based on (a) expansion of capacity; (b) cost reduction; and (c) qualitative grounds, eg safety, quality improvement.
- 4.3.1.2 Review some completed capital projects originally justified on financial grounds, evaluating the actual vs. forecast performance using Pay Back Period; Return on Investment; Internal Rate of Return; Net Present Value and Discounted Cash Flow.
- 4.3.1.3 Review some completed projects originally justified on Safety, Quality or Plant Performance grounds, evaluating actual achievements vs. the forecast criteria.

The candidate should be able to demonstrate practical knowledge of the principles of assembling a capital project justification, and reviewing subsequent performance against that justification.

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4.3.1.1				
4.3.1.2				
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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.3 **CAPITAL PROJECTS**
 ELEMENT: 4.3.2 **Project Management**

Recommended Experience

- 4.3.2.1 Identify the essential stages up to and including the installation phase of one large and one small project.
- 4.3.2.2 Study the common techniques for the control of time and cost in managing capital projects.
- 4.3.2.3 Study the roles and relationships that need to exist between Project Manager, Contractor, internal Project Staff, the end user and other brewery staff during the course of a major capital project, in order to maximise success of the project.
- 4.3.2.4 Identify the key criteria for successful commissioning, testing and handover to the end user of a major project.

The candidate should be able to demonstrate practical knowledge of the principles of controlling the progress of a capital project and ensuring success in terms of time, quality, cost and subsequent performance.

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4.3.2.1				
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4.3.2.4				

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.4 **HEALTH & SAFETY**
 ELEMENT: 4.4.1 **Regulatory Activity**

Recommended Experience

- 4.4.1.1 Direct experience of the requirements and implications of Safe Working Practices in routine brewery operations, and special procedures during plant maintenance and capital project work. Distinguish legal requirements from good management practice.
- 4.4.1.2 Direct experience of formally identifying hazards, and taking measures to reduce risk of injury.
- 4.4.1.3 Familiarisation with the legislative requirements and implications surrounding raw materials, water supplies and other purchased goods.
- 4.4.1.4 Familiarisation with employees' responsibilities for safe working practices.

The candidate should be able to demonstrate sound knowledge of local law on Health and Safety matters, and to call on substantial practical experience and examples of executing Health and Safety responsibilities.

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4.4.1.1				
4.4.1.2				
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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.4 **HEALTH & SAFETY**
 ELEMENT: 4.4.2 **Management Controls**

Recommended Experience

- 4.4.2.1 Evaluate various techniques for monitoring performance in Health and Safety matters, including their merits and use for creating action plans and for targeting improvements.
- 4.4.2.2 Direct experience of common techniques for employee involvement in promoting safe working practices.
- 4.4.2.3 Study systematic approaches to accident investigation, and evaluate some examples for effectiveness of the conclusions in subsequent prevention measures.
- 4.4.2.4 Study various mechanisms for carrying out Health and Safety training, including the structure of a comprehensive training programme.

The candidate should be able to demonstrate practical knowledge of the control and training techniques available to aid continuous improvement in Health and Safety performance.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.4.2.1				
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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.5 **CENTRAL QUALITY FUNCTIONS**
 ELEMENT: 4.5.1 **Quality Systems**

Recommended Experience

- 4.5.1.1 Compare the principles of Quality Assurance in beer production with those of historical batch analysis, with particular reference to the potential for confidence in product quality, and the development of relationships with suppliers, between production departments, and as supplier of finished products. Include economic considerations.
- 4.5.1.2 Familiarisation with an international or national system related to Quality Standards, eg BS 5750, ISO 9000 series. Determine the effect on working practices in a brewery and the benefits that accrue.
- 4.5.1.3 Study the techniques of Hazard Analysis and Quality Auditing and the benefits that accrue from such audits.

The candidate should be able to demonstrate a sound knowledge of modern Quality Systems and associated principles, complemented by practical examples of effective use of these techniques in brewery operations.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.5.1.1				
4.5.1.2				
4.5.1.3				

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.5 **CENTRAL QUALITY FUNCTIONS**
 ELEMENT: 4.5.2 **Laboratory Services**

Recommended Experience

- 4.5.2.1 Direct experience of the organisation of central laboratory services to production departments. Compare costs of different structures and levels of service, evaluating optimum arrangements for the various production departments.
- 4.5.2.2 Compare alternative methods and presentations of flavour profile analysis, and general analysis/reporting of statistical trends, evaluating for effectiveness as management control tools in the various production processes.
- 4.5.2.3 Evaluate alternative laboratory information systems for effectiveness as management control tools in the various production processes.
- 4.5.2.4 Determine the optimum role of a central laboratory function in the development and maintenance of in-line and operator-controlled systems of quality control.

The candidate should be able to quantify the optimum service from a brewery laboratory, specifying the quantity, quality and mode of information supply.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.5.2.1				
4.5.2.2				
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4.5.2.4				

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.6 **BUDGETARY CONTROL**
 ELEMENT: 4.6.1 Principles of Revenue Budgeting

Recommended Experience

- 4.6.1.1 Familiarisation with the construction of a Product Standard Cost (or equivalent technique) from materials through to end-product in package.
- 4.6.1.2 Familiarisation with the construction of Departmental Expenditure Budgets, including those of centralised service functions, eg utilities, maintenance, etc.
- 4.6.1.3 For all key direct and indirect costs of a brewery, quantify their fixed or variable nature, and identify to what extent each is within the control of technical management.
- 4.6.1.4 Determine the ideal role of the production line manager in setting the budgets of central service functions.

The candidate should be able to demonstrate practical knowledge and appreciation of the use of budgeting for planning and controlling revenue expenses/costs in the production operation, and of the areas and magnitudes of cost control within the scope of technical management.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.6.1.1				
4.6.1.2				
4.6.1.3				
4.6.1.4				

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.6 **BUDGETARY CONTROL**
 ELEMENT: 4.6.2. **Management Accounting in Practice**

Recommended Experience

- 4.6.2.1 Familiarisation with Annual Budgets and Period Operating Statements for the whole production operation.
- 4.6.2.2 Direct experience of investigating and taking action on a variety of variances from budgeted departmental expenses.
- 4.6.2.3 Identify the financial variances that occur as a result of other changes from budgeted production activities that affect product unit costs (e.g. loss rates, material and utility usage rates and costs, etc. Do not include volume changes - see 4.6.3). Prepare a list of the most significant variances in respect of their financial impacts being controllable by technical management.
- 4.6.2.4 Familiarisation with capital expenditure budgeting and control procedures. Include cash flow considerations.

The candidate should be able to demonstrate practical knowledge and experience of interpreting revenue and capital expenditure reports on production operations, and devising courses of action appropriate for technical management to meet financial requirements.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.6.2.1				
4.6.2.2				
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4.6.2.4				

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MODULE: 4. **CENTRAL FUNCTIONS**
 UNIT: 4.6 **BUDGETARY CONTROL**
 ELEMENT: 4.6.3 **Management of Volume Demand**

Recommended Experience

- 4.6.3.1 Study methods for calculating production capacities of a brewery, including incorporation of seasonal, product mix and other relevant factors. Complete the following exercise:-
- 4.6.3.2 Calculate the weekly and annual production capacities of the brewery and its separate process departments in which management experience has been gained. Identify the limiting items of plant in each process. Then:-
- 4.6.3.3 With a base of current activities, determine optimal actions to accommodate a range of significant step changes in output volume and/or product mix demand. Then:-
- 4.6.3.4 Quantify these optimal actions in terms of increases or decreases in fixed and variable costs, their effect on product unit costs, and include the financial effects of any required changes in plant configuration or size.

The candidate should be able to demonstrate the principal operational and financial effects of changes in volume demand, and the scope for technical management to manage such change efficiently.

No.	Notes On Competence Acquired	Confirmed	Position	Date
4.6.3.1				
4.6.3.2				
4.6.3.3				
4.6.3.4				

Shortfalls In Experience

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