

Higher National Unit Specification

General information for centres

Unit title: Design and Technical Operations

Unit code: DX2K 34

Unit purpose: This Unit will provide the candidate with an understanding of the physical aspects of facilities including their design and operation. Such knowledge helps to ensure that facilities for customers that are fit for purpose and that they provide a safe and pleasant environment for all who work and play in them. A level of technical knowledge is necessary despite it being normal practice to engage contractors to undertake the more specialist technical work.

This Unit necessarily takes an overview of the design requirements for wet and dry sports facilities, as well as appropriate environmental conditions (heating, lighting, ventilation, water conditions etc) and their implications for management intervention. This Unit will enable students to be able to interpret technical literature as it applies to facility management in the sport and recreation sector.

Some study of the technical requirements for treating swimming pool water is included as this responsibility rests with centre managers who remain legally accountable both as employers and occupiers of the buildings they manage.

On completion of the Unit the candidate should be able to:

- 1 Explain the principles of building design and apply these to wet and dry sports and recreation facilities and the interrelationship between these and the user groups they provide for.
- 2 Evaluate the technical processes involved in the appropriate service delivery of swimming pools and spa pools.

Credit points and level: 1 HN Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre. However, candidates should have knowledge of the Health and Safety responsibilities of a centre manager. This may be evidenced by the possession of the Unit DF87 34 *Health and Safety Legislation: An Introduction*.

General information for centres (cont)

Core Skills: There are opportunities to develop the Core Skill of Communication at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes. . It is recommended that opportunities are sought to integrate work with other mandatory Units, in particular Sport and Recreation Facility Operations and the Graded Unit.

Assessment: Two different assessment instruments may be used to assess the Unit. However, it is recommended that there is the opportunity to integrate assessment for Outcome1 with the Sport and Recreation Facility Operations and/or the Graded Unit. The assignment should be used based upon the candidate's own workplace (or one to which they have access) as a focus and source to assess the Outcomes. The candidate would be required to provide written evidence of not less than 900 words per Outcome. A presentation of not less than 15 minutes for Outcome 1 is acceptable as an alternative to a report.

Higher National Unit specification: statement of standards

Unit title: Design and Technical Operations

Unit code: DX2K 34

The sections of the Unit stating the Outcomes, knowledge and/or skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Explain the principles of building design and apply these to wet and dry sports and recreation facilities and the interrelationship between these and the user groups they provide for

Knowledge and/or skills

- ◆ Design considerations
- ◆ Interrelationship between facilities and the user groups
- ◆ Technical requirements

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can produce:

- ◆ a site plan identifying the main wet and dry facilities of the building and a report that evaluates the following:
 - the individual design requirements for a minimum of one ‘associated areas’ (see Guidance on the delivery and assessment of this Unit) the facilities to include: surfaces, structures, and equipment for normal recreation use and also competition use
 - access, egress, maintenance and provision for no less than three different types of users eg disabled, children, adults, females, senior citizens etc
 - evaluate lighting, heating, ventilation and energy recovery

Assessment guidelines

It would be helpful if candidates could have access to site plans, technical specifications, and relevant technical literature for their site as well as physical access to the facilities studied. Where candidates use presentation graphics for their assessment they would be expected to reproduce digital photographs showing areas within the centre they are basing their study around and scanned images of site plans etc. There are also opportunities (as previously mentioned) for integrating assessment for Outcome 1 with the Sport and Recreation Facility Operations and/or the Graded Unit. This may be presented in the form of a written report (of not less than 900 words) or an audio-visual presentation (of not less than 15 minute’s duration). An electronic/paper copy of the presentation (ie handouts) could also be submitted as supporting evidence.

Higher National Unit specification: statement of standards (cont)

Unit title: Design and Technical Operations

Outcome 2

Evaluate the technical processes involved in the appropriate service delivery of swimming pools and spa pools

Knowledge and/or skills

- ◆ Sources of pool pollution
- ◆ Main processes of Pool water treatment
- ◆ Requirements for 'balanced' water
- ◆ Management interventions to maintain safe water for bathing

Evidence Requirements

Candidates will need evidence to demonstrate their skills and/or knowledge by showing that they can:

- ◆ evaluate and describe the main sources of physical, chemical and biological pollution in swimming and spa pools
- ◆ evaluate and describe the main processes of treating swimming pool and spa water including: disinfection, filtration, coagulation, pH control and progressive dilution
- ◆ evaluate and describe the requirements for balanced water and why testing and monitoring water is essential to ensure safe and healthy conditions for bathers
- ◆ describe in detail one management intervention required when water is not balanced or when conditions are not conducive to safe and healthy bathing

This must be presented in the form of a written report of not less than 900 words.

Assessment guidelines

Candidates should comment on actual data collated at the site (ie water tests carried out for the swimming and/or spa pool) using an acceptable format (see note on guidance on delivery_and assessment of this Unit — Outcome 2 below) Reference should be made to the nationally recommended levels, ranges or limits as they apply.

As a guideline each of the written Evidence Requirements should be no less than 200 words.

Administrative Information

Unit code: DX2K 34
Unit title: Design and Technical Operations
Superclass category: NL
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History of Changes:

Version	Description of change	Date

Source: SQA

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Higher National Unit specification: support notes

Unit title: Design and Technical Operations

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit invites the learner to consider the physical design aspects of ONE 'associated area' of a facility eg a Sports hall (and associated storage area), a Swimming Pool, a Fitness Suite, a Health Suite, an Exercise studio, a Reception area etc and the interrelationship between separate associated or adjoining areas and the implications for their design and management. The impact of the building design should be investigated for the various user groups such as disabled users, families, young children, elderly etc.

The knowledge gained will be drawn from information derived from operational experience, site plans, technical papers, specifications, texts and presentations from visiting professionals. There will be an assumption that where applicable candidates will draw from their own experience and research from working within facilities to contextualise this information.

Guidance on the delivery and assessment of this Unit

A possible approach to this Unit would be to focus on particular case studies provided by the operational facilities. An array of 'live' information in different formats (site visits, presentations from visiting centre managers and recreation staff) that could provide the evidence around which the operational issues can be discussed in lectures and seminars. Where possible or appropriate this information should also be related to the underpinning Scottish/National Governing Body guidelines for competition and casual recreation use, industry guidelines and best practice. Candidates should be encouraged to research (using journals, technical specifications, texts and the web) widely and some time should be allocated to guided research within the guided learning hours.

At least one site visit should be integrated into the scheme of work to allow all students to investigate design, technical, pool plant and maintenance issues together. Additionally it would be very useful to invite visiting lecturers (e.g. swimming pool and leisure centre managers) for this Unit. Many of the technical issues that arise lend themselves to class discussion to draw upon candidate's own experience from the workplace. A reasonable amount of time will need to be allocated to preparation for candidate's own presentations (Outcome 1 only) perhaps with some coaching in presentation techniques and use of visual aids eg. presentation software.

Some specific guidance is given below relating to the knowledge and/or skills criteria for the individual Outcomes:

Higher National Unit specification: support notes (cont)

Unit title: Design and Technical Operations

Outcome 1

Delivery should focus on ONE associated area within a facility eg a Sports hall (and associated storage area), Swimming Pool, Fitness Suite, Health Suite, Exercise studio, Reception area etc.

Students should be encouraged to critically evaluate the design and layout of these areas to determine whether the most effective use is being achieved in terms of the relationship between the physical layout with user groups eg disabled, 50 plus, males, females, ethnic groups, mothers and toddlers, players, officials, coaches etc.

Outcome 2

Pool Plant operation is necessarily a rather technical subject with parallels to engineering or chemistry more so than Sport and Recreation. A technical overview of this important area of operation is nevertheless vital for Managers who have the direct legal responsibility, in order to understand the impact it has upon providing facilities that are both safe and fit for purpose for the centre users. It is imperative therefore that this Unit is delivered by those who have direct management experience and knowledge of technical aspects of design and Pool operation.

Students should concentrate on undertaking a critical examination of their own facility and this can only be achieved if all relevant data is available. This will include pool test sheets, plant maintenance records and reference to manufacturers and installers operating recommendations. (For example the ISRM National Pool Plant Operator — Swimming Pool_Log Sheet. Details can be downloaded from the ISRM website: www.isrm.co.uk).

Students should be made aware of relevant national guidelines for pool operation and the interventions required when the pool conditions fall outside these guidelines. These will inform their decisions as current (and future) managers, and ensure the continuing health, safety and comfort of their users. Assessment reports for this Outcome should reinforce this point.

The short reports would then allow candidates to demonstrate their ability to construct a properly formatted coherent written piece of work. It is suggested that students do the group presentation first and submit the reports at the end of the Unit.

Bibliography

Suggested resources list:

NB: Because of the rapid changes in the industry magazines and professional papers are often the best way to get practical information. Recreation, for example, will often focus on an area such as Changing rooms, Spas or Swimming Pools.

Higher National Unit specification: support notes (cont)

Unit title: Design and Technical Operations

ACSM's Health/Fitness Facility Standards and Guidelines 2nd Edition, 1997, Human Kinetics
(ISBN: 0-87322-957-6)

BRESCU Energy Best Practice guides (Tel 01923 64258) (mostly free of charge on request)

HSC Managing Health and Safety in Swimming Pools (HSG 179)
(ISBN: 0-7176-1388-7)

Indoor sports Handbook of sports and recreational building design 1995
ISBN 0-7506-1294-0

ISRM: Information Reviews relating to facility management

ISRM National Pool Plant Operators Guide 1997 ISRM (tel 01509 226474)

ISRM Health and Fitness Operators Guide 1999 ISRM (tel 01509) 226474
(ISBN: 0 9515054 3 2)

John Geraint and Campbell Kit: Ice Rinks and Swimming Pools 2nd edition, 1996, Butterworth
(ISBN: 0-7506-2256-3)

John Geraint and Campbell Kit: Indoor Sports 2nd Edition, 1995, Butterworth
(ISBN: 0-7506-1294-0)

Perkins Philip: Swimming Pools 4th Edition, 2000, E & FN Spon
(ISBN: 0-419-23590-6)

Performance measurement for local authority sports halls and swimming pools 2000 ISBN 1 806078
128 4

PWTAG Swimming Pool Water — Treatment and Quality Standards (ISBN: 0 951 7007 6 6)

Recreation Management Fact File

Websites

www.leisure-centre.com

www.activeplaces.com (database of facilities incl: pools, sports centres, health & Fitness clubs,
ski slopes, golf courses etc)

www.audit-commission.gov.uk

www.odpm.gov.uk

www.nottinghamcity.gov.uk

www.cumbriasport.com

www.isrm.co.uk

www.ccpr.org.uk

www.bst.org.uk

www.isrm.eneews/index

www.ilam.co.uk

www.reps-uk.org

Higher National Unit specification: support notes (cont)

Unit title: Design and Technical Operations

www.skillsactive.org
www.sportscoachuk.org
www.sportengland.org
www.activeplaces.com
www.swimmingpoolnews.co.uk
www.pmpconsult.com
www.sapca.co.uk
www.spata.co.uk
www.actionenergy.org.uk
www.thecarbontrust.co.uk
www.cea.org.uk (the combustion energy association)
www.energy-efficiency.org
www.cibse.org
www.ispe.co.uk
www.hpa.org.uk
www.bishta.co.uk
www.pwtag.org

Journals

Recreation — the journal of the ISRM

Leisure Manager — the journal of ILAM

Opportunities for developing Core Skills

Although skills in written and oral communication are not formally assessed, candidates should be expected to respond to and present written materials to a standard acceptable in the vocational area. A range of source materials should be analysed and evaluated for relevance and currency, and key information selected. Written reports should express essential complex ideas and information accurately and coherently, be formally structured and use accurate language, spelling, punctuation and syntax.

Using up to date software packages for word processing and editing where practical could support the development of writing skills to industry standard. The production of early drafts of written or oral reports will ensure assessor involvement at all stages of writing and support the development of communication skills.

For oral reporting candidates should be given opportunities to practise developing technical competence, supported by a self or peer assessment checklist, to ensure that they are able to:

- ◆ organise information effectively
- ◆ use vocabulary, register and style suitable to purpose
- ◆ use pace, modulation, articulation and voice projection effectively
- ◆ use signposting
- ◆ select, produce and use appropriate visual/non-visual supporting materials
- ◆ use non-verbal techniques to progress communication with listeners
- ◆ respond to in depth questioning confidently and accurately

Higher National Unit specification: support notes (cont)

Unit title: Design and Technical Operations

Open learning

This Unit could be delivered by open or distance learning. However, in terms of assessment, it will require planning by the centre to ensure sufficiency and authenticity of candidate evidence. For further information and advice on Open and Distance Learning, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 publication code A1030).

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Alternative Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs*, which is available on SQA's website: www.sqa.org.uk.

General information for candidates

Unit title: Design and Technical Operations

On completion of the Unit you will be able to: describe the spatial, programming, maintenance and resource requirements for a range of operational issues for a sport and recreation centre. Further you will be able to explain and rationalise how these requirements are underpinned by legislation, approved codes of practice and industry best practice.

You will draw upon yours and others experience of the workplace you will be encouraged to carry out self/group research and discuss the issues identified with others to help formulate your written and/or presented responses.