

Unit 14: Instructing Physical Activity and Exercise

Unit code:	F/502/5726
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

The aim of this unit is for learners to be able to design, plan, deliver and review exercise sessions which meet the needs of different client groups.

● Unit introduction

The number of people attending gyms and exercise sessions has increased significantly over the last decade as people seek to get themselves fit, lose weight, improve their health or reduce the effects of the ageing process. Each client will have different needs and it is the job of the instructor to meet their needs by providing them with safe and effective exercise programmes and sessions.

Instructors will require a good understanding of the health-related components of fitness and how the body adapts to training within different client groups. They will require knowledge of health screening methods and risk assessments to ensure the safe and effective delivery of the exercise sessions. Each exercise session will require some form of warm-up and cool down activity and this unit will provide the underpinning knowledge so learners have the opportunity to develop their own ideas in-line with the latest research.

Calculating and considering the intensity of exercise will be explored using a variety of methods in order that the goals of each client can be reached without detrimentally affecting their health. Clients will be from a number of different groups with a variety of needs. This unit will investigate those clients' needs and allow learners to adapt sessions and activities to meet them.

Planning and delivering single and sequential exercise sessions is important so that clients observe progress towards their goals. The unit requires learners to design a six-week exercise programme for two contrasting clients and then plan and deliver a safe and effective exercise session.

Experienced instructors will always review their sessions and obtain feedback from others. The unit will explore different methods for collecting feedback on performance, enabling learners to identify their strengths and areas for improvement. This may include planning for future sessions, making changes to the activities, the intensity of the activity, the goals of the client or their personal style of delivery.

The knowledge and skills provided by this unit are an exciting combination of theory and practical aspects to help learners gain an improved understanding of working as an instructor in the fitness industry.

● Learning outcomes

On completion of this unit a learner should:

- 1 Know the principles of safe and effective exercise sessions
- 2 Be able to design an exercise programme
- 3 Be able to plan and lead an exercise session
- 4 Be able to review the design of an exercise programme and leading of an exercise session.

Unit content

1 Know the principles of safe and effective exercise sessions

Principles of fitness training: components of fitness (strength, aerobic endurance, muscular endurance, flexibility, body composition); adaptations to training, eg hypertrophy, increased muscle tone, decreased resting heart rate, increased stroke volume; FITT principles (frequency, intensity, time, type)

Health and safety: PAR-Q (physical activity readiness questionnaire); contraindications; risk assessments

Warm-up: functions; components (raising of the pulse, dynamic stretches); duration; types of warm-up, eg specific (aerobic routines), general (low repetitions on resistance machines)

Cool down: functions; components (lowering of the pulse, stretches, eg developmental, proprioceptive neuromuscular facilitation – PNF)

2 Be able to design an exercise programme

Structure: introduction to the session; warm-up; main component (duration, activities, exercise intensity, eg max heart rate, training zones, Karvonen formula, Rating of Perceived Exertion – RPE); cool down

Factors to consider: screening, eg PAR-Q, medical history and exercise history; motives; barriers; current physical activity level; goals (short and long term)

Clients: eg varied ability, individuals, groups, specific groups (elderly, children, obese); code of ethical practice, eg rights, relationships, personal responsibilities, professional standards

Activity selection: eg likes and dislikes, accessibility, culture, commitments (work and family), goals, time

3 Be able to plan and lead an exercise session

Plan an exercise session: screening; risk assessment; aim; objectives; structure of the session; venue; marketing; setting-up, checking and maintaining equipment

Deliver an exercise session: introduction to the session; instruction delivery (communication, technique correction, correct body alignment, modification of exercises, observation, motivation, rapport with clients); end of the session, eg feedback, checking and setting down equipment

4 Be able to review the design of an exercise programme and leading of an exercise session

Review performance: methods, eg peer evaluation, questionnaires, self-evaluation; fit for purpose, eg track progression, adapt session, modify activities, improve own performance, codes of practice, continued professional development; modify, eg FITT progression, changes in exercises to maintain interest and motivation, achievable goals; development needs, eg continue professional development; SMART (specific, measurable, achievable, realistic, time-bound) targets

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 describe the principles of fitness training		
P2 describe the health and safety considerations associated with exercise programmes and sessions	M1 explain the health and safety considerations associated with exercise programmes and sessions	
P3 describe the importance of warm-up and cool down in exercise programmes and sessions		
P4 design a six-week exercise programme for two selected contrasting clients [IE2, IE3, IE4, CT1, CT3, RL2, SM3]	M2 explain choice of activities for exercise programmes for selected clients	D1 justify choice of activities for exercise programmes for selected clients, suggesting alternative activities
P5 plan a safe and effective exercise session [IE2, IE3, IE4, CT1, CT3, RL2, SM3]	M3 explain choice of activities for the planned exercise session	D2 justify choice of activities for the planned exercise session and suggest alternative activities.
P6 deliver a safe and effective exercise session, with tutor support [CT5, CT6, RL6, TW3, TW4, TW5, TW6, EP4, EP5]	M4 independently deliver a safe and effective exercise session.	
P7 review own performance in the designing of exercise programmes and the planning and delivery of the exercise session, identifying strengths and areas for improvement. [CT4, RL1, RL2, RL3, RL4, RL5, RL6, EP4]		

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

The components of fitness can be taught in both a theoretical and practical manner with practical work providing the context into which the theory is placed. Learners should understand the theory behind the health-related components of fitness and how they can be adapted through training.

Learners could research different PAR-Qs and find the relevant information that is required to deliver safe and effective exercise sessions. From this, learners can then design their own screening document. Risk assessments can be practically-based with learners completing them during lessons in an appropriate facility.

Learners should be aware of the importance of warm-ups and cool downs in the safe delivery of exercise sessions. This could be done through practical participation as part of their planned delivery.

The design of the exercise programmes can be completed in many ways, starting with a daily, weekly and monthly programme, which will eventually lead to the chosen goal. Use of case studies and exemplar programmes would be beneficial here. The programmes should consider what the clients want to achieve, what exercises they enjoy, what component of fitness they wish to improve, adhere to FITT principles, and other factors which may affect the programme design. This information can be obtained by handing out learner-compiled questionnaires or by interviewing the clients in order to assess their individual needs.

Leading the exercise session can be a fun way for learners to express their knowledge and skills. A variety of sessions can be taught; these need to show an adherence to health and safety and codes of practice.

Learners are required to review and adapt their programmes and exercise session. They must show a good understanding of why they are adapting or making modifications to activities. They must also be able to give constructive feedback on their own performance. Initially this should be tutor-led, showing different kinds of strengths and areas for improvement; this will aid learners' progression in their evaluation skills.

In group experience of exercise sessions, mentoring by other learners can be encouraged. Tutor-led practical lessons can be individually reviewed; this will help learners to evaluate their performance in their own sessions.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Introduction and overview of the unit.
Assignment 1: Know the Principles of Safe and Effective Exercise Sessions (P1, P2, M1, P3). Tutor introduces the assignment brief (Tasks 1, 2 and 3).
Components of fitness: group activities to identify and describe the health-related components of fitness.
Adaptations to training: explain the muscular and cardiovascular adaptations to training.
FITT principles: investigate examples of exercise sessions and how they meet the FITT principles of training – learner research task.
PAR-Q, contraindications: investigate methods used to screen the health of clients before participation. Use of case studies.
Risk assessments: design and perform a risk assessment on the area to be used and the activities in an exercise session – learner activity.
Functions and components of a warm-up: practical examples of appropriate warm-ups for specific clients or activities.
Functions and components of a cool down: practical examples of cool downs for specific clients or activities.
Assignment 2: Design an Exercise Programme (P4, M2, D1). Tutor introduces the assignment brief.
Structure of a session plan: components of a session plan including the introduction, warm-up, main component and cool down.
Measurement of intensity: investigate methods used to monitor the intensity of a session. Learner practical activity.
Factors to consider: questionnaire design to identify the specific requirements of individual clients and their ability to undertake exercise sessions – learner activity.
Clients needs: describe the needs of different client groups and investigate different types of activity used to meet their needs. Small-group work.
Assignment 3: Plan and Lead an Exercise Session (P5, M3, D2, P6, M4). Tutor introduces the assignment brief.
Planning of the exercise session: Investigate the factors needed to be considered before an exercise session can take place – learner activity.
Investigate different methods used to evaluate the delivery of the exercise session – learner activity.
Delivery of the exercise session: practical delivery and assessment of an exercise session to a client or clients. Includes time allocated for learner to collect feedback.
Assignment 4: Review the Exercise Programme and Session (P7). Tutor introduces the assignment brief.
Review the different activities used in meeting the needs of the clients – learner activity.
Modify the session incorporating appropriate changes – learner activity.
Identify development needs of the clients and self – learner activity.
Evaluation of the unit.

Assessment

The assessment of this unit should be practically-based, wherever possible, with demonstration of knowledge and understanding applied to the practical activities.

A structured portfolio approach can be taken that builds upon the principles of fitness training, through the warm-up and cool down phases to the delivery of a safe and effective exercise session that is then reviewed by learners.

The description of the principles of fitness training (P1) underpins the design of the programmes and should be considered throughout the assessment. Evidence can be presented in written format but innovative ways to show evidence could also include recording of client interviews, supported by a tutor witness statement/ observation record.

Description of health and safety considerations that are associated with exercise programmes and sessions (P2) should be broad enough to cover exercise programmes and sessions as a whole, but learners should also be encouraged to show such considerations for their specific clients. Description of the importance of warm-up and cool down sessions (P3) allow bite-size design, planning, and delivery of sessions, supported by a written summary and a tutor observation record.

The design of a six-week exercise programme for two contrasting clients should show a range of exercises that are scheduled to take place daily, weekly and monthly up to a six-week period. The use of six weeks allows learners to develop programmes where adaptation will occur. Where possible learners should be encouraged to implement these with their clients to provide further evidence. The exercise programmes designed will form the assessment evidence for P4.

The exercise session learners plan (P5) should also be the same session they deliver (after appropriate tutor feedback and suggested changes). Delivery of the planned safe and effective exercise session (P6) will be practically assessed, preferably through a series of formative exercise sessions, eg circuit sessions, induction in a gym or exercise to music session, after which learners may choose to deliver a chosen summative assessment.

By using this method the tutor support should be minimal in the summative assessment and judgement on support should only be made in this session. Learners will need to deliver a session with due regard for health and safety as well as following codes of professional conduct. Tutors should complete observation sheets to confirm achievement. Learners must be able to describe the purpose of the exercise, give accurate instructions, give constructive feedback to correct technique and adapt and modify exercises to suit individual needs. Where possible, formative assessments can take place with peers, or learners from local centres, but it is often better for summative assessment of delivery to be with a new group.

After delivery of the session, an in-depth review of own performance in the design of the exercise programmes and the planning and delivery of the exercise session must be made (P7). This can be through tutor feedback, feedback from clients/participants, questionnaires, looking at SMART targets or completing other relevant documentation. Learners should be encouraged to reflect regularly on their own performance, determining their strengths and areas for improvement.

Grading criterion M1 links to P2, and requires learners to explain the health and safety considerations associated with exercise programmes and sessions. For M2, learners need to explain the choice of activities for the exercise programmes that they design (P4) for two selected contrasting clients. For M3, learners need to explain the choice of activities for the exercise session that they have planned (P5).

Grading criterion M4 links to P6, and requires learners to deliver the exercise session without the tutor support that was acceptable for P6. For D1, which builds on M2, learners need to justify their choice of activities for the two exercise programmes designed, and also give some suggestions regarding alternative activities for the programmes. For D2, which builds on M3, learners need to justify their choice of activities for the planned exercise session, and give suggestions regarding alternative activities for the session.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1	Task 1: Principles of Fitness Training	You have gained part-time employment in a sports centre, and will be responsible for assisting with and leading exercise classes. Investigate the health-related components of fitness and their adaptations to training.	Presentation. Witness statement.
P2, M1	Task 2: Health and Safety	Investigate the different screening methods used in the industry and conduct risk assessments of practical activities.	Written medical consent form. Risk assessment.
P3	Task 3: Warm-Ups and Cool Downs	Practically deliver different types of warm-up and cool-down for different client groups.	Practical observation and assessment. Observation record. Written summary.
P4, M2, D1	Design an Exercise Programme	As a personal trainer you are asked to design a six-week exercise programme for two contrasting clients.	Written programme.
P5, P6, M3, M4, D2	Plan and Lead an Exercise Session	Plan a safe and effective exercise session for a selected client.	Written plan. Practical observation and assessment. Observation record.
P7	Review the Exercise Programme and Session	Identify strengths and areas for improvement for both the exercise programme and the session.	Written reflective report.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Sport sector suite and the BTEC Sport and Exercise Sciences sector suite. This unit has particular links with the following unit titles in the BTEC Sport suite and the BTEC Sport and Exercise Sciences suite:

Level 2 Sport	Level 3 Sport	Level 3 Sport and Exercise Sciences
Anatomy and Physiology for Sport	Principles of Anatomy and Physiology in Sport	Anatomy for Sport and Exercise
Effects of Exercise on the Body Systems	Fitness Training and Programming	Fitness Training and Programming
Injury in Sport	Sports Coaching	Sports Coaching
Fitness Testing and Training	Exercise, Health and Lifestyle	Exercise, Health and Lifestyle
Planning and Leading Sports Activities	Assessing Risk in Sport	Sport and Exercise Physiology
Development of Personal Fitness	Fitness Testing for Sport and Exercise	Fitness Testing for Sport and Exercise
Lifestyle and the Sports Performer	Exercise for Specific Groups	Exercise for Specific Groups
Exercise and Fitness Instruction	Leadership in Sport	
Leading Outdoor and Adventurous Activities	The Athlete's Lifestyle	
	The Physiology of Fitness	

This unit links with the National Occupational Standards (NOS) for:

- Instructing Physical Activity and Exercise at Level 3.

Essential resources

Learners will require access to suitable exercise facilities, for example a sports hall, as well as access to suitable groups who can act as clients.

Employer engagement and vocational contexts

This unit focuses on planning and delivering safe and effective exercise sessions which will provide learners with the knowledge, skills and experience required to work in fitness suites, leisure clubs or gyms. Visits to local leisure centres or fitness clubs would be beneficial so that learners can observe a variety of exercise sessions in progress.

Indicative reading for learners

Textbooks

American College of Sports Medicine – *ACSM Fitness Book* (Human Kinetics, 1997) ISBN 9780880117838

American College of Sports Medicine – *ACSM's Guidelines for Exercise Testing and Prescription* (Lippincott, Williams and Wilkins, 2005) ISBN 9780781745062

Ansell M – *Personal Training* (Learning Matters, 2007) ISBN 9781844451630

Burke E – *Precision Heart Rate Training* (Human Kinetics, 1998) ISBN 9780880117708

Byl J – *101 Fun Warm-up and Cool-down Games* (Human Kinetics, 2004) ISBN 9780736048491

Champion N and Hurst G – *The Aerobics Instructor's Handbook: What to Teach, and How to Teach it Effectively!* (A&C Black publishers, 2000) ISBN 9780713653595

Fleck SJ and Kraemer W J – *Designing Resistance Training Programmes* (Human Kinetics, 1997) ISBN 9780873225083

Griffin J C – *Client-centred Exercise Prescription* (Human Kinetics, 2006) ISBN 9780736054959

Gudrin P – *Aerobic Training* (Meyer Meyer Sports Books, 2000) ISBN 9781841260211

Harris J and Ebourn J – *Warm-up and Cooling Down* (Human Kinetics, 2002) ISBN 9780736038782

Heyward V H – *Advanced Fitness Assessment and Exercise Prescription* (Human Kinetics, 2006) ISBN 9780736057325

Jackson AW et al – *Physical Activity for Health and Fitness* (Human Kinetics, 2004) ISBN 9780736052054

Norton K and Old T – *Pre-exercise Health Screening Guide* (Human Kinetics, 1999) ISBN 9780736002103

Powers S K and Howley E T – *Exercise Physiology: Theory and Application to Fitness and Performance* (McGraw-Hill, 2008) ISBN 9780071280785

Whyte G P, MacLaren D and Spurway N – *The Physiology of Training – Advances in Sport and Exercise Science* (Churchill Livingstone, 2006) ISBN 9780443101175

Wolf-May K and Bird S – *Exercise Prescription: The Physiological Foundations: A Guide for Health, Sport and Exercise Professionals* (Churchill Livingstone, 2006) ISBN 9780443100178

Journals

Journal of Human Sport and Exercise

Journal of Physical Activity and Health

Journal of Sports Sciences

Journal of Sports Sciences and Medicine

Medicine and Science in Sports and Exercise

The Journal of Sports Medicine and Physical Activity

Websites

Brian Mac, Sports Coach

www.brianmac.co.uk

British Association of Sport and Exercise Sciences

www.bases.org.uk

British Broadcasting Corporation

www.bbc.co.uk

Peak Performance

www.pponline.co.uk

Top End Sports

www.topendsports.com

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	designing a six-week exercise programme for two selected contrasting clients planning a safe and effective exercise session
Creative thinkers	designing a six-week exercise programme for two selected contrasting clients planning a safe and effective exercise session delivering a safe and effective exercise session, with tutor support reviewing own performance in the designing of exercise programmes and the planning and delivery of the exercise session, identifying strengths and areas for improvement
Reflective learners	designing a six-week exercise programme for two selected contrasting clients planning a safe and effective exercise session delivering a safe and effective exercise session, with tutor support reviewing own performance in the designing of exercise programmes and the planning and delivery of the exercise session, identifying strengths and areas for improvement
Team workers	delivering a safe and effective exercise session, with tutor support
Self-managers	designing a six-week exercise programme for two selected contrasting clients planning a safe and effective exercise session
Effective participators	delivering a safe and effective exercise session, with tutor support reviewing own performance in the designing of exercise programmes and the planning and delivery of the exercise session, identifying strengths and areas for improvement.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	researching health screening questionnaires, informed consent forms and risk assessment forms
Creative thinkers	planning warm-ups and cool downs
Reflective learners	practising health screening procedures, risk assessments and warm-ups and cool downs with their peers
Team workers	practising health screening procedures, risk assessments and warm-ups and cool downs with their peers
Self-managers	following health screening procedures, risk assessments and administering health checks for two contrasting clients
Effective participators	being participants for peers during their session delivery.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	researching components of fitness and adaptations to training researching health screening questionnaires and risk assessments
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	preparing a presentation preparing a health screening questionnaire preparing a risk assessment form
Manage information storage to enable efficient retrieval	recording client details and exercise information
Follow and understand the need for safety and security practices	recording client details and exercise information
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching components of fitness and adaptations to training researching health screening questionnaires and risk assessments
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	preparing a presentation preparing a health screening questionnaire preparing a risk assessment form calculating intensity of training
Bring together information to suit content and purpose	interpreting health-related details of the client and risk assessment details of the activity
Present information in ways that are fit for purpose and audience	presenting components of fitness and their adaptations to training
Evaluate the selection and use of ICT tools and facilities used to present information	calculating the intensity of the exercise session
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	recording client information and exercise session details
Mathematics	
Identify the situation or problem and the mathematical methods needed to tackle it	calculating the intensity of the exercise session
Select and apply a range of skills to find solutions	calculating the intensity of the exercise session

Skill	When learners are ...
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	presenting the components of fitness and adaptations to training
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	writing exercise programmes, plans and reflective reports.