Edexcel
Success through qualifications

Annex D

Qualification Requirement

BTEC Higher Nationals in Sport and Exercise Sciences

This Qualification Requirement will be read in conjunction with overarching guidance from Edexcel in line with any overarching annex agreed with QCA.

Rationale

The BTEC Higher Nationals in Sport and Exercise Sciences have been developed to focus on:

- the education and training of sport and exercise technicians who are employed in a variety of types of applied practical and technical work, such as in: human performance analysis, sports nutrition, sport science research and development, sports development, sports coaching, education etc.
- providing opportunities for sport and exercise technicians to achieve a nationally recognised level four vocationally specific qualification
- providing opportunities for full-time learners to gain a nationally recognised vocationally specific qualification to enter employment as sport and exercise technicians, sports coaches, sports development officers or progress to higher education vocational qualifications such as a full-time degree in Sport & Exercise Sciences or a related area
- the role of the sport and exercise technician and their relationship within the section/department in which they work. How their role and that of their department/section fits within the overall structure of their organisation and within the scientific and local community
- providing opportunities for learners to focus on the development of the higher level skills in sport science and technology
- providing opportunities for learners to develop a range of skills and techniques and attributes essential for successful performance in working life.

Aims of the Qualification

This qualification meets the needs of the above rationale by:

- equipping individuals with knowledge, understanding and skills for success in employment in the applied sport science and related industries
- enabling progression to an undergraduate degree or further professional qualification in applied sports science or related areas
- providing specialist studies relevant to individual vocations and professions in which students are working or intend to seek employment in the sport sciences and their related industries

- developing the learner's ability in the applied sports science environment through effective use and combination of the knowledge and skills gained in different parts of the programme
- developing a range of skills and techniques, personal qualities and attributes essential for successful performance in working life and thereby enable learners to make an immediate contribution to employment
- providing flexibility, knowledge, skills and motivation as a basis for future studies and career development - an educational foundation for a range of careers in sport science and related industries

Mandatory Curriculum:

Anatomy: develop knowledge, understanding and application of the structure and function of bones, muscles and associated structures involved in human movement; the theoretical principles of the lever systems to human movement; the biochemistry of muscular contraction.

Psychology: develop knowledge and understanding of psychological factors relating to optimising sports performance**;** the complex nature of motivation and its application to sport and exercise; psychological intervention strategies to improve performance; pre-event preparation.

Physical Training: develop an understanding of the principles of physical training; short and long-term planning and periodisation of training; prescription of training.

Sports Performance: develop knowledge and a working understanding of the physical skills, game strategies and tactics used in a variety of sports. Improves own performance in selected sports.

ICT and Management of Information: use specific sport science software packages for the management of information, and the collection, analysis and use of data; ICT skills used to obtain information from electronic sources and synthesise information.

Sport Science Project Management: use of project management; implement a project plan including evaluation and review; importance of communications and presentation in project management.

Numerical Techniques: use of numerical techniques to solve scientific problems; the types of errors and tolerances; evaluation of data obtained; statistical methods.

The Sports Industry: develop knowledge and understanding of the sport industry; social issues in sport, sport politics and development; current issues in the exercise and fitness industry.

Optional Curriculum:

Physiology of Exercise: develop an understanding and apply the knowledge of intracellular processes involved in energy re-synthesis and transfer during human movement; homeostatic control and responses to acute and chronic exercise; mechanisms involved in internal and external respiration and responses to acute and chronic exercise; environmental influences on human performance.

Biomechanical Analysis: understand the principles of the forms of motion; mechanical systems in analysing movement; anatomical referencing to simplify analysis; laws of motion applied to sport and exercise activities; biomechanical laws to liner and angular motion, interaction between

bodies, projectile motion, equilibrium in human movement and energy; effects of fluid motion; biomechanical analysis of human motion; force generation.

Skill Analysis and Acquisition: develop an inter-disciplinary approach that observes human motion through an examination of physiological, biomechanical, psychological and notational analysis of human performance. In addition, develop an understanding of performance enhancement through observation of skilled routines in sport and exercise; information processing and theories of learning to the teaching/coaching of sport and exercise skills.

Leadership Skills: apply with a degree of autonomy and responsibility for own learning the knowledge, understanding and technical skills necessary in the planning and preparation for teaching or coaching in sport and exercise; recognising key features of effective leadership in sport and exercise; reviewing own teaching/coaching performance; implementing change to future coaching/ teaching sessions; understanding the needs of particular groups in sport and exercise.

Injury Prevention and Rehabilitation: develop knowledge and understanding of common sport and exercise injuries; techniques to prevent injuries; treatment of injuries; rehabilitation from injury and developmental exercise programmes.

Exercise and Lifestyle Management: develop an understanding of the principles associated with the maintenance of health and well-being; application of motivational models to exercise adoption and maintenance.

Sport Science Analysis: apply with a degree of autonomy and responsibility for own learning the knowledge and technical skills necessary in practical, field based and laboratory based assessments in the key sport science disciplines; research design principles; critically appraising fitness assessment in health and fitness.

Promotion of Health and Fitness: develop knowledge and understanding of the agencies involved in health promotions; their aims, objectives and strategies in promoting health; key target groups in campaigns.

Instrumental Techniques: use high level technical skills in handling modern instrumentation to monitor human performance; data logging; interpret and analyse data to assess the training effect.

Sports Education: develop knowledge and understanding of definitions, concepts and principles applied in physical education; the role of physical education in society; the national curriculum and physical education; the role and training of the physical education teacher.

Laboratory Management and Organisation: develop a working understanding of resource management; laboratory management information systems; supervisory management; Health and Safety Management.

Sports Nutrition: develop and apply the knowledge and understanding of the structure and function of carbohydrates, lipids, proteins and enzymes; energy balance; micronutrient requirements and nutritional strategies for elite athletes before, during and following exercise.

Technology in Sport: develop knowledge and understanding of the impact of technology on sports clothing and equipment design.

Disability in Sport: develop knowledge and understanding of key agencies involved in participation and promoting equity; competitive structures in disabled sport; legislation relating to disability.

Historical Development of Sports: develop an understanding of the key historical influences leading to the origins and development of traditional sports; examines the current issues in modern day sports.

Sport & the Media: develop a broad appreciation of the impact of media on spectator participation; sport in the media; the relationship between sport and the media.

Operational Management: develop and apply the knowledge and understanding of the structure and function of operations; the influence of design; the nature of planning and control; quality within the operations function; all within the context of the sport and recreation industry.

Professional Body Recognition

The team is currently in the process of seeking recognition and accreditation from the professional body British Association of Sport & Exercise Sciences.

Links to National Standards

Currently, there are no standards written for levels 4 and 5 on the national occupational standards framework for sport. However this qualification has links to some NVQ4 management standards, some NVQ4 LATA standards and some therapy standards.

Entry Prerequisites

There are no particular entry requirements for this qualification. Please refer to Edexcel guidance on entry requirements (to be developed). Students who enter with at least one of the following are likely to benefit more readily from a Sport & Exercise Science programme:

- a BTEC National Certificate or Diploma in Sport
- an AVCE / advanced GNVQ in an appropriate vocational area
- a GCE A Level profile which demonstrates strong performance in a relevant subject or an adequate performance in more than one GCE subject. This profile is likely to be supported by GCSE grades at level A-C
- other related Level 3 qualifications
- an Access to Higher Education Certificate awarded by an approved further education institution
- related work experience

Higher Level Skills and Abilities

Learners will be expected to develop the following skills during the programme of study:

- analysing, synthesising and summarising information critically
- the ability to read and use appropriate literature with a full and critical understanding
- the ability to think independently and solve problems

- the ability to take responsibility for their own learning and recognise their own learning style
- obtaining and integrating several lines of subject-specific evidence to formulate and test hypotheses
- applying subject knowledge and understanding to address familiar and unfamiliar problems
- recognising the moral and ethical issues of scientific enquiry and experimentation and appreciating the need for ethical standards and professional codes of conduct
- designing, planning, conducting and reporting on investigations
- undertaking laboratory and/or field investigations in a responsible, safe and ethical manner
- the capacity to give a clear and accurate account of a subject, marshal arguments in a mature way and engage in debate and dialogue both with specialists and non-specialists.