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| **EQF Level 3 Fitness and Group Fitness Instructor**  **Core Fitness Knowledge**  **Mapping Toolkit** |

In this mapping toolkit you will find all the core fitness requirements which you will need to part-map your Assessed Fitness or Group Fitness Instructor training programme in order for it to be endorsed for recognition by REPs Ireland. You will also need to part-map your programme to the specific Knowledge, Skills and Competencies toolkit for your discipline.

**Overview**

* Knowledge and understanding of the basic principles of human movement and exercise physiology and their application to the components of fitness.
* Knowledge of how to apply the principles of training to each health-related component of fitness.

**Core Knowledge**

1. **Human Movement**

1.1 Bones and Joints

1.2 Muscles and Muscle Actions

1.3 Heart, Lungs and Circulation

1.4 Energy Systems

1. **Exercise Physiology**

2.1 Components of Fitness

2.2 Principles of Training

2.3 Muscular Strength and Endurance

2.4 Aerobic Theory

2.5 Stretch Theory

2.6 Body composition

2.7 Monitoring Exercise Intensity

2.8 Warm Up

2.9 Cool Down

2.10 Progression

1. **Lifestyle Management**

3.1 Promoting Physical Activity for Health

3.2 Basic Nutrition & Hydration Guidelines

3.3 Basic Stress management Techniques

3.4 Introduction to Adaptations and Progressions

1. **Health and Safety**

4.1 Safe and Effective Exercise

4.2 Modifications to Exercise – Alternatives/Adjustments

4.3 Body Awareness and Exercise Technique

4.4 Health and Safety, Dealing with Accidents and Emergencies

4.5 Legal Requirements & Emergency procedures

4.6 Professionalism, Code of Practice, Ethics, National Standards and Guidelines

1. **Communication**

5.1 Building rapport

5.2 Motivational Strategies

5.3 Customer Service

*Acknowledgement: EuropeActive*

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**How to use this toolkit**

Using the righthand column, indicate where in your training materials the evaluator can see the relevant criteria evidenced. Use the third column to indicate the assessment method and materials used to assess the criteria, see example below:

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| **Content Summary and Learning Outcomes** | **Where can the evidence be found?** | **Where and how will it be assessed?** |
| **Learners should demonstrate knowledge and understanding of:** | | |
| * 1. **Individual Instruction – Core Knowledge** | | |
| **2.1.1 Designing an Individual Fitness Programme** | | |
| * The structure of an individual fitness programme, to include: Warm-up, Main activity, Cool down |  |  |
| * Designing an individual fitness programme | *Slide 9 of PowerPoint* | *Included in worksheet 2* |
| * The necessary skills of an effective and qualified fitness instructor. | *Slide 10 of PowerPoint* | *Not assessed* |
| **2.1.2 Delivering a Fitness Session** | | |
| * The national legal responsibilities of the fitness instructor |  |  |
| * How to identify status of participants relative to screening information |  |  |
| * How to identify any changes required (alternatives/adaptations), to planned activities |  |  |
| * Health & Safety checks to be made, relevant to the exercise environment | *Page 3 of the manual* | *Included in worksheet 4* |
| * The information needed to respond appropriately to a medical emergency |  |  |
| * How to provide an appropriate plan for the sessions. |  |  |

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| **Content Summary and Learning Outcomes** | **Where can the evidence be found?** | **Where and how will it be assessed?** |
| **Learners should demonstrate knowledge and understanding of:** | | |
| 1. **Human Movement** | | |
| **1.1 Bones and Joints** | | |
| * The major bones and joints and the types of bones and joints |  |  |
| * The structure & function of the skeleton |  |  |
| * The structure & function of the spine & identify normal movement possible at the three main curves. |  |  |
| **1.2 Muscles and Muscle Actions** | | |
| * The major muscle groups of the body |  |  |
| * The joints crossed by muscle groups |  |  |
| * The principles of paired muscle actions |  |  |
| * The voluntary, involuntary and cardiac muscle |  |  |
| * The basic structure of muscles including: Muscle fibres, Actin & Myosin, their role in muscle contraction, Connective tissue |  |  |
| * The muscle fibre types (red, white, slow, fast, intermediate, fast, oxidative, glycolytic) and their functions |  |  |
| * The recruitment of fibres in muscle contraction (all or none theory). |  |  |
| * The principles of muscle contraction, for example: Muscles cross joints, Muscles only pull; Contraction along the line of fibres, Working in pairs |  |  |
| * The basic muscle contraction (e.g. Concentric/ Eccentric/Isometric (Static), Prime mover, Antagonist and Fixators) and the joint actions brought about by specific muscle group contractions. |  |  |
| **1.3 Heart, Lungs and Circulation** | | |
| * The passage of Oxygen through nose, mouth, windpipe and air sacs |  |  |
| * How Oxygen & Carbon Dioxide change places & how oxygen travels to the muscles via the blood |  |  |
| * The action of the diaphragm and the basic mechanics of breathing |  |  |
| * The basic structure of the heart and how blood is pumped and collected |  |  |
| * The link between the heart, the lungs and the muscles |  |  |
| * The structure and function of Arteries, Veins, Capillaries and Mitochondria |  |  |
| * Blood pressure and the effects of exercise |  |  |
| * Short and long-term effects of exercise on the heart, lungs and circulatory system. |  |  |
| **1.4 Energy Systems** | | |
| * The need for energy for muscular contraction |  |  |
| * Immediate energy- the ATP-CP system; short-term energy- the lactic acid system; long term energy- the aerobic system |  |  |
| * The role of Adenosine diphosphate, Adenosine Tri-Phosphate (ATP) and creatine phosphate in energy production for muscular contraction |  |  |
| * The aerobic/anaerobic pathways to reform ATP (lactic acid and oxygen) |  |  |
| * The waste products of various forms of physical activity |  |  |
| * The operation of the energy systems in physical activity |  |  |
| * Oxygen debt, oxygen deficit, steady state, VO2 Max |  |  |
| * Food fuels used to provide different types of energy |  |  |
| * The role of intensity and time and individual fitness levels in determining which energy system is used predominantly during exercise |  |  |
| * The muscle fibre types used in relation to aerobic and anaerobic work. |  |  |

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| **2 Exercise Physiology** | | |
| **Learners should demonstrate knowledge and understanding of:** | | |
| **2.1 Components of Fitness** | | |
| * Components of physical fitness |  |  |
| * Components of health related fitness |  |  |
| * Factors that affect physical fitness |  |  |
| * The relationship between physical fitness, health-related exercise, sports specific exercise and health. |  |  |
| **2.2 Principles of Training** | | |
| * The principles of training |  |  |
| * How the principles of training apply to each of the health-related components of fitness. |  |  |
| **2.3 Muscular Strength & Endurance** | | |
| * The Muscular Strength and Endurance (MSE) continuum |  |  |
| * The benefits of MSE training in relation to health-related fitness and factors affecting individuals’ ability to achieve MSE gains |  |  |
| * The physiological changes that occur as a result of MSE training |  |  |
| * The overload principle i.e. F.I.T.T.A (Frequency, Intensity, Time, Type, Adherence) applied to muscular strength |  |  |
| * Application of other principles of training to muscular strength & muscular endurance |  |  |
| * The need for the whole body approach in health-related fitness |  |  |
| * Other activities that will achieve MSE training effect. |  |  |
| **2.4 Aerobic Theory** | | |
| * The aerobic/anaerobic continuum |  |  |
| * The physiological and health-related changes that occur as a result of aerobic training. |  |  |
| * The benefits of aerobic training |  |  |
| * The differences between and benefits from continuous and interval aerobic training |  |  |
| * Characteristics of aerobic and anaerobic activities, i.e., running, walking, sprinting, jumping. |  |  |
| * The Overload principle i.e. F.I.T.T.A (Frequency, Intensity, Time, Type, Adherence) applied to aerobic training |  |  |
| * Application of all other principles of training to aerobic strength |  |  |
| * Different methods of intensity monitoring to include: Heart Rate Monitoring, Rate of Perceived Exertion, Talk test |  |  |
| * Factors affecting an individuals’ ability to achieve an aerobic training effect |  |  |
| * The structure of the aerobic component within a health related exercise session to include: Re-warm, Peak and Warm Down. |  |  |
| **2.5 Stretch Theory** | | |
| * The range of movement continuum |  |  |
| * The physiological and health-related changes that occur as a result of stretching |  |  |
| * The different types of stretching (dynamic and static) |  |  |
| * The different methods of stretching (active & passive) |  |  |
| * Stretch Reflex, Desensitization and Lengthening of muscle tissue (muscle creep) |  |  |
| * The overload principle F.I.T.T.A. (Frequency, Intensity, Time, Type, Adherence) applied to stretching |  |  |
| * Application of all other principles of training to flexibility |  |  |
| * The need for a whole body approach |  |  |
| * Factors affecting an individual’s potential range of movement |  |  |
| * The activities that improve range of movement. |  |  |
| **2.6 Body Composition** | | |
| * Basic composition of the human body |  |  |
| * Factors affecting body composition |  |  |
| * The types of basic body composition measurement. |  |  |
| **2.7 Monitoring Exercise Intensity** | | |
| * Different ways of monitoring exercise intensity, to include: |  |  |
| * Taking own pulse, Rate of Perceived Exertion (RPE) (advantages & disadvantages of both). |  |  |
| * Personal maximum heart rate estimation and training zones |  |  |
| * The four Heart Rate Training Zones |  |  |
| * How the heart rate training zones relate to Rate of Perceived Exertion and Heart Rate monitoring. |  |  |
| **2.8 Warm Up** | | |
| * The reasons for warming up |  |  |
| * The physiological changes that happen in the body |  |  |
| * Activities that can be used in a warm up |  |  |
| * Possible structures of a warm up |  |  |
| * The importance of specific warm-ups in relation to the chosen type of activity, to include: cardiovascular, MSE |  |  |
| * The progress of a warm up. |  |  |
| **2.9 Cool Down** | | |
| * The reasons for cooling down |  |  |
| * Activities that achieve the above (Stretching, Relaxation and Wake up) |  |  |
| * Possible structures of a cooldown |  |  |
| * The physiological changes that happen in the body |  |  |
| * Specific cooldowns in relation to the chosen type of activity, to include: cardiovascular, MSE. |  |  |
| **2.10 Progression** | | |
| * The relevant physiological changes that occur in the body as a result of changes made to progress a programme over a period of time |  |  |
| * The progressive changes that can be made in terms of overload: *Frequency, Intensity, Time, Type, Adherence, Rate, Resistance, Repetitions, Rest, Range of movement.* |  |  |

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| **3 Lifestyle Management** | | |
| **Learners should demonstrate knowledge and understanding of:** | | |
| **3.1 Promoting Physical Activity for Health** | | |
| * The cardiorespiratory, muscular and flexibility related benefits of physical activity and their relation to reducing the risk of disease. |  |  |
| * Appropriate exercise activity required for health benefits and fitness benefits (2008 EU Physical Activity Guidelines) *e.g. health = 30mins per day (cumulative) 5 times per week, moderate intensity fitness = 20 mins per day (non-stop) 3 times per week, vigorous intensity* |  |  |
| * The barriers and motivators to exercise participation |  |  |
| * The exercise prescription for health, wellbeing and physical fitness |  |  |
| * The agencies involved in promoting physical activity for health in their home country |  |  |
| * How to promote a healthy lifestyle *nutrition, opportunities for physical activity in daily life, discourage smoking.* |  |  |
| **3.2 Basic Nutrition & Hydration Guidelines** | | |
| * Dietary sources of major nutrients (carbohydrates, lipids, proteins, vitamins, minerals, dietary fibres). |  |  |
| * Knowledge of the role of carbohydrates, fats, and proteins as fuels for aerobic and anaerobic metabolism. |  |  |
| * The numbers of kilocalories in one gram of carbohydrate, fat, protein and alcohol. |  |  |
| * The principle of the balance of energy input (energy intake) and energy output (energy expenditure) |  |  |
| * The definition of the following terms: obesity, overweight, percentage of body fat, lean body mass, body fat distribution. |  |  |
| * The health implications of variation in body fat distribution patterns and the significance of the waist to hip ratio, especially the waist perimeter. |  |  |
| * The relationship between body composition and health. The effects diet plus exercise diet alone and exercise alone as methods for modifying body composition. |  |  |
| * The importance of an adequate daily energy intake for healthy weight management. |  |  |
| * The myths and consequences associated with inappropriate weight loss methods (e.g. Sauna, sweat suits, quick fix diet, etc.) |  |  |
| * The importance of maintaining proper hydration before, during and after exercise |  |  |
| * The basics of the food pyramid according to the EU/national/local official information. |  |  |
| **3.4 Basic Stress Management Techniques** | | |
| * The definition of eustress and distress |  |  |
| * The implications of distress on health and wellbeing |  |  |
| * Possible relaxation techniques (sauna, massage, autogenic training (Shultz)), deep breathing, meditation, progressive muscle relaxation (Edmund, Jacobson), Yoga |  |  |
| * The symptoms of anxiety and depression that may necessitate referral to a medical or mental health professional. |  |  |
| **3.5 Introduction to Adaptations and Progressions** | | |
| * The facilitator role of the professional regarding the adaptation process in each individual especially at the beginning of the training process. |  |  |
| * The importance of providing a proper dose/response relationship according to the level of the individual. |  |  |
| * The importance of a good communication strategy regarding the training adaptation process. |  |  |

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| **4 Health & Safety** | | |
| **Learners should demonstrate knowledge and understanding of:** |  |  |
| **4.1 Safe and Effective Exercise** | | |
| * The following and their relationship to safe exercise: *Individual fitness levels, posture, range of motion, body type, movement control, intensity, temperature, form, timing, skeletal alignment, previous injury, exercise history* |  |  |
| * Movements for safety and effectiveness applying the above conditions |  |  |
| * Ways of reducing the risks associated with unsafe exercise. |  |  |
| * Movements for safety and effectiveness applying the above conditions |  |  |
| **4.2 Modifications to Exercise – Alternatives/Adjustments** | | |
| * Individual or group performance needs and explore appropriate exercise options or alternatives *e.g. according to fitness level and health status.* |  |  |
| **4.3 Body Awareness and Exercise Technique** | | |
| * The importance of being a perfect role model in exercise performance and technique. |  |  |
| * How to correct posture and body alignment, range of motion, control, timing and form for all fitness exercises |  |  |
| * The control of static and dynamic movement, spatial awareness. |  |  |
| **4.4 Health and Safety, Dealing with Accidents and Emergencies** | | |
| * The national legal responsibilities of the fitness or group fitness instructor |  |  |
| * National and local requirements and procedures in the working environment/Risk assessment/Identifying procedure. |  |  |
| * Ways and methods for dealing with emergencies accordingly to international recognize procedures (for example, AHA/ACSM Joint Statement: Recommendations for cardiovascular screening, staffing, and emergency policies at health/fitness facilities, from 1998). |  |  |
| **4.5 Legal Requirements & Emergency Procedures** | | |
| * Their legal responsibilities and accountability when dealing with the public and awareness of the need for honesty and accuracy in substantiating their claims of authenticity when promoting their services in the public domain. |  |  |
| * A responsible attitude to the care and safety of client participants within the training environment and in planned activities ensuring that both are appropriate to the needs of the clients. |  |  |
| * That at all times there is an adequate and appropriate liability and indemnity insurance in place to protect their clients and any legal liability arising. |  |  |
| * An absolute duty of care to be aware of their working environment and to be able to deal with all reasonably foreseeable accidents and emergencies – and to protect themselves, their colleagues and clients. |  |  |
| **4.6 Professionalism, Code of Practice, Ethics, National Standards and Guidelines** | | |
| The EUROPEACTIVE and EREPS code ethical of practice included (see www.ereps.eu for more information) that could be summarized as follows: |  |  |
| * **‘Exercise professionals will be respectful of their customers and of their rights as individuals’**   Compliance with this principle requires exercise professionals to maintain a standard of professional conduct appropriate to their dealings with all client groups and to demonstrate responsibly:   1. Respect for individual difference and diversity 2. Good practice in challenging discrimination and unfairness 3. Discretion in dealing with confidential client disclosure. |  |  |
| * **‘Exercise professionals will nurture healthy relationships with their customers and other health professionals'**   Compliance with this principle requires exercise professionals to develop and maintain a relationship with customers based on openness, honesty, mutual trust and respect and to demonstrate responsibly:   1. Awareness of the requirement to place the customer’s needs as a priority and promote their welfare and best interests first when planning an appropriate training programme. 2. Clarity in all forms of communication with customers, professional colleagues and medical practitioners, ensuring honesty, accuracy and cooperation when seeking agreements and avoiding misrepresentation or any conflict of interest arising from customers’ and own professional obligations. 3. Integrity as an exercise professional and recognition of the position of trust dictated by that role, ensuring avoidance of any inappropriate behaviour in all customer relationships. |  |  |
| * ***‘Exercise professionals will demonstrate and promote a clean and responsible lifestyle and conduct’***   Compliance with this principle requires exercise professionals to conduct proper personal behaviour at all times and to demonstrate responsibly:   1. The high standards of professional conduct appropriate to their dealings with all their client groups and which reflect the particular image and expectations relevant to the role of the exercise professional working in the fitness industry, and not to smoke, drink alcohol or take recreational drugs before or whilst instructing. 2. That they never advocate or condone the use of prohibited drugs or other banned, performance-enhancing substances. 3. An understanding of their legal responsibilities and accountability when dealing with the public and awareness of the need for honesty and accuracy in substantiating their claims of authenticity when promoting their services in the public domain. 4. A responsible attitude to the care and safety of client participants within the training environment and in planned activities ensuring that both are appropriate to the needs of the clients. 5. That at all times there is an adequate and appropriate liability and indemnity insurance in place to protect their clients and any legal liability arising. 6. An absolute duty of care to be aware of their working environment and to be able to deal with all reasonably foreseeable accidents and emergencies – and to protect themselves, their colleagues and clients. |  |  |
| * ***‘Exercise professionals will seek to adopt the highest level of professional standards in their work and the development of their career’***   Compliance with this principle requires exercise professionals to commit to the attainment of appropriate qualifications and on-going training to responsibly demonstrate:   1. Engagement in actively seeking to update knowledge and improve their professional skills in order to maintain a quality standard of service, reflecting on their own practice, identifying development needs and undertaking relevant development activities. 2. Willingness to accept responsibility and be accountable for professional decisions or actions, welcome evaluation of their work and recognize the need when appropriate to refer to another professional specialist. 3. Personal responsibility to maintain their own effectiveness and confine themselves to practice those activities for which their training and competence is recognized by the Register. |  |  |

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| **5 Communication** | | |
| **Learners should demonstrate knowledge and understanding of:** | | |
| **5.1 Building Rapport** | | |
| * How to connect with people |  |  |
| * How to learn and remember people’s names |  |  |
| * The effective use of voice and body language |  |  |
| * Empathetic listening (listening to understand instead of listening to reply) |  |  |
| * How to praise and encourage positive behaviour |  |  |
| * How to show genuine interest in the individual |  |  |
| * The use of open-ended question, reflecting answering. |  |  |
| **5.2 Motivational Strategies** | | |
| * How to learn the individual reasons or motives behind people’s exercise goals |  |  |
| * The most important and effective behavioural strategies to enhance exercise and health behaviour change (e.g. reinforcement, goal setting, social support, problem-solving, reinforcement strategies, self-monitoring, etc.) |  |  |
| * Knowing about the different stages of change of the trans-theoretical model Prochaska and Di Clemente, being able to use basic strategies for different stages |  |  |
| * Definition and practical examples of extrinsic and intrinsic reinforcement. |  |  |
| **5.3 Customer Service** | | |
| * The definition of the exercise customer |  |  |
| * How to welcome and receive the customer |  |  |
| * The need and how to be service oriented |  |  |
| * How to approach and respond to customers in a positive way |  |  |
| * The basic principles of customer service |  |  |
| * How to avoid and deal with conflict |  |  |
| * How to be open and friendly all the time |  |  |
| * The methods and practices, which contribute to effective customer care |  |  |
| * The skills of effective customer care: *Communication, Body language, Negotiation* |  |  |