Reference Number	C-VDI.1
Module Title	Veterinary Diagnostic Imaging: Imaging in Practice
Category and Value	C – 10 credits
Study Hours	100

Introduction

The aim of the module is to extend and consolidate clinical knowledge and skills gained at undergraduate level, and to develop an in-depth understanding of the application of that knowledge in a practice environment in relation to Veterinary Diagnostic Imaging. The module may be taken from a large animal or a small animal perspective, or a mixture of the two.

Before embarking on this module, you should fulfil the following criteria:
a) You ideally should have completed at least one practice B module.
b) This module is aimed principally at veterinary surgeons in private practice or at a veterinary school at which 500 or more cases are radiographed per annum and where the candidate is responsible for radiographing at least 250 of those cases.

Coverage of this module may be integrated with others, particularly other B and C modules. All candidates will normally have completed A-FAVP.1 Foundations in Advanced Veterinary Practice module and at least one of the practice B modules, before undertaking a C module, although candidates can choose to work through modules in a different order if they wish. In whichever order modules are tackled, compliance with best practice for all the topics covered by module A-FAVP.1 will be expected whenever these are appropriate in C modules. For example, awareness of, and compliance with, all relevant legislation, welfare and ethical principles will be required throughout.

For a designated Certificate in Advanced Veterinary Practice (Veterinary Diagnostic Imaging) candidates must complete this module, two further C-VDI modules, a fourth 10 credit module of your choice and an RCVS synoptic assessment.

Aims

The aim of this module is to advance the candidate's knowledge and understanding of diagnostic imaging, to develop the practical skills that allow appropriate case selection for imaging studies and to ensure the taking of diagnostic radiographs, while complying with the relevant legal requirements for safe radiographic practice.

The focus of this module is on taking images (radiography) rather than interpreting images (radiology), which is the concern of the other Veterinary Diagnostic Imaging C modules, although radiological interpretation is required in parts of the module assessment.

Learning Outcomes

At the end of the module, candidates should be able to:

1. demonstrate a systematic understanding of safe and effective radiographic practice in order to exercise initiative and personal responsibility in relation to the safety of patients and personnel, positioning, processing and image quality.
2. apply diagnostic imaging techniques appropriately as part of the overall investigation of a case.
3. critically appraise current diagnostic imaging techniques and outline strategies for improvement.

Module Content

Produce **good quality radiographic images** while complying with the current Ionising Radiations Regulations and in the process develop an understanding of:
- exposure assessment
- the factors influencing the choice of kV, mA, time, use of grid, etc.
- formation of technique charts
- correct positioning of patients, and the limitations that may be imposed in domestic animals
- the need for restraint using appropriate methods, including the advantages and disadvantages of the use of sedation and anaesthesia

Radiation protection:
- the relevant legal requirements including familiarity with the current "Guidance notes for the protection of persons against Ionising Radiations arising from veterinary use"
- the risks involved in the use of radiographic procedures and the methods which can be used to minimise these risks
- hazards arising from poor design of X-ray rooms
- the control of hazards arising from secondary radiation
- the correct use of protective aprons and gloves
- familiarity with current radiation monitoring services
- the instruction of lay staff in radiation discipline

Contrast media:
- the nature of the more frequently used media and indications for their use
- the procedures for performing basic contrast techniques

Recognise faults due to inadequate radiographic procedure, processing and film handling.

Normal radiographic anatomy. (You should possess a detailed knowledge of the normal radiographic anatomy of the dog, cat and horse and of their variations with breed and age, as appropriate for the case diary. In other species knowledge compatible with current use would be expected.)

Principles of radiological interpretation:

- the recognition of tissue types
- formation of shadowgraphs
- effects of superimposition and multiple shadows
- changes in opacity, size, shape, position and function of organs
- the use of simple positional and contrast aids to elucidate radiographic problems
- the applications of these basic principles to the evaluation of radiological signs in relation to clinical problems

Interpretation applies to the diagnostic radiological features of the more commonly encountered clinical conditions seen in veterinary practice, in the relevant species.

Principles of **diagnostic ultrasonography** in veterinary practice:
- physical principles of ultrasound
- image production
- display modes
- artefacts
- normal ultrasound appearance of the major organs (heart, liver, kidney, spleen, bladder, prostate and uterus) and equine tendons, as appropriate for the case diary.
- recognition of major alterations to the normal architecture of these organs and structures and the possible diagnostic significance of these changes

Special techniques
- general principles of contrast examinations and the performance and interpretation of the more commonly used techniques
- principles and appropriate use of fluoroscopy with image intensification
- principles and appropriate use of diagnostic ultrasonography in veterinary practice
- basic principles and appropriate use of diagnostic scintigraphy in equine practice (where relevant)
- the role of advanced imaging techniques, such as CT and MRI, in further investigations beyond first opinion practice level

You should be familiar with the general principles of contrast examinations and the performance and interpretation of the more commonly used techniques. You should understand the principles and appropriate use of fluoroscopy with image intensification, and understand the basic principles and appropriate use of diagnostic ultrasonography in veterinary practice. With an equine bias, you should understand the basic principles and appropriate use of diagnostic scintigraphy and you should understand the role of advanced imaging techniques, such as CT and MRI, in further investigations beyond first opinion practice level.

Assessment Strategy

Module providers are responsible for deciding on assessment strategies and methods, subject to accreditation by RCVS.