REF. NO.	**C-SAS.6**
TITLE:	**SMALL ANIMAL SURGERY** **SMALL ANIMAL ORTHOPAEDIC SURGERY (A)**
CATEGORY AND VALUE:	**C - 10 CREDITS**
NOTIONAL STUDY HOURS:	**100**

LEARNING OUTCOMES

This module will enable the candidate to

- Gain a sound understanding of the principles of tissue healing and the physiological consequences of surgery on all body systems.
- Critically appraise their current working practices with regard to preparation and management of the surgical patient, the surgical environment, staff and instruments.
- Use the information gained in this module to modify their working practices and upgrade to 'best practice' techniques.
- Recognise the moral responsibility to provide adequate levels of care and facilities for particular surgical procedures.

ASSESSMENT STRATEGY FOR THIS MODULE

It is suggested that this module could be assessed by the following methods:

- *A case log of 50 consecutive surgical cases should be submitted, which should include elective and routine surgical procedures. Brief details of the procedures used and outcome of the case will then be used for the assessors to choose 3 cases to be written up. Each case is written up in detail up to 1500 words in length with appropriate illustrations. A single introductory discussion is used to critically appraise these three cases and demonstrate the candidate's ability to apply the learning outcomes to the management of cases in their practice. The introduction should be adequately referenced using the literature search techniques as learnt in the A modules and should be approximately 2500 words.*

- *A **reflective essay**, of about 1000 words, completed at the end of the module, reflecting upon how the course of study has resulted in a more competent practitioner. This may include a detailed critical review of a specific aspect of theatre practice or surgical technique. This may be incorporated into a final reflective essay to be produced before the full qualification is awarded.*

- *These submissions should be retained by the candidate as they may need to be referred to again as part of a final synoptic assessment for a full Certificate qualification.*

MODULE OBJECTIVES

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

- Thoroughly understand the anatomical, physiological, immunological and pathological processes involved in surgical disease, including the relationships between surgery and the overall health status of the patient. Understand the pathophysiological responses to trauma including surgical trauma.

- Show thorough familiarity with the clinical presentation of the common surgical conditions affecting dogs, cats and small mammals.

- Understand and promote concepts of best practice in relation to asepsis, preparation of theatre, personnel and patient for surgery. Understand strategies available for managing intra-operative contamination.

- Understand and promote best practice in post surgical nursing, including all aspects of recovery, nutrition and post operative rehabilitation.

- Understand and communicate rational choice and use of antibiotic therapy in relation to surgical cases.

- Identify surgical equipment and know how to package, sterilise and maintain surgical instrumentation and equipment

- Review and constructively criticise current literature on surgical principles, theatre practice and post surgical nursing, to enable them to determine its relevance to their current practice.

- Utilise their understanding of Evidence Based Medicine and Decision Analysis to develop practical diagnostic and treatment protocols for their patients.

- Use available resources and communicate with owners in such a way as to achieve optimum results in their practice circumstances in relation to surgical cases.

- Review the outcomes of at least part of their clinical work, using the process of clinical audit to improve performance.

- Recognise when a case is truly unusual, and become familiar with the information resources available to enable them to deal with such cases.

- Recognise when a case is beyond their personal or practice capabilities, and provide an effective channel of referral. Understand and recognise the moral responsibility for advising owners when they are inexperienced with a particular type of surgery. Appreciate the importance of adequate facilities and skill necessary for advanced surgery.

MODULE CONTENT

Candidates are strongly recommended to take the 'core' Surgery module – Small Animal Surgical Practice (C-SAS.1) - before attempting this module. Whilst this module may be taken as a free-standing module, it assumes a sound understanding of the principles covered within C-SAS.1

The areas to be covered should include the following:

Bone biology

- Understanding of biology of normal and diseased bone and fracture healing processes
- Understanding of basic biomechanics of bone and fracture repair

Fracture management

- Pre-operative assessment of trauma patient and recognition and treatment of associated injuries including provision of analgesia
- Pre-operative fracture planning
- Surgical anatomy
  Candidates should be familiar with the commonly performed surgical approaches to the humerus, radius and ulna, femur, tibia and pelvis

- Understanding of AO/ASIF principles
- Biological osteosynthesis
  Candidates should be familiar with the principles of this approach to fracture repair

- Thorough knowledge of fracture stabilisation techniques to include the uses and limitations of:
  - Casts and splints
  - Bone plating (compression, neutralisation, buttress), plate rod combinations and locking plates
  - Pin and cerclage wire
  - External skeletal fixation (advantages and disadvantages of different systems available including APEF)
  - Circular skeletal fixators and Ilizarov principles
  - Interlocking nails
- Management of fractures of fore- and hindlimbs, skull, spine and pelvis
  A list of fractures that the candidate should be capable of performing is detailed separately. Candidates should be familiar with the principles of management of the technically more demanding fractures where practical experience is not expected.

- Special considerations applicable to articular and open fractures
  Candidates should be familiar with the management options for articular fractures, complications of these injuries and how these complications can be managed. Candidates should be familiar with the classification of open fractures.

- Classification and treatment of fractures involving growth plates in immature animals
  Candidates should be familiar with the potential complications of growth plate injuries and their management.

- Post-operative management to include the role of physiotherapy
  Candidates should have an understanding of the more commonly used techniques used by physiotherapists to manage orthopaedic disorders.

Complications of fracture management

- Fracture disease- understanding the pathological processes involved and how to treat it.
  Candidates should be familiar with the management of quadriceps contracture.

- Understanding the pathogenesis and treatment of delayed, mal- and non-union.
  Candidates should be familiar with the classification of non-unions.

- Management of osteomyelitis

Pathogenesis and management of angular limb deformities

Candidates should be familiar with the aetiology and treatment options for angular limb deformities of the forelimb (carpal valgus/varus)and hindlimb (genu valgum).

Metabolic bone disease

- Aetiology, pathogenesis and treatment of:
  - Craniomandibular osteopathy
  - Metaphyseal osteopathy
  - Hypertrophic osteopathy
  - Nutritional bone disorders
  - Panosteitis

  A detailed understanding of the pathology of these diseases is not expected.

Bone tumours

- Biology, diagnosis and treatment
  Candidates will be expected to have an understanding of the biology, diagnosis and treatment options for osteosarcoma. Candidates should be familiar with the other malignant bone tumours and their treatment.

A list of procedures is provided separately indicating the level of experience expected from a candidates following the surgical route through the Certificate, and this applies to candidates taking this module.

SURGICAL PROCEDURES

Whilst certain procedures are undeniably within the remit of the Certificate level surgical modules, for example ovariohysterectomy for pyometra; enterotomy for foreign body removal or simple fracture repair, others such as portosystemic shunt ligation or total hip arthroplasty are equally clearly outside the scope at this level. However, many procedures lie in a grey area between the obvious extremes and furthermore it is not unreasonable to expect candidates following the surgical route to have knowledge of even the most complex procedures. Otherwise, proper case selection and appropriate referral cannot take place. Furthermore, to restrict Certificate level surgeons to a limited number of specified procedures would risk producing Certificate holders who would be little more than surgical technicians with a limited repertoire.

A wide range of procedures is therefore listed below, and these have been classified to indicate the level of competence which candidates would be expected to have acquired on completion of the orthopaedic surgical modules.

A similar list is provided for the soft tissue surgery modules.

A. These are procedures in which the candidate should be fully competent. The candidates should be able to execute the procedure to a standard comparable with any other surgeon and be able to demonstrate complete understanding of indications, limitations, alternative techniques, complications, prognosis, etc.

B. These are more challenging procedures which, by the time the candidate sits and passes the surgical modules, they will be expected to perform competently. Such procedures will be those requiring a more confident, experienced surgeon and a more detailed knowledge and understanding of surgical science in general and the specific details and background of the technique and the underlying disease processes. As before, the candidate must be able to demonstrate a complete understanding of indications, limitations, alternative technique, complications, prognosis, etc.

C. These are complex and advanced techniques which are usually performed by surgeons with significant postgraduate surgical experience and training. Certificate level candidates will not be expected to demonstrate experience or competence in these techniques. However, candidates will be expected to demonstrate an understanding of indications, limitations, alternative techniques, complications and prognosis, sufficient to advise clients and select appropriate cases for referral.

ORTHOPAEDIC PROCEDURES

Fractures

Humerus	Simple diaphyseal - A
	Comminuted diaphyseal - B/C
	Severely comminuted diaphyseal - B/C

	Lateral Condylar - B T/Y # of Condyles - C
Antebrachium	Simple diaphyseal - A Comminuted diaphyseal - B Severely comminuted diaphyseal - B
Carpus	Radial carpal - B Accessory carpal - B/C Metacarpals/Phalanges - A/B (Racing dogs, etc) - B/C
Femur	Simple diaphyseal - A Comminuted diaphyseal - B Severely comminuted diaphyseal - B/C Capital physeal separation - B Distal physeal fracture - A/B
Tibia	Tibial Crest Avulsion - A Simple diaphyseal - A Comminuted diaphyseal - B Severely comminuted diaphyseal - B Distal (Malleolar) Fracture - B
Tarsals	Central Tarsal - B/C Multiple Tarsal - B/C
Metatarsal	A/B (Racing Dogs - B/C)
Spinal Fractures	B/C
Pelvis	B/C
General	Open Fractures - B/C Articular Fractures - B/C Angular Limb Deformities - C
Joint Surgery	Shoulder Arthrotomy for OCD - B Biceps tendon surgery - B Shoulder Arthroscopy - C
	Elbow Arthrotomy for Coronoid Process Disease - B Elbow Arthroscopy - C Anconeal Process Surgery - B Ulnar Osteotomy - B Open reduction of traumatic luxation - B Shoulder Arthrodesis - C Elbow Arthrodesis - C Carpal Arthrodesis - B Hip Excision Arthroplasty - B Total Hip Arthroplasty - C Triple Pelvic Osteotomy - C Inter trochanteric Osteotomy - B/C Femoral Neck Lengthening Osteotomy - C

Open reduction/fixation of hip luxation - B

Patellar luxation surgery - B
Conventional Cranial Cruciate Surgery - B
Tibial Plateau Levelling Procedures - *C*
Tarsal Shear Injury - B
Traumatic Hock Luxation - B

Arthrotomy for OCD of Hock - B
Tibiotarsal Arthrodesis - B
Achilles Tendon Repair - B
Intertarsal Arthrodesis - B
Tarsometatarsal Arthrodesis - B

Spinal Surgery Atlantoaxial stabilisation/fusion - C

Ventral Disc Fenestration - B
Ventral Slot Decompression - C
Distraction Fusion for CCSM - C
Conventional Fracture Management - *C*
Thoracolumbar disc fenestration - B
Decompressive T/L hemilaminectomy- *C*
T/L Fracture Management - *C*
Dorsal Lumbosacral Laminectomy - B
Lumbosacral Distraction Fusion - C
Lumbar or L/S Fracture Management - *C*