

**MAFSU,  
Template – College Website(s)**

1. Course offered: UG, PG, PhD - Semester / Year wise

- List of UG Courses (B.V.Sc. & A.H.) As per latest MSVE Guidelines), B.Tech. (D.T.) and B. F. Sc as per ICAR – V Deans Committee – 2016.

**U. G. Courses**

| Sr. No.                                       | Lecture/ No. | Topic to be covered  |
|---|--------------|--|
| <b>I: UNIT-1(VETERINARY GENERAL SURGERY)</b>  |              |  |
| 1.  | 1.           | Introduction: Historical perspective, Definitions, classification of surgery, tenets of Halsted  |
| 2.  | 2.           | Pre-operative, intra-operative and post-operative considerations: History taking, physical examination, clinico-pathological testing, intra-operative and Postoperative care |
| 3.  | 3.           | Sterilization and disinfection: Definitions, surgical sterilization, various methods Of sterilization (Heat, chemical and radiations etc.), disinfections.                   |
| 4.  | 4.           | Sutures: Definitions, suturing, factors influencing suturing, characteristics of an Ideal suture material, types of suture material-absorbable and non-absorbable.           |
| 5.  | 5.           | Surgical knots, various suture patterns-apposition, eversion, inversion and special.   |
| 6.  | 6.           | Treatment of acute and chronic inflammation: Use of anti-inflammatory drugs And proteolytic enzymes.   |
| 7.  | 7.           | Haemostasis (physical and chemical methods, systemic haemostats, surgical diathermy)   |
| 8.  | 8.           | Basic surgical affections: Definitions, classification, diagnosis and treatment of abscess, tumour, cyst, hernia, haematoma, necrosis, gangrene, burn and scald, frost bite. |
| 9.  | 9.           | Surgical affections of muscles, artery and vein.   |
| 10.   | 10.          | Sinus and fistula.   |
| 11.   | 11.          | Wounds: Definition, classification, examination and diagnosis, general principles for treatment of aseptic, contaminated and septic wounds,                                  |
| 12.   | 12.          | Healing and factors affecting wound healing, complications of wounds and their remedies.   |
| 13.   | 13.          | Surgical infection; the prevention and management: Classification of infection,  |
| 14.   | 14.          | Introduction to biomaterials and stem cell therapy in wound management   |
| 15.   | 15.          | Management of surgical shock.  |
| 16.   | 16.          | Principles of fluid therapy in surgical patients.  |
| <b>II: UNIT-2(VETERINARY ANAESTHESIOLOGY)</b> |              |  |
| 17  | 17.          | Introduction: Development of anaesthesiology, Terminology, classification and indications.   |
| 18  | 18.          | General considerations of anaesthesia: Factors affecting anaesthesia and selection Of anaesthetic technique,   |
| 19  | 19.          | Factors modifying up take, distribution and elimination,   |
| 20  | 20.          | Patient evaluation, categories of patients according to physical status, selection of Anaesthetic agent and patient preparation.   |
| 21  | 21.          | Pain and its management in animals   |
| 22  | 22.          | Local and regional anaesthesia: Definitions, local anaesthetics, mechanism of action.  |

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| 23                                     | 23. | Premedication, properties and use of different preanaesthetics: Uses of premedication,  |
| 24                                     | 24. | Anticholinergic, sedatives and tranquilizers (Phenothiazine derivatives, Benzodiazepines, Butyrophenones, Narcotic analgesics, Alpha-2 agonists, dosage Chart to fall the drugs.) |
| 25                                     | 25. | General anaesthesia: Definitions, methods of induction of anaesthesia,  |
| 26                                     | 26. | Intravenous anaesthetics (Total intravenous anaesthesia), monitoring of anaesthesia.  |
| 27                                     | 27. | Inhalation anaesthesia: Advantages of inhalant anaesthetics, types of inhalant Anaesthetics, their properties and effect on various systems.                                      |
| 28                                     | 28. | Methods of administration of inhalant anaesthesia.  |
| 29                                     | 29. | Dissociative anaesthesia: Definition, drugs, clinical application, properties and Effect on various body systems.   |
| 30                                     | 30. | Avian, wild, zoo, exotics and lab animal anaesthesia and capture myopathy   |
| 31                                     | 31. | Anaesthetic emergencies and management.   |
| 32                                     | 32. | Toxicity, antidote and reversal agents.   |
|  |     | <b>First Internal Assessment</b>  |
| 33                                     | 33. | Introduction to Radiology-General terminology of radiology,   |
| 34                                     | 34. | Physical properties of X-Rays, Scope and uses of Radiology,   |
| 35                                     | 35. | Directional terms for veterinary radiology.   |
| 36                                     | 36. | Production of X-rays and factors influencing production of X-rays.  |
| 37                                     | 37. | Radiation hazards and safety measures- Scattered radiation,   |
| 38                                     | 38. | Radiation hazards and safety measures- Scattered radiation,   |
| 39                                     | 39. | Radiation protection, General principles of radiation safety, Radiation monitoring devices, Requirement of an ideal radiographic section.   |
| 40                                     | 40. | The statutory requirements of radiology set-up as per Atomic Energy Regulatory Board of India (AERB).   |
| 41                                     | 41. | Production of quality diagnostic radiograph.  |
| 42                                     | 42. | Recording of image-Manual and digital processing of X-ray films, storage and Retrieval system.  |
| 43                                     | 43. | Radiographic Quality and faults- Radiographic detail, density & contrast and Factors affecting them, Radiographic faults, their possible causes and prevention.                   |
| 44                                     | 44. | Contrast radiography-Definition, indications, contraindications and types of contrast radiography,  |
| 45                                     | 45. | Different contrast materials and their use, Techniques of some selected contrast Radiography in animals (Barium swallow, Retro grade urography etc.)                              |
| 46                                     | 46. | Diagnostic ultra sonography- Principles, indications, techniques and artifacts of Ultra sonography.   |
| 47                                     | 47. | Advanced diagnostic imaging tools-The brief introduction to the use and limits of Some advanced imaging techniques,   |
| 48                                     | 48. | Interventional radiology- CAT scanning, MRI, etc.   |
| <b>IV: UNIT-4 (REGIONAL SURGERY-I)</b> |     |   |
| 49                                     | 49. | Affections of lips, cleft palate, tongue, cheek, and their treatment: General Anatomical considerations, avulsion of lip, cleft lip ranula, neoplasm and traumatic injuries.      |
| 50                                     | 50. | Affections of teeth and jaws and their treatment: General anatomical considerations, Developmental abnormalities,   |
| 51                                     | 51. | Dental tartar, periodontal disease, over grown molars, fractures and luxation of jaw.   |
| 52                                     | 52. | Affections of nose, face, ear, head and horn and their treatment: General Anatomical considerations.  |
| 53                                     | 53. | Brachycephalic syndrome, Stenotic nostrils, nasal polyps, empyema of sinuses,   |

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| 54. | 54. | Fracture and avulsion of horn, horn cancer, aural haematoma, otitis.   |
| 55. | 55. | Affections of eye and their treatment: General anatomical considerations and Examination of eye.   |
| 56. | 56. | Affections of eyelids and nictitating membrane and their treatment: entropion, ectropion, chalazion, sty, Cherry eye and traumatic injuries.   |
| 57. | 57. | Affections of lachrymal apparatus, eyeball & orbit and their treatment: occlusion of nasolacrimal duct, traumatic proptosis, Panopthalmia, orbital neoplasms, glaucoma, eyeworms.                              |
| 58. | 58. | Affections of cornea, iris & lens and their treatment: corneal ulcers, corneal opacity, Kerato Conjunctivitis Sicca (KCS), prolapsed of iris, corneal dermoid, Corneal lacerations and perforations, cataract. |
| 59. | 59. | Affections of guttural pouch, oesophagus and their treatment: General anatomical Considerations. Empyema, tympanitis and Mycosis of guttural pouch,  |
| 60. | 60. | Oesophageal diverticulum, mega oesophagus, achalasia and choke.  |
| 61. | 61. | Affections of glands of head & neck and their treatment: General anatomical considerations. Salivary mucocele, sialoliths, salivary fistula.   |
| 62. | 62. | Affections of neck and their treatment: General anatomical considerations. Yoke gall, yoke abscess, fistulous withers, poll evil, torticollis.   |
| 63. | 63. | Affections of larynx and Trachea: Tracheal collapse, stenosis, roaring in horses, Dorsal entrapment of soft palate in horses and camels, emergency tracheotomy.  |
| 64. | 64. | Management of ocular emergencies.  |
|     |     | <b>Second Internal Assessment</b>  |
| 65. | 65. | Thoracic affections: Surgical approaches, perforated wounds, pyothorax, Pneumothorax, pneumocele,  |
| 66. | 66. | Diaphragmatic hernia and traumatic pericarditis in cattle.   |
| 67. | 67. | Abdominal affections: Surgical approach to the abdomen in different animal species.  |
| 68. | 68. | Common surgical affections of the stomach in dogs and their management: dilation and torsion of stomach, gastric ulcerations, foreign bodies in the stomach, Pyloric stenosis etc.                             |
| 69. | 69. | Surgical affections of the stomach in large animal and their management: Ruminal impaction, traumatic reticulitis, omasal and abomasal impaction and abomasal displacement.                                    |
| 70. | 70. | Surgical affections of small intestines and their management: Intestinal obstruction, intussusception and strangulation (volvulus). Techniques of intestinal anastomosis.                                      |
| 71. | 71. | Surgical affections of large intestine and their management: Caecal dilatation and torsion, rectal prolapse, rectal and perineal tear, recto-vaginal fistula.  |
| 72. | 72. | Surgical affections of anus and perineal region and their management: Atresia-ani, Anal stenosis, anal sac impaction.  |
| 73. | 73. | Surgical affections of abdomen and their management: Perforating wounds & fistulae of abdomen, umbilical hernia, ventral abdominal hernia, inguinal and Scrotal hernia, perineal hernia.                       |
| 74. | 74. | Urinary system: Urolithiasis and its management. Urolithiasis in small and large animals. Patent urachus, ectopic ureter.  |
| 75. | 75. | Surgical management of equine colic.   |
| 76. | 76. | Genital system: Surgical affections of male genital system and their management, prostatic enlargement/ hyperplasia/ neoplasm, Phimosis, paraphimosis, preputial prolapse, penile amputation.                  |
| 77. | 77. | Castration, vasectomy, scrotal ablation in large & small animals.  |
| 78. | 78. | Surgical affections of female genital system and their management: Canine Transmissible venereal tumour. Ovariohysterectomy and caesarean section.   |

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| 79.   | 79. | Applications of rigid and flexible endoscopes in the management of surgical disorders.  |
| 80.   | 80. | Integumentary system: Surgical affections of udder, teat and canine mammary neoplasms.  |
| 81.   | 81. | Surgical affections of tail and tail docking  |
| 82.   | 82. | Wild/ zoo animal surgery (only awareness)   |
| <b>VI: UNIT-6 (ORTHOPAEDICS AND LAMENESS)</b> |     |   |
| 83.   | 83. | Body conformation of the horse in relation to lameness (trunk, fore limb and hind limb).  |
| 84.   | 84. | Lameness: Its definition classification and diagnosis. General methods of therapy For lameness. Body and limb conformation in relation to lameness in equine.   |
| 85.   | 85. | Equine lameness: Shoulder slip (sweeny), bicipital bursitis, omarthritis, capped elbow, radial paralysis, carpalitis. Bent knee, and knock-knee.  |
| 86.   | 86. | Hygroma of knee, open knee, blemished knee. Fracture of carpal bone, fracture of Accessory carpal, contraction of digital flexors.  |
| 87.   | 87. | Splints, sore shin, wind puffs, sesamoiditis, Osslets, ringbone, quittor, sidebone, Navicular disease, pyramidal disease. Laminitis, sand crack, seedy toe, fractures of third phalanx, pedal osteitis, and sole penetration. |
| 88.   | 88. | Canker, thrush and corn, Monday morning disease, cording up, myositis of psoas, Mac thrombosis, Crural paralysis, subluxation of sacroiliac joint rupture of round Ligament trochanteric bursitis.                            |
| 89.   | 89. | Upward fixation of patella, stringhalt, gonitis, chondromalacia of patella, rupture of tendo-achilles, rupture of peroneus tertius, fibrotic myopathy and ossifying myopathy.   |
| 90.   | 90. | Thorough pin, bog spavin, spavin, curb, capped hock.  |
| 91.   | 91. | Canine lameness: Intervertebral disc diseases, elbow & hip dysplasia, rupture of Cruciate ligament, elbow hygroma etc.; their management, Onychectomy.  |
| 92.   | 92. | Bovine lameness: Contusion of sole, ulceration of sole, septic laminitis, avulsion of hoof and subluxation of patella, inter digital fibroma, cyst, sand crack, and hoof deformities.   |
| 93.   | 93. | Fracture: Definitions, classification, fracture healing and complications.  |
| 94.   | 94. | Fracture: The preliminary assessment and management off factures. Techniques of External immobilization of fractures.   |
| <b>Third Internal Assessment</b>              |     |   |
| 95.   | 95. | Techniques of internal immobilization of fractures. Management of fracture Complications  |
| 96.   | 96. | Luxations: Definition, signs, diagnosis. Management of common joint luxations in animals.   |
| 97.   | 97. | Spinal trauma, diagnosis and its management   |
| 98.   | 98. | Rehabilitation and physiotherapy of orthopaedic patients  |

**PRACTICAL**

| Sr. No.                                      | Practical No. | Topic to be covered  |
|--|---------------|--|
| <b>I: UNIT-1(VETERINARY GENERALS URGERY)</b> |               |  |
| 1.   | 1.            | Introduction to layout of operation theatre and surgical unit. |
| 2.   | 2.            | Introduction of common surgical equipment and instruments.     |
| 3.   | 3.            | Suture materials, surgical knots and suture patterns.          |

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| 4.                                    | 4.  | General examination of surgical patients. Preparation of surgical patients.   |
| 5.                                    | 5.  | Operation theatre routines-sterilization,   |
| 6.                                    | 6.  | Operation theatre routines- preparation of theatre, Surgeon and surgical pack.  |
| 7.                                    | 7.  | Bandaging and basic wound management.   |
| 8.                                    | 8.  | Demonstration (Audio visual aids) of surgery,   |
| 9.                                    | 9.  | Control of haemorrhage and suturing   |
| 10.                                   | 10. | Familiarization with anaesthetic apparatus, monitoring equipment and accessories.   |
| 11.                                   | 11. | Methods of local infiltration analgesia (Linear ring block, inverted L block etc.) Regional nerve block demonstration and practice (Auriculopalpebral block, Peterson block/ 4-point retrobulbar nerve block) |
| 12.                                   | 12. | Para vertebral block, Epidural block etc.   |
| 13.                                   | 13. | Intravenous regional anaesthesia cattle.  |
| 14.                                   | 14. | Administration of general anaesthesia in small and large animals. (Demonstration and practice).   |
| 15.                                   | 15. | Administration of inhalant anaesthesia (Demonstration).   |
| 16.                                   | 16. | Monitoring of general anaesthesia.  |
| 17.                                   | 17. | Management of anaesthetic emergencies, use of artificial respirator and analeptics.   |
| 18.                                   | 18. | Visit to a wild animal facility and/ or audio-visual aids.  |
| 19.                                   | 19. | Familiarization with the operation of the x-ray unit. Formulation of X-ray Exposure technique charts,   |
| 20.                                   | 20. | Adoption of safety measures and film processing.  |
| 21.                                   | 21. | Positioning and radiography of different parts of the body in small and large animals.  |
| 22.                                   | 22. | Handling, viewing and interpretation of radiograph.   |
| 23.                                   | 23. | Familiarization with the film contrast, density and details, common radiographic artefacts.   |
| 24.                                   | 24. | Radiographic pathology of the head, neck and thorax of large and small animals.   |
| 25.                                   | 25. | Radiographic pathology of abdomen of large and small animals.   |
| 26.                                   | 26. | Radiographic pathology of the bones and joints of large and small animals.  |
| 27.                                   | 27. | Demonstration of contrast radiographic techniques in animals.   |
| 28.                                   | 28. | Demonstration of ultrasonography in animals.  |
| 29.                                   | 29. | Fluoroscopy, Image intensifier (familiarization).   |
| <b>IV: UNIT-4(REGIONAL SURGERY-I)</b> |     |   |
| 30.                                   | 30. | Amputation of horn and disbudding. ( <i>Demonstration/Audio visual aids :</i> )   |
| 31.                                   | 31. | Tooth rasping, dental scaling.  |
| 32.                                   | 32. | Examination of ear (otoscopy).  |
| 33.                                   | 33. | Examination of eye (General examination, Ophthalmoscopy, tonometry, Fluorescein dye test, Scheirmer tear test, test for blindness).   |
| 34.                                   | 34. | Operation for aural haematoma, ear cropping in dogs.  |
| 35.                                   | 35. | Protection and bandage of eyes,   |
| 36.                                   | 36. | tarsorrhaphy, third eyelid flap,  |
| 37.                                   | 37. | Flushing of nasolacrimal duct   |
| <b>V: UNIT-5(REGIONAL SURGERY-II)</b> |     |   |
| 38.                                   | 38. | Castration in different species. ( <i>Demonstration/Audio visual aids</i> )   |
| 39.                                   | 39. | Ovariohysterectomy in dogs and cats.  |
| 40.                                   | 40. | Rumenotomy, Gastrotomy in dogs,   |
| 41.                                   | 41. | Urethrotomy and urethrostomy.   |
| 42.                                   | 42. | Cystotomy and cystorrhaphy.   |
| 43.                                   | 43. | Enterotomy/ Enterectomy.  |

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| 44.  | 44. | Management of teat and udder affections.   |
| 45.  | 45. | Amputation of tail in different animals.   |
| 46.  | 46. | Circumcision operation for preputial and rectal prolapse.  |
| 47.  | 47. | Thoracocentesis and abdominocentesis   |
| <b>VI: UNIT-6(ORTHOPAEDICS AND LAMENESS)</b> |     |  |
| 48.  | 48. | Familiarization with various orthopaedic instruments and implants.<br><i>(Demonstration/Audio visual aids)</i> |
| 49.  | 49. | Basic orthopaedic and neurological examination in small and large animals.                                     |
| 50.  | 50. | Nerve blocks in equine.  |
| 51.  | 51. | Application of basic physiotherapy techniques in animals.  |
| 52.  | 52. | Basic limb stabilization techniques and splinting techniques.  |
| 53.  | 53. | Application of cast in small and large animals.  |
| 54.  | 54. | Internal fixation techniques in animals.   |
| 55.  | 55. | Medial patellar desmotomy in bovines.  |
| 56.  | 56. | Examination of animals for soundness and preparation of soundness certificate.                                 |

➤ List of PG Courses (MVSc) and M. Tech. (Dairy Technology)  
(M.V. Sc.)

| Sr No | Course No. | Title   | Credit |
|-------|------------|---|--------|
| 1     | VSR 501    | Clinical Practice-I*                                    | 0+3    |
| 2     | VSR 502    | Clinical Practice-II*                                   | 0+3    |
| 3     | VSR 503    | Principles of Surgery*                                  | 2+1    |
| 4     | VSR 504    | Anaesthesia And Analgesia*                              | 2+1    |
| 5     | VSR 505    | Diagnostic Imaging Techniques*                          | 2+1    |
| 6     | VSR 506    | Soft Tissue Surgery                                     | 2+1    |
| 7     | VSR 507    | Orthopaedic Surgery*                                    | 2+1    |
| 8     | VSR 508    | Anaesthesia of Zoo, Wild, Exotic and Laboratory Animals | 1+1    |
| 9     | VSR 509    | Urogenital Surgery                                      | 1+1    |
| 10    | VSR 510    | Ophthalmology   | 1+1    |
| 11    | VSR 511    | Dentistry and Oral Surgery                              | 1+1    |
| 12    | VSR 512    | Camel Surgery   | 1+1    |
| 13    | VSR 513    | Elephant Surgery  | 1+1    |
| 14    | VSR 587    | Clinical Case Conference                                | 0+1    |
| 15    | VSR 588    | Special Problem in Radiology                            | 0+2    |
| 16    | VSR 589    | Special Problem in Anaesthesia                          | 0+2    |
| 17    | VSR 590    | Special Problem in Surgery                              | 0+2    |
| 18    | VSR 591    | Masters Seminar   | 1+0    |
| 19    | VSR 599    | Masters Seminar   | 0+30   |

(PhD)

| Sr No | Course No. | Title                | Credit |
|-------|------------|----------------------|--------|
| 1     | VSR 601    | Clinical Practice-I* | 0+2    |

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| 2  | VSR 602 | Clinical Practice-II*                     | 0+2  |
| 3  | VSR 603 | Clinical Practice-III*                    | 0+2  |
| 4  | VSR 604 | Cardiovascular Surgery                    | 2+1  |
| 5  | VSR 605 | Advances in Anaesthesiology               | 2+1  |
| 6  | VSR 606 | Advances in Radiology                     | 2+1  |
| 7  | VSR 607 | Advances in Diagnostic Imaging Techniques | 2+1  |
| 8  | VSR 608 | Advances in Orthopaedics                  | 2+1  |
| 9  | VSR 609 | Neurosurgery                              | 2+1  |
| 10 | VSR 610 | Reconstructive and Regenerative Surgery   | 1+1  |
| 11 | VSR 611 | Advances in Soft Tissue Surgery           | 2+1  |
| 12 | VSR 612 | Advances in Ophthalmology                 | 1+1  |
| 13 | VSR 613 | Surgical Oncology                         | 1+1  |
| 14 | VSR 687 | Clinical Case Conference*                 | 0+1  |
| 15 | VSR 688 | Special Problem in Diagnostic Imaging     | 0+2  |
| 16 | VSR 689 | Special Problem in Anaesthesia            | 0+2  |
| 17 | VSR 690 | Special Problem in Surgery                | 0+2  |
| 18 | VSR 691 | Doctoral Seminar-I                        | 2+0  |
| 19 | VSR 692 | Doctoral Seminar-II                       | 2+0  |
| 20 | VSR 699 | Doctoral Research                         | 0+75 |

2. Lecture Schedule – UG, PG, PhD - Theory / Practical Schedule – Approved by BoS –  
Subject wise

**LECTURE SCHEDULE**

**Course Title: Clinical Practice-I**

**Course Code: VSR 501**

**Credit Hours: 0+3**

| <b>Sr. No.</b> | <b>Name of topic</b>  |
|----------------|---|
| 1              | Basic requirements and designing surgical and general veterinary hospital |
| 2              | Developing different proformas required in hospital facility              |
| 3              | Assessing surgical patients and documentation                             |
| 4              | Preparation of surgical team and duties of team members                   |
| 5              | Surgical suite maintenance and sterilization                              |
| 6              | Acquaintance with inhalant anaesthesia machine                            |
| 7              | Acquaintance with Radiography systems                                     |
| 8              | Acquaintance with Ultrasonography   |
| 9              | Acquaintance with Endoscopy   |
| 10             | Acquaintance with Electro-surgery   |
| 11             | Acquaintance with Cryosurgery   |
| 12             | Acquaintance with physiotherapy   |
| 13             | Client management and public relation                                     |

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| 14 | Code of conduct                   |
| 15 | Management of surgical affections |
| 16 | Hospital database management      |
| 17 | Attending surgical cases          |
| 18 | Disaster management               |

**VSR-502: Clinical Practice- II (0+3)**

**Practical**

| Sr. No | Topic   |
|--------|---|
| 1      | General considerations of anaesthesia and various Pre Anaesthetics                          |
| 2      | General anaesthesia, its stages and various general anaesthetics.                           |
| 3      | Acquaintance to the equipments used for inhalation anaesthesia and endotracheal intubation. |
| 4      | Application of inhalation anaesthesia in small animals                                      |
| 5      | Application of inhalation anaesthesia in large animals                                      |
| 6      | Positioning for Radiography   |
| 7      | Radiographic interpretation of head, neck thorax and abdomen – detail, density and contrast |
| 8      | Factors affecting radiographs and Artifacts   |
| 9      | Contrast Radiography of various systems GIT, nervous system, Urinary system, etc.           |
| 10     | Fractures, classification and its radiographic reporting.                                   |
| 11     | Basics of Ultrasonography and its interpretation  |
| 12     | USG of abdomen- USG of various systems- GIT, Genito- Urinary                                |
| 13     | Ultrasonography of eye, echocardiography, doppler.  |
| 14     | Management of the radiography section and maintenance of the records.                       |
| 15     | Electro surgery and Cryosurgery   |
| 16     | Physiotherapy and acquaintance to Physiotherapy equipments and their application.           |
| 17     | Managing Surgical emergencies and cases.  |
| 18     | Management of the Operation theatre operations and maintenance of the records.              |
| 19     | Attending various surgical cases - soft tissue surgeries                                    |
| 20     | Attending various fracture management cases.  |
| 21     | Ocular affections, Ocular emergencies and Management  |
| 22     | Attending various specialized surgeries   |



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| 23 | Introduction to Veterinary endoscopy and equipments  |
| 24 | Use of flexible endoscopy, gastroscopy, Bronchoscopy, cystoscopy, etc.<br>Collection of biopsies, fluids for cytology. |
| 25 | Rigid Endoscopy - Laparoscopy and its applications. Otoscopy, esophagoscopy, etc.                                      |

**VSR 503: Principles of Surgery (2+1)**

Topics for Theory/ Practical's

**THEORY LECTURE SCHEDULE:**

| Sr. No. | Topics   |
|---------|--|
|         | Unit I   |
| 1       | Classification of wounds                                 |
| 2       | Wound healing  |
| 3       | Mechanism of wound repair                                |
| 4       | Local and systemic factors affecting wound healing       |
| 5       | Current concepts of inflammation and management          |
| 6       | Thermal injuries and their management                    |
| 7       | Electrical injuries and their management                 |
| 8       | Chemical injuries and their management                   |
|         | Unit II  |
| 9       | Asepsis, sterilization and disinfection                  |
| 10      | Principles of antimicrobial therapy in surgical patients |
| 11      | Practice of antimicrobial therapy in surgical patients   |
|         | Unit III   |
| 12      | Shock-classification                                     |
| 13      | Shock- pathophysiology                                   |
| 14      | Shock- diagnosis   |
| 15      | Shock- treatment and monitoring                          |

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| 16 | Surgical stress and its systemic effects                          |
| 17 | Haemorrhage and haemostasis                                       |
| 18 | Acid-base balance   |
| 19 | Fluid therapy   |
| 20 | Fluid therapy   |
| 21 | Blood transfusion   |
| 22 | Metabolism of the surgical patient                                |
| 23 | Metabolism of the surgical patient                                |
|    | Unit IV   |
| 24 | Principles and clinical applications of Laser surgery             |
| 25 | Principles and clinical applications of Cryosurgery               |
| 26 | Principles and clinical applications of Electrosurgery            |
| 27 | Principles and clinical applications of Physiotherapy             |
|    | Unit V  |
| 28 | Minimally invasive surgical procedures which includes laparoscopy |
| 29 | Minimally invasive surgical procedures which includes endoscopy   |
| 30 | Principles of microscopic surgery-vessel and nerve anastomosis    |
| 31 | Application of computers in surgery                               |
| 32 | Application of computers in surgery                               |

**PRACTICAL SCHEDULE: VSR 503 (2+1)**

| Sr. No | Topics  |
|--------|---|
| 1      | Identification and handling of surgical instruments |
| 2      | Identification and handling of surgical instruments |
| 3      | Identification and handling of surgical instruments |
| 4      | Preparation of surgical pack                        |
| 5      | Preparation of surgical team                        |

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|----|---|
| 6  | Preparation of surgical patients  |
| 7  | Surgical facilities   |
| 8  | Surgical equipment  |
| 9  | Introduction to clinical skill laboratory                                   |
| 10 | Practice of different suturing patterns                                     |
| 11 | Practice of different suturing patterns                                     |
| 12 | Repair of different wounds, using drains, bandages and bandaging techniques |
| 13 | Repair of different wounds, using drains, bandages and bandaging techniques |
| 14 | Monitoring of traumatized surgical patient                                  |
| 15 | Monitoring of traumatized surgical patient                                  |
| 16 | Operation theatre conduct   |

**Course No: VSR-504 (2+1)**

**Course Title: Anesthesia and Analgesia**

**Theory:**

| Sr. No. | Topics  |
|---------|---|
|         | Unit - I  |
| 1.      | Introduction and history of anaesthesia                                       |
| 2.      | General consideration for anaesthesia in animals                              |
| 3.      | Properties of ideal anaesthetic agent, types of anaesthesia                   |
| 4.      | Anaesthetic triad   |
| 5.      | Preanesthetic evaluation of patient   |
| 6.      | Selection of anaesthesia  |
|         | Unit - II   |
| 7.      | Preanesthetic medication -Anticholinergics, Sedatives                         |
| 8.      | Preanesthetic medication – Tranquilizers, Alpha-2 agonist, Narcotics.         |
| 9       | Muscle relaxants and neuromuscular blocking agents                            |
|         | Unit - III  |
| 10      | General Anaesthetics  |
| 11      | Factors affecting uptake, distribution and metabolism of General anaesthetics |
| 12      | General properties of injectable anaesthetic agents                           |
| 13      | Dosage of administration of injectable anaesthetic agents                     |
| 14      | Usage of injectable anaesthetic agents  |
| 15      | Combinations of injectable anaesthetics agents and Neuroleptanalgesia         |

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|    |   |
|----|---|
| 16 | Inhalation anesthetic agents and their properties                     |
| 17 | Inhalation anaesthetics: Methods of administration, dosage and usages |
| 18 | Inhalation anaesthesia equipment and breathing circuits               |
| 19 | Artificial ventilation  |
|    | Unit - IV   |
| 20 | Post-operative care of the surgical patient                           |
| 21 | Operating room emergencies  |
| 22 | Cardio-pulmonary arrest and resuscitation                             |
| 23 | Monitoring of anesthetic recovery                                     |
|    | Unit - V  |
| 24 | Local anaesthetics, their mechanisms                                  |
| 25 | Local and regional nerve blocks                                       |
| 26 | Regional Nerve blocks - head region                                   |
| 27 | Regional Nerve blocks - abdomen and appendages.                       |
| 28 | Spinal analgesia, intravenous regional anaesthesia                    |
| 29 | Peri-operative pain and its management                                |
| 30 | Post-operative pain and its management                                |
| 31 | Euthanasia  |
| 32 | Anaesthesia Record keeping  |

**Course No: VSR-504 (2+1)**

**Practical's**

| Sr. No. | Topic   |
|---------|---|
| 1.      | Introduction to Inhalation Anaesthesia equipments                           |
| 2.      | Detailed study of circuits and vaporizers in inhalant anaesthesia machine   |
| 3.      | Artificial ventilation  |
| 4.      | Basics of Pre-anaesthesia and Anaesthesia in small and large animals.       |
| 5.      | Use of various pre-anesthetic and anesthetic agents in small animals        |
| 6.      | Use of various pre-anesthetic and anesthetic agents in large animals        |
| 7.      | Anesthetic triad  |
| 8.      | Balanced anaesthesia  |
| 9.      | Total intravenous anaesthesia   |
| 10.     | Regional and local nerve blocks using local anaesthetics                    |
| 11.     | Repair of different wounds, using drains, bandages and bandaging techniques |
| 12.     | Alpha-2 agonists and their combinations in domestic animals                 |
| 13.     | Monitoring of anaesthesia   |
| 14.     | Reversal of sedation and analgesia induced by alpha-2 agonists              |
| 15.     | Practice of anaesthesia in clinical cases                                   |
| 16.     | Importance of Record keeping in anaesthesia and euthanasia                  |

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**VSR 505: Diagnostic Imaging Techniques (2+1)**

**Theory**

| Sr. No. | Topics   |
|---------|--|
| 1.      | Regulations regarding establishment and handling of x-ray units, requirements for establishment of x-ray units |
| 2.      | Conventional and digital X-ray machine   |
| 3.      | X-ray films, cassettes, screen   |
| 4.      | X-ray production, qualities of x-rays  |
| 5.      | Image formation and dark room procedures   |
| 6.      | Image plate, formation of radiograph technique chart, artifacts and their prevention                           |
| 7.      | Radiographic quality (Contrast, density and details)   |
| 8.      | Radiographic accessories   |
| 9.      | Radiographic positioning for different organs/parts in small and large animals                                 |
| 10.     | Plain and contrast radiographic techniques of small animals  |
| 11.     | Plain and contrast radiographic techniques of large animals  |
| 12.     | Contrast radiographic techniques of blood vessels in animal  |
| 13.     | Fluoroscopy/ C-arm   |
| 14.     | Principles of radiographic interpretation  |
| 15.     | Principles of radiation therapy, medical radioisotope curves   |
| 16.     | Radiation laws and regulations   |
| 17.     | Radiation hazards and monitoring of radiographic exposure to personnel   |
| 18.     | Protection from the radiation hazards  |
| 19.     | Basic physics of ultrasound waves  |
| 20.     | Basic physics of ultrasound image formation  |
| 21.     | Scanning principles of ultrasound  |
| 22.     | Transducers, equipment controls, modes of display  |
| 23.     | Terminology used for echotexture   |
| 24.     | USG artifacts  |
| 25.     | Common USG artifacts in small animals  |
| 26.     | Acoustic enhancement during the USG examination  |
| 27.     | Doppler techniques echocardiography  |
| 28.     | Application of Doppler technique echocardiography  |
| 29.     | Introduction to nuclear imaging techniques   |
| 30.     | Introduction to computerized tomography, magnetic resonance imaging, positron emission tomography techniques   |
| 31.     | Introduction to magnetic resonance imaging and positron emission tomography techniques                         |
| 32.     | Introduction to magnetic resonance imaging and positron emission tomography techniques                         |

**Practical - VSR- 505**

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| Sr. No. | Topics   |
|---------|--|
| 1.      | Acquaintance with imaging equipment                                      |
| 2.      | Acquaintance with computed radiography                                   |
| 3.      | Acquaintance with digital radiography systems                            |
| 4.      | Dark room processing techniques and X-ray film handling                  |
| 5.      | Formulation of technique chart with fixed kVp and variable mAs           |
| 6.      | Radiographic artefacts and their prevention                              |
| 7.      | Basics of radiographic interpretation of diseases – Hard tissue          |
| 8.      | Basics of radiographic interpretation of diseases – Soft tissue          |
| 9.      | Radiography positioning of different regions in domestic animals         |
| 10.     | Contrast radiographic techniques – G.I. Tract                            |
| 11.     | Contrast radiographic techniques – Urogenital and musculoskeletal system |
| 12.     | Interpretation of radiographs  |
| 13.     | Interpretation of radiographs  |
| 14.     | PACS   |
| 15.     | Practice of ultrasonographic imaging                                     |
| 16.     | Ultrasonographic report writing  |

**Lecture Schedule - Theory**

**VSR – 507 (2+1) Orthopaedic Surgery**

**Aim of the course:** To learn about various affections of bones, joints, tendons, ligaments and feet and their treatment in companion and farm animals.

| Sr. No.  | Name of Topics   |
|----------|--|
| Unit I   |  |
|          | Bone structure and function, growth, response to injury, fractures and luxations   |
|          | Classification of fracture   |
|          | Fracture healing, Biological osteosynthesis  |
| Unit II  |  |
|          | Biomechanics of fracture healing   |
|          | Considerations for selection of fixation techniques  |
|          | Current trends in treatment of fractures of different bones of forelimb (scapula, humerus, radius and ulna, carpals, metacarpals and phalanges) in companion animals |
|          | Current trends in treatment of fractures of different bones of hindlimb (Pelvis, femur, tibia and fibula, tarsals, metatarsals and phalanges) in companion animals   |
|          | Current trends in treatment of fractures of different bones of forelimb (scapula, humerus, radius and ulna, carpals, metacarpals and phalanges) in farm animals      |
|          | Current trends in treatment of fractures of different bones of hindlimb (scapula, humerus, radius and ulna, carpals, metacarpals and phalanges) in farm animals      |
|          | Diseases of bone (developmental bone disease, osteomyelitis, hypertrophic osteopathy)  |
|          | Diseases of bone (nutritional osteopathies, bone tumour and fracture)  |
| Unit III |  |

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|         |  |
|---------|--|
|         | Various affections of the joints and their treatment (Classification of joints, components and healing process and arthroscopy)                  |
|         | Non inflammatory joint diseases and their treatment  |
|         | Inflammatory joint diseases and their treatment  |
|         | Various affections of the ligaments and tendons and their treatment (anatomical considerations, tendon healing, principles of tendon surgery)    |
|         | Tendon injuries, luxation, contracted tendons and spastic paresis  |
|         | Tenosynovitis, bursitis, cranial cruciate ligament rupture, upward fixation of patella   |
| Unit IV |  |
|         | Spinal affections and injury to axial skeleton (anatomy, etiology, types, diagnosis and its treatment)   |
|         | Specific fracture and dislocations of the spine (Atlantoaxial instability, cervical spondylomyopathy)  |
|         | Cervical vertebral fractures, thoracic and lumbar fractures and lumbosacral fractures  |
| Unit V  |  |
|         | Method of evaluation of conformation of the limb, cranial view, lateral view   |
|         | Faults in conformation of the forelimbs and hoof   |
|         | Faults in conformation of the forelimbs and hoof   |
|         | Anatomy of hoof  |
|         | Anatomy of limbs and foot (Anatomical, conformational and pathological causes of lameness and allied surgical conditions of fore and hind limbs) |
|         | Classification of lameness   |
|         | Etiology and diagnosis of lameness   |
|         | Surgical conditions of forelimb of horse   |
|         | Surgical conditions of hindlimb of horse   |
|         | General methods of therapy for equine lameness   |
| 31      | General methods of therapy for equine lameness   |
| 32      | General methods of therapy for equine lameness   |

**Lecture Schedule - Practical  
VSR – 507 (2+1) Orthopaedic Surgery**

| Sr. No | Topics  |
|--------|---|
| 1      | Application of Plaster of Paris cast                |
| 2      | Application of fiberglass cast                      |
| 3      | Application of Roberts Jones bandage                |
| 4      | Application of modified Schroeder Thomas splint     |
| 5      | Application of Coaptation splint, sling application |
| 6      | Practice of IM pinning, wiring                      |
| 7      | Practice of bone plating                            |
| 8      | Practice of inter locking nailing                   |
| 9      | Practice of external skeletal fixation              |
| 10     | Practice of arthrotomy                              |
| 11     | Practice of tenotomy                                |

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|----|---|
| 12 | Examination of limbs for lameness             |
| 13 | Desmotomy, nerve blocks, injections in joints |
| 14 | Operations for arthritis and hoof surgery     |
| 15 | Corrective shoeing                            |

**VSR 510: Ophthalmology (1+1=2) Theory**

| Sr. No. | Topic   |
|---------|---|
| 1       | Unit I  |
| 2       | Anatomy and physiology of eye and its adnexa  |
| 3       | Ophthalmic examination and diagnosis,   |
| 4       | Ophthalmic diagnostic instrumentation   |
| 5       | Anaesthesia during various eye surgery  |
| 6       | Unit II   |
| 7       | General consideration for eye surgery in companion and farm animals                                 |
| 8       | Therapeutic agents for eye diseases and surgery of eye lids, lacrimal apparatus, naso-lacrimal duct |
|         | Unit III  |
| 9       | Diseases of conjunctiva   |
| 10      | Diseases of cornea, sclera.   |
| 11      | Diseases of iris, orbit   |
| 12      | Diseases of lens  |
| 13      | Diseases of vitreous and aqueous humour   |
| 14      | Diseases of retina and optic nerve  |
| 15      | Eye tumours, enucleation, exenteration  |
| 16      | Unit IV   |
| 17      | Ocular manifestations of systemic diseases  |
|         | Unit V  |
| 18      | Neuro-ophthalmology   |
| 19      | Ocular emergencies and Management   |

**VSR 510: Ophthalmology (1+1=2) Practical**

| Sr no | Topic   |
|-------|---|
| 1     | Ophthalmic instrumentation  |
| 2     | Examination of the eye and its adnexa                                       |
| 3     | Ophthalmic surgery preparation of patient, suture materials for eye surgery |
| 4     | Anaesthesia for ophthalmic  |



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|    |   |
|----|---|
| 5  | Canthotomy, tarsorrhaphy                    |
| 6  | Keratoplasty, anterior chamber paracentesis |
| 7  | Flushing of naso-lacrimal duct              |
| 8  | Iridectomy                                  |
| 9  | Phacoemulsification                         |
| 10 | Implantation of foldable lens               |
| 11 | Surgical treatment of entropion             |
| 12 | Surgical treatment of cherry eye            |
| 13 | Schirmer tear test                          |
| 14 | Use of fluorescein dye in corneal ulcer     |
| 15 | Glaucoma surgery                            |
| 16 | Eye worm removal                            |

3. Teaching Schedule: UG, PG, PhD - Prepared by – Course Teacher – Year wise / Course Wise

As per approval in BOS dated 24/12/2021 the Semester wise distribution for M.V. Sc courses in the major field of Veterinary Surgery & Radiology and their lecture schedules according to new revised and restructured PG syllabus (2021):

**Semester 1 -**

| Sr. no | Course no  | Credit | Course - Name             |
|--------|------------|--------|---------------------------|
| 1      | VSR- 501*  | 0+3    | Clinical Practice - I     |
| 2      | VSR - 503* | 2+1    | Principles of Surgery     |
| 3      | VSR-504*   | 2+1    | Anaesthesia and Analgesia |
|        | Total      | 9      |                           |

**Semester 2 -**

| Sr. no. | Course no  | Credit | Course - Name          |
|---------|------------|--------|------------------------|
| 1       | VSR- 502*  | 0+3    | Clinical Practice - II |
| 2       | VSR - 505* | 2+1    | Diagnostic Imaging     |
| 3       | VSR- 510   | 1+1    | Ophthalmology          |
|         | Total      | 8      |                        |

**Semester 3 -**

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| Sr. no | Course no  | Credit | Course - Name       |
|--------|------------|--------|---------------------|
| 1      | VSR- 507*  | 2 +1   | Orthopaedic surgery |
| 2      | VSR- 591*  | 1+0    | Seminar             |
| 3      | VSR - 599* | 0+10   | Research            |

**Semester 4 -**

| Sr. no | Course no  | Credit | Course - Name |
|--------|------------|--------|---------------|
| 1      | VSR - 599* | 0+20   | Research      |
|        | Total      | 20     |               |

**Note:** M.V. Sc Students are required to register for minor courses – 8 credits, Supporting courses – 6 credits, Common courses – 5 credits.

**As per Approval in BOS dated 24/12/2021 the Semester wise distribution for Ph. D courses in the major field of Veterinary Surgery & Radiology and their lecture schedules according to new revised and restructured PG syllabus (2021) - For Regular Candidate**

**Semester 1 -**

| Sr. no | Course no | Credit | Course - Name                             |
|--------|-----------|--------|---|
| 1      | VSR- 601* | 0+2    | Clinical Practice - I                     |
| 2      | VSR – 607 | 2+1    | Advances in Diagnostic Imaging Techniques |
|        | Total     | 5      |   |

**Semester 2 -**

| Sr. no | Course no | Credit | Course - Name               |
|--------|-----------|--------|-----------------------------|
| 1      | VSR- 602* | 0+2    | Clinical Practice - II      |
| 2      | VSR-689   | 0+2    | Special problem Anaesthesia |
|        | Total     | 4      |                             |

**Semester 3 -**

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| Sr. no | Course no  | Credit | Course - Name            |
|--------|------------|--------|--------------------------|
| 1      | VSR- 603*  | 0+2    | Clinical Practice - III  |
| 2      | VSR – 687* | 0+1    | Clinical case conference |
| 3      | VSR- 691*  | 2+0    | Doctoral seminar -I      |
|        | Total      | 5      |                          |

**Semester 4 to 6 -**

| Sr. no | Course no | Credit            | Course - Name     |
|--------|-----------|-------------------|-------------------|
| 1      | VSR - 699 | 0+25 per semester | Doctoral research |
|        | Total     | 75                |                   |

**Note:** Ph. D. Students are required to register for minor courses – 6 credits, Supporting courses – 5 credits.

**As per approval in BOS meeting date 24/12/2021 the Semester wise distribution for Ph. D. courses in the major field of Veterinary Surgery & Radiology and their lecture schedules according to new revised and restructured PG syllabus (2021) - For Inservice Candidate**

**Semester 1 -**

| Sr. no | Course no | Credit | Course - Name                             |
|--------|-----------|--------|---|
| 1      | VSR- 601  | 0+2    | Clinical Practice - I                     |
| 2      | VSR - 607 | 2+1    | Advances in Diagnostic Imaging Techniques |
|        | Total     | 5      |   |

**Semester 2 -**

| Sr. no | Course no | Credit | Course - Name                  |
|--------|-----------|--------|--------------------------------|
| 1      | VSR- 602  | 0+2    | Clinical Practice - II         |
| 2      | VSR- 689  | 0+2    | Special problem in Anaesthesia |
|        | Total     | 4      |                                |

**Semester 3 -**

| Sr. no | Course no | Credit | Course - Name |
|--------|-----------|--------|---------------|
|--------|-----------|--------|---------------|

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|   |           |     |                          |
|---|-----------|-----|--------------------------|
| 1 | VSR- 603  | 0+2 | Clinical Practice - III  |
| 2 | VSR - 687 | 0+1 | Clinical case conference |
|   | Total     | 3   |                          |

**Semester 4 -**

| Sr. no | Course no | Credit | Course - Name        |
|--------|-----------|--------|----------------------|
| 1      | VSR- 691  | 2+0    | Doctoral seminar - I |
|        | Total     | 2      |                      |

**Semester 5 to 8 -**

| Sr. no. | Course no | Credit | Course - Name     |
|---------|-----------|--------|-------------------|
| 1       | VSR - 699 | 0+75   | Doctoral research |
|         | Total     | 75     |                   |

**Note: Ph. D.** Students are required to register for minor courses – 6 credits, Supporting courses – 5 credits.

**\*Mark** - the core courses compulsorily to be taken by the students as per ICAR revised syllabi.