**Specialization no. 12**

**„Veterinary surgery”**

1. **National manager of the specialization** – prof. dr hab. Zdzisław Kiełbowicz

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Specialization education lasts 6 terms- 296 hours of lectures, 70 hours of workshops combined with introductory lecture and demonstration and controlled own work of the participants, 12 hours of pre-examination consultations, 12 hours discussion on examination issues related to the course of the studies, 1-2 months (6 hours a day) of clinical traineeship.

1. **Monographic lectures Number of hours 288**

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| **Ref.** | **Topic** | **Number of hours** |
| **A.****B.****C.****D.**E. | **Surgery**1. Injuries and modern techniques of their surgical treatment
2. Proceeding with multiple injury
3. Surgical ailments demanding immediate intervention
4. Peritonitis – aetiology, treatment proceeding
5. Problems of modern transplantology. Rules for proceeding in plastic surgery.
6. Aetiology and pathogenesis of cancers in animal
7. Contemporary proceeding in oncological surgery. Cancers: diagnostics, surgical treatment, radiological treatment, chemical treatment and treatment with rays.
8. Surgical ailments of skin
9. (Surgical) treatment in exotic animals
10. Injuries of bony face
11. Injuries in cavum oris as a result of sudden damage in animals
12. Operative treatment performed in surgery of ailment of head and neck of small animals.
13. Non-invasive and operative treatment of diseases of teeth.
14. Proceeding in sudden post-damage cases of trauma of chest.
15. Operative techniques applied in diseases of trachea and lungs.
16. Surgery of organs of chest in small animals.
17. Contemporary methods of thoracic surgery in the treatment of anomalies in the structure of large heart vessels
18. Therapeutic proceeding in cases of “acute abdominal pain”
19. Surgery of diaphragm of pelvis in dogs and cats
20. Surgical ailments of organs of abdominal cavity
21. Selected surgical ailments of organs of pelvis cavity. Operations: ovariohisterectomy, Caesarean operation.
22. Diseases of prostate and selected ailments causing disorders of defacation.
23. Diseases of *glandula mammae*: operative techniques, complications.
24. Selected issues of diagnostics and treatment of urinary system.
25. Surgery of sinews, blood vessels and nerves.
26. Stabilisation of fracture, complications of bone union.
27. External stabilization in treatment of fractures in small animals.
28. Application of the method ZESPOL in repair surgery of bones in small animals.
29. Selected techniques of osteosynthesis in repair surgery of bones in small animals (intramedullary coaptation), AO method, bone suture and screws.
30. Distraction osteogenesis (space stabilization).
31. Repair proceeding in case of failures after application of various methods of osteosynthesis in small animals.
32. Contemporary therapeutic proceeding in postoperative complications, with particular attention to septic infections of bones and marrow.
33. Surgical ailments of joints, chest and pelvis limbs.
34. Ailments of hip and joint in dogs
35. Endoprosthesis treatment of knee joint.
36. Injuries of pelvis.
37. Fractures of bone heads and intra-articular fractures
38. Surgical ailments of spine.
39. Application of decompression operations in treatment of pressure onto spinal cord in dogs.
40. Possibilities of application of endoscopic techniques in medicine
41. Diagnostics and laparoscopic and arthroscopic therapy.
42. Stem cells, their homogenate and microbubble in medicine
43. Possibilities and limits of laparoscopy in surgery
44. Application of endoscopy in diagnostics and therapy – selected clinical cases.
45. Slightly invasive surgery of diseases of upper respiratory tract.
46. Selected problems of pathology of gastrointestinal tract obstruction in horses.
47. Surgery in gastrointestinal tract obstruction- end of possibilities or new challenges.
48. Crip biting (*hemiplegia laryngis*)- aetiology, symptons, treatment.
49. Contemporary views on diseases of sinews and joints of limbs in horses.
50. Diagnostics and therapy of diseases occurring in the area of horse back.
51. Podotrochleosis syndrome – present views.
52. Contemporary views on diseases of sinews and joints of limbs in horses.
53. Orthopaedic problems in foals – old and new concepts.
54. Selected operations in diseases of forestomach and fingers in cattle

**Anaesthesiology**1. Present status and perspectives of development of veterinary anaesthesiology.
2. Rules for complex anaesthetization, preparation of animals for anaesthetization, selecetion of a method.
3. Methods of anaesthetization supervision of patients.
4. Sedation, anaesthetization, analgesia.
5. General inhalation anaesthesia and anaesthetic equipment.
6. Cardiopulmonary insufficiency.
7. Liquid therapy
8. Methods of infusion anaesthesia
9. Anaesthesia in surgery of chest
10. Epidural and peridural anaesthesia
11. Anaesthesia in surgery of spine
12. Anaesthesiology in endoscopic surgery
13. Anaesthesia in operations of eye
14. Anaesthesia of horses and monitoring of anaesthesia in operations of threespine stickleback.
15. Anaesthesia of cattle.
16. Counteracting intra and post-operative and chronic pain.
17. Contemporary proceeding in shock.
18. Specifity of anaesthesia of young animals and animals of advanced age. Complications resulting from performed anaesthesia.
19. Anaesthesia of birds, rodents, rabbits, wild and exotic animals.
20. Intense therapy, supervision and monitoring of patients after operation.

**Techniques of imaging**1. Modern techniques of imaging (RTG, computer tomography, magnetic resonance, scintigraphy, USG, echocardiography).
2. Contrast test of spine: myelography, epidurography, discography.
3. Ailments of the period of bone union in radiological diagnostics.
4. Presentations of selected cases of ailments of osteoarticular system in imaging diagnostics.
5. RTG and USG diagnostics in surgical ailments of head and neck of small animals.
6. Radiological and ultrasonographic methods of imaging of surgical ailments of chest.
7. RTG and USG diagnostics in surgical ailments of abdominal cavity and pelvis cavity and in operative treatment of cancers of milk (mammary) gland.
8. RTG and USG in ailments of urinary tract.
9. Echocardiography of heart.
10. RTG diagnostics in fractures and dislocation.
11. RTG and USG diagnostics in ailments of elbow, shoulder, hip and knee joints in small animals.
12. RTG and USG in diagnostics in ailments of limbs joints.
13. Ultrasonographic diagnostics in osteosynthesis process.
14. RTG and USG diagnostics in surgical ailments of spine
15. Presentation of selected cases of RTG and USG diagnostics.
16. Application of scintigraphy in diagnostics of selected diseases.
17. RTG and USG diagnostics in diseases of limbs in horses.
18. RTG and USG diagnostics in diagnostics of ailments of limbs in cattle.
19. Ultrasound examination in diagnosis of tendon disease in dogs

**Ophthalmology**1. Clinical anatomy of eye.
2. Contemporary diagnostics of eye.
3. Ailments of eye lids.
4. Diseases of conjunctiva and discharging lachrymal ducts.
5. Diseases of cornea.
6. Selected ailments of front pole of eyeball.
7. Diseases of lens- protective and operative proceeding at dislocation of lens and methods of removing cataract.
8. Glaucoma in animals – present clinical problem.
9. Selected ailments of eye with particular attention to back pole of eyeball.
10. Injuries of eyeball
11. Uveitis in dogs and cats
12. Contemporary views on monthly blindness and other bacterial and viral diseases in horses.
13. Selected surgical diseases performed on a sight organ

**Supplementary disciplines**1. History of veterinary medicine and problems of deontology.
2. Antibiotics and antibacterial drugs for the treatment of bacterial infections in veterinary surgery
3. Legal problems related to performing a profession of a veterinarian.
4. Possibilities of application of low temperatures in veterinary treatment.
5. Application of acupuncture in veterinary treatment.
6. Contemporary views on antibiotics therapy.
7. Steroid and non-steroid inflammation means.
8. Diagnostics of ailments of liver in small animals.
9. Physiotherapy, rehabilitation and their importance in veterinary medicine
10. Intravenous hiperalimentation.
11. Para-medicine – contemporary significance in veterinary medicine
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1. **Workshops combined with introductory lecture and demonstration and controlled own work of a participant.**

**Number of hours: 70**

Operative technique; cutting, preparation, hemostasis, anastomose 3 hours

Desmurgy; compresses, soft and arrestment dressing 3 hours

Surgical cleanness; aseptics and antiseptics 3 hours

Surgery of organs of abdominal cavity 4 hours

Surgery of organs of chest 4 hours

Osteosynthesis with the method “ZESPOL” and other techniques on

phantom and corpse 12 hours

Reconstruction of sinews, nerves and vessels 4 hours

Laparoscopy 2 hours

Arthroscopy 2 hours

Dental treatment (operations) 3 hours

Operative techniques regarding joints in small animals 6 hours

Surgery of spine 4 hours

Haematological and biochemical diagnostics 2 hours

Diagnostics of circulatory system 2 hours

Operative techniques in plastic surgery 3 hours

Ophthalmologic operations 3 hours

Operations related to performing anaesthesia 5 hours

Techniques of performing radiograms and ultrasonograph 5 hours

combined with diagnostics.

1. **Problems related to progress of medical knowledge resulting from the initiative of lecturers and students**  20 hours
2. **Organizational problems related to course of the studies** 12 hours
3. **Pre-examination consultations** 12 hours
4. **Clinical traineeship** 1 to 2 months 180 hours a month

Tests and therapy of cases being patients of the training centers – 6 hours a day

1. **References:**

Polish ones:

1. B. Kamiński, A. Kübler – Anestezjologia i intensywna terapia. PZWL Warszawa 2005
2. K. Ratajczak – Anestezjologia weterynaryjna. PZWL Warszawa 1985
3. W. Hryniewicz, J. Mieszarak – Antybiotyki w profilaktyce i leczeniu zakażeń. PZWL Warszawa 2005
4. A. Coulson, N. Lewis – Atlas interpretacyjny zdjęć radiologicznych psów i kotów. Wydawnictwo Galaktyka, Łódź 2005
5. W. Noszczyk – Chirurgia. PZWL Warszawa 2005
6. W. Kostewicz – Chirurgia laparoskopowa. PZWL Warszawa 2005
7. F. Bogdanowicz – Chirurgia stomatologiczna. PZWL Warszawa 1992
8. M. Krawczyk – Cholecystektomia laparoskopowa. PZWL Warszawa 1993
9. Opracowanie zbiorowe – Choroby bydła-choroby narządu ruchu. PZWL Warszawa 1983
10. B. Pruszyński – Diagnostyka obrazowa. PZWL Warszawa 2005
11. T. Bökmeke - Echokardiografia. PZWL Warszawa 2005
12. A. Coughlan, A. Miller – Leczenie złamań u małych zwierząt. Wyd. Galaktyka, Łódź 2005
13. B. Kamiński, A. Kübler – Leki w intensywnej terapii. PZWL Warszawa 2005
14. Z. Zagrobelny – Krioterapia miejscowa i ogólnoustrojowa. Wyd. Urban & Partner Wrocław
15. L. Brougel, K. Dudek – Mnogie i wielonarządowe obrażenia ciała. PZWL Warszawa 2005
16. A. Kułakowski, A. Skowrońska-Gardak – Onkologia. PZWL Warszawa 2005
17. W. Ramontowski, R. Granowski, J. Bielawski – Osteosynteza metodą ZESPOL. PZWLWarszawa 1998
18. M. C. Horzinek, V. Schmidt, H. Lutz – Praktyka kliniczna: koty. Wyd. Galaktyka Łódź 2005
19. E. Spiechowicz – Protetyka stomatologiczna. PZWL Warszawa 2005
20. B. Pruszyński – Radiologia. PZWL Warszawa 2005
21. J. Kiwierski – Schorzenia i urazy kręgosłupa. PZWL Warszawa 2005
22. Z. Jańczuk – Stomatologia zachowawcza. PZWL Warszawa 2005
23. H. Schebitz, W. Brass – Techniki operacyjne u psów i kotów. Wyd. Galaktyka Łódź 2004
24. W. Rowiński, J. Wataszewski, L. Pączek – Transplantologia kliniczna.PZWL Warszawa 2005
25. J. Kołodziej – Urazy klatki piersiowej. PZWL Warszawa 2004
26. Z. Jańczuk – Zapobieganie i leczenie chorób przyzębia. PZWL Warszawa 1992
27. J. Karłowska – Zarys współczesnej ortodoncji. PZWL Warszawa 2005
28. T. Brzeziński – Etyka lekarska. PZWL Warszawa 2002
29. A. Bieniek,W. Baran–Podstawowy kurs chirurgii skóry. Wyd. Urban&Partner, Wrocław 2005
30. J.K. Kealy, H. McAllister – Diagnostyka radiologiczna i ultrasonograficzna. Wyd. Urban & Partner, Wrocław 2007.
31. N.J. Millichamp, J. Dziezyc – Atlas chorób oczu psów i kotów. Wyd. Urban & Partner, Wrocław 2007
32. P. Mannion–Diagnostyka ultrasonograficzna małych zwierząt. Triangulum M.B.P.,Wrocław 2008
33. B. Szczygieł i J. Socha – Żywienie pozajelitowe i dojelitowe. PZWL Warszawa 1994
34. C. Tutt – Stomatologia małych zwierząt. Wyd. Urban & Partner, Wrocław 2006
35. L. O’Dwyer – Leczenie ran małych zwierząt. Wyd. Urban & Partner, Wrocław 2007
36. P. Mannion – Diagnostyka ultrasonograficzna. Triangulum M.B.P, Wrocław 2008
37. T. Nyland, J. Mattoy – Diagnostyka ultrasonograficzna małych zwierząt. Wyd. Galaktyka, Łódź 2007
38. D.L. Williams, K. Barrie, T. F. Evans – Postępowanie w nagłych przypadkach okulistycznych u zwierząt. Urban & Partner, Wrocław 2008
39. W.Muir i inni – Anestezjologia Weterynaryjna. Urban & Partner, Wrocław 2008

Foreign ones

1. K. C. Barnet i inni – Augenkrankheiten beim Pferd. Wyd. Schlütersche GmbH 1998
2. O. Dietz, B. Huskamp, F. Enke – Handbuch Pferde Praxis. Verlag Stuttgart 2005
3. Klaus Bonath - Kleintierkrankheiten Band 2 Chirurgie der Wiechteile. Verlag Engen Ulmer Stuttgart 1991
4. Klaus Bonath, Wolf D. Prieur – Kleintierkrankheiten Band 3 Orthopädische Chirurgie und Traumatologie. Verlag Engen Ulmer Stuttgart 1998
5. Leo Brunnberg - Lahmheisdiagnostic beim Hund. Parey Buchverlag Berlin 1991
6. O. Dietz, L. F. Litzke, F. Enke – Lehrbuch der Allgemeinen Chirurgie für Tiermedizin. Verlag Stuttgart 2004
7. Kirk N. Gelatt i inni – Small animal opthalmic surgery. Wyd. Butterworth Heinemann 2001
8. J. M. Steiner - Small animal gastroenterology. Schlütershe 2008
9. A. J. Venker-van Haagen - Hals - Nase - Ohren - Trachea und Bronchien. Schlütershe 2006
10. M. Fehr, L. Sassenburg, P. Zrart – Krankheiten der Heimtiere. Schlütershe 2008
11. T. David, J. Kasper, M. Kasper – Atlas der Kleintierchirurgie. Schlütersche 2000
12. Ann L. Johnson, Dianne dunning – Atlas technik operacyjnych w ortopedii psów i kotów. Elsevier Urban and Oartner sp. Z o. o. Wrocław 2912.
13. Keneth A. Johnson – Surgical Approaches to the Bones and Jonts of the Dog and Cat. Tifth Edition. Elsevier Saunders 2014.
14. Juan Pablo Zaera Polo – Bone Surgery in Small Animals. Grupo Asis ISBN: 978-84-16315-21-5. 2015.
15. **Training Centres in Poland accepted by the Committee for Specialisation of Veterinarians.**
	1. Katedra i Klinika Chirurgii Weterynaryjnej UP we Wrocławiu, 50-366 Wrocław, pl. Grunwaldzki 51, tel. (71) 3205355, (71) 320 5350, fax. (71) 320 5353, Kierownik:
	dr hab. Zdzisław Kiełbowicz
	2. Katedra i Klinika Chirurgii Zwierząt UP Lublin 20-612, ul. Głęboka 30, tel.(81) 445 6153 Kierownik: prof. dr hab. Piotr Silmanowicz
	3. Katedra Chorób Dużych Zwierząt z Kliniką, Zakład Chirurgii, 02-797 Warszawa, ul. Nowoursynowska 100, sekretariat Katedry tel./fax. (22)5936191, Kierownik:
	dr hab. Zdzisław Gajewski
	4. Katedra Chirurgii i Rentgenologii z Kliniką, ul. M. Oczapowskiego 14,
	10-719 Olsztyn, tel./fax. (89) 523-37-30, Kierownik: dr hab. Yauhei Zhalniarovich
	5. Klinika Zwierząt Domowych dr n. wet. Andrzej Pępiak, 70-784 Szczecin, ul. Łubinowa 17, tel. (91) 4629450.
	6. Klinika Weterynaryjna dr Grzegorz Wąsiatycz, Poznań, ul. Ks. Mieszka I 18, 61-689 Poznań tel. 601 934 817, (61) 8230997, (61) 826 71 83.
	7. Klinika Weterynaryjna Bemowo dr Paweł Kowalczyk, Warszawa, ul. Powstańców Śl. 101, 01-495 Warszawa, tel. **(22) 638 39 14** fax. (22) 638 39 65
	8. Klinika Weterynaryjna Lancet Julitta, Jacek Stępkowscy ul. Godebskiego 15 02-912 Warszawa tel./fax. (22) 842-28-02, (22) 651-53-28
	9. Śląskie Centrum Weterynarii Fabisz&Stefanek- Przychodnia weterynaryjna Sp. z o.o.
	ul. St. Batorego 11, 41-506 Chorzów tel. (32) 247 12 08
	10. Przychodnia Weterynaryjna ul. Kaprów 10A 80-316 Gdańsk tel./fax. (58)552 4551
	11. Lecznica dla Małych Zwierząt S.C.; lek. wet. Jacek Jakubek i lek. wet. Mariusz Kajpus, 33-100 Tarnów, ul. Asnyka 8, tel.(14)-6224791
	12. Klinika Weterynaryjna INTERWET, ul. Ślężna 136, 53-110 Wrocław , tel. (71) 337 29 29, (71) 337 36 36
	13. AMAVET Lecznica Weterynaryjna, 31-586 Kraków, ul. Centralna 41,tel.(12) 6435308
	14. CM-VET Lecznica dla Zwierząt, 91-163 Łódź, ul. Kotarbińskiego 48, tel. 601 315 294, właścicielem Lecznicy jest lek. wet. Mariusz Cichecki – specjalista z Chirurgii weterynaryjnej.
	15. Lecznica dla Zwierząt „AS” S.C., 90-127 Łódź, ul. Składowa 37A, tel. (42) 209 13 00, (42) 209 13 01, 501 371 920, właścicielami lecznicy są lekarze wet. Grzegorz Małecki i Jarosław Balcerak – specjalista z Chirurgii weterynaryjnej.
16. **Education in individual mode.**

Individual process of education in Surgery may be performed (accepted) in exceptional cases. The programme of the studies covers a very wide scope of disciplines. They are general, detailed, operative surgery, traumatology, oncology, anaesthetics, ophthalmology, imaging. To posses the knowledge in such a scope, the didactic programme requires 3 years studies, during which the participants will get acknowledged with these specialties during monographic lectures, workshop classes combined with demonstration and own work and based on properly prepared traineeship practice. Therefore each case of a candidate applying to this specialization has to be considered individually to assess if all the requirements both on theoretical and practical preparation, to which the organized form of specialization studies on Surgery prepares, have been met.