NEAR EAST UNIVERSITY
Faculty of Veterinary Medicine Course Teaching Plan

1.	**Name of the Course**	DIAGNOSTIC IMAGING TECHNIQUES
2.	**Course Code**	VTE446
3.	**Course Type**	Elective
4.	**Course Level**	Undergraduate
5.	**Year**	4
6.	**Semester/Term**	Spring, 8VET
7.	**ECTS credits**	2
8.	**National Credits**	2
9.	**Theory (hours/week)**	1h/week
10.	**Practice (hours/week)**	2h/week
11.	**Prerequisites**	None
12.	**Other Recommended Considerations for the Course**	None
13.	**Course Language**	English
14.	**Teaching type**	Face to face
15.	**Course Coordinator**	Prof. Dr. Deniz SEYREK-İNTAŞ
16.	**Other Lecturers**	None
17.	**Coordinator's Contact Information**	Near East University, Faculty of Veterinary Medicine Surgery Department, Nicosia / TRNC Cell phone: 0532 856 49 12, e-mail: deniz.seyrekintas@neu.edu.tr
18.	**Website of the course**	under construction
19.	**Objectives of the Course**	It aims to teach the student theoretical and practical knowledge on special diagnostic radiography techniques and diagnostic ultrasonography technique, which are not included in the scope of the "Radiology" course. In addition, it aims to provide the student with the ability to make an accurate diagnosis in accordance with specific findings related to organ systems.
20.	**Contribution of the Course to Professional Development**	Imaging techniques with an evidence-based approach in the diagnosis of the disease have a very important place. Especially students who take this course and want to become clinicians will always be one step ahead of their colleagues thanks to the knowledge and skills they will need.

21.	**Students' Learning Outcomes**	**LO1**	The student reaches the correct diagnosis by applying special techniques beyond routine x-rays while practicing clinical medicine
		LO2	By applying contrast radiography techniques correctly, the student gets high quality, evaluable images and knows how to choose the least invasive and risky methods for the patient
		LO3	The student knows how to use this information for diagnostic purposes by interpreting the findings in cases with contrast radiography
		LO4	The student knows the physics of ultrasound, the working principle and use of the ultrasound machine, recognizes artefacts and knows how to prevent and interpret them.
		LO5	The student knows the ultrasonographic examination technique, how tissues and organs should be visualized, and the points to be considered for a good image
		LO6	The student recognizes and distinguishes organs from images obtained during abdominal ultrasonography in small animals.
		LO7	The student knows to distinguish normal and pathological appearances while performing abdominal ultrasonography in small animals
		LO8	The student knows how to take fine needle aspiration and biopsy technique from tissues and organs under ultrasound guidance

		WEEK	**THEORETICAL COURSE CONTENT**	**PRACTICE CONTENT**
21.	**Course Content**	**1.**	Introduction, contrast agents, their properties, selection of the right drug, indications / contraindications, administration, side effects, treatment of side effects	Introduction and investigation of contrast agents in our hospital
		2.	Contrast radiography of the digestive system (selection of an appropriate contrast medium, application methods, considerations, image acquisition and interpretation of findings, normal and some pathological examples)	Contrast radiography of the digestive system
		3.	Contrast radiography of the urinary system (selection of an appropriate contrast medium, application methods, considerations, image acquisition and interpretation of findings, normal and some pathological examples)	Contrast radiography of the urinary system

		4.	Contrast radiography of the respiratory system, hepatic system and peritoneal cavity (selection of an appropriate contrast medium, application methods, considerations, image acquisition and interpretation of findings, normal and some pathological examples)	Application of a pneumoperitoneography
		5.	Myelography (selection of an appropriate contrast medium, application methods, considerations, image acquisition and interpretation of findings, normal and some pathological examples)	Cisternal / lumbar puncture application on a cadaver if available
		6.	Ultrasound physics (image formation, terminology, modes, probes, instrument settings, Doppler, artefacts)	Recognition and prevention of artifacts
		7.	Abdominal ultrasonographic examination technique (patient preparation, application technique and systematics), urinary bladder examination (examination technique, physiological and pathological findings)	US examination of the urinary bladder
		8.	Examination of the prostate, testicles, uterus and ovaries (examination technique, physiological and pathological findings	US examination of genital organs
		9.	Examination of the kidneys (examination technique, physiological and pathological findings	US examination of the kidneys
		10.	Examination of the spleen (examination technique, physiological and pathological findings	US examination of the spleen
		11.	Examination of the liver and gallbladder (examination technique, physiological and pathological findings	US examination of the liver and gallbladder
		12.	Examination of the gastrointestinal tract (examination technique, physiological and pathological findings	US examination of the gastrointestinal tract
		13.	Examination of pancreas, adrenal glands, lymph nodes, abdominal cavity and skin tumours (examination technique, physiological and pathological findings)	Evaluation of the abdominal cavity
		14.	Topic repetition, question and answer	

22.	**Textbooks, References and/or Other Sources**	1. ”Atlas of Small Animal Ultrasonography”, Eds. Penninck D, D’Anjou MA, Blackwell Publishing, 2008, Medipres, Malatya 2013. 2. Veteriner Radyoloji (Alkan Z, 1999, Ankara). 3. Principles of Veterinary Radiography (Douglas SW, Herrtage ME, Williamson HD, 1987) 4. Veterinary diagnostic imaging, The dog and cat. Vol. 1, Farrow CS, Mosby, 2003. 5. Diagnostic radiology & ultrasonography of the dog and cat, Kealy JK, McAllister H, 4th Ed. Elsevier, Saunders, USA, 2005. 6. Small animal radiology and ultrasonography, Burk RL, Feeney DA, 3rd Ed., Elsevier, Saunders, USA, 2003. UZEM also provides links to some useful information and videos that can be found on the internet.

23.	**Evaluation**	**SEMESTER STUDIES**	**NUMBER**	**PERCENTAGE OF CONTRIBUTION**
		Midterm exam	1	40
		Quiz	-	-
		Assignments, Performances	-	-
		Final exam	1	60
		Total	2	100
		Evaluation Approaches	Exams are made in written form as multiple choice and/or classic (short answer) questions.	

24.	**ECTS / Student’s workload**	**Activity**	**NUMBER**	**Time [hours]**	**Total workload [hours]**
		Class hours (theoretical)	14	1	14
		Practical hours	14	2	28
		Out of Class Study Time (Pre-study, reinforcement)	14	1	14
		Assignments, Performances	-	-	-
		Projects	-	-	-
		Field studies	-	-	-
		Midterm exams	1	2	2
		Other	-	-	-
		Final exams	1	2	2
		Total workload			60
		Total workload / 30 hours			60/30
		ECTS credits of the lecture			2