INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Histotecnology II			Field of study	Biomedical Laboratory Sciences		
Bachelor in	Biomedical Laboratory Sciences			School	School of Health		
Academic Year	2022/2023	Year of study	2	Level	1-2	ECTS credits	5.0
Type	Semestral	Semester	2	Code	9995-550-2203-00-22		

Workload (hours)	135	Contact hours	T	TP	PL	TC	S	E	OT	O
			-	22,5	30	-	-	-	7,5	-

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s): Celso Tome dos Santos Lopes, Rossana Pilar Marcelino Correia

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Characterize and apply histological and histopathological techniques for tissue preparation for observation under the optical microscope.
2. Characterize and apply histological and histopathological techniques for tissue preparation for observation under the electronic microscope.
3. Characterize the different technical applications in clinical pathology diagnosis and research addressing complementary diagnostic techniques and technological innovations.
4. Know and apply health and safety concepts in the specific context of Histotechnology.
5. Know and apply ethical concepts in the specific context of pathology.
6. Characterize and apply quality control methodologies in Histotechnology.
7. Describe the applications of telepathology and digital pathology in the Pathology laboratory.

Prerequisites

Before the course unit the learner is expected to be able to:
1. Know human histology, anatomy and pathology, cell biology and Histotecnology I.
2. Basic techniques of M. Biology
   Isolation and manipulation of nucleic acids, probes hybridization, PCR

Course contents

Histological and histopathological techniques of preparing tissue for observation under the optical and electronic microscope. histotechnological applications in clinical pathology diagnosis and research, addressing complementary diagnostic techniques and technological innovations within the Pathology laboratory and research. Hygiene and safety in the specific context of Histotechnology; Ethics and deontology in Pathology. Quality control in Pathology.

Course contents (extended version)

1. Hygiene and laboratory safety in Pathology lab
2. Histotecnology adapted to electron microscopy
3. Tissue freezing criotomy
4. Biological material archives in Pathology lab
   - Historical background and legal framework
   - General features
   - Special archives (Biobank)
5. Digital pathology.
6. Preparation of anatomical specimend for museum display
7. Quality control in pathology lab.
8. Tissue microarrays.
9. Mega-specimen processing
10. Laser microdissection.
11. Ethics and deontology of the Biomedical Scientist.

Recommended reading

1. S. Kim Suvarna, Christopher Layton and John D. Bancroft Bancrofts-theory-and-practice-of-histological-techniques, 8td ed. Eighth Edition. 2019 Edinburgh Elsevier 978-0-7020-6887-4
2. Cook DJ. (2006) Cellular Pathology: An Introduction to Techniques and Applications, 2nd ed. UK: Scion Publishing, 2006. ISBN 1-904842-30-5
3. Kiernan JA (2016) Histological & Histochemical Methods – Theory & Practice, 5th ed. London: Arnold ISBN 978-1-9048424-2-2
4. Carson FL, Hladik C. (2020) Histotechnology: A Self-Instructional Text. 5th Edition. Chicago: American Society for Clinical Pathology.
5. Guimarães ACR, de Souza DS et al. (2010) Conceitos e métodos para a formação de profissionais em laboratórios de saúde - Vol 1. (Amendoeira MRR, Molinaro EM, Caputo LFG, eds.). Rio de Janeiro: EPSJV.

Teaching and learning methods

Expositive, experimental, demonstrative and "problem-based learning". Group work, with presentation and defense.

Assessment methods

1. A - (Regular, Student Worker) (Final)
   - Practical Work - 30% (Practical examination)
   - Final Written Exam - 50% (Theoretical Examination. Minimum teoric-practical test score 8, 5 values)
   - Presentations - 20%
2. B - (Regular, Student Worker) (Supplementary, Special)
   - Final Written Exam - 100% (Minimum teoric-practical test score 8, 5 values)

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

Celso Tome dos Santos Lopes, Rossana Pilar Marcelino Correia	Josiana Adelaide Vaz	Juliana Almeida de Souza	Adília Maria Pires da Silva Fernandes
06-04-2023	06-04-2023	28-06-2023	28-06-2023