

Course Title	Cancer Diagnostics and Therapeutics				
Course Code	MCB630				
Course Type	Compulsory				
Level	Master's (2 nd cycle)				
Year / Semester	1 st Year / 2 nd Semester				
Teacher's Name	TBA				
ECTS	10	Lectures / week	3 Hours	Laboratories / week	None
Course Purpose and Objectives	The main objective of the Cancer Diagnostics and Therapeutics course is to introduce the latest advances in cancer diagnostic methodologies as well as provide a comprehensive overview of the different types of cancer treatment currently available in the clinic, emphasizing the connection between basic and translational knowledge in tumor biology.				
Learning Outcomes	<p>Upon completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Describe and determine the appropriate the diagnostic methods in different cancer types • Recognize the advantages of using non-invasive or minimally invasive approaches in cancer diagnostics • Appraise the usefulness of different molecular markers for cancer diagnosis and prognosis • Describe different ionizing and non-ionizing imaging methodologies for cancer diagnosis • Describe the different types of cancer treatment strategies • Differentiate and compare the use of chemotherapy, nanotherapy and current targeted cancer therapies • Discuss the role of the tumor microenvironment in the efficacy of cancer treatment • Develop hypotheses to address the development of resistance to selected therapies 				
Prerequisites	None	Required	None		
Course Content	<p>Description:</p> <ul style="list-style-type: none"> • Diagnostic methodologies using biopsies from biological tissues or fluids • Molecular diagnostic and prognostic markers for different cancer types • Ionizing radiation imaging methodologies for cancer diagnosis • Non-ionizing radiation imaging methodologies for cancer diagnosis • Histological classification, grading and staging of tumors 				

	<ul style="list-style-type: none"> • Chemotherapy: Different types and mechanisms of action in frequently diagnosed tumors, such as breast, colon, lung, prostate, pancreas, melanoma, leukemias. • Nanotherapy: Latest technologies and advantages over traditional chemotherapy. • Applications of radiation oncology in cancer treatment • Personalized medicine: cancer treatment using targeted therapies • Anti-hormone therapies • Mechanisms of drug resistance • Novel technologies for drug development 										
Teaching Methodology	Face to face										
Bibliography	<p>Anticancer Therapeutics, Latest Edition, by S. Missalidis, Wiley</p> <p>Breast Cancer: Translational Therapeutic Strategies, Latest Edition, by Gary H. Lyman, Harold J. Burstein, CRC Press</p> <p>Cancer Biomarkers: Minimal and Noninvasive Early Diagnosis and Prognosis, Latest Edition, by D. Barh, A. Carpi, M. Verma, M. Gunduz, CRC Press</p> <p>Cancer Nanotechnology: Principles and Applications in Radiation Oncology (Imaging in Medical Diagnosis and Therapy), Latest Edition, by S.H. Cho and S. Krishnan, CRC Press</p> <p>Selected scientific articles in pdf format that will be provided in advance by the lecturer</p>										
Assessment	<table> <tr> <td>Mid-Term Examination</td> <td>30%</td> </tr> <tr> <td>Final Examination</td> <td>40%</td> </tr> <tr> <td>Assignments</td> <td>20%</td> </tr> <tr> <td>Class participation</td> <td>10%</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table>	Mid-Term Examination	30%	Final Examination	40%	Assignments	20%	Class participation	10%	Total	100%
Mid-Term Examination	30%										
Final Examination	40%										
Assignments	20%										
Class participation	10%										
Total	100%										
Language	English										