



Medicinska fakulteta

## UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION

|                       |                             |
|-----------------------|-----------------------------|
| <b>Predmet:</b>       | Onkologija in radioterapija |
| <b>Subject Title:</b> | Oncology and radiotherapy   |

| Študijski program<br>Study programme        | Študijska smer<br>Study field | Letnik<br>Year | Semester<br>Semester |
|---------------------------------------------|-------------------------------|----------------|----------------------|
| Splošna medicina<br>General medicine - EMŠP |                               | 6              | 11                   |

Univerzitetna koda predmeta / University subject code:

| Predavanja<br>Lectures | Seminar<br>Seminar | Sem. vaje<br>Tutorial | klin. vaje<br>clin work | Teren. vaje<br>Field work | Samost. delo<br>Individ. work | ECTS |
|------------------------|--------------------|-----------------------|-------------------------|---------------------------|-------------------------------|------|
| 15                     | 30                 |                       | 15                      |                           | 90                            | 5    |

Nosilec predmeta / Lecturer:

Izr. prof. dr. Marko Hočvar  
Doc. dr. Irena Oblak

Jeziki /

Predavanja / Lecture: Slovenski/slovene

Languages:

Vaje / Tutorial: Slovenski/slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Vsebina:

Splošna onkologija. Biologija, genetika in patologija raka. Epidemiologija in primarna preventiva rakavih bolezni. Kemopreventiva, presejanje (»screening«) in zgodnje odkrivanje raka. Mikroskopska verifikacija in zamejitev bolezni. Načela kirurškega, obsevalnega in sistemskega zdravljenja raka. Biološki načini zdravljenja raka. Načela kliničnega raziskovanja v onkologiji. Opredelitev ciljev zdravljenja: ozdravitev, remisija, simptomatsko (paliativno) zdravljenje. Multidisciplinarno odločanje, načela multimodalnega zdravljenja in soodločanje bolnika. Urgentna stanja v onkologiji in zapleti onkološkega zdravljenja. Rehabilitacija in ocenjevanje kvalitete življenja. Načela in praktični napotki za paliativno zdravljenje: zdravljenje bolečine, prehrana, preprosti posegi – razbremenilna plevralna in abdominalna punkcija. Sekundarni maligni tumorji. Alternativne metode zdravljenja v onkologiji.

Specialna onkologija. Karcinom kože in maligni melanom. Rak glave in vratu. Rak ščitnice in drugi

tumorji endokrinih žlez. Pljučni rak. Rak požiralnika in želodca. Rak debelega črevesa in danke. Rak jeter in trebušne slinavke. Rak ledvice in mehurja. Rak prostate. Tumorji testisa. Rak dojke. Rak materničnega vratu, maternice in jajčnikov. Možganski tumorji. Rak neznanega izvora. Levkemije, limfomi in druge mieloproliferativne bolezni. Sarkomi mehkih tkiv in

Content (Syllabus outline):

General oncology: Biology, genetics and pathology of malignant diseases. Epidemiology and primary prevention of cancer diseases. Chemoprevention, screening and early detection of cancer. Microscopic verification and staging of the disease. Principles of surgical, radiotherapeutic and systemic treatment of cancer. Treatment of cancer by biological means. The principles of clinical research in oncology. Definition of treatment results, such as cure, remission, symptomatic (palliative) treatment. Multidisciplinary approach in decision making, principles of multimodal treatment and patients cooperation. Urgent situation in oncology and complications during treatment. Rehabilitation and determination of the quality of life. Principles and practical suggestions for palliative treatment: pain control, diet, simple surgical intervention, e. g. pleural and abdominal fluid evacuation. Secondary malignancies. Alternative methods in oncology.

Special oncology: Skin cancer and malignant melanoma.

Head and neck tumors. Thyroid cancer and other malignancies of endocrine glands. Lung cancer. Oesophageal and gastric carcinomas. Tumors of the colon and anus. Liver and pancreatic tumors. Kidney and urinary bladder cancer. Prostatic and breast cancer. Testicular tumours. Cervical cancer, cancer of the uterus and ovarian cancer. Origo ignota malignancies.

kosti. Otroška onkologija. Rak pri starejših bolnikih.

Leukemias, lymphomas and other myeloproliferative diseases. Soft tissue and bone sarcomas. Pediatric oncology. Malignancies in elderly people.

#### Temeljni literatura in viri / Textbooks:

- NOVAKOVIĆ, Srdjan (ur.), et al. Onkologija : raziskovanje, diagnostika in zdravljenje raka. 1. izd. Ljubljana: Mladinska knjiga, 2009.

#### Cilji:

Na osnovi že prej pridobljenega znanja bo študent zgradil okvir za multidisciplinarno delo v onkologiji. Spoznal bo osnovne smernice za diagnostiko rakavih bolezni, zamejevanje bolezni in odločitev o zdravljenju. Obnovil bo načela kirurškega zdravljenja raka, nato pa se bo posebej posvetil osnovam radioterapije, internistične onkologije in načelom kombiniranega multimodalnega zdravljenja. Spoznal bo osnove rehabilitacije in paliativne onkologije.

#### Objectives:

Based on previous acquired knowledge the undergraduate will be able to form his/her frame for the multidisciplinary approach in oncology. The undergraduates knowledge of basic directive in oncological diagnostics will permit him to asses the degree of disease extension and consequently the appropriate treatment scheme. Based on the acquired knowledge of surgery the candidate will pay particular attention to the treatment with radiotherapy, systemic medical treatment and combined multimodal treatment. Rehabilitation and palliative treatment will be part of the candidates educative programme as well.

#### Predvideni študijski rezultati:

#### Intended learning outcomes:

##### Znanje in razumevanje:

Po uspešno zaključenem programu bo kandidat sposoben sodelovati v onkoloških strokovnih skupinah, timih, pri diagnosticiranju in tretiranju bolnikov z rakavo boleznijo. Na osnovi praktičnih izkušenj, ki si jih bo pridobil v bolnišničnem delu, bo kandidat pridobil potrebno znanje, ki mu bo v celoti omogočilo samostojno delo.

##### Prenesljive/ključne spretnosti in drugi atributi:

Na osnovi pridobljenega teoretičnega znanja in praktične izkušnosti se kandidat kvalificira za prenašanje svojega znanja, to je učenja, slušateljem na šolah, kjer je onkologija v programu študija.

##### Knowledge and Understanding:

After a successful completion of the programme the candidate will be qualified to collaborate in oncological teams in diagnosing and treatment planning of cancer diseases. Based on candidates practical experience gained during following hospital activity, the candidate will acquire the necessary practical and theoretical knowledge which will enable him/her also for individual activities and responsibilities in cancer hospital.

##### Transferable/Key Skills and other attributes:

Based on the acquired theoretical knowledge and practical experience the candidate will qualify as a teacher at schools and courses, where oncology is a regular part of schools teaching programme.

#### Metode poučevanja in učenja:

#### Learning and teaching methods:

Med te sodijo čelna predavanja, seminarji, klinično delo pri bolnikih in individualna seminarska dela na temah, ki se tičejo tega predmeta

Among them are full length lectures, seminars, clinical approach with patients and individual seminars with the presentation and discussion in the class.

#### Načini ocenjevanja:

Delež (v %) /  
Weight (in %)

#### Assessment:

| Način (ustno izpraševanje, naloge, projekt)                                                                                                    | Delež (v %) /<br>Weight (in %) | Type (examination, oral, coursework, project):                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Seminarska naloga                                                                                                                              | 50 %                           | Coursework                                                                                                                                           |
| Ustni izpit                                                                                                                                    | 50 %                           | Oral examination                                                                                                                                     |
| ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV<br>Obvezna 70% prisotnost na predavanjih.<br>1. Opravljene vaje<br>2. Opravljen seminar z aktivnim sodelovanjem |                                | ACADEMIC OBLIGATIONS OF STUDENTS<br>Obligatory 70% attendance at lectures.<br>1 Completed practice<br>2 Completed coursework with active cooperation |

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| <p>POGOJI ZA PRISTOP K POSAMEZNEMU PREVERJANJU ZNANJA</p> <p>Opravljene vaje na Onkološkem inštitutu Ljubljana in predstavljen seminar. Temo individualnega seminarja prejmejo študenti na predavanjih.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | <p>REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING</p> <p>Completed practice at the Institute of Oncology Ljubljana and presented coursework. The theme of an individual coursework is given to students at lectures.</p> |
| <p><b>Reference nosilca / Lecturer's references:</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                    |
| <p><b>HOČEVAR MARKO:</b></p> <p>ILES, Mark M., NOVAKOVIĆ, Srdjan, HOČEVAR, Marko, et al. A variant in FTO shows association with melanoma risk not due to BMI. <i>Nature genetics</i>, ISSN 1061-4036, 2013, vol. 45, no. 4, doi: 10.1038/ng.2571. [COBISS.SI-ID 1472635], [JCR, SNIP, WoS do 25. 12. 2013: št. citatov (TC): 4, čistih citatov (CI): 4, normirano št. čistih citatov (NC): 1, Scopus do 1. 1. 2014: št. citatov (TC): 5, čistih citatov (CI): 5, normirano št. čistih citatov (NC): 1]</p> <p>PERIĆ, Barbara, ŽAGAR, Ivana, NOVAKOVIĆ, Srdjan, ŽGAJNAR, Janez, HOČEVAR, Marko. Role of serum S100B and PET-CT in follow-up of patients with cutaneous melanoma. <i>BMC cancer</i>, ISSN 1471-2407, 2011, vol. 11, str. 328 [1-7], ilustr., doi: 10.1186/1471-2407-11-328. [COBISS.SI-ID 1137019], [JCR, SNIP, WoS do 19. 11. 2013: št. citatov (TC): 6, čistih citatov (CI): 6, normirano št. čistih citatov (NC): 2, Scopus do 16. 10. 2013: št. citatov (TC): 7, čistih citatov (CI): 7, normirano št. čistih citatov (NC): 2]</p> <p>BRÄNSTRÖM, Richard, HOČEVAR, Marko, PERIĆ, Barbara, et al. Predictors of sun protection behaviors and severe sunburn in an international online study. <i>Cancer epidemiology, biomarkers &amp; prevention</i>, ISSN 1055-9965, Sep. 2010, vol. 19, no. 9, str. 2199-2210. [COBISS.SI-ID 1085051], [JCR, SNIP, WoS do 12. 11. 2013: št. citatov (TC): 20, čistih citatov (CI): 20, normirano št. čistih citatov (NC): 10, Scopus do 5. 11. 2013: št. citatov (TC): 20, čistih citatov (CI): 20, normirano št. čistih citatov (NC): 10]</p> <p>BARRETT, Jennifer H, HOČEVAR, Marko, NOVAKOVIĆ, Srdjan, et al. Genome-wide association study identifies three new melanoma susceptibility loci. <i>Nature genetics</i>, ISSN 1061-4036, Nov. 2011, vol. 43, no. 11, str. 1108-1114. [COBISS.SI-ID 1158267], [JCR, SNIP, WoS do 10. 12. 2013: št. citatov (TC): 34, čistih citatov (CI): 33, normirano št. čistih citatov (NC): 9, Scopus do 15. 1. 2014: št. citatov (TC): 37, čistih citatov (CI): 36, normirano št. čistih citatov (NC): 10]</p> <p>BISHOP, David Timothy, HOČEVAR, Marko, NOVAKOVIĆ, Srdjan, et al. Genome-wide association study identifies three loci associated with melanoma risk. <i>Nature genetics</i>, ISSN 1061-4036, Aug. 2009, vol. 41, no. 8, str. 920-925. [COBISS.SI-ID 785019], [JCR, SNIP, WoS do 23. 12. 2013: št. citatov (TC): 137, čistih citatov (CI): 135, normirano št. čistih citatov (NC): 38, Scopus do 10. 12. 2013: št. citatov (TC): 156, čistih citatov (CI): 154, normirano št. čistih citatov (NC): 43]</p> |  |                                                                                                                                                                                                                                    |
| <p><b>IRENA OBLAK:</b></p> <p>OBLAK, Irena, SKOBLAR VIDMAR, Marija, ANDERLUH, Franc, VELENIK, Vaneja, JEROMEN, Ana, BUT HADŽIĆ, Jasna. Capecitabine in adjuvant radiochemotherapy for gastric adenocarcinoma. <i>Radiology and oncology</i>, ISSN 1318-2099, 2013, vol. , no. , str., doi: 10.2478/raon-2013-0065. [COBISS.SI-ID 1617531], [JCR, SNIP]</p> <p>OBLAK, Irena, VELENIK, Vaneja, ANDERLUH, Franc, MOŽINA, Barbara, OCVIRK, Janja. The correlation between the levels of tissue inhibitor of metalloproteinases 1 in plasma and tumour response and survival after preoperative radiochemotherapy in patients with rectal cancer. <i>Radiology and oncology</i>, ISSN 1318-2099, jun. 2013, vol. 47, no. 2, str. 138-144, IV, doi: 10.2478/raon-2013-0028. [COBISS.SI-ID 1507963], [JCR, SNIP, Scopus do 15. 10. 2013: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0]</p> <p>OBLAK, Irena, PETRIČ, Primož, ANDERLUH, Franc, VELENIK, Vaneja, FRAS, Albert-Peter. Long term outcome after combined modality treatment for anal cancer. <i>Radiology and oncology</i>, ISSN 1318-2099, Jun. 2012, vol. 46, no. 2, str. 145-152, IV, doi: 10.2478/v10019-012-0022-2. [COBISS.SI-ID 1290619], [JCR, SNIP, WoS do 11. 4. 2013: št. citatov (TC): 2, čistih citatov (CI): 2, normirano št. čistih citatov (NC): 0, Scopus do 25. 12. 2013: št. citatov (TC): 4, čistih citatov (CI): 4, normirano št. čistih citatov (NC): 1]</p> <p>OBLAK, Irena, ANDERLUH, Franc, VELENIK, Vaneja, MOŽINA, Barbara, OCVIRK, Janja, ĆIRIĆ, Eva, HROVATIČ PODVRŠNIK, Nataša. Differences in plasma TIMP-1 levels between healthy people and patients with rectal cancer stage II or III. <i>Radiology and oncology</i>, ISSN 1318-2099, 2011, vol. 45, no. 3, str. 209-212, tabele, doi: 10.2478/v10019-011-0027-2. [COBISS.SI-ID 1148283], [JCR, SNIP, WoS do 17. 7. 2013: št. citatov (TC): 1, čistih citatov (CI): 1, normirano št. čistih citatov (NC): 0, Scopus do 16. 10. 2013: št. citatov (TC): 1, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0]</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                    |

OBLAK, Irena, ANDERLUH, Franc, VELENIK, Vaneja. Postoperative radiochemotherapy for gastric adenocarcinoma : long term results = Postoperativna radiokemoterapija pri bolnikih z rakom želodca. Radiology and oncology, ISSN 1318-2099, 2009, letn. 43, št. 4, str. 274-281. [COBISS.SI-ID 26682073], [JCR, SNIP, WoS do 15. 2. 2013: št. citatov (TC): 4, čistih citatov (CI): 3, normirano št. čistih citatov (NC): 1, Scopus do 5. 6. 2013: št. citatov (TC): 4, čistih citatov (CI): 3, normirano št. čistih citatov (NC): 1]