Univerza v Mariboru

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Ženska in moška neplodnost**
Course title:	**Female and Male Infertility**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Biomedicinska tehnologija/Biomedical Technology 3. stopnja/3rd Degree		2	3 ali 4

Vrsta predmeta / Course type	Izbirni/Elective
Univerzitetna koda predmeta / University course code:	

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. Delo Individ. Work	ECTS
15	20	10			105	5

Nosilec predmeta / Lecturer:	Prof. dr. Veljko Vlaisavljevič

Jeziki / Languages:	**Predavanja / Lectures:**	Slovenski / Slovene
	Vaje / Tutorial:	Slovenski / Slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Kandidat mora doseči 300 ECTS na predhodnem študiju.	Graduate degree 300 ECTS

Vsebina:	**Content (Syllabus outline):**
Definicija neplodnosti, oogeneza, fiziologija, preiskave, diagnostika in terapija ženske reproduktivne funkcije, ovulatorne disfunkcije, tubarne nepravilnosti, endometrioze, cervikalni faktorji, indukcije ovulacije, inseminacije, tehnik OBMP. Moška neplodnost, spermatogeneza, fiziologija, preiskave, diagnostika in terapija moške reproduktivne funkcije. Endokrinologija, farmakologija in terapija, ki vpliva na fiziološko funkcijo mod, fiziologija spočetja in ocena funkcije semenčic, imunologija in reproduktivna genetika, poznavanje kliničnega učinka hormonov, mikroskopska patologija povezana z moškim genitalnim sistemom, klinična kompetenca v obravnavi težav s plodnostjo in erektilno disfunkcijo. Sposobnost opraviti in interpretirati rezultate analize semenskega izliva. Usposabljanje v laboratoriju ter posameznikova osebna vključitev v proces opravljanja analiz semenskega izliva in ostalih preiskav, ki so povezane s funkcijo semenčic. Biopsija mod. Indikacije in metode asistirane reprodukcije. Ohranjanje plodnosti pri onkoloških pacientih.	Definition of infertility, oogenesis, physiology, examination, diagnostics and therapy of women's reproductive function, ovulatory disorders, tubal disorders, endometriosis, cervical factors, ovulation induction, insemination, MAR techniques. Male infertility, spermatogenesis, physiology, investigation, diagnosis and therapy of male reproductive function. Endocrine physiology, pharmacology and therapy that regulate testicular function, the physiology of conception and assessment of sperm function, immunology and genetics related to reproduction, a knowledge of clinical pharmacology of hormones, microscopic pathology related to male genital system, clinical competence in management of fertility problems and erectile dysfunction. Ability to perform and interpret semen analysis. Laboratory training with personal involvement in carrying out semen analyses and other tests in relation to sperm function. Indication and methods of assisted reproduction. Oncofetility.

Temeljni literatura in viri / Readings:

- Adam H.Balen (Editor): Infertility in practice. Informa Healthcare, 2nd ed., taylor and Francis, 2009
- David K. Gardner, A. Weissman, CM Howels,Z. Shoham (Editors) Textbook of Assisted Reproductive Techniques: Laboratory and Clinical Perspectives, Informa Healthcare UK Ltd, 2012

- Gab Kovacs (editor). The subfertility handbook, Cambridge University Press ,2nd ed., 2011
- Paul Serhal and Caroline Overton (Editors): Good clinical practice in assisted reproduction, Cambridge University press, 2004
- BREZNIK, Barbara, KOVAČIČ, Borut, VLAISAVLJEVIĆ, Veljko. The role and use of hyaluronan in reproductive medicine. V: POMIN, Vitor H. (ur.). ***Hyaluronan : biological and medical implications***, (Biochemistry research trends). New York: Nova Science Publishers. cop. 2014, str. [113]-137, ilustr. [COBISS.SI-ID 5039167]
- Review articles from scientific journals and monographies
- VLAISAVLJEVIĆ, Veljko, KNEZ, Jure, KOVAČIČ, Borut. Does the number of retrieved oocytes influence pregnancy rate after day 3 and day 5 embryo transfer?. V: WU, Bin (ur.). ***Advances in embryo transfer***. Rijeka: InTech. cop. 2012, str. [39]-52, ilustr. http://www.intechopen. com/books/advances-in-embryo-transfer/does-the-number-of-retrieved-oocytes-influence-pregnancy-rate-after-day-3-and-day-5-embryo-transfer-. [COBISS.SI-ID 4270911]
- VLAISAVLJEVIĆ, Veljko, KNEZ, Jure, KOVAČIČ, Borut. Does embryo transfer technique and personal experience influence pregnancy rate?. V: BERHARDT, Leon V. (ur.). ***Advances in medicine and biology***, (Advances in medicine and biology, ISSN 2157-5398, vol. 39). New York: Nova Science. cop. 2012, str. [237]-252. [COBISS.SI-ID 4324671]
- VLAISAVLJEVIĆ, Veljko, DOŠEN, Marko, KOVAČIČ, Borut. Embryo quality and pregnancy outcome in infertile patients with endometriosis. V: CHAUDHURY, Koel (ur.), CHAKRAVARTY, Baidyanath (ur.). *Endometriosis - basic* ***concepts and current research trends.*** Rijeka: InTech. 2012, str. [383]-398. http://www.intechopen.com/books/endometriosis-basic-concepts-and-current-research-trends. [COBISS.SI-ID 4271935]
- KNEZ, Jure, KOVAČIČ, Borut, VLAISAVLJEVIĆ, Veljko. Effectiveness of Slovenian health insurance reimbursement policy in twin's rate reduction in medically assisted reproduction. V: DUPONT, Maison (ur.), RENAUD, Jean-Pierre (ur.). ***Siblings : social adjustments, interaction, and family dynamics***, (Children's issues, laws and programs). New York: Nova Science Publisher's. cop. 2012, str. 125-140, ilustr. [COBISS.SI-ID 4454719]
- GIANAROLI Luca, FERRARETTI Anna Pia & KOVACIC Borut. Monitoring ART Safety and Biovigilance. V: KISSIN Dimitry M (ur.), ADAMSON David G (ur.), CHAMBERS Georgina (ur.), DE GEYTER Christian (ur.). ***Assisted Reproductive Technology Surveillance***. ISBN 978-1-108-49858-6 . Cambridge. Cambridge University Press. 2019, str. 56-68.
- HREINSSON Julius, KOVAČIČ Borut. Regulation, Licensing, and Accreditation of the ART Laboratory in Europe. V: NAGY Zsolt Peter (ur.), VARGHESE Alex C. (ur.), AGARWAL Ashok (ur.). ***Practical Manual of In Vitro Fertilization: Advanced Methods and Novel Devices*** Zurich : Springer Nature. 2019, str: 1-11.

Cilji in kompetence:

Pridobitev splošnih kompetenc

Študent mora biti sposoben razumeti in interpretirati: metode določitve hormonov za oceno endokrinoloških sistemov, interpretirati radiografske tehnike uporabljene v diagnostičnih postopkih (HSG, CT, OBMP, itd.), primerno uporabiti in interpretirati genetske analize, kariotipizacijo. Pridobiti sposobnost in znanje uporabe ultrazvoka v reproduktivni medicini.

Študent mora razumeti in biti sposoben diskutirati o nastanku ejakulata kot tudi o preiskavah semena. Vzroki azoospermije, oligozoospermije. Pomen in omejitve biopsije testisov in endokrinološke preiskave, kot so FSH v plazmi, kriobiologija semena, 'in vitro' in laboratorijski testi funkcije semenčic. Fiziologija in patofiziologija spolne funkcije.

Pridobitev specifičnih kompetenc

Znanje o oploditvi z biomedicinsko pomočjo, vključno s stimulacijo jajčnikov, obravnavo sindroma

Objectives and competences:

Development of general competences

The fellow should be competent to understand and interpret: endocrinological measurement of hormonal substances for evaluation of endocrine systems, to interpret radiographic techniques used in diagnostic procedure,(HSG,CT, MAR etc.), appropriately utilize and interpret chromosomal studies and karyotyping.

Develop ultrasound skills used in reproductive medicine.

The student should understand and be able to discuss the formation of ejaculate as well as examination of the seminal fluid. The causes of azoospermia and oligozoospermia, the value and limitation of testicular biopsy and endocrine assessment such as plasma FSH, cryobiology of semen, in vitro and laboratory tests of sperm function. The physiology and pathophysiology of sexual function.

Development of specific competences

Expertise in medically assisted reproduction, including

hiperstimulacije jajčnikov, PCOS, redukcije zarodkov. Študent mora biti sposoben primerne obravnave in zdravljenja neplodnega moškega. Znanje in kompetence glede endoskopske kirurgije v povezavi z diagnostiko in zdravljenjem ženske neplodnosti in kirurške pridobitve semenčic.	ovarian stimulation, management of ovarian hyperstipulation syndrome, PCOS, embryo reduction. Fellow should be able to make appropriate investigation and treatment of infertile man. Knowledge and competence in evaluation of endoscopic surgery related to the diagnosis and treatment of female infertility and surgical sperm retrieval.
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Poglobljeno znanje epidemiologije, vzrokov, preiskav ter obravnave ženske in moške neplodnosti. **Prenesljive/ključne spretnosti in drugi atributi:** Razumevanje tveganj in omejitev v postopku, diagnozi in ocena diagnostičnih postopkov, kontrola veljavnosti diagnostičnih testov in njihove spremenljivosti ter zanesljivosti kriterijev. Razumevanje nacionalnih in evropskih predpisov, ki se nanašajo na varnost in kvaliteto dela pri diagnostiki neplodnosti in terapiji.	**Knowledge and understanding:** Comprehensive knowledge of epidemiology, causes, investigations and management of female and male infertility. **Transferable/Key Skills and other attributes:** Razumevanje tveganj in omejitev v postopku, diagnozi in ocena diagnostičnih postopkov, kontrola veljavnosti diagnostičnih testov in njihove spremenljivosti ter zanesljivosti kriterijev. Razumevanje nacionalnih in evropskih predpisov, ki se nanašajo na varnost in kvaliteto dela pri diagnostiki neplodnosti in terapiji.
Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja • Seminarji pod nadzorom in s sodelovanjem z mentorji • Praktično delo	• Lectures • Seminars under mentors supervision and collaboration • Practical work

Načini ocenjevanja:	**Delež (v %) / Weight (in %)**	**Assessment:**
– Naloge 30% – Ustno izpraševanje 70%	30% 70%	– Coursework 30% – Oral examination 70%