

Course: Dermatovenerology

Course Coordinator: Assoc.Prof. Sandra Peternel, MD, PhD

Department: Department of Dermatovenereology

Study program: Integrated Undergraduate and Graduate University Study of Medicine in English language

Study year: 4th

Academic year: 2020/2021

SYLLABUS

Course description:

Dermatovenerology is a fourth-year compulsory course of the Integrated Undergraduate and Graduate University Study of Medicine in English. The course is composed of 20 lectures, 10 seminars and 30 practicals, and is worth 3 ECTS credits.

The **aim** of the course is to acquire knowledge about the most common diseases of the skin and sexually transmitted diseases through discussion-oriented lectures and seminars.

Upon successful completion of the course, students will be able to:

- 1. use professional terminology in the field of dermatology and venereology
- 2. examine patient's dermatologic disease history
- 3. define types of skin lesions and make a valid physical examination of the skin, nails, hair and visible mucosal surfaces
- 4. explain the pathogenesis and clinical presentation of the most common skin and venereal diseases
- 5. distinguish basic diagnostic techniques used in dermatovenerology and explain their applications
- 6. describe treatment options and commonly used dermatosurgical procedures in the management of skin and venereal diseases

The schedule for lectures and seminars is listed in the tables titled "Course Teaching Plan" and "Course Schedule" (below). Class session times may vary with advance notice, and part of the lectures (up to 40%) will be held online using the MS Teams platform, all in agreement with students.

Pre-class assignments will be required for seminars and will be posted in Merlin platform. It is advisable that students log into the course on Merlin and check for updates regularly.

Assigned reading will be available through the Elsevier ClinicalKey website.

Assigned reading:

- 1. Gawkrodger DJ. Dermatology: An Illustrated Colour Text, 6 Ed. Elsevier Ltd, 2017.
- 2. Bolognia JL, Schaffer JV, Duncan KO, KO CJ. Dermatology Essentials, Elsevier Inc., 2014.

Optional/additional reading:

- 1. James WD, Elston DM, McMahon PJ. Andrews' Diseases of the Skin Clinical Atlas. Elsevier Inc., 2018.
- 2. Basta-Juzbašić A, and co-authors. Dermatovenerologija. Zagreb: Medicinska naklada, 2014.

COURSE TEACHING PLAN:

The list of lectures (topics and descriptions):

- Basic science of the skin. Terminology of skin lesions. The skin exam. Learning outcomes: to develop student's knowledge of structure and function of the skin and appendages as well as principles of dermatological terminology; recognition and description of cutaneous and mucosal lesions, taking patient's history, performing physical exam and practical bedside diagnostic procedures.
- 2. **Principles of dermatologic therapy. Basic dermatological surgery.** Learning outcomes: to learn basic principles of topical and systemic therapy in dermatology, skin biopsy, cryotherapy, electrocautery, curettage, incision and drainage, elliptical excision.

- 3. **Bacterial skin infections. Lyme borreliosis**. Learning outcomes: to develop student's knowledge of the most common bacterial skin diseases (including Lyme disease), their clinical presentation and current diagnostic and therapeutic algorithm.
- 4. **Viral infections**. Learning outcomes: to develop student's knowledge of the most common viral skin diseases (warts, herpes, viral exanthems), including their clinical presentation, current diagnostic and therapeutic algorithms and methods of prevention.
- 5. Fungal infections (Dermatophytes and yeasts). Infestations. Leishmaniasis. Learning outcomes: to develop student's knowledge of fungal skin infections, protozoal and parasitic skin diseases (diagnostic and therapeutic algorithm, methods of prevention); to demonstrate methods of identification of fungal elements in KOH preparation of skin scrapings, identification of fungal species cultured on Sabouraud agar, identification of Sarcoptes scabiei by dermoscopy and in skin scrapings, demonstration of the Wood light examination.
- 6. **Atopic dermatitis**. Learning outcomes: to develop student's knowledge of the pathogenesis of atopic dermatitis, clinical presentation of the disease according to age of patients; to define major and minor clinical criteria and stigmata of the disease; to discuss therapeutic guidelines for the topical and systemic therapy of atopic dermatitis.
- 7. **Urticaria and angioedema, hereditary angioedema. Skin prick test.** Learning outcomes: to develop student's knowledge on the classification of various types of urticaria and angioedema, along with the corresponding diagnostic algorithm and current management options; to define methods of in vitro and in vivo allergy testing. To demonstrate and explain the principle and practical performance of skin prick test.
- 8. **Drug eruptions. Erythema multiforme, Stevens-Johnson syndrome, Toxic epidermal necrolysis.**Learning outcomes: to develop student's knowledge about hypersensitivity reactions to drugs, describe the morphology of the most common drug rashes, describe key features of the potentially life-threatening drug reactions, discuss therapeutic management of drug rashes.
- 9. **Psoriasis**. Learning outcome: to learn about the etiopathogenesis, clinical and histological features of psoriasis, clinical subtypes of the disease, topical and systemic treatment.
- 10. **Lichen planus. Erythroderma. Parapsoriasis**. Learning outcomes: to develop student's knowledge of various erythematosquamous disease, classification of erythroderma, differential diagnosis and therapeutic approach.
- 11. Autoimmune blistering diseases (Pemphigus, Bullous pemphigoid, Dermatitis herpetiformis). Learning outcomes: to develop student's knowledge of the pathogenesis of autoimmune blistering diseases, differences in their clinical, histopathologic and immunofluorescent features, therapeutic options; describe basic concepts of direct and indirect immunofluorescent analyses in the diagnosis of autoimmune skin diseases.
- 12. Autoimmune connective tissue diseases (Lupus erythematosus, Dermatomyositis, Scleroderma, Lichen sclerosus et atrophicus). Learning outcomes: to develop student's knowledge of autoimmune connective tissue diseases, differences in their clinical presentation, histopathologic and immunofluorescent features, current therapeutic options.
- 13. **Stasis dermatitis and leg ulcers**. Learning outcomes: to develop student's knowledge of chronic venous insufficiency, classification and differential diagnosis of leg ulcers, management of chronic wounds, use of color-doppler ultrasound of lower extremities.
- 14. **Petechiae, Purpura and Vasculitis**. Learning outcomes: to develop student's knowledge on the classification of cutaneous vasculitis, define different causes of bleeding in the skin, outline specific purpuric dermatoses, along with diagnostic and therapeutic algorithm.
- 15. **Syphilis (Lues)**. Learning outcomes: to develop student's knowledge of different stages of syphilis, diagnostic workup of the patient, performance and interpretation of serologic tests for syphilis, antibiotic treatment according to stage of the disease.
- 16. **Cutaneous manifestations of HIV infection**. Learning outcomes: to develop student's knowledge of HIV infection and skin manifestations of HIV/AIDS.

- 17. **Benign skin tumours, Melanocytic naevi**. Learning outcomes: to develop student's knowledge of benign tumours of keratinocytes, fibrous, adipose and vascular tissue, and naevi, use of dermatoscopy and ABCDE rule in the evaluation of pigmented skin lesions.
- 18. **Precancerous lesions, Basal cell carcinoma, Squamous cell carcinoma.** Learning outcomes: to develop student's knowledge of precancerous lesions (actinic keratosis, actinic cheilitis, leukoplakia) and non-melanoma skin cancer, differentiate various clinical and histologic subtypes of basal cell carcinoma, choose appropriate therapeutic options, acquire basic knowledge about photodynamic therapy and radiotherapy of skin tumours.
- 19. **Melanoma**. Learning outcome: to develop student's knowledge of melanoma cliniopathologic sutypes, diagnostic and prognostic features, specify treatment options of localised and widespread disease.
- 20. **Primary cutaneous lymphomas**. **Pseudolymphoma**. Learning outcome: to develop student's knowledge of skin lymphomas and pseudolymphomas clinical presentation, diagnostic workup, and treatment.

The list of seminars and practicals:

Seminars:

- 1. Irritant and allergic contact dermatitis. Dyshidrotic Eczema. Patch testing.
- 2. Asteatotic Eczema. Nummular Eczema (Nummular Dermatitis). Autosensitization Dermatitis (Id Reaction). Pruritus. Prurigo.
- 3. Photodermatoses. Phototherapy.
- 4. Vitiligo. Hair loss.
- 5. Acne. Rosacea and Periorificial dermatitis. Seborrheic dermatitis.
- 6. Ichthyoses and erythrokeratodermas. Palmoplantar keratodermas. Darier's disease (Keratosis Follicularis).
- 7. Panniculitis. Granuloma anulare. Sarcoidosis.
- 8. Gonorrhea. Chancroid.
- 9. Anogenital Diseases.
- 10. Epidermolysis bullosa. Neurofibromatosis. Tuberous sclerosis.

Practicals:

Specific practical diagnostic and therapeutic procedures used in dermatovenerology are incorporated into lectures and seminars. Practicals will include training of history taking, performing physical exam, demonstration of diagnostic and therapeutic procedures perfomed during routine clinical work.

Students' obligations:

Students are required to regularly attend all forms of classes (onsite and online). Absence from classes is compensated by an oral colloquium on a related topic.

Each student will be assigned two seminar topics to prepare as Power Point presentations and present them orally to other students (on separate dates, 10-15 minutes each presentation). All students are expected to actively participate in seminars through discussion on a defined topic. List of assigned reading for each seminar topic will be specified in the Merlin platform.

Assessment (exams, description of written / oral / practical exam, the scoring criteria):

Teachers will evaluate the work of students during classes and final exam. The final exam will consist of an online multiple-choice test within the Merlin platform and an oral exam performed on-site (or online via MS Teams platform, depending on the epidemiological situation). Each student must obtain at least 60% on the online multiple-choice test to qualify for the final oral part of the exam.

Scoring criteria: Seminar 20 (2 x 10) Each presentation will be scored as follows: presentations sufficient = 4 points, good = 6 points, very good = 8 points, excellent = 10 points Online multiple-20 number of correct answers = number of points (minimum choice test threshold is 12 points) Oral exam 60 Knowledge shown at the final oral exam will be scored as follows: sufficient = 30-36 points, good = 37-44 points, very good = 45-53 points, excellent = 54-60 points Total 100

Final scores are as follows:

A (excellent): 90 - 100% points

B (very good): 75 - 89,9%

C (good): 60 - 74,9%

D (sufficient): 50 - 59,9% F (insufficient): 0 - 49,9%

Other important information regarding to the course:

The course schedule and format may be subject to change depending on the current epidemiological situation and recommendations from our Institute of Public Health, Ministry of Science and Education and University of Rijeka.

COURSE SCHEDULE (for the academic year 2020/2021)

Date	Lectures (time and place)	Seminars (time and place)	Instructor
22.10.2020.	10-12 h (L1, L2)	(time and place)	Assoc.Prof. Sandra Peternel, MD, PhD
	Room P11 (KBCRI)		,
23.10.2020.	8-10 h (L3, L4) Room P11		Assoc.Prof. Sandra Peternel, MD, PhD
	(KBCRI)		
29.10.2020.	8-10 h (L5, L6)		Assoc.Prof. Sandra Peternel, MD, PhD
	Room P11 (KBCRI)		
29.10.2020.		12-15 h (S1, S2, S3) Room P11 (KBCRI)	Assoc.Prof. Sandra Peternel, MD, PhD
30.10.2020.	10-12 h (L7, L8)		Assoc.Prof. Sandra Peternel, MD, PhD
	Room P11		Assist.Prof. Tanja Batinac, MD, PhD
	(KBCRI) or online MS Teams		
05.11.2020.	8-10 h (L9, L10)		Assoc.Prof. Sandra Peternel, MD, PhD
33.11.2020.	Room P1		, 1330cm Fort Surface of Control, 1910, 1 110
	(MEDRI)		
	or online MS Teams		
06.11.2020.	10-12 h (L11 ,		Assoc.Prof. Sandra Peternel, MD, PhD
	L12)Room P9		
	(MEDRI) or online MS Teams		
11.11.2020.	10-12 h (L13 ,		Assoc.Prof. Sandra Peternel, MD, PhD
	L14)Room P9		Assist.Prof. Tanja Batinac, MD, PhD
	(MEDRI)		
11 11 2020	or online MS Teams	12 11 (61 65)	
11.11.2020.		12-14 h (S4, S5) Room P9 (MEDRI)	Katarina Dujmović-Hasanbegović, MD
12.11.2020.	8-10 h (L15, L16)		Assoc.Prof. Sandra Peternel, MD, PhD
	Room P1 (MEDRI)		
	or online MS Teams		
13.11.2020.	10-12 h (L17 ,		Assoc.Prof. Larisa Prpić-Massari, MD, PhD
	L18)Room P9		
	(MEDRI)		
16.11.2020.		13-15 h (S6, S7) Room P9 (MEDRI)	Assoc.Prof. Larisa Prpić-Massari, MD, PhD
17.11.2020.		8-10 h (S8, S9)	Assoc.Prof. Sandra Peternel, MD, PhD
		Room P13 (ORL)	
17.11.2020.	10-12 h (L19,		Assoc.Prof. Larisa Prpić-Massari, MD, PhD
	L20)Room P13		
19.11.2020.	(ORL)	11-12 h (\$10) Room	Katarina Dujmović-Hasanbegović, MD
13.11.2020.		P8 (MEDRI)	Ratarina Dujmovic-Hasanbegovic, IVID
		or online MS Teams	
24.11.2020.		CHC Rijeka, Dept. of	Assoc.Prof. Sandra Peternel, MD, PhD
	G 1-2 08:30-11:00	Dermatovenereology	Katarina Dujmović-Hasanbegović, MD
			Marijana Vičić, MD, PhD Nika Hlača, MD
25.11.2020.	P4 -6	CHC Rijeka, Dept. of	Assoc.Prof. Sandra Peternel, MD, PhD
	G 1-2 08:30-11:00	Dermatovenereology	Katarina Dujmović-Hasanbegović, MD
		3.	Marijana Vičić, MD, PhD
			Nika Hlača, MD

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27.11.2020.	P7 -9 G 1-2	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
01.12.2020.	P1 -3 G 3-4	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	MD
02.12.2020.	P4 -6 G 3-4	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
04.12.2020.	P7 -9 G 3-4	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
15.12.2020.	P10 -12 G 1-2	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
16.12.2020	P13 -15 G 1-2	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
18.12.2020	P16 -18 G 1-2	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
17.12.2020	P 10 -12 G 3-4	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
18.12.2020	P 13-15 G 3-4		CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
20.12.2020	P 16-18 G 3-4	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
19.01.2021	P19 -21 G 1-2	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
20.01.2021	P22 -24 G 1-2	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD
22.01.2021	P25 -27 G 1-2	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	MD
26.01.2021	P19 -21 G 3-4	08:30-11:00	CHC Rijeka, Dept. of Dermatovenereology	Assoc.Prof. Sandra Peternel, MD, Katarina Dujmović-Hasanbegović, Marijana Vičić, MD, PhD Nika Hlača, MD	PhD MD

27.01.2021	P22 -24	CHC Rijeka, Dept. of	Assoc.Prof. Sandra Peternel, MD, PhD
	G 3-4 08:30-1	L1:00 Dermatovenereology	Katarina Dujmović-Hasanbegović, MD
			Marijana Vičić, MD, PhD
			Nika Hlača, MD
29.01.2021	P25 -27	CHC Rijeka, Dept. of	Assoc.Prof. Sandra Peternel, MD, PhD
	G 3-4 08:30-1	L1:00 Dermatovenereology	Katarina Dujmović-Hasanbegović, MD
			Marijana Vičić, MD, PhD
			Nika Hlača, MD
02.02.2021	P28 -30	CHC Rijeka, Dept. of	Assoc.Prof. Sandra Peternel, MD, PhD
	G 3-4 08:30-1	L1:00 Dermatovenereology	Katarina Dujmović-Hasanbegović, MD
			Marijana Vičić, MD, PhD
			Nika Hlača, MD
03.02.2021	P28-30	CHC Rijeka, Dept. of	Assoc.Prof. Sandra Peternel, MD, PhD
	G 3-4 08:30-1	L1:00 Dermatovenereology	Katarina Dujmović-Hasanbegović, MD
			Marijana Vičić, MD, PhD
			Nika Hlača, MD

List of lectures and seminars:

	LECTURES (Tomics)	Tooching house	Location /Locations No. 5
	LECTURES (Topics)	Teaching hours	Location/Lecture room
L1	Basic science of the skin. Terminology of skin lesions. The skin exam.	1	Room P11 (KBCRI)
L2	Principles of dermatologic therapy. Basic dermatological surgery.	1	Room P11 (KBCRI)
L3	Bacterial skin infections. Lyme borreliosis	1	Room P11 (KBCRI)
L4	Viral infections	1	Room P11 (KBCRI)
L5	Fungal infections (Dermatophytes and yeasts). Infestations. Leishmaniasis.	1	Room P11 (KBCRI)
L6	Atopic dermatitis	1	Room P11 (KBCRI)
L7	Urticaria and angioedema, hereditary angioedema. Skin prick test.	1	Room P11 (KBCRI) or online MS Teams
L8	Drug eruptions. Erythema multiforme, Stevens-Johnson syndrome, Toxic epidermal necrolysis.	1	Room P11 (KBCRI) or online MS Teams
L9	Psoriasis	1	Room P1 (MEDRI) or online MS Teams
L10	Lichen planus. Erythroderma. Parapsoriasis.	1	Room P1 (MEDRI) or online MS Teams
L11	Autoimmune blistering diseases (Pemphigus, Bullous pemphigoid, Dermatitis herpetiformis)	1	Room P9 (MEDRI) or online MS Teams
L12	Autoimmune connective tissue diseases (Lupus erythematosus, Dermatomyositis, Scleroderma, Lichen sclerosus et atrophicus)	1	Room P9 (MEDRI) or online MS Teams
L13	Stasis dermatitis and leg ulcers	1	Room P9 (MEDRI) or online MS Teams
L14	Petechiae, Purpura and Vasculitis	1	Room P9 (MEDRI) or online MS Teams
L15	Syphilis (Lues)	1	Room P1 (MEDRI) or online MS Teams
L16	Cutaneous manifestations of HIV infection	1	Room P1 (MEDRI) or online MS Teams
L17	Benign skin tumours, Melanocytic naevi	1	Room P9 (MEDRI)
L18	Precancerous lesions, Basal cell carcinoma, Squamous cell carcinoma	1	Room P9 (MEDRI)
L19	Melanoma	1	Room P13 (ORL)
L20	Primary cutaneous lymphomas. Pseudolymphoma	1	Room P13 (ORL)

	SEMINARS (Topics)	Teaching hours	Location/Lecture room
S1	Irritant and allergic contact dermatitis.	1	Room P11 (KBCRI)
	Dyshidrotic Eczema. Patch testing.	_	D D44 (VDCDI)
S2	Asteatotic Eczema. Nummular Eczema (Nummular	1	Room P11 (KBCRI)
	Dermatitis). Autosensitization Dermatitis (Id Reaction).		
	Pruritus. Prurigo.		
S3	Photodermatoses. Phototherapy.	1	Room P11 (KBCRI)
S4	Vitiligo. Hair loss.	1	Room P9 (MEDRI)
S5	Acne. Rosacea and Periorificial dermatitis. Seborrheic	1	Room P9 (MEDRI)
	dermatitis.		
S6	Ichthyoses and erythrokeratodermas. Palmoplantar	1	Room P9 (MEDRI)
	keratodermas. Darier's disease (Keratosis Follicularis).		
S7	Panniculitis. Granuloma anulare. Sarcoidosis.	1	Room P9 (MEDRI)
S8	Gonorrhea. Chancroid.	1	Room P13 (ORL)
S9	Anogenital Diseases.	1	Room P13 (ORL)
S10	Epidermolysis bullosa. Neurofibromatosis. Tuberous	1	Room P8 (MEDRI)
	sclerosis.		or online MS Teams

	PRACTICALS (Topics)	Teaching hours	Location/Lecture room
1.	Recognition and description of cutaneous and visible mucous lesions.	30	CHC Rijeka, Dept. of Dermatovenereology
2.	Taking patient's history in dermatology and venereology.		
3.	Physical exam in the diagnosis of skin and venereal diseases.		
4.	Clinical scoring systems in dermatology (BSA, PASI, EASI, SCORAD, UAS7, SCORTEN).		
5.	Bedside diagnostics: vitropression, Nikolsky signs, Auspitz sign, Darier sign.		
6.	Bedside diagnostics: Wood light examination, skin and nail scrapings, Tzank smear.		
7.	Swab sampling in the diagnosis of venereal diseases.		
8.	Identification of fungi in KOH preparation of skin scrapings.		
9.	Fungal cultures on Sabouraud agar.		
10.	Identification of Sarcoptes scabiei in KOH preparation of skin scrapings.		
11	Identification of Leishmania in cytologic swabs and skin		
	biopsies.		
12	Dermatoscopy. Principles of digital follow-up.		
	Incisional and excisional skin biopsies, shaving biopsy, punch		
	biopsy.		
14.	Curettage, incision and drainage.		
	Color-Doppler ultrasound of lower extremities.		
	Skin prick test. Prick-to-prick test.		
	Provocation tests in the diagnostic workup of inducible		
	urticaria.		
18.	Epicutaneous (patch) test.		
	Direct and indirect immunofluorescent analyses in the		
	diagnosis of autoimmune diseases.		
20.	Trichogram, trichoscopy.		
21.	Methods in dermatopathology.		
22.	Principles of topical therapy.		
23.	Wound dressings and management of chronic wounds.		
24.	Intralesional therapy.		
25.	Cryotherapy, electrocautery.		
26.	Lasers in dermatology.		
	EpiPen - indications and practical use.		
	Phototherapy (narrowband UVB, PUVA, PUVA bath).		
	Photodynamic therapy.		
30.	Radiotherapy of skin tumours.		

	FINAL EXAM DATES
1.	23.02.2020.
2.	TBD
3.	TBD
4.	TBD
5.	