



**MUĞLA SITKI KOÇMAN UNIVERSITY**  
**FACULTY OF MEDICINE**

**2021-2022**

**ENGLISH PROGRAM**

**PHASE V**

**Department of Nuclear Medicine**

**CLERKSHIP GUIDEBOOK**

**CLERKSHIP LOG BOOK**

**CLERKSHIP PROGRAM**

**Prepared by Department of Nuclear Medicine**

## INTRODUCTION

**Dear Students,**

Welcome to the Nuclear Medicine clerkship program which is an important part of your education.

In this clerkship program, which is going to continue for 1 week, we aim to give the basic education of the clerkship program in all aspects of theoretical courses and practical applications. The present guideline describes what you will learn and perform about Nuclear Medicine Specialty during your clerkship, the rules you must follow in our clinic, and the working conditions. We wish you all success with the belief that the guideline will conduct you sufficiently through your clerkship studies.

<b>A. GENERAL INFORMATION</b>	
<b>Course Code</b>	MED 5022
<b>Course Title</b>	NUCLEAR MEDICINE
<b>Duration of the course</b>	1 week
<b>Theoretical Course duration (Hours)</b>	16 h
<b>Application Course duration (Hours)</b>	8 h
<b>AKTS</b>	1
<b>Year</b>	Phase V
<b>Level of Course</b>	Undergraduate (Bachelor)
<b>Required/Elective</b>	Required
<b>Program</b>	Faculty of Medicine (English)
<b>Language</b>	English
<b>Style</b>	Formal
<b>Teaching Methods:</b>	Theoretical lessons / Case Discussions / Learner-Centered Education Practices
<b>Recommended Legislation Reading:</b>	<ol style="list-style-type: none"><li>1. MSKÜ Ön Lisans ve Lisans Eğitim-Öğretim Yönetmeliği</li><li>2. MSKÜ Tıp Fakültesi Eğitim-Öğretim ve Sınav Yönetmeliği</li><li>3. MSKÜ Tıp Fakültesi Sınav Kılavuzu</li><li>4. Yükseköğretim Kurumları Öğrenci Disiplin Yönetmeliği</li></ol>

## B. TEACHING STAFF

<b>Head of the Department:</b>	Prof. Dr. Taner Erselcan
<b>Supervisor of the Clerkship Education Program</b>	Prof. Dr. Mustafa Yılmaz
<b>Supervisor of the Examinations and End of Clerkship Survey:</b>	Dr. Öğr. Üyesi Ozan Kandemir
<b>Teaching staff of the Clerkship Program:</b>	1. Prof. Dr. Taner Erselcan 2. Prof. Dr. Mustafa Yılmaz 3. Dr. Öğr. Üyesi Ozan Kandemir

## C. PHYSICAL SPACES

<b>Classrooms and Study Areas</b>	<p>Theoretical lessons; Faculty of Dentistry 2. floor classroom, Orhaniye Mahallesi, İsmet Çatak Cd.48000 Muğla</p> <p>Clinical Practise; Former hospital; Orhaniye Mahallesi, İsmet Çatak Cd.48000 Muğla Merkez</p>
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## D. OBJECTIVES- AIMS-LEARNING OUTCOMES OF THE CLERKSHIP PROGRAM

<b>Objectives:(MED- NUM-OBJ-...)</b>	<ol style="list-style-type: none"><li>1. To have knowledge about diagnostic nuclear medicine methods with or without imaging and treatment practices applied in the diagnosis and treatment of diseases within the scope of the national ÇEP and to benefit from these in pre-diagnosis of clinical pathologies common in our society.</li></ol>
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<p><b>Aims</b> (MED-NUM-AIM-...)</p>	<ol style="list-style-type: none"> <li>1. To teach radioactive rays and radioionizing beam sources</li> <li>2. To be able to define radioactive rays and radioionizing beam sources</li> <li>3. To introduce the methods and means of detection of radioionizing rays</li> <li>4. To teach the conscious use of radioionizing resources in terms of patient and employee safety</li> <li>5. To introduce visual or nonvisual diagnostic nuclear medicine methods and treatment applications applied in the diagnosis and treatment of diseases</li> <li>6. To teach nuclear medicine applications used in oncology and infectious diseases and make their practical applications.</li> <li>7. To teach the use of radioactive materials in treatment</li> </ol>
<p><b>Learning Outcomes</b> (MED-NUM-LO-...)</p>	<ol style="list-style-type: none"> <li>1. To be able to define radioactive rays and radioionizing beam sources</li> <li>2. To know biological effects of radiation and its effects on human health</li> <li>3. To know the detection methods radioionizing rays and to identify their tools</li> <li>4. Conscious radioionizing resources in terms of patient and employee safety</li> <li>5. To have information about the diagnostic of diseases, visual or non-image diagnostic nuclear medicine methods</li> <li>6. To know nuclear medicine applications used in oncology and infectious diseases and make their practical applications.</li> <li>7. To know the use of radioactive materials in treatment</li> </ol>

**PHASE V**

**NUCLEAR MEDICINE CLERKSHIP**

**MATRIX SHOWING THE RELATIONSHIP BETWEEN OBJECTIVES-AIMS-LEARNING  
OUTCOMES and THE COURSE SCHEDULE**

<b>COURSE SUBJECT</b>	<b>OBJECTIVES-AIMS and LEARNING OUTCOMES</b>
Introduction of Nuclear Medicine	MED-NUM-OBJ-...1 MED-NUM-AIM-...1 MED-NUM-LO-...1
Radioactivity, Radioactive beam types, Radioactive decay	MED-NUM-OBJ-...1 MED-NUM-AIM-...1 MED-NUM-LO-...1
Radionuclides used in nuclear medicine and obtaining them	MED-NUM-OBJ-...1 MED-NUM-AIM-...1 MED-NUM-LO-...1
Interaction of radioionizing rays with matter, biological effects and radiation protection	MED-NUM-OBJ-...1 MED-NUM-AIM-...3 and 4 MED-NUM-LO-...3 and 4
Detection of radioactive rays, scintigraphic methods	MED-NUM-OBJ-...1 MED-NUM-AIM-...2 MED-NUM-LO-...2
Endocrine system scintigraphies I	MED-NUM-OBJ-...1 MED-NUM-AIM-...5 MED-NUM-LO-...5
Endocrine system scintigraphies II	MED-NUM-OBJ-...1 MED-NUM-AIM-...5 MED-NUM-LO-...5
Renal scintigraphies I	MED-NUM-OBJ-...1 MED-NUM-AIM-...5

	MED-NUM-LO-...5
Renal scintigraphies II	MED-NUM-OBJ-...1 MED-NUM-AIM-...5 MED-NUM-LO-...5
Myocardial perfusion scintigraphy I	MED-NUM-OBJ-...1 MED-NUM-AIM-...5 MED-NUM-LO-...5
Myocardial perfusion scintigraphy II	MED-NUM-OBJ-...1 MED-NUM-AIM-...5 MED-NUM-LO-...5
Skeletal system scintigraphy and infection imaging	MED-NUM-OBJ-...1 MED-NUM-AIM-...5 and 6 MED-NUM-LO-...5 and 6
Radionuclide treatments I	MED-NUM-OBJ-...1 MED-NUM-AIM-...7 MED-NUM-LO-...7
Radionuclide treatments II	MED-NUM-OBJ-...1 MED-NUM-AIM-...7 MED-NUM-LO-...7
PET-CT in clinical practice	MED-NUM-OBJ-...1 MED-NUM-AIM-...2 MED-NUM-LO-...2

**PHASE V**  
**NUCLEAR MEDICINE CLERKSHIP**  
**COURSE SUBJECTS RELATED TO PHASE I-II-III and IV**

Endocrine system scintigraphies

Renal scintigraphs

Myocardial perfusion scintigraphy

Skeletal system scintigraphy and infection imaging

**E. ADDITIONAL INFORMATION**

<b>Duties and responsibilities of students</b>	<ol style="list-style-type: none"><li>1. During the course program (if no change is notified by the relevant faculty member during the clerkship period), students are expected to fully present for theoretical or practical application. According to the regulation, there is an attendance requirement of 70% in theoretical courses and 80% in applied courses in Phase V.</li><li>2. Although there is no directive of the medical faculty regarding dress, all students are expected to perform personal care and dress with a style and care worthy of a physician candidate during all practical and theoretical training hours.</li><li>3. It is expected to be worn a white coat in all practical trainings.</li></ol>
<b>Recommended Reading/ Studying materials</b>	<ol style="list-style-type: none"><li>1. Klinik Uygulamada Nükleer Tıp,Eds:T. Erselcan,F.Tamgaç,Ünal Kitabevi,2001</li><li>2. Nükleer Tıp editör,Ed:A.Mudun,Güneş Tıp Kitabevi,2015</li><li>3. Diagnostic Nuclear Medicine,Ed:Christian Schippers,ISBN:3-540-42309-5</li></ol>



**F. ASSESSMENT METHOD(S)  
CLERKSHIP FINAL EXAM EVALUATION**

\* It is compulsory to get at least 60 points from the written exam in order to take the practical exams in the clerkship exams.

\*\* With the condition of having at least 60 points in each stage of the clerkship exams, the final success grade is calculated as the arithmetic average of each stage.

<b>Exam type</b>	<b>Explanation (if any)</b>	<b>Contribution Value (%)</b>
<b>Multiple choice questions, Classical written exam,</b>	20 questions- multiple choice / Classical written exam	%50
<b>Practice exam</b>	Examination evaluation 5 questions	%50
<b>Total</b>		<b>100</b>

**H. ASSESSMENT METHOD(S)  
CLERKSHIP MAKE-UP EXAM EVALUATION:**

\* It is compulsory to get **at least 60 points** from the written exam in order to take the practical exams in the clerkship exams.

\*\* With the condition of having **at least 60 points** in each stage of the clerkship exams, the final success grade is calculated as the arithmetic average of each stage.

<b>Exam type</b>	<b>Explanation (if any)</b>	<b>Contribution Value (%)</b>
<b>Multiple choice questions, Classical written exam,</b>	20 questions-multiple choice / Classical written exam	%50
<b>Practice exam</b>	Examination evaluation 5 questions	%50
<b>Total</b>		<b>100</b>

**H. DEPARTMENT OF NUCLEAR MEDICINE STUDENT CLERKSHIP LOG BOOK:**

**STUDENT NAME SURNAME:  
NUMBER:**

**CLERKSHIP TERM:**

**Turn of Duty**

**Signature**

.../.../....

\_\_\_\_\_

.../.../....

\_\_\_\_\_

**PRACTICE**

**TEACHING STAFF (SIGNATURE)**

1. To be able to evaluate myocardial perfusion scintigraphy

2. To be able to evaluate bone scintigraphy

3. To be able to evaluate renal scintigraphy

4. To be able to evaluate endocrine system scintigraphies

5. To be able to interpret the results of screening and diagnostic examinations

**DECISION**

Sufficient

Insufficient

**Head of the Department  
or  
Supervisor of Clerkship**

**Signature**

## I.CHANGES TO THE PREVIOUS YEAR OF EDUCATION

<b>Are there any changes in the course schedule compared to previous year?</b>	No
<b>*Reasons for these changes</b>	<ol style="list-style-type: none"><li>1. Changes Based on Student Feedback</li><li>2. Changes Based on Faculty Member Feedback</li><li>3. Changes Based on Graduate Feedback</li><li>4. Reasons based on the Feedback of External Stakeholders</li><li>5. Changes Made According to the Academic Year Program Evaluation Report</li></ol>
<b>Are there any changes in the Clerkship guide and log book?</b>	No
<b>Are there any changes in the objectives- aims- learning outcomes of the clerkship program?</b>	No
<b>Are there any changes in the scoring of Medical Faculty Clerkship - Program Outcomes Matrix?</b>	No

## Medical Faculty Clerkship -Program Outcomes Matrix\*

The Name of the Clerkship	Py1	Py2	Py3	Py4	Py5	Py6	Py7	Py8	Py9	Py10	Py11	Py12	Py13
Nuclear Medicine	5	5	4	5	4	4	3	4	0	0	0	3	0

**\* Will be completed according to the following program outcomes. ( Score from 0 to 5.)**

1- To have detailed, updated and advanced level of information in the field of basic, clinical, and surgical medical sciences.

2- To be able to use the advanced theoretical and practical knowledge gained from basic, clinical, and surgical medical sciences To perform the first assessment of the patient encountered, to reveal differential diagnosis, ask for the necessary tests, to prescribe, arrange treatment plans, to plan disease management and to carry out post-mortem operations.

3-To communicate effectively with patients and patients' relatives and with units required according to the medical requirements. To inform people and organizations about issues related to the health field; transfer thoughts and suggestions verbally and written regarding the issue.

4- To take responsibility as an individual and as a team member to solve complex and unpredictable problems encountered in clinical practice, besides to construct independently, to develop a solution method, to solve and evaluate the results. To be able to reveal the public health problems, to apply and explain individual, organizational, social development ways for effective and efficient health services.

5- Planning and managing the activities related to the professional development of employees working under the responsibility of them.

6- To know and apply the laws and regulations related to health care.

7- To examine the concepts and ideas concerning basic, clinical and surgical medical sciences through scientific methods, to interpret and evaluate data, to identify problems, to be able to analyze, and develop solutions based on evidence and research.

8-To have scientific and ethical values when collecting, interpreting, disseminating and implementing data related to the health field, and also to teach these values and to check them.

9-To monitor current information and communicate with colleagues in the field by using a foreign language

10- To use computer software, information and communication technologies at a level required in the field

11- To value the universality of social rights, gain social justice consciousness, to have sufficient consciousness of environmental protection and occupational safety and quality management processes.

12-To gain the lifelong learning skills and to monitor the latest developments from the professional aspect.

13- To fulfill the responsibilities arising from the humanitarian, social and cultural values.

**2021 - 2022 ACADEMIC YEAR**

**PHASE V**

**NUCLEAR MEDICINE CLERKSHIP**

**GROUP ENG**

**TERM LENGTH: 1 WEEK**

**04 / 10 / 2021 - 08 / 10 / 2021**

**First Week**

Date	Time	T* / P*	ÖM*/ TD*	UÇEP Clause	UÇEP Learning Degree	Topic of the Lecture	Lecturer
<b>Monday</b> 04.10.2021	09:00 - 09:50	T			K	Introduction of Nuclear Medicine	Prof. Dr. Taner Erselcan
	10:00 - 10:50	T			K	Radioactivity, Radioactive beam types, Radioactive decay	Dr. Öğr. Üyesi Ozan Kandemir
	11:00 - 11:50	T			K	Radionuclides used in nuclear medicine and obtaining them	Dr. Öğr. Üyesi Ozan Kandemir
	11:50-13:30					<b>Advisory hour</b>	
	13:30—14:20					Elective Clerkship	
	14:30-15:20					Elective Clerkship	
	15:30-16:20					Elective Clerkship	
	16:30-17:20					Elective Clerkship	
<b>Tuesday</b> 05.10.2021	09:00 - 09:50	T		D2	K	Interaction of radioionizing rays with matter, biological effects and radiation protection	Prof. Dr. Mustafa Yılmaz
	10:00 - 10:50	T			T,K	Detection of radioactive rays, scintigraphic methods	Prof. Dr. Mustafa Yılmaz
	11:00 - 11:50	T		15,199	ÖnT-K-İ,T-A-K	Myocardial perfusion scintigraphy I	Dr. Öğr. Üyesi Ozan Kandemir
	11:50-13:30					<b>Advisory hour</b>	
	13:30-14:20	T		15,199	ÖnT-K-İ,T-A-K	Myocardial perfusion scintigraphy II	Dr. Öğr. Üyesi Ozan Kandemir
	14:30 - 15:20	P	OM	C6		Practice (working with image samples)	Dr. Öğr. Üyesi Ozan Kandemir
	15:30-16:20	P	OM		K	Nuclear Medicine Service introduction	Prof. Dr. Taner Erselcan
	16:30-17:20					Free Hour	
	09:00 - 09:50	T		49,232,312	ÖnT,A,TT-K	Renal scintigraphies I	Prof. Dr. Taner Erselcan
	10:00 - 10:50	T		49,312	ÖnT,A,TT-K	Renal scintigraphies II	Prof. Dr. Taner Erselcan
<b>Wednes</b> <b>Day</b> 06.10.2021	11:00 - 11:50	T		94,180,238	ÖnT, T-A	Skeletal system scintigraphy and infection imaging	Dr. Öğr. Üyesi Ozan Kandemir
	11:50-13:30					Free hour	
	13:30-14:20	T		105,304	ÖnT	Endocrine system	Prof. Dr. Mustafa

						scintigraphies I	Yılmaz
	14:30 - 15:20	P	OM	C6		Practice (working with image samples)	Prof. Dr. Taner Erselcan
	15:30- 16:20	P	OM	C6		Practice (working with image samples)	Dr. Öğr. Üyesi Ozan Kandemir
	16:30-17:20					Free Hour	
	09:00 - 09:50	T		126,141,142	ÖnT, T-K-İ, T-A-İ	Endocrine system scintigraphies II	Prof. Dr. Mustafa Yılmaz
Thursday 07.10.2021	10:00 - 10:50	T		206,268	ÖnT, ÖnT-K	Radionuclide treatments I	Prof. Dr. Mustafa Yılmaz
	11:00 - 11:50	T		180,303	ÖnT	Radionuclide treatments II	Prof. Dr. Taner Erselcan
	11:50-13:30					Free hour	
	13:30-14:20	T		7,39,188,20 6,213,268	ÖnT, ÖnT-K	PET-CT in clinical practice	Prof. Dr. Taner Erselcan
	14:30- 15:20	P	OM	C6		Practice (working with image samples)	Prof. Dr. Mustafa Yılmaz
	15:30 - 16:20	P	OM	C6		Practice (working with image samples)	Prof. Dr. Mustafa Yılmaz
	16:30-17:20					Free Hour	
Friday 08.10.2021	10:00 - 11:00					theoretical exam	
	13:30- 15:00					practical exam	

Total	Teorical (T)	16
	Practice (P)	7

**ÖM:** Learner Centered / **TD:** Community-Based

• **Note:** Advisory hour should be written every week between 12:30 and 13:20 on Mondays and Tuesdays.

## Checklist

	<b>1.</b> Have the clerkship guide and log book been filled?
	<b>2.</b> Has the matrix showing the relationship between the aims, objectives and learning outcomes and the courses been filled in?
	<b>3.</b> Has the vertical integration matrix of Phase 5 with previous periods been filled in?
	<b>4.</b> Has the clerkship program been completed? Has the UÇEP item(clause) and learning level been updated according to UÇEP 2020?
	<b>5.</b> Has the advisory hour been scheduled between 12:30 and 13:20 every week on Mondays and Tuesdays?
	<b>6.</b> Are public holidays left blank in the program?
	<b>7.</b> Is every week on Monday (13:30-17:20)between 13 September 2021 and 14 January 2022 left blank for the elective clerkship?
	<b>8.</b> Has the Core Diseases Excel file been updated according to UÇEP 2020?
	<b>9.</b> Has the Basic Medicine Practices Excel file been updated according to UÇEP 2020?