COURSE INFORMATION					
Course Title	*Code*	*Semester*	*Lecture+Practice+Labrotory Hour*	*Credits*	*ECTS*
Nuclear Medicine Training Program (Clinical Clerkship)	MED 516	Phase 5 / 9-10	19+5	2	2*

* ECTS credits are the university credits of the courses in Yeditepe University, Faculty of Medicine, Undergraduate Medical Education Program

Prerequisites	The student that joins this course, should completed Phase 1, 2 , 3 and 4 courses of medical faculty.

Language of Instruction	English
Course Level	Second Cycle including First Cycle Degree (One Tier Programme)
Course Type	Compulsory
Course Coordinator	Prof. Dr. Nalan Alan Selçuk, MD.
The instructors	Nalan Alan Selçuk, MD Prof. Emine Biray Caner, MD Prof. Emre Demirci, MD. Türkay Toklu, Ph.D.
Assistants	-
Goals	The course aims to equip necessary knowledge on nuclear medicine , working principles, nuclear physics, radiopharmacy, besides where, when and which technique is suitable or needed.

Learning Outcomes *At the end of this clerkship, the student should be able to:*	**Program Learning Outcomes**	**Teaching Methods**	**Assessment Methods**
1. ***List*** common indications for PET/CT and ***describe*** patient preperation of FDG PET/CT	1.1.7, 1.1.8, 1.1.9	1,2,3	A,C
2. ***describe*** diagnostic imaging of infection or tumor.	1.1.7, 1.1.8, 1.1.9	1,2,3	A,C
3. ***describe*** radionuclide therapy and its application areas	1.1.9	1,2,3	A,C
4. ***describe*** physics of nuclear medicine and methods of projection	1.1.8	1,2,3	A,C
5. ***describe*** gamma probe and its application method	1.1.8	1,2,3	A,C
6. ***describe*** basic scintigraphy reading techniques	1.1.8, 1.1.9	1,2,3	A,C

7. ***Demonstrate*** the ability to identify patient preparation requirements for specific diagnostic and therapeutic studies	1.1.10	1,2,3	A,C
8. ***Demonstrate*** knowledge of radiopharmaceuticals, their characteristics, and biodistribution that are used for specific nuclear medicine procedures.	1.1.10	1,2,3	A,C
9. ***Differentiate*** normal and basic pathological findings on common scintigraphy and PET images	1.1.10	1,2,3	A,C
10. ***Demonstrate*** the knowledge of personal radiation safety	1.1.7	1,2,3	A,C
11. ***make*** examination of thyroid gland	1.1.5	1,2,3	A,C

Teaching Methods:	1: Lecture, 2: Question-Answer, 3: Discussion
Assessment Methods:	A: Testing B: Presentation C: Homework

COURSE CONTENT

Week	Topics	Study Materials
1	**Introductory Session** (Introduction to Nuclear Medicine)	Materials for the course provided by the the instructor
2	**Lecture** Basic Radiation Physics and Radiation Detectors in NM	Materials for the course provided by the instructor
1	**Lecture** Imaging Techniques in NM	Materials for the course provided by the instructor
1	**Laboratory** Radiopharmaceuticals, Gamma Camera, PET/CT, Thyroid Uptake System	Materials for the course provided by the instructor
1	**Lecture** NM In Hyperthyroidism	Materials for the course provided by the instructor
1	**Lecture** Renal Scintigraphy	Materials for the course provided by the instructor
1	**Lecture** Lung Perfusion and Ventilation Scintigraphy (V/Q Scan)	Materials for the course provided by the instructor
1	**Lecture** Non-FDG PET Tracers	Materials for the course provided by the instructor
1	**Lecture** Bone Scintigraphy and Other Tumor Agents	Materials for the course provided by the instructor
1	**Lecture** Other Conventional NM Applications	Materials for the course provided by the instructor
1	**Lecture** Introduction to PET Imaging	Materials for the course provided by the instructor
2	**Lecture** FDG-PET in Cancer	Materials for the course provided by the instructor

3	**Clinical Experience** PET Imaging	Materials for the course provided by the instructor
2	**Lecture** Radionuclide Therapy	Materials for the course provided by the instructor
1	**Lecture** NM In Thyroid Cancer	Materials for the course provided by the instructor
1	**Lecture** Myocardial Perfusion Scan and Cardiological PET Applications	Materials for the course provided by the instructor
1	**Lecture** Brain Imaging and Neurological PET Application	Materials for the course provided by the instructor
3	**Examination**	Materials for the course provided by the instructor
2	**Program Evaluation Session** Review of the Exam Questions, Evaluation of the Program	Materials for the course provided by the instructor

RECOMMENDED SOURCES	
Textbook	1- Nuclear Medicine: The Requisites 2- Essentials of Nuclear Medicine Imaging, by Drs. Fred A Mettler and Milton
Additional Resources	Lecture notes

ASSESSMENT		
Questions Types (Pencil-Paper Tests)	**Proportion (in Pass/Fail Decision)**	**Questions Types (Pencil-Paper Tests)**
Multiple Choice Questions	60%	Multiple Choice Questions
Essay Questions	10 %	Essay Questions
Modified Essay Questions	10%	Essay Questions
Short Response Essay Questions	20%	Essay Questions
Total	100%	**Total**
Other Assessment Methods and Tools	**Proportion (in Pass/Fail Decision)**	**Other Assessment Methods and Tools**
Structured Oral Exam (SOE)	30%	Structured Oral Exam (SOE)
Direct Observation of Procedural Skills (DOPS)	15%	
Evaluation of Case Presentation (With Checlist)	20%	
Evaluation of Preparation Skills of Patient's File (With Checlist)	15%	
Global Evaluation of Student's Performance (With Checlist)	20%	
Total	100 %	**Total**
Pass/Fail Decision	**Proportion**	Pass/Fail Decision

		(in Pass/Fail Decision)	
Pencil-Paper Tests		70%	Pencil-Paper Tests
Other Assessment Methods and Tools		30%	Other Assessment Methods and Tools
	Total	%100	**Total**

MATERIAL SHARING	
Documents	Photocopy shareable.
Assignments	Not Shareable
Exams	Not shareable

COURSE CATEGORY	Expertise/Field Courses

COURSE'S CONTRIBUTION TO PROGRAM						
	PODG.1. Basic Professional Competencies	**Contribution**				
	POD.1.1. Clinical Competencies	**1**	**2**	**3**	**4**	**5**
PO.1.1.1.	***values*** preventive health services, ***offers*** primary prevention (i.e. prevention of diseases for the protection of health), secondary prevention (i.e. early diagnosis and treatment) tertiary prevention (i.e. rehabilitation) and quaternary prevention (i.e. prevention of excessive and unnecessary diagnosis and treatment) services, ***provides*** consultancy on these issues.					
PO.1.1.2.	***employs*** a patient-centered approach in patient management.			**X**		
PO.1.1.3.	***recognizes*** most frequently occurring or significant clinical complaints, symptoms, signs, findings and their emergence mechanisms in clinical conditions.				**X**	
PO.1.1.4.	***takes*** medical history from the applicant himself/herself or from the individual's companions.					
PO.1.1.5.	***does*** general and focused physical and mental examination.			**X**		
PO.1.1.6.	***interprets*** findings in medical history, physical and mental examination.				**X**	
PO.1.1.7.	***employs*** diagnostic procedures that are used frequently at the primary health care level.		**X**			
PO.1.1.8.	***selects*** tests that have evidence-based high efficacy at the primary health care level and ***interprets*** results.					
PO.1.1.9.	***makes*** clinical decisions using evidence-based systematic data in health care service.					**X**
PO.1.1.10.	***performs*** medical interventional procedures that are used frequently at the primary health care level.					
PO.1.1.11.	***manages*** healthy individuals and patients in the context of health care services.					
PO.1.1.12.	***keeps*** medical records in health care provision and ***uses*** information systems to that aim.					**X**
	POD.1.2. Competencies related to Communication					

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
Activities	Quantity/ day	Duration (Hour)	Total Workload (Hour)
Course Duration (1 week)	5	5	25
Hours for off-the-classroom study (Pre-study, practice, review/week)	5	3	15
Homework	4	2	8
Exam	1	2	1
Total Work Load			49
Total Work Load / 30 (h)			1.63
ECTS Credit of the Course			2