HOSPITAL RESIDENCY – FINAL TRAINING (ML0282)

1. language

English

2. course contents

Coordinator: Prof. Giovanni Gambassi

Year Course: 6th

Semester: First

UFC: 24

Modules and lecturers:

- Internal Medicine VI - ML0289 *(5 UFC) – SSD MED/09*

Proff. Giovanni Gambassi, Raffaele Manna, Roberto Pola, Angela Pia De Girolamo

- Internal Medicine VII - Sport Medicine ML0290 *(1 UFC) –– SSD MED/09*

Prof. Massimiliano Bianco

- Physics V-Modern Physics ML0286 *(1 UFC) – FIS/07*

Prof. Gabriele Ciasca

- Radiodiagnostics and Radiotherapy ML0288 *(4 UFC)* – SSD MED/36

Radiology: Proff. Claudia Dell'Atti, Roberto Iezzi, Anna Rita Larici, Riccardo Marano, Riccardo Manfredi, Pierluigi Rinaldi, Evis Sala
Nuclear Medicine: Proff. Alessandro Giordano, Lucia Leccisotti, Carmelo Caldarella
Radiotherapy: Proff. Maria Antonietta Gambacorta, Giancarlo Mattiucci, Francesco Cellini

- General Surgery VII ML0287 *(5 UFC) – SSD MED/18*

Proff. Sergio Alfieri, Francesco Ardito, Alberto Biondi, Paola Caprino, Andrea Di Giorgio, Fabio Pacelli, Valerio Papa, Giuseppe Quero, Jacopo Romagnoli, Luigi Sofo, Vincenzo Tondolo

Three of the modules combine structured activities of Professional Training

- Internal Medicine Professional Training ML0284 (2 *UFC*) – SSD MED/09
Proff. Francesco Franceschi, Emanuele Marzetti, Rosa Liperoti, Rossella Cianci, Antonella Gallo, Francesco De Vito

- Radiodiagnostics and Radiotherapy Professional Training ML0283 (3 *UFC*) – SSD MED/36
Proff. Daniela Di Giuda, Lucia Leccisotti, Silvia Chiesa, Nicola Dinapoli, Luca Tagliaferri, Paolo Belli, Luigi Natale, Giacomo Avesani, Carmelo Caldarella, Benedetta Gui, Giancarlo Savino,

Annarita Alitto, Stefania Manfrida, Valerio Lanni, Mariangela Massaccesi, Francesco Cellini

General Surgery Professional Training ML0285 (3 *UFC*) – SSD MED/18
Proff. Sergio Alfieri, Maria Vellone, Alberto Biondi, Giuseppe Quero, Claudio Fiorillo, Fausto Rosa, Alfonso Wolfango Avolio, Laura Lorenzon, Paola Caprino, Antonio Pio Tortorelli

3. bibliography

Internal Medicine – All of the documentation presented in classroom, including PPT, PDF, videos, movies, URL, websites etc. should be considered mandatory learning material and it will be made available to the students. The reference textbook for a more systematic learning is "*Current Medical Diagnosis and Treatment" – 61st edition Lange, 2022*. Although students are encouraged to consolidate and elaborate the learning from classroom material into more systematically treated textbook chapters, the acquisition of the textbook should only be considered optional.

Sport Medicine: Wilson MG, Drezner JA, Sharma S. *IOC Manual of Sports Cardiology.* Wiley-Blackwell, 2016.
Zeppilli P, Bianco M. *The ECG in Sports Medicine.* CESI ed., 2010.

Physics: Suzanne Amador Kane: *Introduction to Physics in Modern Medicine*. CRC Press, Taylor & Francis.

Radiology: Sala E, Freeman AH, Lomas DJ, Ringl H. *Radiology for Surgeons in Clinical Practice*. Springer, 2008.

Nuclear Medicine: Fanti S, Lopci E. *Diagnostic Nuclear Medicine and Radionuclide Therapy*. Società Editrice Esculapio

Radiation Oncology: Chao KSC, Perez CA, Wang TJC. *Radiation Oncology – Management Decisions.* Wolters Kluwer

General Surgery: Sabiston *Textbook of surgery: the biological basis of modern surgical practice.* 20th edition
DP McKellar, RB Reiling, B Eiseman. *Prognosis and outcome in surgical disease* - Quality Medical
Pub

4. learning objectives

Knowledge and understanding – The integrate course is geared toward the acquisition of the following knowledge and understanding:

- Integrated clinical care and management in emergency, sub-intensive, acute, continuing and transitional care
- Physiology and pathophysiology of physical exercise and sport activities
- Value and prescription of physical exercise in normal and pathological conditions
- Fundamental physical principles underlying medical technologies and their applications in clinical practice
- Appropriate use of diagnostic techniques, findings interpretation and integration into patient management.
- Knowledge of modern Radiation Oncology techniques applied to the treatments of malignant neoplasms
- Modern surgical care: indications, decisions, timing, strategies, approaches, techniques, complications

Applying knowledge and understanding – The students will learn how to apply and connect the knowledge to the understanding and applying them in the management of the most common clinical scenarios in the emergency, sub-intensive, acute, continuing and transitional care settings.

Making judgements – The students will develop abilities on how to autonomously make judgments and take decisions when facing the integrated clinical care and management of patients in diverse clinical scenarios. More specifically, the students will learn how to develop a list of differential diagnoses and to elaborate on the different elements that disregard some hypotheses, make some

less likely and instead lend support to others. The students will then develop the ability to strategize the approach to get to a conclusive diagnosis or to the choice of different therapeutic strategies.

Communication skills – The students will acquire the skills to illustrate critically clinical cases in the context of multidisciplinary teams. Furthermore, the students will become able to communicate care processes, clinical decisions as well as how to privilege patient-centered and value-based clinical care. The students will also learn how to present and contextualize risks and benefits of the different, modern diagnostic techniques, therapeutic approaches and surgical strategies.

Learning skills – The students will develop and mature abilities about how to consolidate and extend the breadth and depth of knowledge and learn about continuing medical education and how to stay atop in the rapidly evolving field of biomedical science. To this end, the students will master the search and evaluation of evidence from textbooks, articles as well as by using online platforms, programs and web-based applications.

5. PREREQUISITES

The students are requested to have background knowledge of physiopathology and of common clinical signs and symptoms, and an understanding of the most prevalent medical diagnoses along with basic clinical pharmacology. It is a prerequisite to also being able to describe principal diagnostic techniques and therapeutic options. As a general prerequisite, the students must have passed all the exams of the previous years.

6. teaching methods

The course will consist of traditional classroom lectures, case-based learning, interactive learning, E-learning and self-study along with autonomous and tutor-guided professional training in the diverse clinical units.

Knowledge and understanding – During classroom teaching the students will be stimulated to recapitulate the formerly acquired individual knowledges to go above and beyond and translate them into a new level of integration.

Applying knowledge and understanding – Either in class but even more specifically during the professional training, the students will be facilitated in the application of such level of integrative understanding to a complete and organic disentangling of uniquely complex and interconnected clinical scenarios.

Making judgements – Either in class but even more specifically during the professional training, the students will be asked to proactively participate in the clinical decision making at every step in the diagnostic and therapeutic management of the most common clinical scenarios. The students will be encouraged to confront with real clinical cases and with patients directly when indicated.

Communication skills – Students will be requested to play an active role during classroom teaching with questions and answers as well as in role-playing scenarios. During the professional training activities the students will be stimulated to present and discuss real clinical cases, to use the most appropriate scientific language and to nurture communication abilities in direct connections with patients.

Learning skills – Above and beyond the classroom teaching and the hands-on experience in the professional training, the students will be requested to take any opportunity for a more in-depth and systematic study of any of the relevant didactic content.

7. other informations

None

8. methods for verifying learning and for evaluation

The exam will be based on a cumulative written test with multiple-choice questions (MCQ) concerning all teaching modules. Some MCQ will explore a specific knowledge with a traditional format. For Internal Medicine and General Surgery, MCQ will be introduced by a clinical scenario and can include a series of questions as the case evolves in subsequent steps mimicking clinical reality.

Knowledge and understanding –The use of a written MCQ test will allow the possibility to verify the ability of the student to go above and beyond individual, separate knowledges and to translate them into a new level of clinical integration.

Applying knowledge and understanding – The utilization of real clinical scenarios will facilitate the application of such level of integrative understanding and will provide an estimate of the ability of a student to complete a disentangling of uniquely complex and interconnected clinical scenarios.

Making judgements – The use of a test with a series of MCQ in subsequent steps as the clinical case evolves will provide a mean to assess the student's clinical decision making at every step in the diagnostic and therapeutic management of the most common clinical scenarios.

Communication skills – The clinical cases presented will include role-playing scenarios. The test will verify the use by the student of the most appropriate scientific language and the communication abilities as in direct connections with patients.

Learning skills – The MCQ test will serve as mean to assess the ability of the student to complete a more in-depth and systematic study of any of the relevant didactic content.

The number of MCQ will be proportional to the number of CFU/hours of each teaching module with a distribution by discipline based on total CFU (average 6-7 per each CFU). The test is comprised of a total of 98 MCQ with a maximum time allocated of 180 minutes. Altogether, the final test will include:
30 MCQ for INTERNAL MEDICINE
7 MCQ for SPORT MEDICINE
7 MCQ for PHYSICS
30 MCQ for GENERAL SURGERY
24 MCQ for RADIODIAGNOSTICS subdivided in
7 MCQ for RADIOTHERAPY
7 MCQ for NUCLEAR MEDICINE
10 MCQ for RADIOLOGY.
One and only will be the correct choice for each quiz. To pass, the student should reach a threshold of correct answers above 50% in each discipline. More specifically, the thresholds will be the following: INTERNAL MEDICINE at least 16 correct (53%), SPORT MEDICINE at least 4 correct (57%), PHYSICS at least 4 correct (57%), GENERAL SURGERY at least 16 correct (53%), RADIOTHERAPY-NUCLEAR MEDICINE-RADIOLOGY at least 13 correct (54%).
The final vote will be derived based on the number of correct answers along the scheme below

53-54	18
55-56	19
57-59	20
60-62	21
63-65	22
66-68	23
69-71	24
72-75	25
76-80	26
81-84	27
85-88	28
89-91	29
92-94	30

95-98	30 L

9. program

Internal Medicine VI

GAMBASSI

Transient TIA and mitral valve mass
Chest pain, dyspnea and rash
Cardiomyopathy and recurrent ventricular tachycardia
Post-partum dyspnea and hypoxemia
Marked ventricular wall thickening
Fevers, fatigue, arthralgias, mouth ulcer and rash
Abdominal pain and aortic dilatation
Abdominal pain and hematochezia
Recurrent abdominal pain and bloody stool
Sudden cardiac arrest

MANNA

An adult patient with FUO
Fever of unknown origin (general rules of the diagnostic procedure based on different examples)
Recurrent fever 1 (hereditary periodic fevers)
Recurrent fever 2 (relapsing fevers, Fabry disease etc)
Recurrent abdominal pain with fever
Recurrent fever in patient with psychotic disorder
Febrile episodes, Leukopenia, and Pulmonary Infiltrates
Sore Throat, Fever, Myalgias, and a Pericardial Effusion
Fulminant ulcerative endocarditis

POLA

Deep vein thrombosis
Pulmonary embolism
Anticoagulation
Antithrombotic therapy
Cardiovascular risk factors and assessment of cardiovascular risk
Atherothrombotic diseases
Heart Failure
Updated evidence-based therapy for hypercholesterolemia, diabetes, heart failure, and ischemic cardiovascular diseases

Sport Medicine

- Physiology and pathophysiology of different kinds of physical activity and sport, with focus on cardiovascular system.
- Epidemiology and causes of sudden death in the athlete. Considerations on preventive measures.
- Physical activity and sport in patients with different pathological conditions of internal medicine interest.
- Notes on doping (and anti-doping): rules, effects on sports performance, side effects.

Modern Physics

- Introduction: particles, waves and the dual nature of light
- Elementary constituents: photons, electrons, positrons, protons, neutrons. Electronic shell structure of atoms
- Particle interaction with matter: Bethe-Bloch, radioactive, photoelectric effect, Compton scattering, pair production
- Methods of X-ray generation: X-ray tubes, radioactive sources, electron accelerators. Computer tomography (CT)
- Cyclotron, isotopes in medicine, Positron Emission Tomography (PET), Single Photon Emission CT
- Nuclear Magnetic Resonance: magnetic field, magnetic moment, magnetization, relaxation times: T1, T2 and T2*

Radiodiagnostic and Radiotherapy

Radiology

Introduction to Imaging

Imaging of lung pathologies
Cardiac imaging
Imaging of common abdominal diseases
Imaging of breast pathology
Imaging of the female and male pathology
Imaging of common MSK disorders
Common interventional procedures
Nuclear Medicine
Basic Principles of Nuclear Medicine, diagnosis
Basic Principles of Nuclear Medicine, therapy
Radiation Protection and Justification of radiation procedures
NM and Lung
Myocardial Perfusion Imaging (SPET and PET)
NM in Infection and Inflammation
NM in Gynecology
NM and Lymphoma
NM and Breast cancer
NM in Head & neck diseases + parathyroid diseases
NM in Brain diseases
NM in Prostate cancer
Radiation Oncology
General principles of modern External Beam Radiation Oncology
General principles of modern Brachytherapy
Radiation Oncology in gynecological malignancies
Radiation Oncology in rectal cancer
Technological evolution for target definition
Radiation Oncology in lung
Radiation oncology in breast cancer
Radiation Oncology in prostatic cancer
Technological evolution in the delivery phase
Radiation Oncology in the head-neck malignancies
Radiation Oncology in the upper gastro-intestinal malignancies

General Surgery VII
Achalasya of the esophagus: medical treatment vs operative treatment
Esophageal perforation: non operative, drainage, repair, other
Esophageal diverticulum: treatment options
Gastroesophageal reflux disease in adults: surgical therapy
Barrett's esophagus: operative management
Esophageal carcinoma: staging and multimodal therapy
Gastric ulcer: treatment of complications
Gastric carcinoma: staging and surgical treatment
Duodenal ulcer: treatment of complications
Gallstones: differential diagnosis, complications and surgical treatment
Adult obstructive Jaundice: differential diagnosis, complications and surgical treatment
Choledochal cyst: Todani Classification, treatment
Cholangiocarcinoma and sclerosing cholangitis: Differential diagnosis and surgical treatment
Acute pancreatitis: Step-up approach
Pancreatic and periampullary carcinoma: differential diagnosis and surgical treatment
Liver abscess: treatment options
Splenic trauma: indications and timing for surgical treatment
Apache II and ASA score to predict post operative mortality in elective laparotomy
Small bowel obstruction: differential diagnosis and treatment options
Crohn's disease: differential diagnosis and surgical treatment options
Ulcerative colitis: differential diagnosis and surgical treatment options
Diverticulitis of the colon: differential diagnosis and surgical treatment options
Large Bowel obstruction: differential diagnosis and treatment options
Volvulus of the colon: option treatment
Appendicitis: differential diagnosis and treatment options
Colon polyps: indication for surgical treatment
Colon carcinoma: indication for surgical treatment and options technique

Rectal carcinoma: surgical treatment vs no surgery: indications and options technique
Anal Carcinoma: surgery vs no surgery
Retroperitoneal mass: symptoms, differential diagnosis, surgical indication
Peritoneal carcinomatosis
Hyperthermic intraperitoneal chemotherapy (HIPEC) and Pressurized Intraperitoneal Aereosol Chemotherapy (PIPAC)
Anorectal abscess, fistula, in anal, pilonidal disease: surgical treatment
Adult groin hernias: different surgical techniques related to recurrence