Degree in Biomedical Laboratory Techniques

Teaching: Clinical practice 1
SSD: MEDS-26/A
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CFU: 20

PREREQUISITES
Are not expected

LEARNING OBJECTIVES
These are indispensable objectives
knowledge of physical, chemical and biological risks in order to guarantee the operator's safety in the context of laboratory medicine. Another important objective is the knowledge of the pre-analytical phase for the processing of biological samples, in compliance with the educational objectives of the professional profile.
These objectives will be achieved through a limited number of lectures and largely through practical activities in the laboratories of clinical microbiology, transfusion medicine, pathological anatomy, molecular biology and clinical biochemistry. The practical part involves interaction with the professional tutors in order to facilitate learning and to improve the ability to address and solve the main diagnostic questions of laboratory medicine

LEARNING OUTCOMES

(knowledge and understanding)
Knowledge and comprehension skills
By the end of this course, the student should be able to:
-Know and correctly apply current legislation on physical, chemical and biological risks
-Know and apply the correct management of laboratory waste disposal
-Know the main equipment located in laboratory medicine
-Knowledge of the main diagnostic kits used in laboratory investigations
-Knowledge and apply correct reagent stock management
-Knowledge of test tubes used in laboratory investigations
-Knowledge and correct management of the pre-analytical phase, aimed at assessing the suitability of biological samples
-Able to correctly manage the pre-analytical phase
-Be able to resolve non-conformities of biological samples

Applying knowledge understanding
At the end of the course, the student will be able to:
Use the preliminary laboratory knowledge acquired for the autonomous in-depth study of aspects related to the field of laboratory diagnostics, to which the student will devote himself/herself in the context of professional activity

Communications skills
By the end of the course, the student should know:
Use scientific terminology, specific to the field of laboratory medicine, in a manner appropriate to

the various laboratory contexts

Making judgements
By the end of the course, the student should know how to
make broad assessments of the topics covered in laboratory medicine

Learning skills
The student will have acquired learning skills and methods suitable for deepening and improving his or her skills in the area of basic knowledge of laboratory and pre-analytical hazards, including by consulting scientific literature

COURSE SYLLABUS
CLINICAL BIOCHEMISTRY
-Knowledge of behavioral norms regarding physical, chemical and biological risk
- Knowledge of personal protective equipment based on Legislative Decree 81/2008 and correct application of the same
- Knowledge and management of waste disposal
- Knowledge of the equipment in force in the laboratory
- Knowledge of diagnostic kits used in laboratory investigations
-Knowledge on the correct management of the reagent warehouse
-Knowledge of tubes used in laboratory investigations
- Knowledge and correct management of the pre-analytical phase, aimed at assessing the suitability of biological samples.

CLINICAL MICROBIOLOGY
-Knowledge of behavioral rules regarding physical, chemical and biological risk
- Knowledge of personal protective equipment based on Legislative Decree 81/2008 and correct application of the same
- Knowledge and management of waste disposal
- Knowledge of the equipment in force in the laboratory
- Knowledge of diagnostic kits used in laboratory investigations
-Knowledge on the correct management of the reagent warehouse
- Knowledge and correct management of the pre-analytical phase, aimed at assessing the suitability of biological samples.

PATHOLOGICAL ANATOMY
-Knowledge of behavioral rules regarding physical, chemical and biological risk
- Knowledge of personal protective equipment based on Legislative Decree 81/2008 and correct application of the same
- Knowledge and management of waste disposal
- Knowledge of the equipment in force in the laboratory
- Knowledge of diagnostic kits used in laboratory investigations
-Knowledge on the correct management of the reagent warehouse
- Knowledge and correct management of the pre-analytical phase, aimed at assessing the suitability of biological samples.

TRANSFUSION MEDICINE
- Knowledge of personal protective equipment based on Legislative Decree 81/2008 and correct application of the same
- Knowledge and management of waste disposal
-Knowledge on the equipment in force in the laboratory
- Knowledge of diagnostic kits used in laboratory investigations
-Knowledge on the correct management of the reagent warehouse
- Knowledge and correct management of the pre-analytical phase, aimed at assessing the suitability of biological samples.

MOLECULAR BIOLOGY
- Knowledge of personal protective equipment based on Legislative Decree 81/2008 and correct application of the same
- Knowledge and management of waste disposal
-Knowledge on the equipment in force in the laboratory
- Knowledge of diagnostic kits used in laboratory investigations
-Knowledge on the correct management of the reagent warehouse
- Knowledge and correct management of the pre-analytical phase, aimed at assessing the suitability of biological samples

COURSE STRUCTURE
The teaching is structured in 500 hours of practical laboratory activities and exercises, divided into daily 7-hour laboratory activities and scheduled according to the academic calendar. Each student is supported by a dedicated professional tutor. The students will rotate in the laboratories of microbiology and virology, transfusion medicine, pathological anatomy, clinical biochemistry and molecular biology, the time to be devoted to which is related to the training programmes and training objectives

COURSE GRADE DETERMINATION The verification of the students' preparation will take place by means of a practical examination structured as follows: there will be an evaluation form for each student in the various training areas, which will contribute to a final evaluation with a minimum score of 12 and a maximum of 20 points. The remaining 10 points will be awarded by the examination board through the practical test in the respective areas, for which there is a maximum score of 10 points per test. The exam will be passed with a minimum mark of 18/30 and a maximum of 30/30, with possible honours awarded by the board with a unanimous decision. The final mark is derived from the sum of the mark on the evaluation sheet and the average of the five practical tests in the various areas. To qualify for the examination, the student must have scored a minimum of 12 points on the evaluation sheet. During the test, the Board of Examiners will assess the student's ability to apply knowledge and will ensure that the skills are adequate to support and solve laboratory medicine-related problems. The following parameters will be assessed: applied knowledge and understanding, autonomy of judgement, communication skills and the ability to learn. Particular assessment focus will be on the student's ability to solve problems (case reports), assessment of manual skills, and knowledge and application of the correct technical-scientific language of laboratory methodologies.
Specifically, the examination will be assessed according to the following criteria:

Not suitable: Poor or lacking knowledge and understanding of the topics; limited capacity for analysis and synthesis, frequent generalizations of the requested contents; inability to use technical language.

18-20: Just enough knowledge and understanding of the topics, with obvious imperfections; just sufficient capacity for analysis, synthesis and autonomy of judgment; poor ability to use technical language.
21-23: Sufficient knowledge and understanding of the topics; sufficient ability to analyze and synthesize with the ability to reason with logic and coherence the required contents; sufficient ability to use technical language.
24-26: Fair knowledge and understanding of the topics; discrete ability to analyze and synthesize with the ability to rigorously argue the required contents; good ability to use technical language.
27-29: Good knowledge and understanding of the required contents; good ability to analyze and synthesize with the ability to rigorously argue the required contents; good ability to use technical language.
30-30L: Excellent level of knowledge and understanding of the required content with an excellent ability to analyze and synthesize with the ability to argue the required content in a rigorous, innovative and original way; excellent ability to use technical language

The final evaluation will be formulated from the sum of the score on the evaluation sheet and the average of the tests for the five areas.

OPTIONAL ACTIVITIES
The student will have to continually confront the tutor

READING MATERIALS
The student will be provided with teaching materials such as handouts, videos and presentations