

Academic Year: (2023 / 2024)

Review date: 02/06/2023 10:39:49

Department assigned to the subject: Mechanical Engineering Department, Transversal matters

Coordinating teacher: LUIS GARCÍA, JUAN

Type: Compulsory ECTS Credits : 6.0

Year : 4 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

- To have completed and passed the subject Forensic Sciences I.

OBJECTIVES

The abilities acquired by the students are the next:

- To apply correctly the methods, procedures and technics of research in order to resolve crimes.

To reach this goal is necessary to obtain the following results of learning:

- Knowing the methods, procedures and technics of research that, from the point of view of the current technology, help the resolve of crimes.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Ballistics and Instrumental Traces: Ballistics and Instrumental Traces refer to the scientific and technical study of firearms and their effects, as well as the analysis of the marks and traces produced at the crime scene or on objects related to a crime. This discipline includes the analysis of bullet trajectory, firearm identification, the evaluation of bullet effects on objects and living beings, as well as the analysis of tool marks, among other aspects. The main objective of ballistics and instrumental traces is to provide scientific evidence that helps to solve crimes and identify those responsible. This part includes:

- Tool marks.
- Exterior ballistics.
- Identifying ballistics.
- Functional ballistics.
- Effects ballistics.
- Wound ballistics.
- Footwear impressions and SICAR.
- Stolen vehicles.

2. Graphistics: Graphistics is the discipline that deals with the study and analysis of handwriting and written documents in general, with the aim of identifying their author or authors, determining their authenticity, and detecting any type of alteration or forgery. Graphologists use specific techniques and tools to analyze handwriting, such as observing the shape and size of letters, the inclination and pressure of writing, the speed and rhythm of writing, among other aspects. Graphistics is very useful in criminal investigations, as it can help identify the authorship of false documents or anonymous threats, and in other fields, such as historical research and authentication of works of art and important documents.

3. Acoustics and Image: Forensic acoustics and image are two scientific disciplines used in criminal investigations to analyze and examine sound and visual evidence related to a crime.

Forensic acoustics refers to the study and analysis of the acoustic characteristics of sounds and audio

recordings related to a crime, in order to determine the authenticity of the recording, identify the people speaking in it, establish the distance between the sound source and the microphone, and analyze other relevant aspects that can help in the investigation.

Forensic image, on the other hand, focuses on the analysis of images related to a crime, such as photographs, surveillance videos, security camera images, among others. Forensic image experts use specific techniques and tools to analyze the image, such as improving the quality of the image, analyzing the perspective and angle of the image, and identifying objects and people present in the image.

Together, forensic acoustics and image are useful in criminal investigations, as they can provide important evidence that can help identify the perpetrators of a crime and solve criminal cases.

4. Oral Trial: The oral trial is a judicial process in which a public debate is held in which the evidence and arguments of the parties involved in a case are presented to a judge or jury, in order to reach a final judgment. During the oral trial, the parties present their oral arguments, witnesses, and evidence before the judge or jury, who must evaluate all the information presented and make a final decision on the case.

The oral trial is a fundamental part of the justice system in many countries, as it allows for greater transparency and participation in the judicial process, and allows the parties involved to present their arguments and evidence in a public and fair debate. In addition, the oral trial allows for the final judgment to be more reasoned and fair, as it is based on the information presented and publicly discussed in the process.

5. The expert report: The expert report is a document prepared by an expert in a specific topic, in order to provide technical and scientific information that can be used in a legal process or ongoing investigation. The expert who prepares the expert report can be a forensic doctor, a ballistic specialist, an accountant, an engineer, or anyone who has technical and scientific knowledge in a specific subject.

The expert report is a very important document in criminal investigations and legal proceedings, as it can provide evidence that is fundamental to the case. In the expert report, the expert describes in detail the results of their analysis and tests, and provides their technical and scientific opinion on the subject matter. The expert report must be objective, impartial, and based on scientific and technical evidence.

The expert report is used by the judge, prosecutors, lawyers, and parties involved in the case as a tool to better understand the facts and to make informed decisions based on the information provided by the expert.

6. Quality of SECRIM: A quality report service is a set of processes and techniques used to ensure that expert reports and other technical documents produced by experts are of high quality and meet the required professional and legal standards. These services are very common in criminal investigations and legal cases, where expert reports can be very important to the outcome of the case.

Quality report services may include a thorough review of the report by subject matter experts, verification and validation of the data and information presented in the report, checking the coherence and logic of the arguments presented in the report, and confirmation that the report meets all legal and professional requirements.

In addition, quality report services may also include training and advice for experts on preparing expert reports and presenting their findings in court. This can help ensure that reports are clear, accurate, and complete, and that they are presented effectively in the legal process.

In summary, a quality report service is essential to ensure that expert reports and other technical documents are reliable, accurate, and relevant, and that they meet the required professional and legal standards in a legal case or criminal investigation.

LEARNING ACTIVITIES AND METHODOLOGY

Both face-to-face and non-face-to-face activities are included with teacher support.

Face-to-face ECTS: 2.4 credits out of 6 ECTS for each subject, or 1.2 credits out of 3 ECTS for each

subject, correspond to face-to-face work by the student with the support of teachers (lectures, problem-solving and doubt resolution classes in small groups, laboratory classes, student presentations).

Non-face-to-face ECTS: 3.6 credits out of 6 ECTS for each subject, or 1.8 credits out of 3 ECTS for each subject, correspond to personal work by the student (including study, completion of assignments, tests and exams, etc.).

50% of the training activities (3 ECTS in 6 ECTS subjects, or 1.5 ECTS in 3 ECTS subjects) are focused on acquiring theoretical knowledge. The remaining 50% is focused on acquiring practical skills related to the program of each subject.

Around 10% of face-to-face tutoring sessions are planned, and any queries from students can also be made asynchronously.

Finally, theoretical and practical knowledge will be complemented with visits to various organizations and institutions related to the subject matter.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	0
% of continuous assessment (assignments, laboratory, practicals...):	100

The evaluation system will be based on continuous evaluation through the completion of three partial exams throughout the semester. These exams will cover material that has been taught and may be complemented with practical assignments that will be weighted according to the criteria established for each module.

Each of the partial exams will be weighted as follows:

- Module I Exam: 33% of the final grade.
- Module II Exam: 33% of the final grade.
- Module III Exam: 34% of the final grade.

To pass the subject, students must obtain a minimum grade of 5 out of 10, taking into account the grade of the three partial exams according to the weighting described. In the event that students do not achieve a grade of 5, they must take a final exam covering the entire syllabus of the subject on the date scheduled in the final exams calendar.

The Department may carry out complementary activities that can add a maximum of 0.5 points to the final grade, which in no case can exceed the maximum of 10.

BASIC BIBLIOGRAPHY

- Antón Barberá, F., J.V. De Luis y Turégano Manual de Técnica Policial, Policia, 1991
- Bodziak, W.J. Footwear Impression Evidence, CRC Press, 2000
- BÁÑEZ PEINADO, José TÉCNICAS DE INVESTIGACIÓN CRIMINAL, Dykinson S.L., 2012
- Moreno González, L.R. Balística forense, Mexico, 1986
- Sáez Martínez, Julio CIENCIAS FORENSES II: Grafística. Fundamentos., Centro Universitario de la Guardia Civil, 2018
- VERON BUSTILLO, EMILIO JAVIER CIENCIAS FORENSES II (PARTE I): BALISTICA Y TRAZAS INSTRUMENTALES, CENTRO UNIVERSITARIO DE LA GUARDIA CIVIL, 2016

