MASTER CBRNe

Chemical, Biological, Radiological, Nuclear and explosive

Department of Industrial Engineering and School of Medicine and Surgery

TOR VERGATA
UNIVERSITY OF ROME

2nd Level Master Course in Protection against CBRNe events

12th Edition

ABOUT OUR MASTER

- More than 10 years of expertise
- International students
- Academic title released
- Synergy with companies and military entities
- More then 250 graduates
- 95% placement after graduation

THE BEST SERVICES

The complexity of the CBRNe events requires professionals that not only have the specific know-how, but also expertise in the relevant areas.

NATO Selected

Officially granted with the **"NATO selected"** status
Our courses are included in the NATO Education and Training Opportunities Catalog **(ETOC)**

Supported by OPCW

Our courses are supported by OPCW Organisation for the Prohibition of Chemical Weapons

Official Academic title

Our courses are the only ones that releases an **official academic title**.

CONTACT US

info@mastercbrn.it
www.cbrngate.com

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Master Course
12th Edition

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COURSE DESCRIPTION
PHASE 1

MODULE 1 – CBRNe threats between past and current challenges

MODULE 2 – International Cooperation for Crises, Emergencies & Disasters Preparedness and Management

MODULE 3 – Management of Outbreaks and Biological Releases Scenarios

MODULE 4 – CBRNe Events Management

MODULE 5 - Communication, Psychology, and Investigation in case of CBRNe events

MODULE 6 – Management of Nuclear Events and Radiological Scenarios

MODULE 7 – Management of Chemical Releases Scenarios (OPCW)

MODULE 8 – Risk analysis, CBRNe simulation: software, tools & methods

SICC CONFERENCE 2023

PHASE 2

Final Table Top Exercise (TTX)

PHASE 3

REMEDIAL SESSIONS

INTERNSHIP

FINAL THESIS

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COURSE DESCRIPTION

The pandemic situation related to the COVID-19 emergency has changed the education modality. The twelfth edition of the Second Level CBRNe Master course will be held in a hybrid modality telematic way (On-Line) on the dedicated eLearning platform and lectures in presence at the University of Rome Tor Vergata, in Rome.

The evolution of Safety and Security threats and their increase at an international level place remarkable focus on the improvement of emergency systems to deal with crises, including those connected to ordinary and non-conventional events (Chemical, Biological, Radiological, Nuclear, and explosive). In every industrial country, there are multiple entities with specialized teams in very specific fields, but the complexity of the events requires professionals that not only have specific CBRNeknow- how, but also expertise in relevant areas.
Given the global interest in these issues, the Department of Industrial Engineering and the Faculty of Medicine and Surgery of the University of Rome Tor Vergata organize the international Master Courses in "Protection against CBRNe events": 1st Level Master Course in "Protection against CBRNe events" (120 ECTS) and 2nd Level Master Course in "Protection against CBRNe events"(60 ECTS).
These courses aim at providing attendees with comprehensive competencies in the field of CBRNe Safety and Security, through teaching and training focused on real needs.

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COURSE DESCRIPTION

Both Master Courses are designed according to the spirit of the Bologna Process for Higher Education, the Italian law, and the educational System.

- **The Master Courses are organized also in cooperation with a number of entities, companies, and universities (click here)**

- **The Master Courses are sponsored by worldwide companies (click here)**

- **The training centers cooperating with the Master Courses are listed here**

The 2nd level Master Course has officially granted the "NATO selected" status

The 2nd level Master Course has been included in the NATO Education and Training Opportunities Catalogue (ETOC)

The 2nd level Master Course is officially supported by OPCW through a Cooperation Agreement

The 2nd level Master Course is officially part of the CEPOL Training Network

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COURSE DESCRIPITION

The 2nd Level Master Course aims at providing participants with appropriate technical, cognitive, and operational skills in order to educate and train key figures in the field of CBRNe risk.

In order to participate in the Master Course and obtain the official title, candidates must have a 300-ECTS Master's degree or equivalent.

“Equivalence” of degrees such as Military, Police, Fire-fighter Academy degrees, etc., will be assessed on a case-by-case basis by the University's competent bodies and the Master Course Steering Committee.

This Course aims at training professional “CBRNe Advisors of Decision Makers”.

At the end of the Course, attendees will obtain the “2nd Level Master Course in Protection Against CBRNe Events (60 ECTS)” degree.

The most important private companies operating in the CBRNe safety and security field support the Master Courses with their expertise. They have been involved in the didactic activities thanks to their experts and host the students for the period of the internship.

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COURSE DESCRIPITION

Among our lecturers, there are also subject matter experts from the University of Rome Tor Vergata and from all the entities officially involved in the Master Course activities.

Classroom lessons are complemented with: laboratory activities, case studies to be dealt with by working groups, visits, internships at collaborating international entities, and the preparation of the Master thesis (the best ones will be selected for publication in scientific journals).

Please, note that the modules may be subjected to a few changes (dates, the numbering of the modules, etc.) according to the availability of the lecturers involved and of the training centers cooperating with the Master Course.

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PHASE 1
MODULES

MODULE 1
CBRNE THREATS BETWEEN PAST AND CURRENT CHALLENGES

The aim of the introductive module is to provide a preliminary and common CBRNe background to the attendees. It supplies information about roles and competencies of advisors of the decision maker in case of CBRNe events, focusing on the best practices and international emergency response scenarios. This module will also provide a comprehensive overview of the different aspects relevant to CBRNe events prevention and response.

The attendees will be introduced to the Civilian and the Military reference frameworks and they will familiarize with the concept of operational and tactical level.

TEACHING POINTS

- Introduction to the 2nd Level CBRNe master course
- CBRNe: introduction to the threat
- CBRNe and Terrorism
- CBRNe terminology
- CBRNe in the Military environment
- CBRNe in the Civil Defense environment
- CBRNe: the NATO doctrine
- CBRNe in the Law Enforcement environment
- Who is a first responder - Roles and Duties
- CBRNe and Medical First Response

WHERE

University of Rome Tor Vergata
Room D15
Faculty of Medicine and Surgery,
Via Montpellier 1 - 00133 Rome

WHEN

9 - 13 January 2023

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PHASE 1
MODULES

MODULE 2
INTERNATIONAL COOPERATION FOR CRISES, EMERGENCIES & DISASTERS PREPAREDNESS AND MANAGEMENT

The aim of the module is to provide the student with basic concepts for the management of crises, emergencies, disasters and CBRNe events.
The documents provided at the end of the module facilitate the development of schemes and mental models that the student should use to organize and simplify their knowledge and classify concepts and notions.

By the end of the module, the student should be able to describe in broad terms main international organizations involved in the management of possible emergencies and disasters and their roles and responsibilities.

TEACHING POINTS

- Civil and military management of crisis and emergencies
- International Organizations in emergency and disasters preparedness and management
- International cooperation for emergencies and disasters management
- CBR agents and unconventional weapons overview
- Principles of CBRNe events management
- Principles of the Communication and Mass Media
- Medical maxi emergencies management

ONLINE

MS Teams

WHEN

6 - 10 February 2023

2nd Level
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UNIVERSITY OF ROME

PHASE 1
MODULES

MODULE 3
MANAGEMENT OF OUTBREAKS AND BIOLOGICAL RELEASES SCENARIOS

The aim of the module is to provide the student with a comprehensive overview of current and emerging biological hazards, risks and threats within the context of international policy, biological response measures and capabilities to face possible biological releases and outbreaks.
By the end of the module, the student should be able to: explain biological agents, their classification, characteristics, and effects; to describe the risks, hazards, and threats of biological agents, the safety and security within the context of international policy and main initiatives; to illustrate the capabilities and procedures to defeat, mitigate and manage biological agents' threats and possible releases.

TEACHING POINTS

- The history of biological weapons
- Classification and characteristics of agents, BWA, TIB, and dual-use
- Biological risks, hazards, and threats
- Basic Terrorism awareness, BIO terrorism
- Overview of international policy, principles, and main organizations
- Biological detection & identification, Management & decontamination
- Warning & reporting for outbreaks
- Physical protection

WHERE

University of Rome Tor Vergata

The classroom will be communicated via email before the start of the module

WHEN

6 -10 March 2023

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PHASE 1
MODULES

MODULE 4
CBRNe EVENTS MANAGEMENT

The aim of the module is to provide the students with the main and common aspects of CBRNe events preparedness and management in the context of international cooperation activities and initiatives.

By the end of the module, the student should be able to explain the main principles and aspects of CBRNe risks, hazards and threats, CBR agents characteristics, and possible main effects; to describe and explain general aspects, techniques, and procedures in the management of agents; to illustrate the international policy, main references, Civil-Military CBRNe preparedness & consequence management, cooperation initiatives and projects.

TEACHING POINTS

- Overview of CBRNe risks and threats
- CBRNe terrorism & CBRNe Intelligence
- CBRNe forensics and law enforcement
- CBRNe principles and response measures
- CBRNe warning and reporting during CBRNe events
- International CBRNe policy
- International non-proliferation initiatives and conventions
- International CBRNe cooperation initiatives and projects

ONLINE

MS Teams

WHEN

8 - 12 May 2023

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PHASE 1
MODULES

MODULE 5
COMMUNICATION, PSYCHOLOGY, AND INVESTIGATION IN CASE OF CBRNe EVENTS

The aim of the module is to: highlight and emphasize the main aspects of communication and information management providing the student with basic concepts and procedures to be taken into consideration and applied during emergencies and CBRNe events; highlight and emphasize the main aspects of investigation techniques management providing the student with basic concepts and procedures to be taken into consideration and applied during emergencies and CBRNe events.

By the end of the module, the students should be able to describe the main principles and techniques for an effective communication activity and planning for emergencies and CBRNe events management and should be able to explain the principles and concepts of the investigations

TEACHING POINTS

- Principles of the investigation
- Emergency communication and population awareness
- Application of investigation techniques and procedures
- Principles of communication and mass media
- Principles of communication
- Communication effectiveness
- Internal and external communication

Mass Media, New Media, and public perceptions

- Principles of investigation
- Investigation effectiveness
- Crime scene or CBRNe scene
- Investigation activities on the CBRNe scene

WHERE

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The classroom will be communicated via email before the start of the module

WHEN

12 - 16 June 2023

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PHASE 1
MODULES

MODULE 6
MANAGEMENT OF NUCLEAR EVENTS AND RADIOLOGICAL SCENARIOS

The aim of the module is to provide the student with a comprehensive overview of current and emerging nuclear and radiological hazards, risks, and threats within the context of international policies, response measures, and capabilities to face possible nuclear events and radiological scenarios.
By the end of the module, the student should be able to explain the radiological sources' classification, characteristics and effects and describe the historical developments in nuclear energy technologies.

By the end of the module, the student should be able to illustrate the capabilities and procedures to defeat, mitigate and manage radiological threats and possible scenarios.

TEACHING POINTS

- Radiological risks, hazards, and threats
- Basic Terrorism awareness, Nuclear terrorism, and radiological dispersal devices
- Nuclear treaties, non-proliferation initiatives and
- Security measures and cyber defense of critical infrastructures and laboratories
- Safety measures and procedures & Legal considerations
- Radiological detection & identification
- Warning and reporting of events
- Physical protection
- Hazard management, exposures records, decontamination

WHERE

University of Rome Tor Vergata

The classroom will be communicated via email before the start of the module

WHEN

17 - 21 July 2023

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PHASE 1
MODULES

MODULE 7
MANAGEMENT OF CHEMICAL RELEASES SCENARIOS (OPCW)

The aim of the module is to provide the student with a comprehensive overview of current and emergingchemical hazard, risks and threats within the context of international policies response measures andcapabilities to face possible releases of chemical agents.
By the end of the module, the students should be able to explain chemical agents, their classification, characteristics and effects.

By the end of the module, the student should be able to describe the risks, hazards, and threats of chemical agents, the CHEM safety, and security within the context of international policy and main initiatives; to illustrate the capabilities and procedures to manage chemical agents threats and possible releases.

TEACHING POINTS

- Classification and characteristics of agents, CWA, TIC, and dual-use
- Chemical agent's effects on health
- Basic Terrorism awareness, Chemical terrorism
- Overview of international policy, principles, and main organizations
- Chemical detection & identification
- Warning & reporting in case of release
- Chemical sampling and analysis
- Physical protection
- Hazard management & decontamination
- Legal consideration

ONLINE

MS Teams

WHEN

11 - 15 September 2023

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PHASE 1
MODULES

MODULE 8
RISK ANALYSIS, CBRNe SIMULATION: SOFTWARE, TOOLS & METHODS

Risk analysis and CBRNe simulations are key assets for CBRNe advisor of decision makers that have the duty to report information that are crucial for providing a proper risk analysis and evaluate the actions that have to be taken to prevent and face emergencies situation and to reduce risks. Through module 8, attendees will familiarize with different tool, software and methods for CBRNe hazards prediction, CBRN agent's diffusion and disaster management and toperform risk analysis.

The module will end with Team Technical Report (with supervision of university experts for every team). The student will learn to use free license tools for CBRNe events numerical prediction and to perform risk analysis

TEACHING POINTS

- Generality on CBRN Prediction
- Meteorology
- Dispersion models
- Risk evaluation
- Risk analysis
- Hot-Spot
- ALOHA
- WISER
- CBRN-Analysis-overview

WHERE

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The classroom will be communicated via email before the start of the module

WHEN

2 - 6 October 2023

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SICC CONFERENCE
Scientific International Conference on CBRNe
3rd Edition

TECHNICAL SESSIONS

SESSION 1 - Emergency management
SESSION 2 – Geopolitical, economical, and legal aspects related to CBRNe events and International Cooperation
SESSION 3 – Cybersecurity, artificial intelligence, data mining, big data analysis, and DSS applied to CBRNe
SESSION 4 – CBRNe training and education: classic approaches and modern ones through virtual and augmented reality and serious games
SESSION 5 – CBRNe medical emergencies, first aid, and pandemics management
SESSION 6 – Emergency communication and psychology
SESSION 7 – Safety, security, and strategies to protect critical infrastructures, numerical simulation, and methods for risk assessment and reduction
SESSION 8 – Radiological and Nuclear events: methods, instrumentation, protection/decontamination, and technological developments
SESSION 9 – Chemical and explosive events: methods, instrumentation, protection/decontamination, algorithms, and technological developments
SESSION 10 – Biological events and pandemics: methods, algorithms instrumentation, protection/decontamination, and technological developments
SESSION 11 – CBRNe forensic aspects
SESSION 12 – CBRNe new risks and challenges provoked by climate change, war, terrorism, and local conflicts

WHERE

Rome, ITALY

WHEN

September 2023

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PHASE 2
MODULES

FINAL TTX

A tabletop exercise (TTX) is a disaster preparedness activity that takes participants through the process of dealing with a simulated disaster scenario. A TTX is discussion-based and not only helps participants familiarize themselves with the response process, but enables administrators to gauge the effectiveness of the organization's emergency response practices.
Typically, a facilitator guides participants through the exercise, taking them through a particular narrative and discussing what steps should be taken. Potential scenarios for tabletop exercises include natural disaster and pandemic responses, but these may differ depending on the location of the organization and nature of the industry.

PURPOSE OF THE TTX

The purpose of a tabletop exercise is to evaluate an organization's preparedness for a particular disaster and to inform required participants of their roles in the response. Whether it is destruction to facilities, loss of personnel or data loss from cyberattack, a tabletop exercise goes through every aspect of response and the follow up the organization will need to do.

WHERE

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The classroom will be communicated via email before the start of the module

WHEN

19 - 23 February 2024

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PHASE 3
MODULES

REMEDIAL SESSION

March 2024
April 2024
May 2024

INTERNSHIP

The internship can be requested in one of the Institutions/Entities cooperating with the International Master Courses in Protection against CBRNe events.
It can be done at distance if the pandemic situation is not ended.

FINAL THESIS DISCUSSION

June 2024
July 2024
september 2024

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CONTACT US

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