



1st Level Master Course in Protection against CBRNe events 7th Edition

ABOUT OUR MASTER

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

CONTACT US

info@mastercbrn.it

www.cbrngate.com

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.



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COURSE DESCRIPTION

PHASE 1

MODULE 1 – CBRNe threats between past and current challenges

MODULE 2 – B Agents. Biological Warfare Agents, history, current challenges, properties, case study

MODULE 3 – Communication and Psychology

MODULE 4 – C Agents. HazMat, TIM and Chemical Warfare Agents introduction, history, chemical / physical properties, ERG introduction

MODULE 5 - R/N Agents. Radiological and nuclear agents' awareness, industry, medical & military

MODULE 6 – Investigation in case of CBRNe events

MODULE 7 – Medical Countermeasures, CBRNe First Aid

MODULE 8 – SICC CONFERENCE 2023

MODULE 9 – DSS software

MODULE 10 – e Agents, CBR IED and EOD, challenges, and case studies

MODULE 11 – C Agents: Chemical Warfare Agents detection, protection and decontamination operations (OPCW)

PHASE 2

Final Table Top Exercise (TTX)

Training activity in 4 international training centres

PHASE 3

REMEDIAL SESSIONS

INTERNSHIP

FINAL THESIS

COURSE DESCRIPTION

The pandemic situation related to the COVID-19 emergency has changed the education modality. The seventh edition First Level CBRNe Master course will be held in 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 training activities are planned for the second part of the course, if the emergency will not allow to do the training before the end of the Master, the students will be invited (even after the conclusion of the course) to join the training activities as soon as it will be possible.

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 CBRNe know-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 MasterCourses 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.



COURSE DESCRIPTION

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

- The Master Courses are organized also in cooperation with a number of entities, companies and university ([click here](#))
- The Master Courses are sponsored by worldwide companies ([click here](#))
- The training centers cooperating with the Master Courses are listed [here](#)

The 1st level Master Course has officially granted the “NATO selected” status

The 1st level Master Course has been included in the NATO Education and Training Opportunities Catalogue (ETOC)

The 1st level Master Course is officially supported by OPCW through a Cooperation agreement

The 1st level Master Course is officially part of the CEPOL Training Network

COURSE DESCRIPTION

The 1st 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 to the Master Course and obtain the official title, candidates must have a 180-ECTS.

Bachelor 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 competent bodies and the Master Course Steering Committee.

This Course aims at training professional “CBRNe First Responders”.

At the end of Course, attendees will obtain a “1st Level Master Course in Protection Against CBRNe Events (120 ECTS)” degree.

The most important private entities operating in the CBRNe safety and security field support the Master Course with their expertise. They are involved in the didactic activities through their experts and host the students for the period of the stage.

COURSE DESCRIPTION

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, numbering of the modules, etc.) according to the availability of the lecturers involved and of the training centers cooperating with the Master Course.

PHASE 1 MODULES



MODULE 1

CBRNE THREATS BETWEEN PAST AND CURRENT CHALLENGES

The aim of the introductory module is to provide a preliminary and common CBRNe background to the attendees. It supplies information about roles and competencies of first responders 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 1st 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

PHASE 1 MODULES



MODULE 2

B AGENTS. BIOLOGICAL WARFARE AGENTS, HISTORY, CURRENT CHALLENGES, PROPERTIES, CASE STUDY

Module 2 provides information on biological agents and their implication in Biological Warfare Agents production and use, natural outbreaks, epidemics, pandemics and consequences for first responders. Detection, decontamination and protective equipment for first responders are among the topics addressed. Finally, part of the didactic activity will focus on specific case studies for the analysis of gaps and best practices.

By the end of the module, the student should be able to illustrate the main characteristics and effects of B agents' release and principles.

TEACHING POINTS

- Biological risk - Generality
- Biological Convention - Generality
- Biological agent - Type and Characteristic
- Physical protection and decontamination in B environment
- Identification and detection of biological agents
- Biological laboratory – Types, characteristics and security level
- Bio-containment transport
- First response during a BIO event (case study)
- Bio sampling procedures – Lab. activities
- Ebola Outbreak (Case Study)



WHERE

University of Rome Tor Vergata

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

WHEN

16 - 20 January 2023



PHASE 1 MODULES



MODULE 3

COMMUNICATION & PSYCHOLOGY

Communication and psychology are key issues to help to prevent, face and manage CBRNe events and their consequences on population as well as operators on the field. First responders are the first to arrive on the scene and are those who will have a direct contact with the victims of a CBRNe event as well as with the components of other teams on the hotspot.

Having a good knowledge of the issues affecting psychology and communication at operational and tactical level are key components of an effective response.

The student will learn the main techniques and methods to communicate and investigate in case of CBRNe events.



TEACHING POINTS

- Cognitive psychology
- Analysis and evaluation of threats
- Communications skills
- Communication techniques
- Difference between communication of a journalist, a decision maker a first responders with the population



ONLINE

MS Teams



WHEN

13 - 17 March 2023

PHASE 1 MODULES



MODULE 4

C AGENTS (PART 1)

HAZMAT, TIM, AND CHEMICAL WARFARE AGENTS INTRODUCTION, HISTORY, CHEMICAL / PHYSICAL PROPERTIES

This module introduces the chemical risk related both to conventional (industrial or manmade incidents) and unconventional events.

It provides a description of the different agents, their way of action, prevention, and treatment. The module also investigates the international regulation related to the illicit production and use of chemicals as weapons as well as other regulations on the production, use and transportation of chemical agents and their precursors.

By the end of the module, the student should be able to illustrate the main characteristics and effects of C agents release and principles.



TEACHING POINTS

- Chemical risk – Generality
- Chemical Weapon Convention – Generality
- Chemical Warfare Agent- Types and characteristics
- Toxic Industrial Materials and Toxic Industrial Components
- Hazmat
- ERG introduction



ONLINE

MS Teams



WHEN

29 May - 1 June 2023

PHASE 1 MODULES



MODULE 5

R/N AGENTS. RADIOLOGICAL AND NUCLEAR AGENTS' AWARENESS, INDUSTRY, MEDICAL & MILITARY

The purpose of this module is to give a detailed definition of radiological and nuclear agents and the associated risks arising from the conventional and unconventional use of such agents. The students will understand clearly the differences between Radiological and Nuclear risks and achieve a good knowledge of dosimetry and bio-dosimetry. The attendees will also acquire theoretical and practical skills on techniques and instruments for radiological detection and identification.

They will familiarize themselves with protective equipment and decontamination procedures. They will receive background information on the international regulatory framework concerning nuclear and radiological agents use, transport, and stockpiling.



TEACHING POINTS

- Nuclear and Radiological Risk – Generality, Hazmat Hazmat awareness and DGR, ADR, IATA, ICAO.
- Ionizing Radiation characteristics
- Nuclear weapon/Dirty Bomb - Differences, characteristics, effects
- Introduction of R/N effects on the human body
- Generality on Radioprotection
- The Dosimeter - Type, characteristics and practical use
- Principles of detection
- Physical protection and decontamination in radiological environment
- Storage and disposal of radioactive waste
- Transport of radioactive material and irradiated nuclear fuel
- First response in dirty bomb incident (case study)
- First response in nuclear plant incident (case study)



WHERE

University of Rome Tor Vergata

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



WHEN

17 - 21 July 2023

PHASE 1 MODULES



MODULE 6 INVESTIGATION IN CASE OF CBRNe EVENTS

The investigation will be addressed in this module, to gain awareness on investigative requirements on the scene of a CBRNe event (be it of natural, industrial or malevolent cause), and minimize the impact of first responders operations on investigative issues.

Practical activities will complement frontal lessons.

The attendees will learn the main techniques and methods to investigate in case of CBRNe events.



TEACHING POINTS

- Investigation techniques
- Investigation activities and methods
- Hot zone: CBRNe first responders and police officers rules
- Intelligence skills
- Laboratory Activities to learn investigation fundamentals
- Practical investigations scenarios



WHERE

University of Rome Tor Vergata

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



WHEN

24 - 28 July 2023

PHASE 1 MODULES



MODULE 7

MEDICAL COUNTERMEASURES, CBRNE FIRST AID

Module 7 deals with medical aspects related to CBRNe events ranging from first aid to best practices and protocols for the management of medical CBRNe emergencies. This module is not only dedicated to professionals already working in the medical field but, first and foremost, to provide all the first responders with a clear overview of the mechanism governing the response to a CBRNe events from a medical point of view.

This aspect is crucial to smoothen cooperation between first responders working in and out of the potentially contaminated area in close contact with health care personnel.



TEACHING POINTS

- Hazardous material epidemiology
- Hospital CBRNe preparedness
- Department of Health competencies in Hazmat/CBRNe events and the National Antidotes Stockpile (SNA)
- Establishing and organizing a Hazmat/CBRNe Response Team
- Medical management of Hazmat Victims
- Medical management of victims of a Chemical warfare agents event
- Medical Management of Radiological Event Victims
- Medical Management of Biological Event Victims



ONLINE

MS Teams



WHEN

11 - 15 September 2023

PHASE 1 MODULES



MODULE 8 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

PHASE 1 MODULES



MODULE 9 DSS SOFTWARE

Decision Support Systems are a key tool in the hands of first responders and decision makers. Firstresponders have the duty to report information that are crucial for providing input data to DSS that will be used by decision makers to manage the scenario. Through module 10, attendees will familiarize with different software for CBRNe hazards prediction, CBRN agent's diffusion and disaster management. They will get to know the related limits and opportunities and will also practice on some of these tools to understand their working principle.

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.

TEACHING POINTS

- Generality on CBRN Prediction
- Meteorology
- Dispersion models
- What is a DSS software
- Hot-Spot
- ALOHA
- WISER
- CBRN-Analysis-overview



WHERE

University of Rome Tor Vergata

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

WHEN

2 - 6 October 2023



PHASE 1 MODULES



MODULE 10

Explosive Agents, CBR IED and EOD, challenges and case studies

Module 10 relates to the use of explosives as a mean to spread Chemical, Biological and Radiological agents. This module provides a technical overview of the different explosive agents and precursors, and information that are relevant for first responders, including their interplay with explosives professionals from civilian and military organizations.

By the end of the module, the student should be able to illustrate the main characteristics and effects of explosives.



TEACHING POINTS

- Explosives – Military and Civilian – an overview about them from history and media
- Explosives Ordinance Disposal (EOD)
- Improvised Explosives Devices (IED)
- Dirty Bombs (DB)
- Toxic Industrial Materials (TIM)
- Toxic Industrial Chemicals (TIC)
- Home Made Explosives (HME) and Precursors
- Explosive detection
- Disposal operation and render safe procedures – EU rules – Legal rules



ONLINE

MS Teams



WHEN

27 November - 1 December 2023

PHASE 1 MODULES



MODULE 11

C AGENTS (PART 2 - OPCW) CHEMICAL WARFARE AGENTS DETECTION, PROTECTION, AND DECONTAMINATION OPERATIONS

The aim of the introductory module is to provide a preliminary and common CBRNe background to the attendees. It supplies information about roles and competencies of first responders 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

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- 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

TBD



WHEN

TBD

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

University of Rome Tor Vergata

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



WHEN

19 - 23 February 2024

PHASE 2 TRAINING ACTIVITIES



TRAINING 1

Vinca Institute of Nuclear Sciences
Belgrade (Serbia)

TRAINING 2

JCBRN Defence CoE
Vyškov (Czech Republic)

TRAINING 3

7th CBRN REGIMENT "CREMONA"
Italian Army - Civitavecchia (Italy)

TRAINING 4

SIEBERSDORF Laboratories
(Austria)



WHEN

TBD according to the training centres availability.

PHASE 3 MODULES

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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

December 2024

April 2025

June 2025

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CONTACT US

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