UNSW Course Outline

ZPEM8102 Environment, Safety and the Regulatory Framework - 2024

Published on the 03 Jul 2024

General Course Information

Course Code : ZPEM8102
Year : 2024
Term : Semester 2
Teaching Period : Z2
Is a multi-term course? : No
Faculty : UNSW Canberra
Academic Unit : UC Science
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : UNSW Canberra at ADFA
Campus : UNSW Canberra
Study Level : Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This course describes the evolution and importance of regulations and legal context for explosive safety. It introduces dangerous goods (DG) and hazard classifications, and risk management standards and procedures. International philosophies of insensitive munition (IM)

policy are covered, leading to IM testing methods and criteria. Various approaches to achieving IM compliant formulations/systems are explained. The course also develops awareness of explosives in the environment and related issues such as environmental impacts, monitoring, disposal, remediation, demilitarisation and recycling of explosives, as well as the balance between environmental considerations and operational requirement. Enrolment in this course is only open to students nominated by the Department of Defence.

Course Aims

This is an elective course within the EO Masters. The aim of the course is to provide students with an overview of the extant domestic and relevant international regulations and policy covering the manufacture, logistics, usage and disposal of explosives and other explosive ordnance (EO); and the application of these principles to the design, manufacture, transport, storage and use of energetic materials and EO.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Demonstrate understanding of the regulations and legal context of explosives safety.
CLO2 : Demonstrate knowledge of classification of hazardous materials as they apply to explosives and risk management standards and procedures with respect to explosives
CLO3 : Demonstrate understanding of IM policy and compliance
CLO4 : Develop an awareness of explosives in the environment and demonstrate understanding of mitigation measures including monitoring, disposal, remediation and recycling.

Course Learning Outcomes	Assessment Item
CLO1 : Demonstrate understanding of the regulations and legal context of explosives safety.	• Assignment 1 • Assignment 2 • Assignment 3 • Assignment 4
CLO2 : Demonstrate knowledge of classification of hazardous materials as they apply to explosives and risk management standards and procedures with respect to explosives	• Assignment 2 • Assignment 4
CLO3 : Demonstrate understanding of IM policy and compliance	• Assignment 2 • Assignment 4
CLO4 : Develop an awareness of explosives in the environment and demonstrate understanding of mitigation measures including monitoring, disposal, remediation and recycling.	• Assignment 3 • Assignment 4

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | Echo 360 | Blackboard Collaborate

Learning and Teaching in this course

Explosive substances are essential part of ordnances and the safety of Defence personnels handling explosive ordnances (EO) is of paramount importance. The legal contexts of EO have evolved dynamically in modern days around the world and Australian Defence Force (ADF) has a key role to play under such dynamic circumstances. This course will introduce existing legal framework of EO safety in Australia and the ongong effort to update these frameworks. The course will also present insensitive munitions (IMs) as part of international philosophies of long term sustainability of EO. Additionally, EO hazard classification, risk management, environmental sustainability as well as cutting-edge remediation measures of EO will also be covered in this course.

The assignments designed in this course will help students to achieve the necessary background knowledge of EO safety as well as EO hazard classification, risk management, environmental sustainability as well as cutting-edge remediation measures to enable Australian Defence Force personnels play a key role in dynamically changing environment in EO.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Assignment 1 Assessment Format: Individual Short Extension: Yes (2 days)	20%	Start Date: 15/07/2024 12:01 AM Due Date: 11/08/2024 11:59 PM Post Date: 23/08/2024 10:30 PM
Assignment 2 Assessment Format: Individual Short Extension: Yes (2 days)	30%	Start Date: 12/08/2024 12:00 AM Due Date: 22/09/2024 11:59 PM Post Date: 04/10/2024 10:30 PM
Assignment 3 Assessment Format: Individual Short Extension: Yes (2 days)	20%	Start Date: 23/09/2024 12:00 AM Due Date: 18/10/2024 11:59 PM Post Date: 22/10/2024 11:30 PM
Assignment 4 Assessment Format: Group Short Extension: Yes (2 days)	30%	Start Date: 15/07/2024 12:00 AM Due Date: 25/10/2024 11:59 PM Post Date: 01/11/2024 05:30 PM

Assessment Details

Assignment 1

Assessment Overview

Assignment 1 is a short 3-5 page (1000 word) report on key complexities and obstacles in stipulating the Explosive Ordnance (EO) safety framework in Australia.

Course Learning Outcomes

- CLO1 : Demonstrate understanding of the regulations and legal context of explosives safety.

Detailed Assessment Description

Individual Assignment for LO1 (~1000 word excluding Figures, Tables and References; this is not a strict limit, please justify if you are going above or below this limit, 20%, due by week 4):

Assessment title: Report on key complexities and obstacles in stipulating the legal framework of explosive ordnance (EO) safety for Australian Defence Force

Weight: 20%

Due date: 11 August 2024 11:59 pm

Type: Individual Submission

Aligned CLO: CLO1

Assignment 1 is a short report on key complexities and obstacles in stipulating the EO safety regulations and their corresponding legal framework in Australia. Your understanding of the current explosive regulatory framework and legal context both in Australia and overseas as well as the need for proposed changes in the Australia's EO regulatory framework is crucial as a Defence personnel already working or potentially to work with explosive ordnance. This assignment will collate the knowledge and information relating to the scope of the existing EO safety policies and their legal framework applicable to Australian Defence Force's perspective.

A suggested guideline to structure your report is provided in Assessment details in the Moodle.

Assessment Length

1000 words

Submission notes

Please advise the lecturer if you are unable to meet the submission deadline due to medical or

other legitimate reasons

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Hurdle rules

To pass the course, you must pass (minimum 50%) the assignment 1

Assignment 2

Assessment Overview

Assignment 2 comprises of two short individual reports and 1 short assignment. The individual reports are focussed on insensitive munition policies (15%, 750 word) and risk management standards (10%, 500 word) relating to Explosive Ordnance (EO) in Australia. The short assignment is on classification and labelling procedure of selected munitions (5%, 250 word).

Course Learning Outcomes

- CLO1 : Demonstrate understanding of the regulations and legal context of explosives safety.
- CLO2 : Demonstrate knowledge of classification of hazardous materials as they apply to explosives and risk management standards and procedures with respect to explosives
- CLO3 : Demonstrate understanding of IM policy and compliance

Detailed Assessment Description

The second assignment is a series of three short individual reports. The topics of these reports are:

1. Insensitive munition (IM) policy in terms of their need and evolution or IM testing methods or IM compliant formulations/systems (due by week 8) (750 word excluding Table of Contents and references, this is not a strict limit, 15%)

Assessment title: Report on Insensitive Munition (IM) policy in the context of the legal framework of explosive ordnance (EO) safety for Australian Defence Force

Weight: 15%

Due date: 22 September 2024 11:59 pm

Type: Individual Submission

Aligned CLO: CLO1+CLO3

According to NATO STANAG 4439, Insensitive Munitions (IM) are defined as munitions that reliably fulfil their intended performance while minimise the probability of their inadvertent initiation and collateral damage. Over the last 50 years, the evolution of IMs has been influenced by the principles of Explosive Ordnance (EO) safety and their corresponding legal frameworks. Consequently, new testing methods, novel IM compliant formulations, systems, energetic molecules, new explosives as well as advanced materials were developed. Numerous reports and academic journals have been published illustrating the prospects of IMs as next-generation EO systems. The objective of this assignment is to report how the EO safety and legal frameworks have influenced the adoption/development/deployment/evaluation of IMs within Australian Defence Forces.

A suggested guideline to structure your report is given the assessment details in the Moodle.

2. Risk management standards and procedures for munitions from at least two different hazard sensitivity divisions currently in use by the Australian Defence Force (due by week 8) (500 word excluding Table of Contents and references \, this is not a strict limit, 10%)

Assessment title: Report on Risk Management (RM) standards and procedures in the context of activities involving munitions within Australian Defence Force

Weight: 10%

Due date: 22 September 2024 11:59 pm

Type: Individual Submission

Aligned CLO: CLO1+CLO2

Risks are inherent to activities involving explosives in the Defence force. The Australian Defence Force has incorporated national and international standards to identify and mitigate explosive related risks. The objective of this work is to illustrate how the existing Explosive Ordnance (EO) safety policies and their legal frameworks have overarching influence on the development of explosive related risk management plans and their implementation within the Australian Defence Force.

A suggested guideline to structure your report is given in the assessment details in the moodle.

3. Classification and labelling procedure of explosive substances as per Australian standards (due by week 8) (250 word, this is not a strict limit, minimum three hazard sensitivity divisions of

explosives to be illustrated, 5%)

Assessment title: Illustrate the classification and labelling of explosive substances as per Australian standards

Weight: 5%

Due date: 11 August 2024 11:59 pm

Type: Individual Submission

Aligned CLO: CLO2

The objective of this assignment is to demonstrate the students' capability to correctly interpret hazard classifications and labels used for explosive substances during their intended use as currently implemented in the Australian Defence Force.

A suggested guideline to structure your report is given in the assessment details in the moodle.

Assessment Length

Insensitive munitions-750 word, risk management-500 word, classification-25 word

Submission notes

Students will receive their mark for this assignment in the individual submission box.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Hurdle rules

To pass this course, you must pass (at least 50%) in this assignment.

Assignment 3

Assessment Overview

The assignment 3 is a pre-recorded 10 minute presentation (equivalent to 1000 word) by the students illustrating existence of explosive substances in the environment, their harmful impact on human health as well as current remediation measures to mitigate the harmful impacts of explosive substances. Students will choose any explosive ordnance containing explosive substances currently in use or previously used for their pre-recorded presentation. They will also highlight the influences of EO safety policies stipulating the clean-up and remediation of

explosives in environment.

Course Learning Outcomes

- CLO1 : Demonstrate understanding of the regulations and legal context of explosives safety.
- CLO4 : Develop an awareness of explosives in the environment and demonstrate understanding of mitigation measures including monitoring, disposal, remediation and recycling.

Detailed Assessment Description

Assessment title: Presentation on awareness of explosives in environment, their harmful impact on human health and current mitigation measures in the context of the of explosive ordnance (EO) safety regulation and their existing legal framework in Australia

Weight: 20%

Due date: 18 October 2024 11:59 pm

Type: Individual Submission

Aligned CLO: CLO1+CLO4

Length: **10 minutes (This will be pre-recorded presentation by the students and please do not exceed the 10 minute limit)**

The third assignment (20%) is designed to consolidate your knowledge on existence of explosive substances in the environment, their harmful impact on human health as well as to strengthen your knowledge on the remediation measures to mitigate the harmful impacts of explosive substances. The objective of this presentation is to highlight how the explosive ordnance (EO) safety regulation and their legal framework in Australia have implications in increased awareness of existence of explosives in environment, increased knowledge of their harmful impacts on human health as well as their clean-up and remediation measures.

A suggested guideline to structure your presentation is given in the assessment details in Moodle.

Assessment Length

10 minutes pre-recorded presentation

Submission notes

As this is a pre-recorded presentation, the time limit of 10 minutes will be applied strictly

Assignment submission Turnitin type

This is not a Turnitin assignment

Hurdle rules

To pass this course, you must pass (at least 50%) this assignment.

Assignment 4

Assessment Overview

Assignment 4 is a group report. Students will choose real-life scenarios such as transport, military drills employing explosive ordnance (EO), production or storage of ammunitions or any other relevant scenarios involving explosives currently in practice by the Defence force. Students will then demonstrate how the existing EO safety policies are implemented in their chosen cases. The knowledge and information gained via assignments 1-3 as well as effective communication and teamwork will be useful to produce this group report (30%, 1500 word).

Course Learning Outcomes

- CLO1 : Demonstrate understanding of the regulations and legal context of explosives safety.
- CLO2 : Demonstrate knowledge of classification of hazardous materials as they apply to explosives and risk management standards and procedures with respect to explosives
- CLO3 : Demonstrate understanding of IM policy and compliance
- CLO4 : Develop an awareness of explosives in the environment and demonstrate understanding of mitigation measures including monitoring, disposal, remediation and recycling.

Detailed Assessment Description

Assessment title: Report on real-life implications of the explosive ordnance (EO) safety regulations and their corresponding legal frameworks as applicable to the Australian Defence Force

Weight: 30%

Due date: 25/10/2024 11:59 pm

Type: Group Submission

Aligned CLO: CLO1+CLO2+CLO3+CLO4

Length: 7-8 pages (1500 word excluding Figures, Tables, Table of Content, References and Appendices; this is not a strict limit, please justify if you are going above or below this limit)

As a group, your understanding of the current explosive regulatory framework and legal context both within Australia and overseas as well as your capability to demonstrate their application in real-life scenarios relevant to Australian Defence Force will be tested in this assignment. The objective of this assignment is to demonstrate, from the viewpoint of a group, the application of EO safety regulations and corresponding legal frameworks into real-life scenarios within the Australian Defence Force (ADF).

Students will choose scenarios such as transport, military drills employing explosive ordnance (EO), production or storage of ammunitions or any other relevant scenarios involving explosives currently in practice by the Defence force. Students will then demonstrate how the existing EO safety policies are implemented in their chosen cases using the shared knowledge, information and feedback gained via assignments 1-3 as well as effective communication and collaboration.

A suggested guideline to structure your report is given in the assessment details in the Moodle.

Assessment Length

1500 word

Submission notes

Please submit one report per group

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Hurdle rules

Students need to at least pass (at least 50%) this assignment as a group to pass the course

General Assessment Information

APA referencing style is the recommended style for this course (https://www.student.unsw.edu.au/how-cite-references-apa-style). In every third week we will discuss on MS Teams regarding the assignment submissions. There will also be discussion forums in moodle for students to discuss issues related to group and individual assignments.

For all assessment tasks in this course, you may use standard editing and referencing software, but not generative AI. You are permitted to use the full capabilities of the standard software to answer the question (e.g. you may wish to specify particular software such as Microsoft Office suite, Grammarly, etc.).

If the use of generative AI such as ChatGPT is detected, it will be regarded as serious academic

misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

Grading Basis

Standard

Requirements to pass course

Students must pass the three assignments individually (pass mark at least 50%) to pass the course

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 15 July - 19 July	Lecture	EO Policies in Australia (Introduction to Learning outcome 1 and assignmnent 1, prerecorded lecture on EO policies)
Week 2 : 22 July - 26 July	Seminar	Panel Discussion with Kate Biddington (Australian Defence Force) on thematic review of EO policies in Australia (24 July: 10.30 am - 12 pm)
Week 3 : 29 July - 2 August	Other	Recap on panel discussions and specific discussions on the Assignement 1 Items for Learning Outcome1 (LO1)
Week 4 : 5 August - 9 August	Other	Assignment 1 Submission Week (no class)
Week 5 : 12 August - 16 August	Lecture	Introduction to learning outcomes 2 and 3 as well as assignment 2, prerecorded lecture on Insensitive munitions, prerecorded lecture on Australian standards for EO risk management and prerecorded lecture on classification and labelling of explosives
Week 6 : 19 August - 23 August	Seminar	Panel discussion on Insensitive munitions testing and EO classification in Australia (20 August 2024, 10:30 am to 12 pm and Presenter: Colonel Matt Dwyer)
Week 7 : 9 September - 13 September	Other	Recap on panel discussions and specific discussion on the Assignment 2 items for Learning Outcomes 2 and 3 (LO2+3)
Week 8 : 16 September - 20 September	Other	Assignment 2 submission week (no class)
Week 9 : 23 September - 27 September	Lecture	Introduction to Learning Outcome 4 and assignment 3, prerecorded lecture on awareness of explosives in environment and mitigation measures
Week 10 : 30 September - 4 October	Seminar	Panel discussion with Professor Tracey Temple (Cranfield University UK) on current remediation practices for explosive substances in the environment (1/10/2024: 6 pm-7:30 pm)
Week 11 : 7 October - 11 October	Other	Recap on panel discussion and specific iscussion on Assignment 3 items for Learning Outcome 4 (LO4)
Week 12 : 14 October - 18 October	Presentation	Presentation of Assignment 3 (pre-recorded)
Week 13 : 21 October - 25 October	Other	Final group Assignment 4 submission

Attendance Requirements

Students are expected to watch prerecorded lectures prior to attend the live discussion sessions (weeks 3, 7 and 11) or send their queries online. From 26 August to 6 September 2024, there will be no class as it it the mid semester break.

General Schedule Information

Depending on the availabilities of the presenters from the Australian Defence Force (ADF) and

industries, there could be two more panel discussions in Risk Management Standards and Procedures in Week 6 and in current remediation practices in Week 10. Students will be notified in prior if these additional panel discussions take place.

Course Resources

Prescribed Resources

Chemistry of high-energy materials

Author: Klapo tke,Thomas M.; **Type:** Book; **Pages:** xviii, 516 pages :; **Edition:** 6th edition.; **Publication date:** 2022; **Publisher:** De Gruyter; **ISBN:** 9783110739497; **LCCN:** 2022935902; **OCLC number:** (aucnlkin)72857707; **Place of publication:** Berlin ; Boston :; Berlin ; Boston :; **Notes:** Includes bibliographical references and index.; **Available At:** Academy Library Canberra Canberra High Use Collection TP270 .K5313 2022;

Test methods for explosives

Author: Suceska, Muhamed; **Type:** Book; **Pages:** ix, 225 p. :; **Publication date:** c1995; **Publisher:** Springer; **ISBN:** 0387945555; **LCCN:** 95019429; **Place of publication:** New York :; **Notes:** Includes bibliographical references (p. [216]-221) and index; **Available At:** Academy Library Canberra Top Floor, General TP 270 .S876 1995;

Chemical weapons destruction and explosive waste : unexploded ordnance remediation

Author: Noyes, Robert; **Type:** eBook; **Pages:** 1 online resource (xv, 235 pages) :; **Publication date:** 1996; **Publisher:** Noyes Publications; **ISBN:** 9780815514060; 0815514069; 9780815516415; 081551641X; **OCLC number:** (ocolc)281594832; **Place of publication:** Park Ridge, NJ :; **URL:** Elsevier; **Notes:** Includes bibliographical references (pages 222-228) and index.;

Ecotoxicology of explosives

Additional person name: Sunahara, Geoffrey I.; **Type:** eBook; **Pages:** xxvii, 325 p. :; **Publication date:** [2009]; **Publisher:** CRC Press; **ISBN:** 9781420004342; **OCLC number:** (OCoLC)431354290; (FlBoTFG)CRC00002839PDF; **Place of publication:** Boca Raton, Fla. :; **URL:** https://unsw.alma.exlibrisgroup.com/view/uresolver/61UNSW_INST/openurl?ctx_enc=info:ofi/

enc:UTF-8&ctx_id=10_1&ctx_tim=2023-05-08T11%3A01%3A35IST&ctx_ver=Z39.88-2004&url_ctx_fmt=info:ofi/fmt:kev:mtx:ctx&url_ver=Z39.88-2004&rfr_id=info:sid/primo.exlibrisgroup.com-UNSW_ALMA&rft_dat=ie=61UNSW_INST:51220371350001731,language=eng,view=UNSWS&svc_dat=viewit&u.ignore_date_coverage=true&env_type=test; **Notes:** Includes bibliographical references and index.; **Public note:** Please read through Chapters 1 - 13.;

CLEANUP OF CHEMICAL AND EXPLOSIVE MUNITIONS: LOCATION, IDENTIFYING CONTAMINANTS, AND PLANNING FOR EN

Author: Albright, Richard D.; **Type:** Book; **Publication date:** 2011; **Publisher:** WILLIAM ANDREW PUBLISHING; **ISBN:** 9781437734782; **Place of publication:** PARK RIDGE;

High Energy Materials: Propellants, Explosives and Pyrotechnics

Author: Agrawal, J. P. **Type:** Book; **Publication date:** 2010; **Publisher:** Wiley-VCH Verlag GmbH & Co.KGaA, **Place of publication** Weinheim **ISBN:** 978-3-527-32610-5

Recommended Resources

Suggested Reading List for Learning Outcome 1 (LO1):

Explosives Act 1961

Type: Website; **URL:** https://www.austlii.edu.au/cgi-bin/viewdb/au/legis/cth/consol_act/ea1961157/;

Explosives Transport Regulations 2002

Author: Department of Defence; **Type:** Legislation; **Publication date:** 15 April 2024; **Publisher:** Commonwealth of Australia; **URL:** https://www.legislation.gov.au/F2002B00091/latest/text;

Explosives Areas Regulations 2003

Author: Commonwealth of Australia - Department of Defence; **Type:** Legislation; **Publication date:** 4 December 2003; **URL:** https://advance.lexis.com/api/permalink/b079f2da-b9e5-4ab7-a14a-85cc9c176fdd/?context=1201008&federationidp=TNCHFB52729;

Thematic Review of Commonwealth Explosives Legislation:- Comprehensive Review Paper

Author: Multi-Disciplinary Review Team; **Type:** Document; **Publication date:** September 2020; **Publisher:** Department of Defence;

Regulation of Commonwealth Explosives: Early Assessment Regulation Impact Statement for Consultation

Author: Explosive Ordnance Branch; **Type:** Document; **Pages:** 1 - 52; **Publication date:** 3/8/2022; **Publisher:** Department of Defence; **URL:** https://oia.pmc.gov.au/published-impact-analyses-and-reports/regulation-commonwealth-explosives;

Australian Work Health and Safety Law - annotated model Work Health and Safety Laws.

Publisher: CCH Australia Limited, issuing body.; **Type:** Journal; **Pages:** 1 online resource.; **Publication date:** 2013-; **Publisher:** CCH Australia; **Place of publication:** North Ryde, N.S.W. :;

Suggested Reading List for Learning Outcomes 1, 2 and 3 (LO1, LO2 and LO3):

An Australian Insensitive Munitions Policy: A Working Paper Prepared for the Australian Ordnance Council

Author: Spear, Robert J ; Davis, Louise M; **Type:** Book; **Publication date:** 1989-01; **URL:** https://apps.dtic.mil/sti/citations/ADA207950; **Notes:** DTIC AND NTIS;

STANAG 4439 - Policy for Introduction and Assessment of Insensitive Munitions (IM) - AOP-39 Edition D Version 2

Author: North Atlantic Treaty Organization (NATO); **Type:** Standards; **Edition:** 4; **Publication date:** 04 March 2022; **Publisher:** NATO Standardization Office (NSO); **URL:** https://nso.nato.int/nso/nsdd/main/standards/ap-details/3279/EN;

Review of Promising Insensitive Energetic Materials

Authors: Badgujar, D. M., Talawar, M. B., Mahulikar, P. P. , **Year:** 2017, **Journal:** Central European Journal of Energetic Materials, **Vol (Issue):** 14 (4), **Page:** 821-843

Shock Sensitivity studies for PBXN-109,

Authors: Lu, J. P., Lochert, I. J., Daniel, M. A. et al. **Year:** (2016), **Journal:** Propellants, Explosives Pyrotechnics **Vol (Issue):** 41(3) **Page:** 562-571

Australian code for the transport of explosives by road and rail

Author: Safe Work Australia; **Type:** Website; **Edition:** 3rd Edition; **Publication date:** 01 Sept 2009; **Publisher:** Safe Work Australia; **URL:** https://www.safeworkaustralia.gov.au/doc/australian-code-transport-explosives-road-and-rail-3rd-edition;

Recommendations on the transport of dangerous goods: Model regulations. Rev. 23 (2023). Vol. 1 and Vol 2.

Author: United Nations Economic Commission for Europe (UNECE); **Type:** Website; **Publication date:** 2023; **Publisher:** United Nations Economic Commission for Europe (UNECE); **URL:** https://unece.org/transport/dangerous-goods/un-model-regulations-rev-23;

Globally Harmonized System of Classification and Labelling of Chemicals (GHS Rev. 9, 2021)

Author: United Nations Economic Commission for Europe (UNECE); **Type:** Website; **Publication date:** 2021; **Publisher:** United Nations Economic Commission for Europe (UNECE); **URL:** https://unece.org/transport/standards/transport/dangerous-goods/ghs-rev9-2021;

List of Commonwealth explosives

Type: Website; **Publication date:** 1 November 2023; **URL:** https://www.defence.gov.au/about/accessing-information/list-commonwealth-explosives;

Defence Explosive Ordnance Publication 101

Author: Department of Defence; **Publisher:** Department of Defence; **URL :** https://www.defence.gov.au/business-industry/industry-governance/industry-regulations/defence-

explosive-ordnance-publication-101

Australian Defence Risk Management Framework: A Comparative Study;

Author: Gaidow, Svetoslav ; Boey, Seng; **Publication date:** 2005-02; **URL:** https://apps.dtic.mil/sti/tr/pdf/ADA434592.pdf

Suggested Reading List for Learning Outcomes 1 and 4 (LO1 and LO4)

Literature Review on Demilitarization of Munitions: Document Prepared for the RIGHTTRAC Technology Demonstration Project

Author: Poulin, Isabelle; **Type:** Book; **Publication date:** 2010-11; **URL:** https://apps.dtic.mil/sti/citations/ADA587546; **Notes:** DTIC;

Application of photo degradation for remediation of cyclic nitramine and nitroaromatic explosives

RSC Advances

Author: Mahbub, P.; Nesterenko, P. N.; **Type:** Electronic Article; **Pages:** 77603 - 77621; **Publication date:** 10 Aug 2016; **Publisher:** Royal Society of Chemistry,; **ISSN:** 2046-2069; **LCCN:** 2020243209; **Place of publication:** Cambridge [England] :; **Issue:** 81; **DOI:** https://doi.org/10.1039/C6RA12565D;

Guide to Explosive Ordnance Pollution of the Environment

Author: GICHD; **Type:** Website; **Publication date:** 15 December 2021; **URL:** https://www.gichd.org/publications-resources/publications/guide-to-explosive-ordnance-pollution-of-the-environment-1/;

2,4,6-Trinitrotoluene

IARC monographs on the evaluation of carcinogenic risks to humans

Author: World Health Organization; **Place of publication:** Lyon, France :; **Volume:** 65; **URL:** https://publications.iarc.fr/83;

Toxicological profile for RDX

Author: Abadin, Henry; **Place of publication:** Atlanta, GA :

Toxicological profile for HMX

Author: Abadin, Henry; **Place of publication:** Atlanta, GA;

Commonwealth Policy on the Management of Land in Australia Affected by Unexploded Ordnance

Author: Department of Defence; **URL:** https://uxo.defence.gov.au/unexploded-ordnance-site-information

Energetic Materials and Munitions - Life Cycle Management, Environmental Impact, and Demilitarization

Author: Cumming, Adam Stewart ; Johnson, Mark S; **Type:** Book; **Publisher:** John Wiley & Sons; **ISBN:** 3527344837; **Place of publication:** Newark;

Mobile Alternative Demilitarization Technologies, edited by Holm, F. W. (1997),

Proceedings of the NATO Advanced Research Workshop on Mobile Technologies for Remediating Formerly Used Defence Sites, Prague, Czech Rep. 1-2 July 1996

Course Evaluation and Development

Students will have the opprtunity to provide their feedbacks on the course towards the end of the semester.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lecturer	S.M.Parvez Mahbub		Building 22 Room 219, UNSW Canberra	+61 2 5114 5266	available by email request to book a time during Monday to Friday	No	Yes