

Questionnaire (version of October 2023)

Natural-Science Disarmament Courses

Course Description

Time when course was/is given (years)	2008-present
Lecturer(s)	Jürgen Altmann
Institution (department, university)	Physics Department, TU Dortmund University
Course Title	Physics and Technology of the Verification of Arms-Limitation Agreements
Type (lecture, seminar ...)	Lecture
Language(s)	German
Time (number of hours (45 or 60 minutes?) per week, no. of weeks, no. of days if block, how often per year)	2 h @ 45 minutes per week, 14 weeks Once per year
Audience (students of which disciplines, interdisciplinarity)	Physics
Credits given	3
- for what (oral/written exam ...)	Oral exam 20 minutes
Status in department/university/ field of study, obligatory or voluntary	Voluntary
Connection with other course(s)/ integration in field of study	-
Additional activities/material (Model UN, visits, invited speakers, videos, ...)	Globe for satellite orbits, treaties and other documents 2-3 exercises per lecture
Presentations/papers available, to whom	Presentations after each lecture, to enlisted participants
Internet site of course	-
Curriculum/list of units (add below or attach)	See below
Filled in by	Jürgen Altmann
Date	1 Febr. 2024
Agreement to publish this	Yes

Units

1. Introduction, terms
2. National technical means of verification - overview
3. Fundamentals of monitoring from air, space
4. National technical means of verification - satellites
5. Radar
6. Checking of nuclear materials

7. Seismic detection of underground nuclear explosions
8. Infrasound and underwater detection of nuclear explosions
9. On-site inspections under the Comprehensive Nuclear Test-Ban Treaty
10. Ground sensors for limits of conventional weapons, for early warning of missile attacks, for monitoring of underground final repositories
11. Further co-operative verification technologies: tags, inspection equipment, equipment for IAEA safeguards
12. Verification for space weapons; research for new technical means of verification
13. Preventive arms control for small armed aircraft and missiles
14. Outlook: verification, treaties, politics - including actual problems