# CHERNE 2016-17

## Project Plan for CHERNE activities and other actions proposed to the network

## MANTRA2 - RP in medical applications

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|---|---|
| **Title of the project and acronym (if applicable)** | **Practical radiation protection in the medical field – MANTRA 2** |
| **Type of the project** | **IC** |
| **Main objective of the project** | Radiation protection of the workers, patients and public in the use of ionising radiation and radionuclides in the medical field |
| **Short description of the project** | See schedule |
| **Expected learning outcomes (if applicable)** | |
| **Date of the project** | 13-17 March 2017 |
| **Place(s) of the project** | Bologna and Bertinoro (Italy) |
| **Coordinator(s)** | Domiziano Mostacci, University of Bologna, domiziano.mostacci@unibo.it |
| **Contact person (if different)** | Ditto |
| **Other partners** | ISIB, Univ. Hasselt, FH Aachen, NTUA, CVUT, UPV, univ. Coimbra |
| **Is the partnership still open to more partners?** | closed |
| **Intended participants Expected present studying level of participants and their specialisation (if relevant)** | The activity is organised for students of all CHERNE partners imvolved in the SP in *Blended learning in radiation protection and radioecology* |
| **Prerequisites Expected initial knowledge** | Fundamentals of radiation science and radiation protection |
| **Intended or maximal number of participants** | 16 |
| **Task force (if applicable)** | |
| **Working method, time schedule and deadlines for the organisation and for the task force** | Students nominated by partner members |
| **Evaluation (of participants, by participants, by organisers, …)** | Students will receive a grade. |
| **Reporting and dissemination (if applicable)** | no |
| **Is the project part of an Erasmus program?** | Yes, SP in *Blended learning in radiation protection and radioecology* |

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| **ECTS or ECVET credits applicable? How many?** | |
| **Are any other industrial or research non CHERNE partners involved?** | no |
| **Terminology** | CHERNE: Cooperation for Higher Education on Radiological and Nuclear Engineering<br>other: …/… |
| **Practical organisation** | Accommodation : organised |
| **Costs for the students (if applicable)** | Travel : covered by SP<br>Accommodation : ditto<br>Social events: no<br>Tuition fee: none<br>**TOTAL FEE none** |
| **Extra information or conditions** | …/… |
| **Anything else** | …/… |

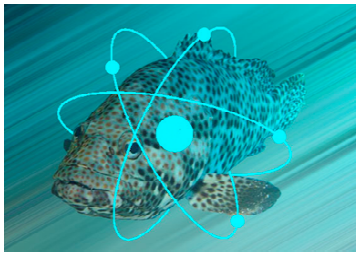
**Annex 1: preliminary schedule**

**Annex 2**

**…/…**

Education and Culture DG

Lifelong Learning Programme



**Erasmus Intensive Course (IC), In the framework of the SP**
**"BLENDED LEARNING IN RADIATION PROTECTION AND RADIOECOLOGY"**
**Training activity 6: • Practical radiation protection in medical field**

# MANTRA 2

***(Medical Applications of Nuclear Technologies and Radiation, 2nd edition)***

***An activity of the CHERNE network***
13/03/2017-17/03/2017

Bologna and Bertinoro , Italy

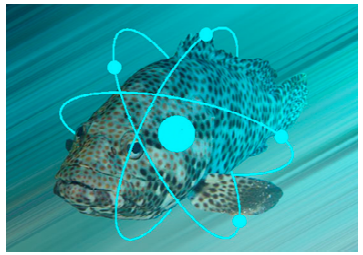
***Alma Mater Studiorum Università di Bologna (coordinator and organiser)***
***Czech Technical University CVUT, Prague***
***Fachhochschule Aachen, Jülich***
***Haute Ecole Paul Henri Spaak ISIB, Brussels***
***National Technical University of Athens***
***Universidade de Coimbra***
***Universitad Politecnica de Valencia***
***Universiteit Hasselt***

## Program

*Provisional – as of 4 March 2017*

Education and Culture DG

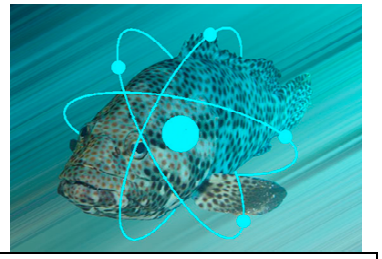
Lifelong Learning Programme



| Date | hour | Event | Place |
|---|---|---|---|
| Sunday 12/03 | | Arrival in Bologna | Bologna |
| Monday 13/03 | 9:30 - 10:00<br>10:00 – 12:00 | Introduction to the IC, formation of student groups<br>Lecture L1: the cyclotron for biomedical applications and the radiopharmacy (prof. Mario Marengo, Unibo) | S. Orsola University Hospital |
| | 12:00 – 13:30 | Lunch break | Hospital cafeteria |
| | 13:30 – 16.30<br>17:00 – 18:00 | Practical part<br>Bus trip to Bertinoro, upon arrival accomodation in the conference center | S. Orsola University Hospital<br>University conference center in Bertinoro |
| | | | |
| Tuesday 14/03 | 9:00 - 11:00<br><br>11:30 – 12:15<br>12:15 – 13:00 | Lecture L2: Review of dosimetry and RP of personnel and patients (prof. Hoyler, Juelich)<br>Lecture L3: Eye lens dosimetry (Dr. Menghi, Meldola cancer research center)<br>Lecture L4 : HPGe detectors in radiopharmacy routine (Dr. Bianchini, Meldola cancer research center) | University conference center in Bertinoro |
| | 13:00 – 14:30 | Lunch break | LNS |
| | 14:30 – 16.00<br>16.00 – 17:00<br><br>17: 30 – 19:00 | Lecture L5 : Clinical dosimetry in radiation therapy (prof. Hanusova, CVUT)<br>Lecture L6 : Radiation protection in interventional radiology (prof. Licour, ISIB)<br>Students: presentations of reports on Cyclotron day | University conference center in Bertinoro |
| | | | |
| Wednesday 15/03 | 9:15 - 10:00<br><br>10:00 – 11:30<br>12:00 – 12:45 | Lecture LB1 : Monte Carlo calibration of detectors for gaseous effluents (Dr. Sarnelli, Meldola cancer research center)<br>Lecture LB2: Intro to Nuclear medicine and imaging (Prof. Lopes, Coimbra)<br>Lecture LB3: Radiation protection in Nuclear Medicine (Dr. Mezzenga, Meldola cancer research center) | University conference center in Bertinoro |
| | 12:45 – 14:15 | Lunch break | |

Education and Culture DG

Lifelong Learning Programme



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|---|---|---|---|
| | 14:15-15:30<br>15:30 – 16:15<br><br>16:15– 17:00<br>17.30 – 18:30 | Lecture LB4: Introduction to brachytherapy (Brigitte Resnier, U of Hasselt)<br>Lecture LB5: Radiation protection in brachytherapy (Dr. Feliciani, Meldola cancer research center)<br>Lecture LB6 : Radiation protection in therapy with I-131 (prof. Licour, ISIB)<br>Test: multiple choice questionnaire | University conference center in Bertinoro |
| | | | |
| Thursday 16/03 | 9:00 - 9:30<br>9:30 - 10:00<br><br><br><br>10:00 - 11:00<br>11:00 - 12:00<br>12:00 - 13:00 | Bus trip to Meldola, to reach the cancer research center<br>Briefing on 4 activities: E1 - HPGe detector in radiopharmacy ; E2 - Equipment and technology description and environment detector ; E3 - Equipment and technology description and exposure mesurements of patients ;<br>E4 - Measurements of contamination (solid and liquid radioactive waste)<br>Group A – E1; Group B – E2; Group C – E3; Group D – E4.<br>Group D – E1; Group A – E2; Group B – E3; Group C – E4.<br>Group C – E1; Group D – E2; Group A – E3; Group B – E4. | Meldola cancer research center |
| | 13:00 – 14:00 | Lunch break | Meldola cancer research center |
| | 14:00 - 15:00<br>15:00 – 18:00<br>18:00- 18:30 | Group B – E1; Group C – E2; Group D – E3; Group A – E4.<br>Data review and preparation of reports<br>Bus trip back to Bertinoro | Meldola cancer research center |
| Friday 17/03 | 9:00 - 9:30<br>9:30 - 10:30<br>10:30- 12:00 | Bus trip to Forlì, to reach the main city hospital<br>Lecture/briefing on the subjects of the practical parts<br>Cobalt therapy facility; liquid radwaste system. | Forlì main hospital |
| | 12:00 – 13:00 | Lunch break | Forlì main hospital |
| | 13:00 - 16:00<br><br><br>16:00 – 18:00 | EB1 - contamination excercise; EB2 – emodynamics ward; EB3 – ambient measurements and QC in dignostic radiology. Groups X, Y and Z will rotate among the three activities<br>Data review and preparation of reports | Forlì main hospital |
| | 18:00- 18:30 | Bus trip back to Bertinoro | |
| Saturday 18/03 | | Travel back home | |