



KEMENTERIAN SAINS,
TEKNOLOGI DAN INOVASI
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

NUKLEAR
MALAYSIA

QUALITY
ASSURANCE

CME
STATUS

CPD
POINT

CEP
POINT



IPTN
5%
DISCOUNT
Incentive For Nuclear
Technology
Application

**ASSOCIATED
PROGRAMME /
PROGRAM
BERSEKUTU**

MEDICAL RADIATION SINARAN PERUBATAN

RECOGNITION



MOF
Double Deduction
Incentive



MOH-CME
Programme



KERAJAAN
0023



Department of Skills
Development Malaysia
MOHR

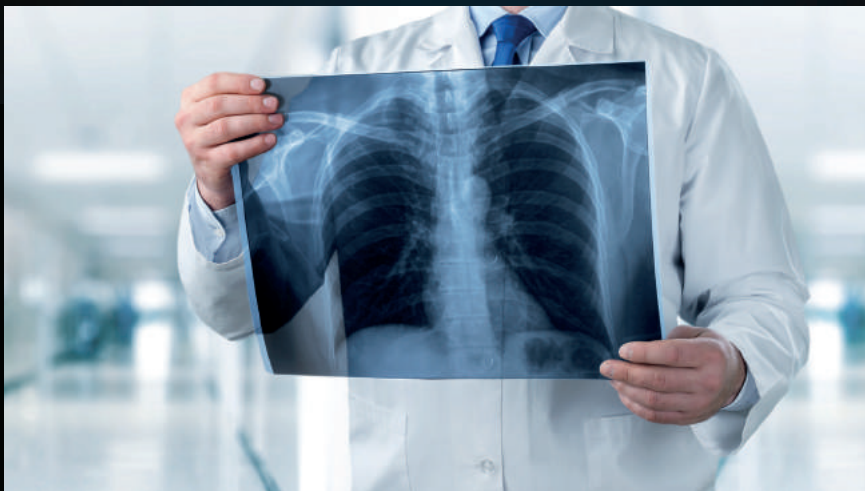


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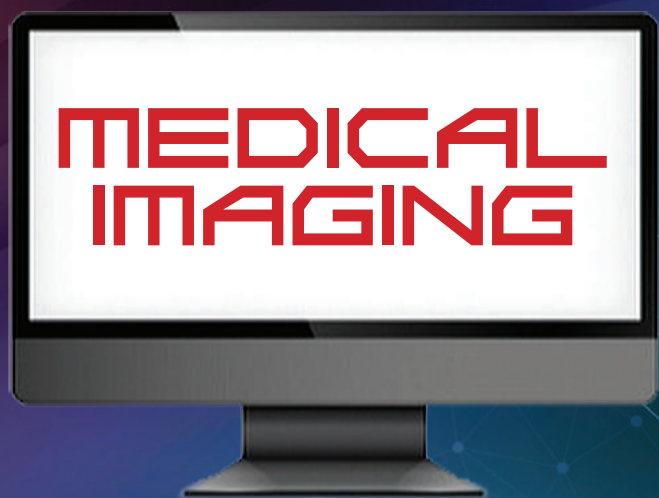
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Introduction about Medical Radiation Sector



Imaging in healthcare is a technique and process of creating a visual or an image that represents the interior of a body for clinical and medical purposes. Ever since the discovery of X-ray by Wilhelm Roentgen, medical imaging technology has evolved for the purpose of saving lives. As a national R&D institution under the Ministry of Science, Technology and Innovation (MOSTI), Nuklear Malaysia is focusing on the application of nuclear technology in various fields including medicine. Moreover, we provide technical services (QA/QC), calibration of equipment, and training programmes. Upon this growth, Centre of Nuclear Excellence (CoNE) offers training programmes designed to meet the relevance

in medical sectors. CoNE is recognised as a training provider in Medical Imaging, for Continuous Medical Education (CME) programme under Ministry of Health (MOH) and Continuing Professional Development (CPD) programme under Malaysian Medical Association (MMA), and also Continuous Education Programme (CEP) under Atomic Energy Licensing Board (AELB). Our courses cover all required aspects, from introduction of physics in medical imaging, radiography techniques, safe working procedure, and also emergency and trauma needs. In addition, our centre is supported by advanced laboratories and a pool of experienced and skilled experts in the medical imaging field.





MXR 101

1 day

PREAMBLE

The increasing use of ionizing radiation in medical sector called for well-trained workers and comprehensive implementation of the radiation protection programme. This 1-day course is specially designed to create awareness on the ionizing radiation with special attention to the radiation safety in order to protect the safety of the staffs and patients. Thus, this Continuous Medical Education (CME) course will equip participants with necessary knowledge on ionizing radiation emphasizing on the aspects of radiation protection and safety procedures in line with the requirement of the Atomic Energy Licensing Act 1984. It is also designed to contribute in nurturing safety culture at workplace leading to the improvement of safety performance.

Radiation Safety Awareness for Medical

Kesedaran Keselamatan Sinaran untuk Perubatan

OBJECTIVES

- ❖ To provide basic understanding of the philosophy and principle of radiation protection
- ❖ To generate awareness on the risks and effect of ionizing radiation
- ❖ To improve knowledge of radiation safety

COURSE OUTLINES

- ❖ Basic Information on Ionizing Radiation
- ❖ Principle of Radiation Protection
- ❖ Effects of Ionizing Radiation on Man
- ❖ Radiological Monitoring and Measurement
- ❖ Working Procedure With Ionizing Radiation and Radioactive Materials
- ❖ Legislative Requirement
- ❖ Radiation Safety Audit

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Medical Officer
- ❖ Radiation Protection Officer(RPO/RPS)
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ Lecturer
- ❖ Those who are involved in the use of ionizing radiation

FEES

	Fees/Pax	Normal Price	After IPTN Discount
Peninsular Malaysia	Single Registration	RM580.00	RM550.00
	Team Registration (2 or more)	RM550.00	RM520.00
Sabah/Sarawak	Single Registration	RM610.00	RM580.00
	Team Registration (2 or more)	RM580.00	RM550.00

PREAMBLE

The increasing use of ionizing radiation in medical sector called for well-trained workers and comprehensive implementation of the radiation protection programme. This 1-day course is specially designed to create awareness on the ionizing radiation with special attention to the radiation safety in order to protect the safety of the staffs and patients. Thus, this Continuous Medical Education (CME) course will equip participants with the necessary knowledge on ionizing radiation emphasizing on the aspects of radiation protection and safety procedures in line with the requirement of the Atomic Energy Licensing Act 1984. It is also design to contribute in nurturing the safety culture at workplace leading to the improvement of safety performance.

Awareness Course on Radiological Safety in Medical X-ray

Kesedaran Keselamatan Radiologi dalam Sinar-X Perubatan

OBJECTIVES

- ❖ To understand the philosophy and principles of radiation protection
- ❖ To create awareness on the radiation hazards, biological effects and risks of ionizing radiation
- ❖ To highlight the importance of right working procedure being practiced when dealing with ionizing radiation
- ❖ To promote greater awareness on good operational practices in medical radiography for optimization of dose

COURSE OUTLINES

- ❖ Basic Information on Ionizing Radiation
- ❖ Principles of Radiation Protection
- ❖ Biological Effects of Ionizing Radiation
- ❖ Basic Radiological Monitoring and Measurement (including Quality Control and Dose Reduction)
- ❖ Regulation of Radiation Protection and Atomic Energy Licensing Act
- ❖ Organization and Program for Radiation Protection
- ❖ Safety and Working Procedures in Medical Radiography (including Emergency Procedures)

FEES

Peninsular Malaysia	Fees/Pax	Normal Price	After IPTN Discount
	Single Registration	RM480.00	RM460.00
Sabah/Sarawak	Team Registration (2 or more)	RM450.00	RM430.00
	Single Registration	RM555.00	RM525.00
	Team Registration (2 or more)	RM525.00	RM500.00

METHODOLOGY

- ❖ Participative lectures
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Medical Officer
- ❖ Radiation Protection Officer/Supervisor (RPO/RPS)
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ Lecturer
- ❖ X-ray Operator
- ❖ Nurse
- ❖ All those who are involved in the use of ionizing radiation

**MXR
201****6
days**

PREAMBLE

The increasing use of ionizing radiation in the medical sector called for well-trained workers and comprehensive implementation of the radiation protection programme. This 6-day course is specially designed to create awareness on the ionizing radiation with special attention to the radiation safety in order to protect the safety of the staffs, patients and public. This radiological safety course is necessary to nurture better radiation safety practices at workplace for the benefit of workers, patients and public.

Training Course on X-ray for General Practitioner

Kursus Latihan Sinar-X untuk Pengamal Perubatan Am

OBJECTIVES

- ❖ To provide understanding of the philosophy and principles of radiation protection for medical application
- ❖ To be familiarized with the components, function, operation and control of X-ray and other related equipment
- ❖ To acquire skills needed to obtain optimal radiograph in simple radiography in clinical practices
- ❖ To be familiarized with the procedures in film processing in order to produce images of acceptable quality
- ❖ To understand the needs of patient care practice

COURSE OUTLINES

MODULE 1: RADIATION SAFETY AWARENESS

- ❖ Basic Information on Radiation Sources
- ❖ Radiation Hazards and Effects of Ionizing Radiation on Man
- ❖ Principles of Radiation Protection
- ❖ Basic Radiological Monitoring and Measurements
- ❖ Safety Measures in Exposure Room
- ❖ Radiation Safety Audit
- ❖ Legislative Requirements Act 304

MODULE 2: X-RAY EQUIPMENT AND ASSOCIATED FACILITIES

- ❖ X-ray Equipment, Components & Production of X-ray
- ❖ Maintenance and Calibration of Equipment
- ❖ Maintenance of Cassette and Screen
- ❖ Maintenance of Dark Room and Processing Facilities
- ❖ Quality Assurance: Image Production and Film Quality

MODULE 3: RADIOGRAPHIC TECHNIQUES AND QUALITY ASSURANCE PROGRAMME

- ❖ Radiographic Techniques for Chest And Extremities
- ❖ Radiographic Anatomy
- ❖ Normal Chest X-ray and Criteria of Good Radiography
- ❖ Interpretation of X-ray/Radiography
- ❖ Quality Assurance Programme and Responsibility

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)
- ❖ Participating Hospitals

REFERENCE MATERIAL

- ❖ The 'Medical X-ray' book will be used extensively as reference in this course

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Medical Officer
- ❖ Radiation Protection Officer/Supervisor (RPO/RPS)
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ Lecturer
- ❖ X-ray Operator
- ❖ Nurse
- ❖ All those who are involved in the use of ionizing radiation

FEES

	Fees/Pax	Normal Price	After IPTN discount
Peninsular Malaysia	Single Registration	RM2,640.00	RM2,500.00
	Team Registration (2 or more)	RM2,500.00	RM2,370.00
Sabah/Sarawak	Single Registration	RM2,770.00	RM2,640.00
	Team Registration (2 or more)	RM2,640.00	RM2,500.00

PREAMBLE

The use of ionizing radiation in medicine is currently increasing with technical and technological advancements, raising the needs for technical competencies. The key duty of qualified personnel in a clinical practice is to assure the optimum use of radiation to produce a specific diagnostic or therapeutic outcome. The responsibilities include: protection of the patient and others from potentially harmful or excessive radiation; establishment of adequate protocol to ensure accurate patient dosimetry; measurement and characterization of radiation; specification of dose delivery; development and direction of quality assurance programme; and assistance to the practitioner in optimizing balance between beneficial and deleterious effects of radiation. It is apparent that the responsibilities implied are to be defined at the hospital level, an organization of specific competencies designed for clinical practice and activities.

Radiation Protection in Medical X-ray Equipment and Related Facilities

Perlindungan Sinar di Kemudahan Sinar-X Perubatan dan Kemudahan Berkaitan

OBJECTIVES

- ❖ To provide better understanding on radiation safety related to the use of ionizing radiation in medical facility
- ❖ To be familiarized with proper working procedures in ionizing radiation environment
- ❖ To upgrade the competency of personnel in regard to operation, application techniques and safety measures in medical facilities
- ❖ To minimize radiation dose to both patient & staff, consistent with the images produced of acceptable quality

COURSE OUTLINES

Day 1

- ❖ Basic Radiation and Radioactivity
- ❖ Radiation Hazards and Effects of Ionizing Radiation on Man
- ❖ Basic Radiological Monitoring and Measurement
- ❖ Radiation Detection and Measurement in Medical Facilities
- ❖ Quality Assurance Practice and Responsibility
- ❖ Plan and Procedures for Radiological Emergencies
- ❖ International Consensus and Radiation Safety Standards

Day 2

- ❖ Safety Associated with Acceptance Test, Commissioning & Operation

- ❖ Safety Management: Safety Assessment, Transportation of Radioactive Material & Waste Management
- ❖ Potential Radiation Exposure: Occupational, Medical & Public
- ❖ General Shielding and Design of Workplace
- ❖ Legislative Requirement Act 304
- ❖ Dealing with Radioactive Spills and Contamination
- ❖ Radiation Protection in Medical Practice

METHODOLOGY

- ❖ Participative lectures
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ Radiation Protection Officer/Supervisor (RPO/RPS)
- ❖ Medical Physicist
- ❖ Medical Officer
- ❖ Radiographer
- ❖ Nurse working in Diagnostic Radiology, Radiotherapy or Nuclear Medicine Department

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM850.00	RM805.00
Team Registration (2 or more)	RM810.00	RM765.00

**MXR
203****1
day****PREAMBLE**

Trauma radiography is a specialty in radiography that deals with imaging of patients that are seen in the emergency room. Radiographers and personnel involved in the emergency room must be well prepared for a variety of procedures on patients of all age range. Thus, this Continuous Medical Education (CME) course is specially designed to enhance participants' knowledge on trauma and emergency radiography in both procedure and safety aspects.



Trauma and Emergency Radiography

Radiografi untuk Kecemasan dan Trauma

OBJECTIVES

- ❖ To provide better understanding on radiation protection in trauma radiography
- ❖ To familiarize with proper radiographic procedures in trauma radiography
- ❖ To give proper guideline for legislative requirement

COURSE OUTLINES

- ❖ Radiation Protection in Trauma Radiography
- ❖ Radiographic Procedures in Trauma
- ❖ Legislative Requirement Act 304

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)
- ❖ Participating Hospital

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ X-ray Operator
- ❖ Nurse
- ❖ All those involve in an emergency room

**FEES**

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM550.00	RM520.00
Team Registration (2 or more)	RM520.00	RM490.00

PREAMBLE

Good radiographic technique in medical application is important to obtain a quality radiographic image. X-ray technologists practice a principle called As-Low-As-Reasonably-Achievable (ALARA) dose for each radiographic image to ensure safe and proper use of X-ray at a minimum exposure for patient, personnel and public. This 2-days CME course will enhance the knowledge of participants on radiographic technique in medical application.

Radiographic Technique in Medical

Teknik Radiografi dalam Perubatan

OBJECTIVES

- ❖ To provide participants with the basic physical principals and radiographic techniques used in imaging the chest and extremities
- ❖ To create awareness on the radiation hazard, biological effects and risk of ionizing radiation
- ❖ To generate the importance of right working procedure when dealing with X-ray equipment

COURSE OUTLINES

- ❖ Basic Principle of Ionizing Radiation
- ❖ Radiation Hazards and Biological Effects of
- ❖ Ionizing Radiation on Man
- ❖ Principles of Radiation Protection
- ❖ Legislative Requirement Act 304
- ❖ Quality Assurance Programme
- ❖ Film Fault and Artifacts
- ❖ Factor Affecting Image Quality
- ❖ Radiographic Techniques and Practical
- ❖ Demonstration and Practices: Chest and Extremities

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)
- ❖ Participating Hospital

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Radiographer
- ❖ Radiation Protection Officer/Supervisor (RPO/ RPS)
- ❖ Medical Physicist
- ❖ Medical Officer
- ❖ Nurse working in Diagnostic Radiology

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM850.00	RM805.00
Team Registration (2 or more)	RM810.00	RM765.00



PREAMBLE

In order to produce acceptable image quality and to highlight the importance of having a proper quality assurance programme, medical professionals need to be adequately trained with a focus on enhancing their knowledge on the X-ray and related equipment.



Good Operational Practice in Medical X-ray

Amalan Kerja Terbaik dalam Sinar-X Perubatan

OBJECTIVES

- ✧ To enhance knowledge on the ionizing radiation in medical application
- ✧ To have better understanding on good operational practices for X-ray equipment and associated facilities
- ✧ To emphasize the importance of having Quality Assurance Programme (QAP) for reliability of results
- ✧ To understand the implementation of programme for patient dose reduction

COURSE OUTLINES

- ✧ Good Operational Practices of X-ray and Associated Equipment
- ✧ Production of Radiographic Image
- ✧ Requirements and Criteria of Good Quality Image
- ✧ Task and Organisation of QAP Programme
- ✧ Implementation of Programme for Patient Dose Reduction
- ✧ Record Keeping and Auditing

METHODOLOGY

- ✧ Participative lecturers
- ✧ Demonstration/Practical
- ✧ Simulation
- ✧ Group discussion

TRAINERS/FACILITATORS

- ✧ Malaysian Nuclear Agency (Nuklear Malaysia)
- ✧ Ministry of Health (MOH)
- ✧ Participating Hospital

WHO SHOULD ATTEND

- ✧ General Practitioner
- ✧ Medical Officer
- ✧ Radiation Protection Officer/Supervisor (RPO/RPS)
- ✧ Radiographer
- ✧ Medical Physicist
- ✧ Lecturer
- ✧ X-ray Operator
- ✧ Nurse
- ✧ All those operating X-ray equipment

FEES

	Fees/Pax	Normal Price	After IPTN discount
Peninsular Malaysia	Single Registration	RM500.00	RM475.00
	Team Registration (2 or more)	RM475.00	RM450.00
Sabah/ Sarawak	Single Registration	RM590.00	RM560.00
	Team Registration (2 or more)	RM560.00	RM530.00

PREAMBLE

Imaging is currently performed by technologists/ X-ray operators and radiographers and being interpreted by general practitioners in many medical setup in Malaysia. Many practitioners have had little formal training in the interpretation of images. At some centres, the general practitioners themselves perform the imaging using an X-ray unit. It is very important to produce a radiographic image of acceptable quality, as this will enable the medical practitioner to interpret the image correctly to come to a good diagnosis. This in turn will enable the practitioner to institute treatment, which will benefit the patient. This course will introduce the participants to the importance and the methods of obtaining a good quality chest radiograph and also on the systematic approach for the interpretation of the chest radiograph.

Interpretation of Radiographic Image: Chest *Interpretasi Imej Radiograf: Dada*

OBJECTIVES

- ❖ To provide knowledge of obtaining a good quality chest radiograph
- ❖ To understand the radiographic anatomy of the chest in both the anterior/posterior and also the lateral views
- ❖ To introduce a systematic approach to the interpretation of a chest radiograph
- ❖ To discuss the possible artifacts and limitations of the chest radiograph
- ❖ To provide pattern recognition of chest radiographs of common conditions encountered in a clinical general practice setup

- ❖ Technical Quality of the Radiographic Image
- ❖ Systematic Approach to Interpretation of a Chest Radiograph

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration
- ❖ Chest radiographs interpretation
- ❖ Reject film analysis
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Consultant radiologist from participating hospital

COURSE OUTLINES

- ❖ Safety Considerations in Radiological Practice
- ❖ Introduction to Production of Radiographic Image
- ❖ Radiographic Anatomy of the Chest in the Anterior, Posterior and Lateral Views

WHO SHOULD ATTEND

- ❖ General practitioner in general radiography practices
- ❖ Other interested medical personnel

FEES

	Fees/Pax	Normal Price	After IPTN discount
Peninsular Malaysia	Single Registration	RM550.00	RM520.00
	Team Registration (2 or more)	RM520.00	RM490.00
Sabah/ Sarawak	Single Registration	RM640.00	RM600.00
	Team Registration (2 or more)	RM600.00	RM570.00

PREAMBLE

Imaging is currently performed by technologists/X-ray operators and radiographers and being interpreted by general practitioners in many medical setup in Malaysia. Many practitioners have had little formal training in the interpretation of images. At some centres, the general practitioners themselves perform the imaging using an X-ray unit. It is very important to produce a radiographic image of acceptable quality, as this will enable the medical practitioner to interpret the image correctly to come to a good diagnosis. This in turn will enable the practitioner to institute treatment, which will benefit the patient. This course will introduce the participants to the importance and the methods of obtaining a good quality radiograph of the extremities and also on the systematic approach for the interpretation of the X-ray of the extremities in particular and the musculoskeletal system generally.



Interpretation of Radiographic Image: Extremities *Interpretasi Imej Radiograf: Ekstremitis*

OBJECTIVES

- ❖ To provide knowledge of obtaining a good quality radiograph of the extremities
- ❖ To understand the radiographic anatomy of the extremities in both the anterior/posterior and also the lateral views
- ❖ To introduce a systematic approach to the interpretation of radiograph of the extremities and also the musculoskeletal system
- ❖ To discuss the possible artifacts and limitations of the radiograph
- ❖ To provide pattern recognition of radiographs of the extremities of common conditions encountered in a clinical general practice setup

COURSE OUTLINES

- ❖ Safety Considerations in Radiological Practice
- ❖ Introduction to Production of Radiographic Image
- ❖ Radiographic Anatomy of the Lower and Upper Extremities in the Anterior, Posterior and Lateral Views

FEES

	Fees/Pax	Normal Price	After IPTN discount
Peninsular Malaysia	Single Registration	RM550.00	RM520.00
	Team Registration (2 or more)	RM520.00	RM490.00
Sabah/Sarawak	Single Registration	RM640.00	RM600.00
	Team Registration (2 or more)	RM600.00	RM570.00

- ❖ Technical Quality of the Radiographic Image
- ❖ Systematic Approach to the Interpretation of an Extremities Radiograph

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration
- ❖ Extremities radiographs interpretation
- ❖ Reject film analysis
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Consultant radiologist from participating hospital

WHO SHOULD ATTEND

- ❖ General practitioner in general radiography practices
- ❖ Other interested medical personnel

PREAMBLE

This 1-day Seminar will be focusing on the applications of imaging technology and other modalities in the medical sector in relation to the legislative requirements, good operational practices, quality assurance programme, patient dose reduction, future direction, standards and practices. In order to further upgrade and enhance the quality, safety and efficiency of radiological services, all doctors and operators are required to attend the Continuous Medical Education (CME) programme. Thus, this CME programme will enlighten the participants on the current understanding of radiography practices, especially in private clinics, and general practitioners to be first-class minded through first-class facilities and first-class maintenance.

Seminar on Medical Imaging

Seminar Pengimejan Perubatan

OBJECTIVES

- ❖ To keep abreast with the latest development in X-ray technology and other modalities for medical applications
- ❖ To disseminate information on the latest development, strategies and future direction for proper radiological practices
- ❖ To fulfill the CME requirement for licensing purposes
- ❖ To realize the needs of proper measures in order to improve the radiography quality services and safety confidence
- ❖ To enhance knowledge, share thoughts and experience with other professional colleagues

COURSE OUTLINES

- ❖ Safety Management and Quality Assurance Programme
- ❖ Performance and Reliability of Equipment
- ❖ Legislation, Procedures & Practices
- ❖ Advanced Radiography Techniques
- ❖ Education and Training
- ❖ Dose Optimization
- ❖ Image Quality
- ❖ Care and Maintenance of Equipment

METHODOLOGY

- ❖ Participative lectures
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)
- ❖ Participating Hospital

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Physician
- ❖ Medical Physicist
- ❖ Lecturer
- ❖ Academician Radiographer
- ❖ X-ray Operator
- ❖ Radiation Protection Officer/Supervisor (RPO/RPS)
- ❖ Vendor/Supplier for medical equipment
- ❖ Those who are interested in radiation protection and radiological safety in medical applications

PAPER PRESENTATION

A total of 6 papers are scheduled to be presented at the meeting. There will be 1 keynote address and 5 papers delivered by distinguished speakers covering the following topics:

- ❖ Safety and Working Procedures in Medical Imaging
- ❖ Legislation, Procedures, Practices & Standard
- ❖ Performance & Reliability of Equipment
- ❖ Care and Maintenance of Equipment
- ❖ Dose Reduction Programme
- ❖ Production of Quality Image
- ❖ New Emerging Techniques
- ❖ Safety Management Audit
- ❖ Education and Training

FEES

	Fees/Pax	Normal Price	After IPTN discount
Peninsular Malaysia	Single Registration	RM500.00	RM475.00
	Team Registration (2 or more)	RM475.00	RM450.00
Sabah/Sarawak	Single Registration	RM575.00	RM545.00
	Team Registration (2 or more)	RM545.00	RM515.00



QUALITY
ASSURANCE

QUALITY
ASSURANCE
[QA] / QUALITY
CONTROL [QC]

PREAMBLE

X-ray in medical practice needs to be properly utilized in order to minimize radiation hazard and be cost-effective. In Malaysia, the authority has taken steps to improve the operational practices in medical X-ray. In regard to this, a person who operates an X-ray apparatus must be properly trained in specific procedures of X-ray. This CME course is specially designed for those who are operating X-ray machine and involved in radiation protection. This 1-day refresher course will enhance knowledge on X-ray and associated equipment.

Good Handling Practice in Medical X-ray

Amalan Kendalian Terbaik dalam Sinar-X Perubatan

OBJECTIVES

- ❖ To enhance knowledge on the maintenance and safety of radiological setup
- ❖ To promote the importance of patient and staff dose reduction
- ❖ To understand the film reject analysis

COURSE OUTLINES

- ❖ Radiation Protection in X-ray Department
- ❖ Maintenance and Calibration of Equipment
- ❖ Quality Assurance (QA)
- ❖ Legislative Requirements Act 304
- ❖ Radiation Safety Audit

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

FEES

	Fees/Pax	Normal Price	After IPTN Discount
Peninsular Malaysia	Single Registration	RM520.00	RM490.00
	Team Registration (2 or more)	RM480.00	RM460.00
Sabah/Sarawak	Single Registration	RM590.00	RM560.00
	Team Registration (2 or more)	RM560.00	RM530.00

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ Lecturer
- ❖ General Practitioner
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ X-ray Operator
- ❖ Nurse
- ❖ All those who are operating X-ray equipment



PREAMBLE

Good handling and care of X-ray and related equipment is needed to ensure safe and proper use of X-ray is at a minimum exposure to the patient, personnel & public. The quality of diagnostic & therapeutic procedures will not be satisfactory if the equipment used is not functioning properly due to lack of good care & maintenance. Proper handling of X-ray equipment is essential to the continuous improvement of quality as well as the cost effectiveness and client confidence. This 1-day refresher course will provide better understanding in managing X-ray equipment and related facilities.

MXR 102

1 day

Handling and Care of X-ray and Related Equipment

Pengendalian dan Penjagaan Peralatan Sinar-X dan Peralatan Berkaitan

OBJECTIVES

- ❖ To be familiarized with the components, function & control of X-ray and other associated equipment
- ❖ To enhance knowledge on the proper usage of X-ray equipment and operational performance
- ❖ To highlight the importance of proper procedure being practiced when dealing with X-ray equipment

COURSE OUTLINES

- ❖ X-ray Equipment, Components & Production of X-ray
- ❖ Instrument Care and Preventive Maintenance
- ❖ Specification, Acceptance Testing and Maintenance of Radiographic System
- ❖ Quality Assurance Programme (QAP)
- ❖ Regulation of Radiation Protection and Atomic Energy Licensing Act

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Medical Officer
- ❖ Radiation Protection Officer/Supervisor (RPO/RPS)
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ Lecturer
- ❖ X-ray Operator
- ❖ Nurse
- ❖ All those who are operating X-ray equipment

FEES

Fees/Pax	Normal Price	After IPTN Discount
Single Registration	RM520.00	RM490.00
Team Registration (2 or more)	RM480.00	RM460.00

PREAMBLE

Quality Control (QC) is an overall system activities to provide quality products or services that meets the needs of the user. The aim of QC is to offer a better quality of productivity that is satisfactory, adequate, dependable and economic. QC helps to control the factors affecting patient dose, maintain the performance of X-ray equipment, mechanical and electrical safety, comply with radiation protection programme, and fulfill the safety standards accordingly.

Quality Control in Maintaining X-ray Equipment

Kawalan Kualiti dalam Penyelenggaraan Peralatan Sinar-X

OBJECTIVES

- ❖ To enhance knowledge on QC in X-ray equipment
- ❖ To familiarize with the audit test conducted in QC programme
- ❖ To provide better guidelines and procedures for QC practices

COURSE OUTLINES

- ❖ Regulatory Requirement for Safety, Quality & Reliability in Medical X-ray
- ❖ Quality Measurement for General Radiography and Practical
- ❖ Quality Measurement for Dental Radiography and Practical

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ Radiation Safety Officer
- ❖ General Practitioner
- ❖ Medical Officer
- ❖ Technologist
- ❖ Those who involve in X-ray equipment

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM520.00	RM490.00
Team Registration (2 or more)	RM480.00	RM460.00

**MXR
302****3
days****PREAMBLE**

The quality of the image produced either photographically or on the monitors of a Closed Circuit Television (CCTV) system in diagnostic radiology depends on human factors, technical ability and reliability of the equipment. Thus, it is important to have a quality assurance programme being implemented in both public and private hospitals, particularly when involving the use of irradiating apparatus and radioactive substances for diagnostic imaging. The implementation of Quality Assurance (QA) programme is in line with the regulations by Ministry of Health (MOH) in ensuring the diagnostic images produced are of high quality in order to consistently provide adequate diagnostic information at the lowest possible cost and with the least radiation exposure to the patient.



Quality Assurance in Medical Radiography

Jaminan Kualiti dalam Radiografi Perubatan

OBJECTIVES

- ❖ To create awareness on the importance of having quality assurance programme in medical practices
- ❖ To provide better understanding in quality assurance for diagnostic radiology
- ❖ To give proper guideline and procedures for quality assurance practices
- ❖ To gain practical experience in performing quality control measures

COURSE OUTLINES

- ❖ Radiation Safety Consideration in Medical Practices
- ❖ Task and Organisation of QA Programme
- ❖ Principle of Functioning of X-ray Equipment
- ❖ Basic Quality Control (QC) Measurements
- ❖ QC Measurements and Implementation
- ❖ QC of Film Screens Combinations, Film Processing, Dark Room and Illuminators
- ❖ Indicator Failure: Rejected Film Analysis
- ❖ Evaluation of Exposure to Patients, Personnel and Population
- ❖ Implementation of Programme for Patients Dose Reduction

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Medical Officer
- ❖ Radiation Protection Officer/Supervisor (RPO/RPS)
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ Lecturer
- ❖ X-ray Operator
- ❖ Nurse
- ❖ All those operating X-ray equipment

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM1,070.00	RM1,015.00
Team Registration (2 or more)	RM1,015.00	RM960.00

PREAMBLE

Quality control (QC) for Computed Radiography (CR) System training is a new training course offered solely by Malaysian Nuclear Agency (Nuklear Malaysia) in Malaysia. CR is a method of producing digital radiographic images, which is fast replacing the conventional X-ray film radiography. Continuous quality improvement in the field of radiological services is important to provide better services, processes and products. Hence, personnel who are involved in radiology services must be properly trained in order to be competent in quality control of CR systems. This 2-day Continuous Medical Education (CME) course will provide comprehensive and effective understanding of digital device in carrying out QC testing on CR systems.

Quality Control (QC) for Computed Radiography (CR) System

Kawalan Mutu Sistem Radiografi Berkomputer (Radiologi Diagnostik)

OBJECTIVES

- ❖ To provide an understanding on the quality control of CR systems
- ❖ To enhance skills in performing quality control of CR systems
- ❖ To increase competency in performing CR system quality control tests

COURSE OUTLINES

- ❖ Principles of Radiation Protection
- ❖ X-ray Machine and CR System
- ❖ Hazard Identification, Risk Assessment & Programme for Dose Reduction
- ❖ Regulatory Requirements for Safety and Quality
- ❖ QC Measurement for CR System

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Medical Officer
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ X-ray Operator
- ❖ Consultant
- ❖ QC tester
- ❖ Trainers for Class H
- ❖ MOH (for scope requirements for CR apparatus testing)
- ❖ Supplier
- ❖ Public
- ❖ All those operating X-ray equipment for medical purpose

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM850.00	RM805.00
Team Registration (2 or more)	RM810.00	RM765.00



NUCLEAR MEDICINE

PREAMBLE

Nuclear Medicine is a specialized area in medicine that uses very small amounts of radioactive materials or radiopharmaceuticals, to examine organ functions and structures. The images are developed based on detection of energy emitted from radioactive substances given to the patients either intravenously, orally, by Inhalation or via instillation. Generally, radiation to the patient is similar to that resulting from standard X-ray examination. In this regards, a person who operates the nuclear medicine system must be properly trained in specific procedures of nuclear medicine. This programme is designed for participants to gain knowledge on radiation protection for better radiation safety practice in nuclear medicine. This course enables participants to improve their competency in nuclear medicine aspect including the equipment operational procedure safety measure. It covers application of basic nuclear medicine procedure based on national requirement, standards and practice.

Awareness Course on Radiation Protection in Nuclear Medicine

Kursus Kesedaran Perlindungan Sinaran dalam Perubatan Nuklear

OBJECTIVES

- ✦ To introduce the philosophy and principles of radiation protection in nuclear medicine
- ✦ To create awareness on radiation hazards, biological effects and risk of ionizing radiation on nuclear medicine
- ✦ To enhance knowledge and skill in ways that can be applied to the practice of nuclear medicine
- ✦ To widen the view in regard to the safety of personnel while practicing nuclear medicine

COURSE OUTLINES

- ✦ Basic Principle of Nuclear Medicine: Radiation and Radioactivity
- ✦ Biological Effect of Ionizing Radiation
- ✦ Radiation Safety Awareness in Nuclear Medicine
- ✦ Radiological Monitoring: Patient and Surrounding

- ✦ Clinical Procedure/Protocol Update
- ✦ Legislative Requirement Act 304
- ✦ Quality Assurance Programme (QAP)

METHODOLOGY

- ✦ Participative lectures
- ✦ Group discussion

TRAINERS/FACILITATORS

- ✦ Malaysian Nuclear Agency (Nuklear Malaysia)
- ✦ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ✦ Technologist
- ✦ Medical Officer
- ✦ Radiographer
- ✦ Nurse
- ✦ Whoever involved in Nuclear Medicine

FEES

Fees/Pax	Normal Price	After IPTN Discount
Single Registration	RM850.00	RM805.00
Team Registration (2 or more)	RM810.00	RM765.00

PREAMBLE

Nuclear medicine is a specialized area of in the medical field that uses very small amounts of radioactive materials, or radiopharmaceuticals, to examine organ function and structure. The images are developed based on the detection of energy emitted from radioactive substance given to the patient either intravenously, orally, by inhalation or via instillation. Generally, radiation to the patient is similar to that resulting from standard X-ray examination. In this regards, a person who operates the nuclear medicine system must be properly trained in specific procedures of nuclear medicine. This program is designed for participants to gain knowledge on radiation protection for better radiation safety practice in nuclear medicine. This course will enable participants to improve their competency in the nuclear medicine aspects including the equipment operational procedures and safety measure. It covers both theoretical and practical application of basic nuclear medicine procedures. The syllabus is based on national requirement, with due consideration on the international standard and practice.



Radiation Protection in Nuclear Medicine

Perlindungan Sinaran dalam Perubatan Nuklear

OBJECTIVES

- ❖ To provide understanding of the philosophy and principles of radiation protection in nuclear medicine
- ❖ To be familiarized with equipment, protocols and methodology used in nuclear medicine procedures
- ❖ To create awareness on the radiation hazards, biological effects and risk of ionizing radiation in nuclear medicine
- ❖ To emphasize the importance of the right working procedures in nuclear medicine
- ❖ To improve performance in the clinical aspects of nuclear medicine
- ❖ To enhance knowledge and skills in ways that can be immediately applied to the practice of nuclear medicine

COURSE OUTLINES

MODULE 1: RADIATION SAFETY

- ❖ Basic Nuclear Physics
- ❖ Quantities and Units
- ❖ Overview of Radiation Practices
- ❖ Biological Effects of Ionizing Radiation
- ❖ Principles of Radiation Protection
- ❖ International Framework
- ❖ Operational Protection Against Radiation
- ❖ Exposure
- ❖ Assessment of External and Internal
- ❖ Exposures
- ❖ Transportation
- ❖ Safety Culture
- ❖ Radiation Protection in Organization and
- ❖ Quality Assurance (QA)
- ❖ Emergency Preparedness

FEES

Fees/Pax	Normal Price	After IPTN Discount
Single Registration	RM2,800.00	RM2,660.00
Team Registration (2 or more)	RM2,660.00	RM2,520.00

MODULE 2: FACILITIES, EQUIPMENT & RADIOPHARMACEUTICAL

- ❖ Equipment and Facilities
- ❖ Feature Facility and Design
- ❖ Occupational Radiation Protection
- ❖ Personal Protection
- ❖ Liaison and Cooperation
- ❖ Waste Management
- ❖ QC Procedures
- ❖ Good Manufacturing Practice (GMP)
- ❖ Care of Nuclear Medicine Instruments

MODULE 3: CLINICAL TECHNIQUE AND PRACTICE

- ❖ Nuclear Medicine Techniques
- ❖ Clinical Procedure
- ❖ Interpretation Aspects

METHODOLOGY

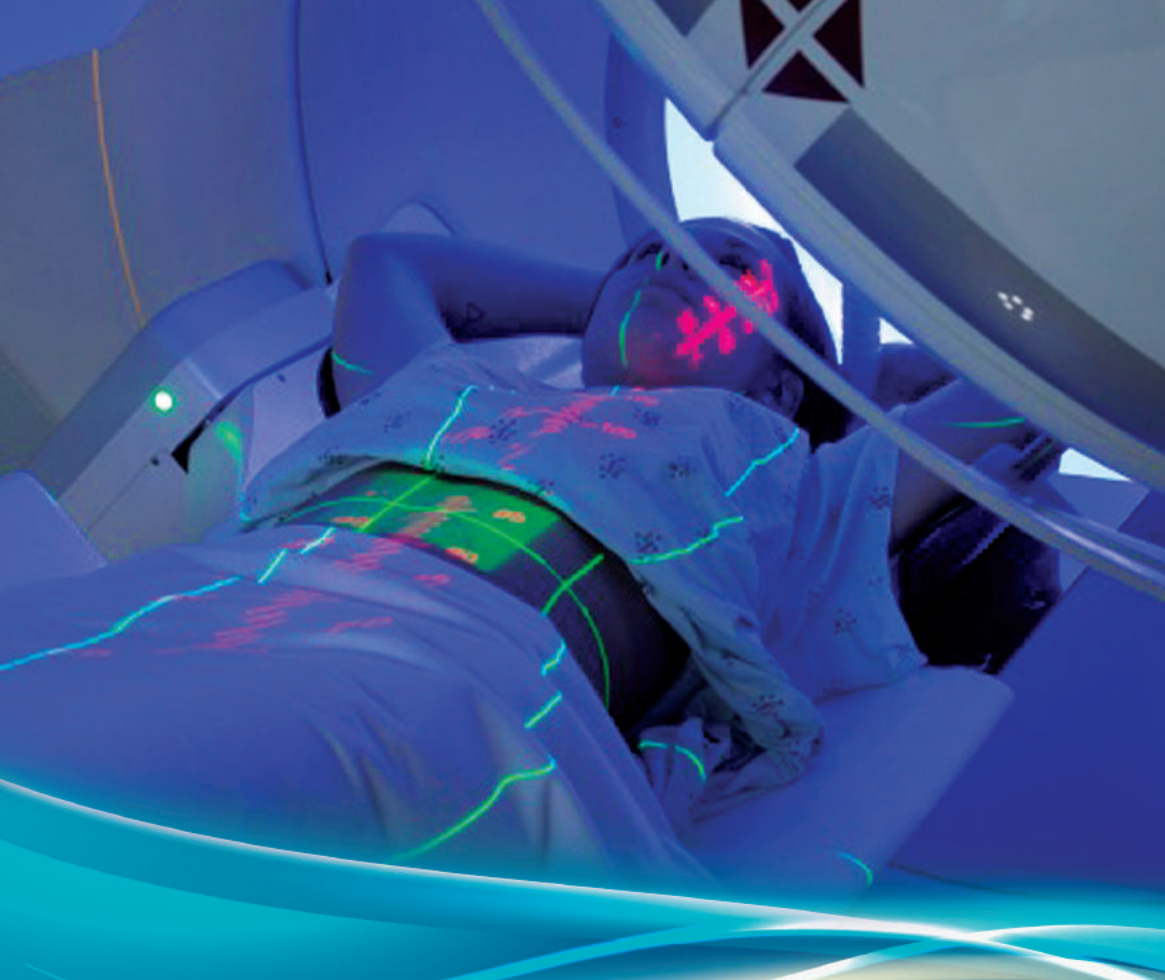
- ❖ This course will be held at two separate locations.
- ❖ The first 5-days at Nuklear Malaysia for Module 1 and part of Module 2. The other part of Module 2 and the whole Module 3, will be conducted in Hospital for 5-days, with clinical practices for the last 2-days
- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)
- ❖ Atomic Energy Licensing Board (AELB)
- ❖ Participating Hospital

WHO SHOULD ATTEND

- ❖ Nuclear medicine physician
- ❖ Technologist
- ❖ Medical officer
- ❖ Pharmacist
- ❖ Nurses in government or private hospital





PREAMBLE

Radiotherapy is part of a process in treating cancers. It used radioactive materials which gives the benefit to patient's life as malignant tissues can be reduced by utilizing external beam during treatment. The usage of the treatment must be in line with rules and regulation stated by Ministry of Health parallel with the requirement of Atomic Energy Licensing Act 1984. Any misuse or damage can result in a worst situation. In this course, a better understanding will be delivered to those who utilize this type of treatment for their patients, which use radiation to destroy cancer cells.



Awareness Course on Radiation Protection in Radiotherapy

Kursus Kesedaran Perlindungan Sinaran dalam Radioterapi

OBJECTIVES

- ✧ To provide understanding of the philosophy and principles of radiation protection in nuclear medicine
- ✧ To be familiarized with the equipment, protocols and methodology used in nuclear medicine procedures
- ✧ To create awareness on the radiation hazards, biological effects and risk of ionizing radiation in nuclear medicine
- ✧ To highlight the importance of the right working procedures in nuclear medicine
- ✧ To improve performance in the clinical aspects of nuclear medicine
- ✧ To enhance knowledge and skills in ways that can be immediately applied to the practice of nuclear medicine

COURSE OUTLINES

- ✧ Introduction of Radiation Physics in Radiotherapy
- ✧ Principles of Radiation Protection
- ✧ Biological Effect of Radiotherapy
- ✧ Properties and Safety in Radiotherapy Source and Equipment
- ✧ Design of Facilities and Shielding of Work Place
- ✧ Legislative Requirement Act 304
- ✧ External Beam Treatment Planning

METHODOLOGY

- ✧ Participative lectures
- ✧ Group discussion

TRAINERS/FACILITATORS

- ✧ Malaysian Nuclear Agency (Nuklear Malaysia)
- ✧ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ✧ Oncologist
- ✧ Physicist
- ✧ Therapy Radiographer
- ✧ General Practitioner
- ✧ Medical Officer
- ✧ Radiation Protection Officer/Supervisor (RPO/RPS)
- ✧ Radiographer
- ✧ Medical Physicist
- ✧ Lecturer
- ✧ X-ray Operator
- ✧ Nurse
- ✧ All those who are involved in the use of Radiotherapy equipment

FEES

Fees/Pax	Normal Price	After IPTN Discount
Single Registration	RM520.00	RM490.00
Team Registration (2 or more)	RM480.00	RM460.00

PREAMBLE

Radiotherapy is the treatment of diseases using ionizing radiation and is mainly associated with cancer treatment, but to a limited extent, is also used for the treatment of some non-malignant diseases. In external beam radiotherapy, radiation beams originating from an external source is directed towards the treatment site on the patient. These beams are usually created through the use of a linear accelerator or a cobalt unit. In brachytherapy, small and encapsulated radioactive sources are placed directly into or near the volume to be treated. Endovascular brachytherapy is used for prevention of restenosis in arteries following coronary artery angioplasty. This 5-day course will provide a better understanding in the usage of radiation for therapeutic purposes. It covers both theoretical and the practical applications of radiotherapy.

Radiation Protection in Radiotherapy

Perlindungan Sinaran dalam Radioterapi

OBJECTIVES

- ❖ To provide understanding of the philosophy and principles of radiation protection in radiotherapy
- ❖ To be familiarized with the equipment, protocols and methodology used in radiotherapy
- ❖ To create awareness on the radiation hazards, biological effects and risk of ionizing radiation in radiotherapy
- ❖ To emphasize the importance of the right working procedures in radiotherapy
- ❖ To enhance knowledge and skills in ways that can be immediately applied to the practice of radiotherapy

COURSE OUTLINES

- ❖ Radiation Physics
- ❖ Biological Effects of Ionizing Radiation
- ❖ Principles of Radiation Protection and the International Safety Standards
- ❖ Safety Measures in Exposure Room
- ❖ Properties and Safety of Radiotherapy Sources and Equipment: External Beam and Brachytherapy
- ❖ Design of Facilities and Shielding Calculation
- ❖ Occupational Exposure
- ❖ Medical Exposure: Optimization in External Beam Therapy and Brachytherapy
- ❖ Medical Exposure: Quality Assurance (QA)
- ❖ Medical Exposure: Potential and Accidental Exposures

- ❖ Transport Safety
- ❖ Security of Sources and Disposal of Disused Sources
- ❖ Discharge of Patients/Protection of the Public
- ❖ QA Procedures
- ❖ Output Measurements
- ❖ Treatment Planning Procedures: External Beam and Brachytherapy
- ❖ Simulation Procedures
- ❖ Treatment Procedures: External Beam and Brachytherapy

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)
- ❖ Atomic Energy Licensing Board (AELB)
- ❖ Participating Hospital

WHO SHOULD ATTEND

- ❖ Medical/Health Physicist
- ❖ Radiographer
- ❖ Medical Officer
- ❖ Lecturer QA Personnel
- ❖ Vendor/Supplier

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM2,035.00	RM1,930.00
Team Registration (2 or more)	RM1,930.00	RM1,830.00



DENTAL

PREAMBLE

X-ray examination is an important tool that helps dentists to diagnose, plan, treatments and monitor both treatments and lesion development. A panoramic X-ray is a commonly performed examination by dentists and oral surgeons in everyday practice and is an important diagnostic tool. It covers a wider area than a conventional intraoral X-ray and as a result, provides valuable information.

Awareness Course on Radiation Protection in Dental Radiology

Kursus Kesedaran Perlindungan Sinaran dalam Radiologi Pergigian

OBJECTIVES

- ❖ To introduce the philosophy and principles of radiation protection in dental radiology
- ❖ To create awareness on radiation hazards, biological effects and risk of ionizing radiation in dental radiology
- ❖ To enhance knowledge and skill in ways that can be applied to the practice of dental radiology
- ❖ To widen the view regarding the safety of personnel when practicing dental radiology
- ❖ To be updated about modern dental radiology

COURSE OUTLINES

- ❖ Introduction of Radiation Physics in Dental Radiology
- ❖ Principle of Radiation Protection
- ❖ Biological Effect in Dental Radiology
- ❖ Radiation Dose and Risk
- ❖ Design of Facilities and Shielding of Work Place
- ❖ Legislation and Regulatory Requirement
- ❖ Management of QAP

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM520.00	RM490.00
Team Registration (2 or more)	RM480.00	RM460.00

METHODOLOGY

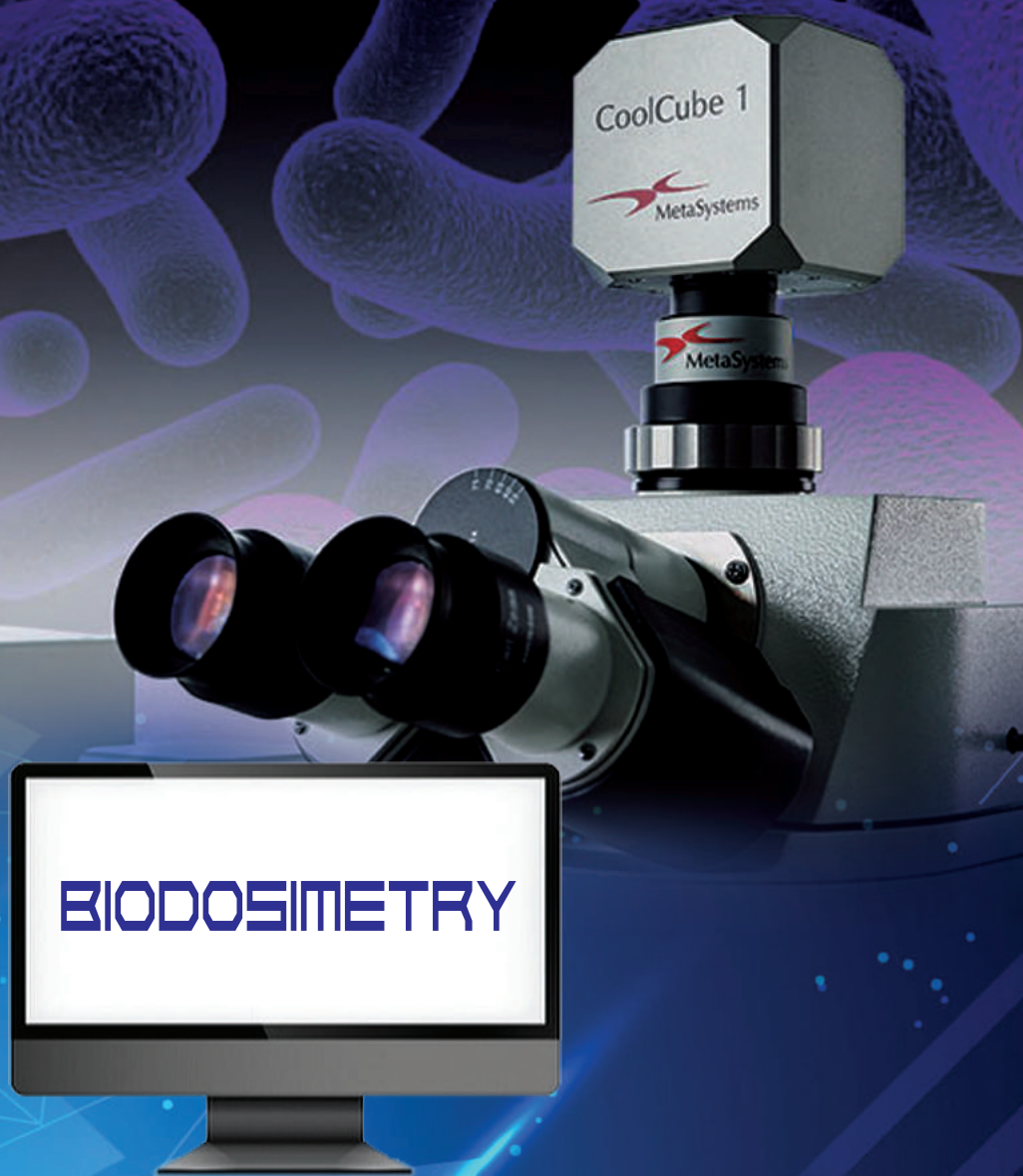
- ❖ Participative lectures
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ Dentist
- ❖ Physicist
- ❖ Therapy Radiographer
- ❖ General Practitioner
- ❖ Medical Officer
- ❖ Radiation Protection Officer/Supervisor (RPO/ RPS)
- ❖ Radiographer
- ❖ Medical Physicist
- ❖ Lecturer
- ❖ X-ray Operator
- ❖ Nurse
- ❖ All those who are involved in the use of dental radiology equipment



PREAMBLE

Radiation workers who received doses exceeding the allowable limit, or members of the public who were accidentally exposed to radiation are required to undergo a dose assessment using the biological method.

Therefore, Radiation Protection Officers (RPO), Radiation Protection Supervisors (RPS), Atomic Energy Licensing Board (AELB) personnel and medical officers need to have a basic knowledge on radiation effect to chromosome as the bio-indicator for dose estimation.

During radiation emergency, chromosome aberration of the exposed workers should be analyzed as soon as possible. The test results should be clearly comprehended by all personnel, so that immediate decision and medical treatment to the exposed workers can be performed effectively by the emergency response team.

Chromosome Aberration for Dose Assessment

Aberasi Kromosom untuk Penilaian Dos Sinaran

OBJECTIVES

- ❖ To provide theory and practical knowledge on chromosome aberration test
- ❖ To create awareness about the effect of radiation to human and basic safety radiation protection
- ❖ To provide understanding the chromosome aberration images; data analysis as well as chromosome aberration test result

COURSE OUTLINES

- ❖ Techniques and Applications of Chromosome Aberration for Dose Estimation
- ❖ Biological Safety
- ❖ Media Preparation and Blood Culture
- ❖ Effect of Radiation to Human
- ❖ Types of Chromosome Aberration
- ❖ Cell Harvesting and Slide Preparation
- ❖ Techniques for Measuring Radiation Dose
- ❖ Report and Interpretation of Test Results
- ❖ Chromosome Aberration Analysis and Result Interpretation
- ❖ Group Discussion

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)

WHO SHOULD ATTEND

- ❖ Radiation Protection Officer/Supervisor (RPO/RPS)
- ❖ Atomic Energy Licensing Board (AELB) personnel
- ❖ Student
- ❖ Industrial and Medical Radiation Worker
- ❖ Medical Officer
- ❖ Researcher

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM1,485.00	RM1,410.00
Team Registration (2 or more)	RM1,410.00	RM1,339.00



ULTRASOUND

PREAMBLE

Ultrasound imaging or scanning is a technique of capturing images from inside the human body by using high frequency sound waves, without involving the use of X-ray. The sound waves are emitted from a handheld device, called a probe or transducer, and upon hitting our body, the sound are reflected and captured by the same probe, which are then processed by the computer into real-time visual images. Ultrasound is a valuable way for your doctor to examine and observe the movements of our body's internal organs, like our heart, liver, gallbladder, spleen, pancreas, kidneys, bladder, the blood vessels and fetus or embryo in a pregnant woman.

Basic Course on Ultrasonography in Medical *Kursus Asas Ultrasound dalam Perubatan*

OBJECTIVES

- ❖ To provide knowledge on principle of ultrasound imaging
- ❖ To familiarize with the components, function and operation of ultrasound machine
- ❖ To acquire skills needed to analyze and interpret ultrasonography images

COURSE OUTLINES

- ❖ Basic Physics of Ultrasound
- ❖ Principle and Safety of Ultrasound in Pregnancy
- ❖ The Ultrasound Scanner: Planes and Transducer Position
- ❖ Sonography Cross Sectional Anatomy in Obstetrics
- ❖ Ultrasound of the Fetal Heart
- ❖ Central Nervous System, Gastrointestinal Tract and Urogenital System Anomalies
- ❖ Anomalies

METHODOLOGY

- ❖ Participative lectures
- ❖ Demonstration/Practical
- ❖ Simulation
- ❖ Group discussion

TRAINERS/FACILITATORS

- ❖ Malaysian Nuclear Agency (Nuklear Malaysia)
- ❖ Ministry of Health (MOH)
- ❖ Participating Hospital

WHO SHOULD ATTEND

- ❖ General Practitioner
- ❖ Radiographer
- ❖ Those who are interested to operate ultrasound in order to determine gestational age, detection of multiple pregnancies and fetal anomalies

FEES

Fees/Pax	Normal Price	After IPTN discount
Single Registration	RM500.00	RM475.00
Team Registration (2 or more)	RM475.00	RM450.00



TRAINING

**OTHERS
TRAINING,
SERVICES
& ETC**

AGENCY BASED PROGRAMME LATIHAN ASAS AGENSI

All courses can be conducted as in-company basis tailored to meet specific needs.

Semua kursus boleh dijalankan sebagai kursus asas agensi direka bentuk mengikut keperluan organisasi.

Investment / Fees

Programme (No. of days)	Fees / Rates*	Certificate
1 day	RM3,600.00	Statement of Attendance
2 days	RM6,800.00 @ RM3,400.00 per day	Statement of Attendance
3 days	RM9,600.00 @ RM3,200.00 per day	Certificate of Attendance
Above 3 days	RM3,200 per day	Certificate of Attendance

- Bench fees of RM750.00 per day are charges for course conducted in Nuklear Malaysia
- Programme conducted outside Nuklear Malaysia, additional cost for accomodation, food and travelling should be added.
- If interested, please fill up the form at page 38 and submit to adnin@cc.nuclearmalaysia.gov.my



CONSORTIA KONSORTIA

A derived version of in-company programme, designed for a small group of companies that provide the benefit of customized programme and based on cost-sharing principles.

Merupakan versi terbitan program asas agensi direka bentuk untuk sekumpulan syarikat dengan mendapat manfaat program reka khas berdasarkan prinsip perkongsian kos.

E- TUITION

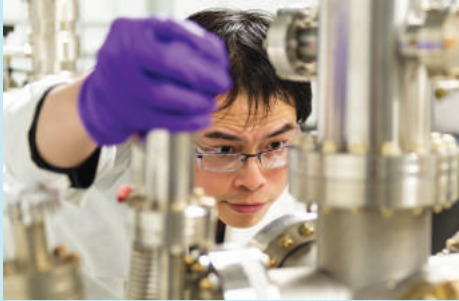
An online system that enable clients to reach our training programme 'anywhere, anytime'. User can learn at own place, sit for an examination and get certified on site.

Merupakan sistem atas talian yang membolehkan peserta mendapat latihan 'setiap ketika, di mana jua'. Pelanggan boleh belajar mengikut kesesuaian masing-masing, menduduki peperiksaan serta mendapat sijil serentak.

OTHERS TRAINING / LAIN-LAIN LATIHAN

ASSOCIATED PARTNERSHIP / KERJASAMA LATIHAN BERSEKUTU

A form of training cooperation with the concept of PPP (Public-Private Partnership) between Nuclear Malaysia and NGO/Companies /Organizations that focus on training management partnership through system efficiency, innovation elements and accountability injected into training programs to improve the overall quality system to be more viable at local and internationally.



SCIENTIFIC ATTACHMENT / SANGKUTAN PENYELIDIKAN



Scientific attachment programs provide dynamic learning for researches and scientist to enhance their knowledge and experience in the field of nuclear applications and technologies. Through this programme, participants undertake specific research / projects will be supervised by our highly experienced & skilled Nuclear Malaysia Researcher in their respective research facilities. This programme is offered openly to the local and international researchers / scientists.

Radiation Safety and Health / Keselamatan Sinaran dan Kesihatan

Field of Scientific attachment programme / Bidang Sangkutan Saintifik yang ditawarkan

- ❖ Radiation Safety and Health / Keselamatan Sinaran dan Kesihatan
- ❖ Non Destructive Testing / Ujian Tanpa Musnah
- ❖ Medical Technology / Teknologi Perubatan
- ❖ Non-Ionizing Radiation / Sinaran Tidak Mengion
- ❖ Plant Assessment Technology / Teknologi Penilaian Tumbuhan
- ❖ Radiation Waste Management / Pengurusan Sisa Radioaktif
- ❖ Nuclear Engineering and Reactor Application / Aplikasi Kejuruteraan Nuklear dan Reaktor
- ❖ Agriculture & Bioscience / Pertanian & Biosains
- ❖ Material Technology / Teknologi Bahan
- ❖ Ionization Radiation Metrology / Metrologi Sinaran Mengion
- ❖ Nuclear Engineering Support / Kejuruteraan Sokongan Nuklear
- ❖ Medical Physics / Fizik Perubatan
- ❖ Environment / Alam Sekitar

Sebarang maklumat lanjut boleh layari / For more information visit
<http://www.nuclearmalaysia.gov.my/edu/mainEdu.php>

QC SERVICES



● MEDICAL PHYSICS LABORATORY

The Medical Physics Laboratory in NUKLEAR MALAYSIA was formally formed in 1995 with the objectives;

- To confirm that the diagnostic X-ray machine used in medical field are operated at its optimum performance and to reduce repeat examination, hence to reduce radiation dose to patient
- To establish a secondary standard laboratory for calibration of QC test tools used in medical diagnostic.

● CORE ACTIVITIES:

- Quality Control in Diagnostic Radiology (all type of medical X-ray)
- Medical Physics Standard laboratory in Diagnostic Radiology and Nuclear Medicine
- Calibration of QC test tools used in Diagnostic Radiology (accredited laboratory - ISO 17025)
- Calibration of Dose Calibrator and Thyroid counter used in Nuclear Medicine Facility
- Integrity testing/measurement including lead equivalent thickness of protective barriers (Irradiation room, shielding facilities)
- Training and Educational in Diagnostic X-ray for medical staffs (Medical X-ray, CME)
- R&D in Medicals Physics (Industrial Training for IPTA students)

● OTHER SERVICES:

- Consultation on the implementation of the Atomic Energy Licensing Act 304 and Code

of practice for Radiation Protection (Medical X-ray Diagnosis) MS 834

- Personnel and area dose monitoring
- Consultation on patient dose reduction and patient dose assessment
- Measurement of leakage and scattered radiation
- Consultation in radiation protection and RPO service

● OUR STRENGTH

- Nationally and internationally accredited and recognized as the center of excellent in radiation protection more than 20 years
- National custodian of Standard in Radiation Measurements, and equipped with a wide range of equipment and test tools including laboratories calibration
- Medical Physics lab is very well structured and supported by highly qualified and experienced personnel
- License H Holder by Ministry of Health for certification and testing for medical irradiation apparatus and associated facilities, measurement lead equivalent thickness irradiation room and shielding facilities.

● INQUIRIES / CONTACT US:

MOHD KHALID MATORI

Email : khalid_matori@nuclearmalaysia.gov.my

Mobile: +6013.375.2676

Office: +03.8911.2000 (ext: 1513)

PUBLICATION SERIES

MEDICAL X-RAY

Second Edition

ISBN 987-967-9970-41-8

MEDICAL X-RAY describes the fundamental subject about medical radiography. It is multidisciplinary field that requires cross professional input from diverse professional background such as scientists, engineers and medical doctors. Hence, it is presented in a simple language to suit different levels of readers from X-ray operators and radiographers to physicists, general practitioners and radiological specialists.

The book is written in accordance to the requirements of the standard syllabus approved by the Ministry of Health Malaysia for the training of medical X-ray operator and general practitioners. In general, the content

is not only designed to provide relevant and essential subject for related professionals in medical radiological services such as X-ray operator, radiographer and radiologist, but also to address those in associated radiological services including nurse, medical technologists and physicists.



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For more details, please contact : Mr. Muhammad
 Naziruddin Qayyum. 03-89112000 Ext: 2603

Signature : Date :

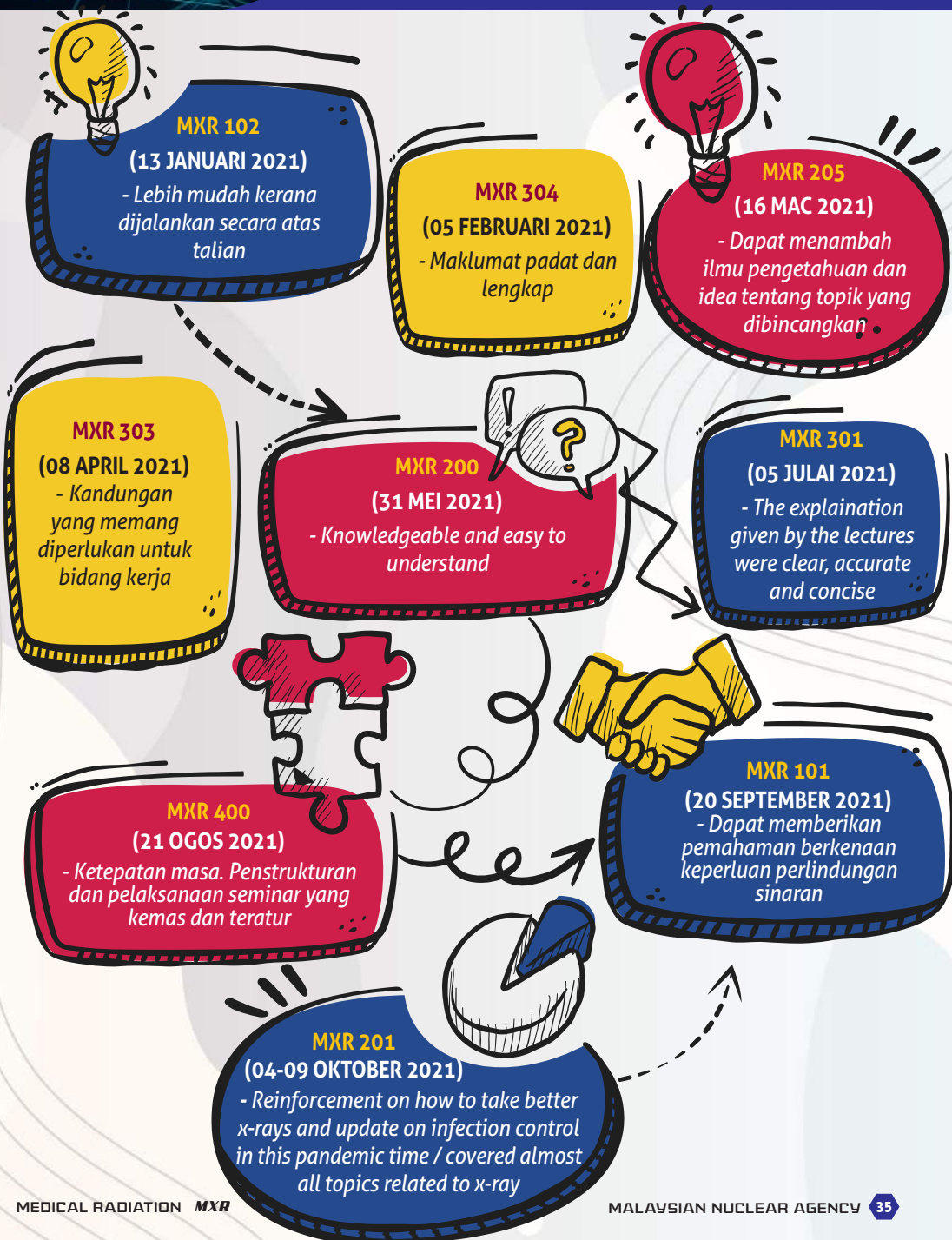
TRAINING ACTIVITIES / AKTIVITI LATIHAN



CENTRE OF NUCLEAR EXCELLENCE (CoNE) PUSAT KECEMERLANGAN NUKLEAR



PARTICIPANTS TESTIMONIAL / TESTIMONI PESERTA





HOW TO REGISTER

Please send us the complete registration form or participant's details (Name, I.C. / Passport Number, Company Name, Preferred Course and Date, Contact info) via:

📍 POST-MAIL :

Director General
Malaysian Nuclear Agency (Nuklear Malaysia)
Block 57, Kompleks Jalan Dengkil
Bangi, 43000 Kajang, Selangor
Attn: Centre of Nuclear Excellence (CoNE)

☎ FAX

03-8911 2180

✉ E-MAIL

nurartika@cc.nuclearmalaysia.gov.my
adnin@cc.nuclearmalaysia.gov.my
munira@nuclearmalaysia.gov.my

🌐 ONLINE REGISTRATION

<http://eclient.nuclearmalaysia.gov.my>
<http://trainingcentre.nuclearmalaysia.gov.my>

🚶 WALK-IN

Walk-in participants with payment will also be admitted on a space available basis

ℹ FURTHER INFORMATION

Please visit our website:
<http://trainingcentre.nuclearmalaysia.gov.my>

TERMS AND CONDITIONS

Full registration fee is required with the registration form. Fees include the cost of training material, luncheons, coffee breaks and refreshments. Payment through **bank draft / money order / company cheque / Local Order (L.O.)** should be crossed and made payable to **Director General Malaysian Nuclear Agency**. The management has the right to change the date / venue of the event prior to the date with a notice in advance.

REGISTRATION FORM

Preferred Course: (Please tick (✓))

<input type="checkbox"/> MXR 100	<input type="checkbox"/> MXR 101	<input type="checkbox"/> MXR 102	<input type="checkbox"/> MXR 103	<input type="checkbox"/> MXR 104	<input type="checkbox"/> MXR 105
<input type="checkbox"/> MXR 200	<input type="checkbox"/> MXR 201	<input type="checkbox"/> MXR 202	<input type="checkbox"/> MXR 203	<input type="checkbox"/> MXR 204	<input type="checkbox"/> MXR 205
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	<input type="checkbox"/> MXR 305	<input type="checkbox"/> MXR 306	<input type="checkbox"/> MXR 307	<input type="checkbox"/> MXR 400	

Preferred Date: / / (dd / mm / yyyy)

Name:
(as in I.C. / Passport)
to be printed on certificate

I.C. No. (New) / Passport No. :

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Designation:

Meal Restriction (Special Diet): ☐ No ☐ Yes (if yes, please state)

The registration fee of RM bank draft / money order / company cheque / Local Order (L.O.) payable to **Director General Malaysian Nuclear Agency** is enclose herewith.

Name of Approving Manager:

Position:

Company Name & Address:

Signature :

Telephone :

Mobile :

Fax :

E-mail :

(PLEASE PHOTOCOPY FOR ADDITIONAL PARTICIPANTS)

Please send to :
Director General
Malaysian Nuclear Agency (Nuklear Malaysia)
Block 57, Kompleks Jalan Dengkil, Bangi, 43000 Kajang, Selangor.
(Attn: **Centre of Nuclear Excellence (CoNE)**)
Tel: +603.8911.2000 ext: 2600/2601/ 2606



AGENCY BASED PROGRAMME REGISTRATION FORM

(IN-COMPANY TRAINING REQUEST FORM) / BORANG PERMOHONAN LATIHAN ASAS AGENSI

Code / Title Name :

Mode of Training : () Classroom () Online

Duration (No. of Days) :

Training Venue:

Number of Participants:

Company Details:

Name of Company:

Address:

Name:

Designation:

E-mail:

Tel:

(off.)

(h/p):

Fax:

Company Stamp :

Date :



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MUHAMMAD ADNIN SHAHRI

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Office : +603.8911.2000 (ext: 2606)

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Office : +603.8911.2000 (ext: 2601)





KEMENTERIAN SAINS,
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MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION



MEDICAL RADIATION *SINARAN PERUBATAN*



<http://trainingcentre.nuclearmalaysia.gov.my>