DPU

Dr. D. Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)

Syllabus for
PG Surgical Specialties

2014 - 15
(Amended / Revised upto July 2019)

DPU

Dr. D.Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)
(Re-accredited by NAAC with a CGPA of 3.62 on a four point scale at 'A' Grade)
(An ISO 9001 : 2015 Certified University)

Dr. A. N. Suryakar
Registrar

Ref. No. : DPU/875-vii/2019
Date : 11/09/2019

NOTIFICATION

Whereas in pursuance of the following decisions taken by the Board of Management, it is hereby notified to all concerned that the **"Syllabus for PG Medical and Surgical Specialties – 2014-15"** is **revised upto July 2019** and hereby published.

- Changes in syllabus for UG and PG in General Medicine, Pulmonary Medicine and General Surgery vide **Resolution No. BM-07-(iii)-4 dated 28th January, 2014.**
- Updation in UG and PG syllabus of General Medicine, **Obstetrics & Gynecology, Orthopedics, Anaesthesiology, ENT and Ophthalmology** vide **Resolution No. BM-04(i)-15, dated 31st March, 2015.**
- Modifications in pattern of PG practical examinations for MD (General Medicine), MD (Pediatrics), MS (General Surgery), and MS (OBGY) vide **Resolution No. BM-26(iv)-15, dated 29th December, 2015.**
- Updation in PG syllabus in Radio-Diagnosis subject vide **Resolution No. BM-26(vii)-15, dated 29th December, 2015.**
- Introduction of Bioethical aspects in various chapters of all subjects vide **Resolution No. BM-26(xi)-15, dated 29th December, 2015**
- Partial Modifications in Pattern of PG Practical Examinations for MD (General Medicine) and MS (General Surgery) **vide Resolution No. BM-17(vii)-16, dated 22nd September, 2016.**
- Modifications in the syllabus of MD (Emergency Medicine) **vide Resolution No. BM-35(iv)-18, dated 12th October, 2018.**
- Changes in teaching and assessment of MS (Ophthalmology), **vide Resolution No. BM-35(v)-18, dated 12th October, 2018.**
- Changes in the practical examination pattern of M.S. (Orthopedics) **vide Resolution No. BM-35(vi)-18, dated 12th October, 2018.**
- Change in practical examination pattern of MD (Dermatology) **vide Resolution No.BM-35(vii)-18, dated 12th October, 2018.**
- Graduate Attributes, Programme Outcomes (POs), Course Outcomes (Cos) and gap analysis for all courses of UG and PG Programmes for Para-Clinical and **Surgical** Subjects **vide Resolution No. BM-10(vii)-19 dated, 12th April, 2019.**
- Interdisciplinary subjects (**for Surgical Subjects**) of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine **vide Resolution No. BM-10(viii) dated 12th April, 2019.**
- Changes in syllabus of MD (General Medicine) and MD (Psychiatry) **vide Resolution No. BM-27(iv)-19 dated 30th July, 2019.**
- Modifications in MD (Respiratory Medicine) Practical examination pattern **vide Resolution** No. BM-27(vii)-19 **dated 30th July, 2019.**

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- Graduate Attributes, Programme Outcomes (POs), Course Outcomes (Cos) outcome analysis of Pos and Cos and mapping with objectives for all courses of UG and PG Programmes of Pre-Clinical and **Medicine** Subjects under the Faculty of Medicine **vide Resolution No. BM-27(x)-19 dated 30th July, 2019.**
- Interdisciplinary subjects **(for Medicine Subjects)** of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine **vide Resolution No. BM-27(xi) dated 30th July, 2019.**

The **Syllabus for PG Medical and Surgical Specialties – 2014-15" is Revised upto July 2019** will be useful to all the concerned. This will come into force with immediate effect.

Dr. D. Y. PATIL VIDYAPEETH PIMPRI, PUNE-18. Deemed to be University

(Dr. A. N. Suryakar)
Registrar

Copy to:
1. PS to Chancellor for kind information of Hon'ble Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
2. PS to Vice Chancellor for kind information of Hon'ble Vice Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
3. The Dean, Dr. D. Y. Patil Medical College Hospital & Research Centre, Pimpri, Pune
4. The Controller of Examinations, Dr. D. Y. Patil Vidyapeeth, Pune.
5. Director (IQAC), Dr. D. Y. Patil Vidyapeeth, Pune.
6. Web Master for uploading on Website.

MAPPING OF PROGRAMME OUTCOMES [POs] AND COURSE OUTCOMES [COs] OF PG PROGRAMMES

MS (SURGERY) PROGRAMME OUTCOMES

Sr. No	**By the end of the programme, the Medical Postgraduate Will have**
PO 1	Knowledge and Skills
PO 2	Planning and problem solving abilities
PO 3	Communication
PO 4	Research Aptitude
PO 5	Professionalism and Ethics
PO 6	Leadership
PO 7	Societal Responsibilities
PO 8	Environment and Sustainability
PO 9	Lifelong Learner

SURGERY COURSE OUTCOME – PG
SUBJECT CODE –PGS01

Sr.No	By the end the Course, the student will be able to
1	Recognize the importance to the concerned surgery in the context of the health needs of the community and the national priorities in the health section.
2	Practice the surgery concerned ethically and in step with the principles of primary health care.
3	Demonstrate sufficient understanding of the basic sciences relevant to the surgery specialty.
4	Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
5	Diagnose and manage majority of the conditions in the surgery concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
6	Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the surgery specialty.
7	Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
8	Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations.
9	Play the assigned role in the implementation of national health programme, effectively and responsibly.
10	Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation
11	Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources
12	Demonstrate competence in basic concepts of research methodology and epidemiology and be able to critically analyze relevant published research literature**.**
13	Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
14	Function as an effective leader of a health team engaged in health care, research or training.

MD RADIODIAGNOSIS PROGRAMME

Course Code	Course Title
PGS07	MD Radiodiagnosis

Course 1 (Subject Code)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
PGS07.1	Be a Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion	PO1,PO2,PO3, PO4,PO5,PO7,PO8,
PGS07.2	Analyse and interpret hospital based investigation data	PO1,PO2,PO4,PO5, PO8,PO9
PGS07.3	Use the art of communication with patients families, colleagues and community including history taking and patients	PO1,PO2,PO3,PO5, PO6,PO7,PO8,PO9
PGS07.4	Analyse, interpret and Diagnose common health problems and emergencies at the individual, family keeping in mind the existing health care resources in the context of the prevailing socio-culture beliefs	PO2,PO5, PO6,PO9
PGS07.5	Be a Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession	PO1,PO2,PO3,PO5, PO7,PO8,
PGS07.6	Plan, implement and evaluate a health education programme with skill to use simple audio-visual aids	PO1,PO2,PO3,PO5, PO6,PO7,PO8, PO9
PGS07.7	Interact with other members of the health care team and participate in the organization of health care services and implementation of national health programmes	PO1,PO2,PO3,PO4,PO5, PO6,PO7,PO8,PO9
PGS07.8	Identify the environmental and occupational hazards and their control	PO1,PO2,PO3,PO4,PO5, PO6,PO7,PO8,PO9

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
PGS07.9	Be a Lifelong learner committed to continuous improvement of skills and knowledge	PO1,PO2,PO3,PO4,PO5, PO6, PO7,PO8,PO9

RADIO-DIAGNOSIS

SYLLABUS FOR RADIO-DIAGNOSIS

GOAL :

The broad goal of the teaching & training of Post-graduate students in Radiodiagnosis is to make them understand & implement the knowledge regarding the role of various imaging modalities, helpful in the management of different clinical condition. At the end of his/her training, he/she should be capable to take up career in teaching institution or in diagnostic center or in research.

OBJECTIVE:

a) Knowledge :

At the end of the course the student shall be able to :

1. Explain the interaction of the X-ray with mater to produce an image.
2. Familiarize with the principles of various imaging modalities (e.g. USG/CT/MRI) & their application in medicine.
3. Explain the biological hazards of ionizing radiation and protective measures.
4. Explain the normal Anatomy, Physiology of various organs and their deviation from normal & its consequence.
5. Summarize the fundamental aspects of embryology & alteration in development with reference to congenital anomalies.
6. Select appropriate imaging modality for study of specific condition.
7. Explain the role of imaging, pre-operative, intra-operative & post-operative condition.
8. Evaluate role of imaging modalities in various therapeutic applications (Interventional Radiology)
9. Update information about recent advances in imaging sciences.
10. Effectively conduct organize and supervise the diagnostic procedures to ensure quality control/assurance.

b) Skills :

At the end of the course the student shall be able to:

1. Make use of conventional and other imaging sciences to achieve definitive diagnosis.
2. Analyze and interpret imaging data
3. Demonstrate the skills of solving scientific and clinical problems and decision making.
4. Develop skills as self-directed learner, recognize continuing educational needs, select & use appropriate learning resources.
5. Demonstrate competence in basic concepts of research methodology and be able to critically analyze relevant literature.

c) Integration :

Knowledge acquired in Radiodiagnosis shall help the student to integrate imaging techniques with structure and function of the human body in health and disease.

RULES AND REGULATIONS FOR THE PG DEGREE AND DIPLOMA COURSES IN RADIODIAGNOSIS & IMAGING

1. GENERAL :

These rules and regulation as per the directives of Medical Council of India and Dr. D. Y. Patil medical college, and Research Centre Hospital, Pimpri, Pune.

2. FACULTY :

This course shall be under medical faculty

3. NOMENCLATURE OF DEGREE:

Subject	Degree	Diploma
Radiodiagnosis	M.D. (Doctor of Medicine)	D.M.R.D.(Diploma in Medical Radiological Diagnosis)

ELIGIBILITY REQUIREMENT FOR PG DEGREE & DIPLOMA IN RADIODIAGNOSIS :

The candidate must possess recognized degree of M.B.B.S. (or its equipment recognized degree) for MD & DMRD courses.

(1) ELIGIBILITY FOR REGISTRATION :

Every candidate for registration for Post-Graduate Medical Courses in any of the branches must have completed with the conditions laid here under:

A) For MD (Radiodignosis) & DMRD (Diploma in Medical Radiological Dignosis): The candidate should have passed examination for M.B.B.S. of this University or any other University or any other equivalent examination recognized by MCI.

B) Completed such period of post-examination pre-degree compulsory housemanship or internship or rotating internship which entitled him to the award of the degree of Bachelor of Medicine and Bachelor of Surgery required by and to the satisfaction of this University where applicable.

C) Acquired registration as Medical Practitioner according to the rule in force under the Maharashtra State Medical Council rules prior to registration with this University for the post-graduate degree/diploma courses in case of medical graduates.

D) The post-graduate students in Faculty of Medicine will not be permitted to register their names simultaneously for Diploma and Degree course of this University or any other University or any other College, e.g. CPS Bombay. He/She may, however, take up examination of National Academy of Medical Sciences, New Delhi.

2) PERIOD OF TRAINING :

A) The period of training for MD (Radiodiagnosis) shall be three years viz.6 academic terms after registration as a post-graduate student.

B) The period of training for DMRD two years viz.4 academic terms after registration as a post-graduate student.

3) NUMBER OF REGISTRATION :

1. The ratio of recognized postgraduate teacher to number of student to be admitted for the degree and diploma courses shall be 1:1 each for degree and diploma courses, in each unit per year, to the extent that in no circumstances more than two students for degree and one for diploma shall be registered in a unit in one academic year.

2. The exceptional cases, in a unit with 1 Post-graduate teacher and another teacher with Postgraduate qualification a maximum of 2 students can be admitted per year with the prior permission of the University.

4) TRAINING PROGRAMME :

1. The training given with due care to the postgraduate students in the recognized institutions for the award of various postgraduate medical degree/diplomas shall determine the expertise of the specialists and/or medical teachers produced as a result of the educational programme during the period of stay in the institution.

2. All candidates joining the postgraduate training programme shall work as full time Residents during the period of training; attending not less than 80% (Eighty Percent) of the training during each calendar year; and will be given full time responsibility, assignments and participation in all facts of the educational process.

3. The postgraduate students of the institution which are located in various States/Union Territories shall be paid remuneration at per with remuneration being paid to the postgraduate students of State Government Medical institutions/Central Government. Medical Institutions in the State/Union. Territory in which the institution is located. Similar procedure shall be followed in the matter of grant of leave to postgraduate students.

4. a) Every institution undertaking postgraduate training programme shall set up an Academic Cell or a Curriculum Committee, under the Chairmanship of a Senior faculty member, which shall work out the details of the training programme in each specialty in consultation with other department faculty staff and also co-ordinate and monitor the implementation of theses training programme.

   b) The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed to enable the examiners to determine the training undergone by the candidates and the Medical Council of India Inspectors to asses the same at the time of inspection.

c) Postgraduate students shall maintain a record (log) book of the work carried out by them and the training programme undergoneduring the period of training including details of surgical operations assisted or done independently by MS/M.ch candidates.

d) During the training for Degree/Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences related to the disciplines concerned; during the training for the degrees to be awarded in basic medical sciences, there shall be training in applied aspects of the subject and there shall be training in allied subjects related to the disciplines concerned in all postgraduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on Preventive and Social aspects and emergency care. Facilities of autopsies, biopsies, cytopsies, endoscopic and imaging etc. also be made available for training purposes.

5) METHOD OF TRAINING :

a) The training of postgraduate for Degree/Diploma should be half the Residency Pattern with patient care. Both the in service candidates and the stipenderies should be given similar clinical responsibility. The participation of the students in all facts of the educational process should be insisted upon and training in basic medical sciences and laboratory and experimental work emphasised. In basic Sciences adequate number of training posts of Demonstrator, Tutor etc., should be provided for.

b) DIPLOMAS :

In service training with students being given graded clinical responsibility; Lectures. Seminars, Journal Club, Group discussion and participation in Clinical and Clinico-pathological conferences; practical training to manage independently common problems in the specialty; and training in the Basic Medical Sciences.

6) COURSE CONTENT:

A) BASIC RADIOLOGY :

I. IMAGING TECHNIQUES AND MODALITIES :

1.1 Conventional radiological techniques and special radiological procedures.

1.2 Intravascular contrast media

1.3 Whole body Computed Tomography : Recent advances

1.4 Magnetic Resonance Imaging & applications

1.5 Ultrasound : General principles & applications

1.6 Medicolegal issues in Diagnostic Radiology

1.7 Radiation protection and patient does in diagnostic radiology.

II. RESPIRATORY SYSTEM :

2.1 **TECHNIQUES OF INVESTIGATIONS :**
Standard conventional radiological techniques and various imaging modalities like ultrasound, Computed Tomography, Magnetic Resonance Imaging, Angiography, Digital Radiography and Interventional Procedures.

2.2 **NORMAL CHEST :**
Radiological anatomy and CT terminology of lungs, central airways hila, mediastinum, diaphragm.

2.3 **INTERPRETATION OF CHEST RADIO GRAPH:**
Identification of radiographs (various views), detection and description of abnormalities such as pulmonary infections, airway obstruction, collapse, consolidation, pulmonary neoplasms, diffuse pulmonary disease, mediastinal masses, chest trauma, pulmonary thromboembolism, post-operative and critically ill patients, congenital pulmonary abnormalities, infant and pediatrics chest lesions.

III. THE HEART AND GREAT VESSELS:

3.1 Basic radiographic, CT, MRI imaging anatomy, interpretation and various terminologies.

3.2 Identification and interpretation of abnormal condition like congenital heart diseses, acquired heart diseases, cardiomyopathy, pericardial lesions, pathology of pulmonary circulations, and thoracic aorta.

IV. THE GASTROINTENSTINAL TRACT:

4.1 Normal radiographic and imaging findings of oesphagus, stomach, duodenum, small bowel and large bowel.

4.2 Identification and detection of various pathologies of oesphagus, stomach, duodenum, small bowel and large bowel.

4.3 Gastrointestinal, angiography, interventional radiology in gastrointestinal tract, pediatrics gastrointestinal radiology and there application in evaluation of gastrointestinal pathologies.

V. HEPATOBILIRY SYSTEM, PANCREAS, RETICULOENDOTHELIAL AND ENDOCRINE SYSTEM

5.1 Normal radiological and imaging anatomy of liver pancreas etc.

5.2 Radiological imaging and interventional radiological applications in evaluation of pathological condition related to hepatobiliary system, pancreas, reticuloendothelial and endocrine system including pediatric hepatobiliary, endocrine lesions.

VI. GENTO URENARY TRACT:

6.1 Radiological and imaging methods of investigations including conventional and various imaging methods.

6.2 Identification and interpretation of the Gentio urinary tract lesion like renal diseases, and urothelial lesions, urinary obstructions and abnormalities of urinary bladder, prostrate, urethra, injury to Gentio urinary tract, renal failure and transplantation.

6.3 Imaging in Gentio urinary tract in pediatrics

VII. SKELETAL SYSTEM :

7.1 Conventional radiological and imaging methods in evaluation of skeleton, trauma, bone tumors, myeloproliferative disorders, metabolic and endocrine diseases, skeletal dysplasias and joint disease.

VIII. THE REPRODUCTIVE SYSTEM :

8.1 Ultrasound in obstetrics and gynecology, imaging in gynecology, hysterosalpingography, breast and its imaging and male reproductive system.

IX. CENTRAL NERVOUS SYSTEM :

9.1 Skull and brain radiological and imaging methods of examination and normal anatomy.

9.2 Radiological and Imaging of cranial, intracranial pathologies like tumors, cerebro-vascular diseases, head trauma, infections, AIDS, demyelinating and metabolic diseases, epilepsy, spinal lesions, congenital lesions.

X. THE ORBIT, ENT, FACE, TEETH :

10. Methods of examination in evaluation of pathologies of orbit, ear, nose, throat, para nasal sinues, face, teeth, trauma, paediatrics eye and orbit and dental radiology.

B) RADIOLOGICAL PHYSICS AND X-RAY TECHNOLOGY:

1. Atomic structure, Radioactive Isotopes and Gamma Camera.
2. Radiation, Radiation hazards and protection.
3. Production of X-rays.
4. X-ray generators.
5. Properties of X-rays.
6. Fluroscopic imaging and image intensifier.
7. X-ray films
8. Radiographic image and geometry of radiographic image.
9. Computed tomography.
10. Ultrasound
11. Digital Radiography

12. Magnetic Resonance Imaging.
13. Cine Angiography
14. Digital Subtraction angiography
15. Radiation hazards and proyection
16. Pictorial archiving and communicating system (PACS)
17. DICOM
18. Darkroom techniques, layout of the darkroom, dark room processing, automatic film processor.
19. Intensifying screens, cassettes, grids, cones and collimators.
20. X-ray films, film artefacts, image details (Contrast, density)
21. PETCT-Positron Emission Tomography CT
22. SPECT-Single Protron Emission Computed Tomography
23. Teleradiology

7) EXAMINATION :

A) THESIS/DISSERTATION (FOR MD)

1. Should be submitted to University 8 months before the date of written, oral, clinical, practical examination. Approval of thesis is a precondition for permission to appear in the rest of examination.

2. Thesis : Every candidate shall carry out work on an assigned research project under the guidance of a Recognized Postgraduate Teacher, the result of which shall be written up and submitted in the from of Thesis.

   Work of writing the Thesis is a aimed at contributing to the development of a spirit of inquiry, besides exposing the candidate to the techniques of research, critical analysis, acquaintance with the latest advances in medical sciences and the manner of identifying and consulting available literature.

   The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for theory and clinical and on the acceptance of the thesis by two examiners, the candidate shall appear for the final examination.

3. In the thesis the candidate will not disclose his identity or identity of the guide or institution in any way.

4. If a student has submitted his examination form as also his thesis previously, he will be permitted to take the examination with a period of 4 years any time in future provided the thesis has been accepted. The term satisfactory kept by him are valid in future, only for a period of 4 years subsequence to submission of his thesis after which he will have to undergo Post-graduate training again for 4 terms to be eligible for appearing for the theory clinical and practical examination.

5. **THEORY EXAMINATIONS :**

1) There shall be four theory papers at MD examinations, of 100 marks each.

PAPER – I	100 Marks
PAPER – II	100 Marks
PAPER – III	100 Marks
PAPER – IV	100 Marks

Each paper of 100 marks consist of -

Three long answer questions carrying 20 marks each

Question – I	20 marks
Question – II	20 marks
Question – III	20 marks
Question – IV	Consist of 4 short answer question of 10 marks each 40 marks
	100 marks

PAPER – I

TOPICS TO BE COVERED :

Radiation Physics, Protective measures and Physics involving imaging techniques and related basic sciences eg. Anatomy, Physiology and Pathology

TOPICS :

1. Radiation and production of X-rays.
2. X-ray Generators
3. Basic interaction between X-ray and matter
4. Attenuation
5. Filters and grids
6. Luminescent screen
7. Physical and Pathologic characteristics of X-ray film and film processing.
8. Fluroscopic imaging – vewing and recording
9. Radiographic image and its geometry
10. Body section radiography
11. Stereoscopy
12. Xerox radiography
13. Computed Tomography
14. Ultrasound
15. Radiation's hazards and protection
16. Digital radiography
17. Magnetic Resonance image (MRI)
18. Wet processing of films –Chemistry of developer, fixer etc
19. Dry processing – chemistry of films and its processing
22. Teleradiology s
23. PACS
24. PETCT
25. SPECT

PAPER –II

TOPICS TO BE COVERED:

Radiological Imaging in congenital & Systemic disease – I

1) Respiratory system: Congenital anomalies, Pediatrics chest, Chest wall, pleura, diaphragm, Mediastinum, Pulmonary infection, Airways obstruction, pulmonary neoplasm's, diffuse pulmonary disease.

2) Cardio – vascular system: Congenital heart Disease, left – to – right shunts, Cyanotic heart disease, Pulmonary circulation, cardiomyopathy, cardiac tumors, Pericardium, thoracic aorta.

3) Gastro-Intestinal Tract: Esophagus, Stomach, Duodenum, Small intestine, Large Bowel, Mesentry and omentum, Pediatric abdomen.

4) Hepatobiliary : Liver, Biliary tract, Pancreas.

PAPER- III

TOPICS TO BE COVERED:

Radiological Imaging in congenital & systemic disease – II

a) Skeletal system: Skeletal trauma, benign lesions, malignant lesions, Myelo proliferative and similar disorders, joint disease, bone and joint infection, radiology of soft tissues, musculoskeletal system in children.

b) Genito-Urinary system: Renal parenchymal diseases, Renal masses, calculus disease and urinary obstruction, Urinary bladder and prostate, Reno-vascular disorders, injuries, Renal failure, and transplantation, pediatric Uro-radiology, Imaging in Obstetrics and gynecology, imaging of breast.

c) CNS: Skull, Intra-cranial tumors, Intra-cranial infections, Cerebro-vascular disease, cranial and intracrianl malformation, trauma, CSF disturbances, Degenerative disease and intracrianl malformation, trauma, Degenerative diseases of spine, infection of spine, spinal trauma.

PAPER - IV

TOPICS TO BE COVERED :

Miscellaneous, Radiological procedures, Interventional Radiology, Recent advances and newer techniques –

- Orbit, ENT, Dental, Reticulo-endothelial system, Oncology, HIV infections and AIDS
- Arteriography, venography etc.

2) There shall be three theory papers at DMRD examinations, of 100 marks each -

PAPER – I	100 Marks
PAPER – II	100 Marks
PAPER – III	100 Marks

Each paper of 100 marks consist of

Three long answer questions carrying 20 marks each -

Question - I	20 marks
Question – II	20 marks
Question – III	20 marks

Question – IV consist of 4 short answer questions of 10 marks each 40 marks

Total 100 marks

PAPER – I

TOPICS TO BE COVERED :

Radiation Physics, Protective measures and Physics involving imaging techniques same as MD.

PAPER – II

Topics to be covered :

Radiological imaging in congenital and systemic disease (Respiratory System Cardio Vascular system, Gastro-intestial tract, Skeletal system, Gentio Urinary system).

PAPER – III

Topics to be covered :

Hepatobiliary system, CNS, Miscellaneous, Radiological procedures and Interventional procedures and Interventional Radiology.

6. PRACTICAL :

A) MD RADIODIAGNOSIS:

Duration for Degree examination as per university norms

Topics	Marks
1) **Worked up cases**	
a) One Long Case	100
b) Two Short cases (50each)	100
2) **Radiogrphs/imaging Modalities reading session**	
a) SPOTS of Radiography/Imaging Modalities (20 Spots)	40
b) Film reading session	120
3) **Table Viva & Insturments**	40
Total	**400**

B) DMRD

Duration for Degree examination as per university norms

Topics -

1) Worked Up Cases	
a) One Long Case	70
b) Two Short Cases	70
2) Radigrphs / Imaging Modalities Reading Session	
a) Spots of Radiograph/Imaging Modalities (20 Spots)	40
b) Film Reading Session	70
3) Table Viva & Insturments	**50**
Total	**300**

C) DMRD

1 Day duration for diploma -

1) Topics Worked Up Cases	
a) One Long Case	70
b) Two Short Cases (35 each)	70
2) Radiograhs / Iamging Modalities Reading Session	
a) Spots of Radiographs/Imaging Modalities (20 Spots)	40
b) Film Reading Session	70
3) Table Viva & Instruments	**50**
Total	**300**

List of Books Reference Books For Radiodiagnosis (Md-Dmrd)

BOOKS RECOMMENDED :

Sr. No.	Author	Title	Edition & year	Publisher
1	David Sutton	Text book of Radiology and Medical Imaging	7th Edition (International students ed.)	Churchill Livingsotne
2	Grainer & Allison's	A Textbook of Medical Imaging	4th Ed. 2001	Churchill Livingsotne
3	Davidson	Davidson's Radiology the kidney and genitourinary tract	3rd ed. A & B 1999	Saunders
4	Carol M. Rumack, Stephanle R Wilson, William charboneau	Diagnostic Ultrasound	2nd Ed.	Mosby Inc.
5	Stark, David, William Bradely	Magnetic Resonance Image	3rd Ed. 1999	Mosby
6	Joseph L. Lee Stuart Sagel et	Computed body Tomography with MRI correlation	3rd Ed.	Lippincott, William & Wilkns
7	Wilson MA, Philadelphia	Textbook of Nuclear Medicine		Lippincott, William & Wilkns
8	Marilyn, Stergel	Paediatrics Body CT		Lippincott, William & Wilkns
9	Chesney, Blackwell Smith	Essential Physics for Radiographers		Melbourne
10	KC Clark	Positioning in radiography		CBS Publisher
11	Grrenfield Lippioncot	Radiology of Bone disease by Greenfield		Lippincott company, Philaselphia
12	Meschan	Analysis of Roentgen signs		WB Saunders

Sr. No.	Author	Title	Edition & year	Publisher
		by Meschan		Co.
13	Christensen Curry	Basic of Radiophysics		
14	Benjamin Felson	Chest Roentgenology		WB Saunder Co.
15	Fraser Pare's	Diagnosis of Disease of chest		WB Saunder Co.
16	Frenny and Stevenson	Margulis and Buirhenne's Alimentary tract Radiology		Mosby
17	David Cosgrove	Abdominal and General Ultrasound		Churchill Livingstone
18	Callen	Ultrasonography in obstetric and Gynecolgy		WB Saunders
19	Richard C Semelka Wiey	Abdominal pelvic MRI by ichard C Smeelka		Wilevissa publisher
20	Peterson	Head and Neck Imaging		Mosby
21	Caffey	Caffey's pediatric diagnostics imaging		Mosby
22	MA Brann	Interventional Radiology Procedure M annual l		Churchill Livingstone
23	William W Orrison	Neuroimaging by William W Orrison		WB Saunders
24	Ann Osborn's	Anne Osborn's Neuroradiology		
25	Gilda Gardenosa	Breast Imaging		Lioppincott William and wilksons
26	Scott W Atlas	MR Imaging of		Lioppincott

Sr. No.	Author	Title	Edition & year	Publisher
		Brain and Spine		William and wilksons
27	Marnix	Musculoskeletal ultrasound by Marnix		
28	Plamar	Manual of Diagnostic		
29	Ensenberg	An atlas of signs in Radiology		
30	Zwiebel	Clinical application of Doppler Ultrasound		
31	Dunnick's	Dunnick's textbook of uroradiology		William and Wikinson
32	Kirik	Kirik's practical pediatric imaging		Lippincott William and Wikisons

List of Journals For Radiodiagnosis (Md/Dmrd)

1. Indian Journal of Radiology and Imaging
2. British Journal of Radiology
3. American Journal of Roentgenology
4. Radiologic Clinics of North America
5. Seminars in ultrasound, CT, MRI
6. Journal of clinic ultrasound
7. Clinical Radiology