

SUMANDEEP VIDYAPEETH

(Declared as Deemed to be University under Section 3 of the UGC Act 1956)

Accredited by NAAC with a CGPA of 3.53 out of four-point scale at 'A' Grade

Category – I deemed to be university under UGC Act - 2018

At & Post Piparia, Tal: Waghodia 391760 (Gujarat) India.

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CURRICULUM

Doctor of Medicine
(M.D.)

RADIO DIAGNOSIS / RADIOLOGY

Attested CTC



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Vice-Chancellor
Sumandeep Vidyapeeth
An Institution Deemed to be University
Vill. Piparia, Taluka: Waghodia.
Dist. Vadodara-391 760. (Gujarat)

15/2/2021

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AMENDED UP TO DECEMBER -2020

Programme outcome : MD

The purpose of MD education is to create specialists who would provide high quality health care and advance the cause of science through research & training. The goal of postgraduate medical education shall be to produce competent specialists and/or Medical teachers.

Programme specific outcome : MD

POS 1. Scholars shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the national health policy.

POS 2. Scholars shall have acquired the basic skills in teaching of the medical and paramedical professionals.

POS 3. Practice the specialty concerned ethically and in step with the principles of primary health care.

POS 4. Demonstrate sufficient knowledge of the basic sciences relevant to the concerned specialty.

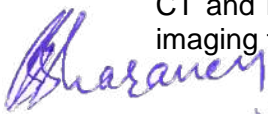
POS 5. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.

COURSE OUTCOME (CO): The objective of the program is to train a student to become a skilled and competent radiologist to conduct and interpret various diagnostic/interventional imaging studies (both conventional and advanced imaging).

1. To organize and conduct research and teaching activities and be well versed with medical ethics and legal aspects of imaging/ intervention.
2. Acquire good basic knowledge in the various sub-specialties of radiology such as Neuro-radiology, GI-radiology, Uro-radiology, vascular-radiology, musculoskeletal, Interventional radiology, Emergency radiology, Pediatric radiology and Mammography.
3. Independently conduct and interpret all routine and special radiologic and imaging investigations.
4. Demonstrate the skills of solving Scientific & clinical problems & decision making.
5. Develop skills as a self-directed learner recognize continuing educational needs, select & use appropriate learning resources.
6. Provide radiological services in acute emergency & trauma including its medico legal aspects.

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7. Elicit indications, diagnostic features and limitation of applications of ultrasonography, CT and MRI and should be able to describe proper cost-effective algorithm of various imaging techniques in a given problem setting.



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8. Perform various image guided interventional procedures for diagnosis and therapeutic management.
9. Undertake further specialization in any of the above mentioned branches in Radio diagnosis such as gastrointestinal radiology, Uro-radiology, Neuroradiology, vascular radiology, musculoskeletal radiology, Interventional Radiology, etc.
10. Formulate basic research protocols and carry out research in the field of radiology, related clinical problems.
11. Work as a Senior Resident / consultant in Radio diagnosis and conduct the teaching programme for undergraduates, postgraduates as well as Para medical and technical personnel.
12. To interact with other specialists and super-specialists so that maximum benefit accrues to the patient.
13. Organized CME in the specialty utilizing modern methods of teaching and evaluation.
14. Imparting training in both conventional radiology & modern imaging techniques so that the candidate is fully competent to practice, teach and do research in the broad discipline of radiology including ultrasound, Computed tomography and Magnetic Resonance Imaging.

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AIM:

- To make medical graduates understand & implement the knowledge regarding the role of various imaging modalities, helpful in the management of different clinical conditions.
- To train medical graduates as to ensure higher competence in both general and special areas of Radiology.
- To prepare a candidate for teaching, research and clinical abilities in the field of radiodiagnosis.
- To prepare the candidate to practice Evidence Based Radiology.

GOALS OF THE TRAINING PROGRAMME

1. Train Radiologists with knowledge and skills required to serve in all categories of health care institutions of the country, both in major cities and in less popular areas.
2. Develop proper attitudes towards delivering of radiological services to patients
3. Develop the ability of decision making as a Radiologist which is required to manage a department of radiology.
4. Prepare Radiologists to provide good radiological care where ideal facilities may not be available.
5. Create an interest in research in order to improve the speciality of Radiology and patient care.

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PROGRAMME OBJECTIVES:

The objective is to train a student to become a skilled and competent radiologist to conduct and interpret various diagnostic / interventional imaging studies / both conventional and be well versed with medical ethics and legal aspects of imaging / intervention.

SPECIFIC LEARNING OBJECTIVES:

A resident on completing his/her MD (Radio diagnosis) should be able to

1. Acquire good basic knowledge in the various sub-specialties of radiology such as Neuro-radiology, GI-radiology, Uro-radiology, vascular-radiology, musculoskeletal, Interventional radiology, Emergency radiology, Pediatric radiology and Mammography.
2. Independently conduct and interpret all routine and special radio logic and imaging investigations.
3. Provide radiological services in acute emergency & trauma including its medico legal aspects.
4. Elicit indications, diagnostic features and limitation of applications of ultrasonography, CT and MRI and should be able to describe proper cost-effective algorithm of various imaging techniques in a given problem setting.
5. Perform various image guided interventional procedures for diagnosis and therapeutic management.
6. Undertake further specialization in any of the above mentioned branches in Radio diagnosis such as gastrointestinal radiology, Uro-radiology, Neuroradiology, vascular radiology, musculoskeletal radiology, Interventional Radiology, etc.
7. Formulate basic research protocols and carry out research in the field of radiology, related clinical problems.
8. Work as a Senior Resident / consultant in Radio diagnosis and conduct the teaching programme for undergraduates, postgraduates as well as Para medical and technical personnel.
9. To interact with other specialists and super-specialists so that maximum benefit accrues to the patient.
10. Organized CME in the specialty utilizing modern methods of teaching and evaluation.

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11. To provide training in both conventional radiology & modern imaging techniques so that the candidate is fully competent to practice, teach and do research in the broad discipline of radiology including ultrasound, Computed tomography and Magnetic Resonance Imaging.

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KNOWLEDGE:

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

- 1) Explain the interaction of X-rays with matter to produce an image.
- 2) Familiarize with the principles of various imaging modalities (e.g. US/CT/MRI) & their applications in medicine.
- 3) Explain the biological hazards of ionizing radiation & protective measures.
- 4) Explain the normal Anatomy, Physiology of various organs and their deviation from normal) & its consequences.
- 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 Conditions.
- 8) Evaluate role of imaging modalities in various therapeutic applications (Interventional Radiology)
- 9) Update information about recent advances in imaging sciences.
- 10) Effectively organize & supervise the diagnostic procedures to ensure quality control/assurances

SKILLS:

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

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

Attsted CTC INTEGRATION:

Knowledge acquired in Radio diagnosis shall help the students to integrate imaging techniques with structure & function of the human body in health & disease.

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EVIDENCE BASED PRACTICE:

Sumandeep Vidyapeeth has adopted innovative Teaching learning methodology apart from routine learning activities, In that line radiology also includes different learning activities that persuade a student to make evidence based decisions and to practice evidence based health care, hence during their tenure PG students are to be involved into below mentioned different learning activities:

Evidence based Seminars- All PG seminars will have evidence embedded in the presentation and all references relating to the subject matter will be incorporated. AT the end of the seminar all the references will be listed and the seminar will be assessed by the facilitator.

Evidenced based Journal Clubs- All the post graduate Journal Clubs will be carried out on a prescribed Evidence Based format with emphasis on critical appraisal. A designated teacher/facilitator will assess every post graduate student for each JC presentation.

Case Conferences with evidence Based decision making:-During the case conference the students will present the diagnostic modality of choice for the given case that are evidence based

Evidence Based Protocol writing - post graduate students are involved in preparing the evidence based imaging protocols with help of their guide teacher.

- *To introduce Basic life support (BLS) and Advanced Cardiac Life Support (ACLS) training for all the First year Postgraduate Resident Doctors from academic year 2017-18. (Board of Studies letter no.: SBKSMIRC/Dean/1777(A)/2017, dated 28/11/2017 and Vide Notification of Board of Management Resolution Ref: No.: SV/8813/2017-18, dated 06/04/2018)*

Curriculum for post graduates


All post graduates after enrollment will be exposed to organized evidence searching skills lectures along with teaching of clinical epidemiology, biostatistics and research methodology.

All post graduate Journal Clubs will be carried out on a prescribed Evidence Based format with emphasis on critical appraisal. A designated teacher/facilitator will assess every post graduate student for each JC presentation.

All PG seminars will have evidence embedded in the presentation and all references relating to the subject matter will be incorporated. AT the end of the seminar all the references will be listed and the seminar will be assessed by the facilitator.

Every post graduate student will be exposed to at least one encounter of role modeling in which a consultant after raising a relevant query will search for its evidence and demonstrate evidence searching methodologies, its importance and utility to the student.

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SYLLABUS:

SECTION 1

PHYSICS OF DIAGNOSTIC RADIOLOGY

1. Structure of X-Ray tube and electrical circuit of x ray unit.
2. Various types of X-Ray tubes, tube assembly and Tube rating.
3. Production, effects and measurement of X-Rays.
4. Interaction of X-Rays with matter.
5. Image Intensification.
6. Conventional Fluoroscopy and IITV Systems.
7. Physics of DSA.
8. Xeroradiography
9. X –Ray Radiography, Photofluorography. Angiography.
10. Physics of Radiographic Cassettes, Films and Intensifying Screens
11. Conventional and Computerised Tomography.
12. Mammography (including Digital Mammography).
13. Image quality and factors controlling the same in conventional and modern techniques.
14. Dark room techniques including Dark room Design.
15. Factor's influencing the radiographic image and assurance of quality control in radiography.
16. Various artefacts in Radiology and Imaging.
17. Effects and control of scattered radiation.
18. Physics of Collimators, Filters and Grid.
19. Radioactivity-Basic principles.
20. Radioactive decay, production of radioisotope imaging, uptake studies, clinical applications.
21. Gamma camera, Radionuclide scanning
22. Radiological aspects and nuclear medicine.
23. Physics of Bone Densitometry
24. Image processing (Conventional-Manual and automatic)
25. Image processing (Digital)
26. Digital Radiography and Computer Radiography.
27. Physics of Ultrasonography.

SECTION 2:

RADIATION PROTECTION

1. Radiations hazards in Diagnostic Radiology.
2. Essential of radiobiology and biological effects of Radiation.
3. Personal monitoring, Dosimeters, permissible dose, ICRP recommendation.
4. Departmental protection - National and Intentional regulations.
5. Radiation Protection for Radiology workers and for the general public.
6. Planning and layout of Diagnostic Radiology Department.
7. Basics of X– ray equipment installation, AERB regulations, radiation acceptance test.
8. Radiation units and measurements.

9. Exposure – dose, dose equivalent,
10. Dosimetric instruments: Ionisation Chamber Systems, GM counters, Scintillation
11. Detectors, TLD and Photographic Dosimetry.
12. QA & control systems

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SECTION 3:

RESPIRATORY SYSTEM

1. The normal chest: methods of investigation and differential diagnosis
2. The mediastinum
3. The pleura
4. Tumours of the lung
5. Pulmonary infections
6. Diseases of the airway: collapse and consolidation
7. Diffuse lung disease
8. Miscellaneous chest conditions
9. The paediatric chest

SECTION 4:

CARDIOVASCULAR SYSTEM

1. The normal heart
2. Acquired heart diseases: chest radiograph
3. Acquired heart diseases: non-invasive imaging
4. Invasive imaging and interventional techniques
5. Congenital heart diseases
6. Arteriography and interventional angiography
7. Phlebography
8. The lymphatic system

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SECTION 5:

ABDOMEN AND GASTROINTESTINAL DISEASES

1. The salivary glands, esophagus and pharynx
2. The stomach and duodenum
3. The small bowel and peritoneal cavity
4. The large bowel
5. The acute abdomen
6. The abdomen and major trauma
7. The biliary tract
8. The liver and spleen
9. The pancreas
10. The adrenal glands
11. The paediatric abdomen

SECTION 6:

GENITOURINARY TRACT

1. The urogenital tract: anatomy and investigations
2. The kidneys and ureters
3. The bladder and prostate
4. The urethra and male genital tract
5. Obstetric ultrasound
6. Gynaecological imaging

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7. SECTION 7:

SKELETAL SYSTEM: SOFT TISSUE

1. Congenital skeletal anomalies: skeletal dysplasias and chromosomal disorders
2. Periosteal reaction, bone and joint infections, sarcoid
3. Avascular necrosis; osteochondritis; miscellaneous bone lesions
4. Diseases of the joint
5. Tumours and tumours like conditions of bone
6. Disorder of lymphoreticular system and other haemopoietic disorders
7. Metabolic and endocrine disorders affecting bone
8. Skeletal trauma: general consideration
9. Skeletal trauma: regional
10. The soft tissue
11. The Breast

SECTION 8

HEAD AND NECK; CNS; RECENT TECHICL ADVANCES

1. The pharynx and larynx: the neck
2. The sinuses
3. Teeth and jaws
4. Ultrasound of the eye and orbits
5. The orbit
6. The petrous temporal bone
7. The skull
8. Neuroradiology of the spine
9. Angiography in neuroradiology
10. Interventional neuroradiology
11. Intracranial lesions
12. Recent technical advances

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POST GRADUATE TEACHING PROGRAM IN THE DEPARTMENT OF RADIOLOGY

- The clinical program of postgraduate students involves six hours of teaching per week.
- Case presentations on Mondays from 3:00 pm to 4:00 pm.
- Evidence based Journal club (1st and 3rd), Film reading session (2nd) and interesting cases of the month (4th) on Tuesdays from 3:00pm to 4:00pm.
- Evidence based seminars (1st and 3rd) and resident lectures on radio physics and anatomy on Wednesdays from 3:00pm to 4:00pm.
- Examination every Thursday from 3 to 4 pm.
- Weekly PG Common Clinical Meet on Friday from 3 pm to 4 pm.
- Lectures by faculty every Saturday from 10:00am to 11:00am.

Every student is encouraged for 2 paper/ poster presentation in specialty conference. Simultaneously it is mandatory for every student (at least one) to either publish or submit article for publication in peer reviewed indexed journal.

Internal assessment of post graduate students

Internal assessment of post graduate students is carried out regularly as below-

Quarterly assessment is done on the basis of following points and every student's performance is graded as satisfactory or non-satisfactory on pre-structured format (annex. Attached).

- Discipline and bearing
- Conduct with colleagues, patients and relatives
- Progress on synopsis/ dissertations
- Patient examination procedures
- Seminars,
- Journal club ,
- Case presentation

Periodic assessment is done by 6 monthly one theory and one practical examinations and its format is similar to university examinations. It is taken for second year and third year residents.

Preliminary examination is done theory and practical examinations and its format is similar to university examinations.

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REFERENCE BOOKS

No	Title Name	Authors Name
1	Ultrasonography in obstetrics and Gynecology	Callen 2 ND
2	Aids to radiological Differential Diagnosis	Stephen Chapman and Richard Nakielny
3	Atlas of Abdominal Ultrasonography in Children	Gary F. Gates
4	Magnetic Resonance Imaging	Robert Sigal
5	Diagnostic Radiology Ananglo- American Textbook Of Imaging	R G Grainger & D. J. Allison
6	Transvaginal sonography 2ND	CHAPMAN & HALL
7	Essentials of Caffey's Pediatric X-Ray Diagbosis	Frederic N. Silverman, Jerald P Kuhan
8	Sonography of The Ingfant Hip and Atlas	Reinhard Graf and Peter Schuler tranlated by Terry Telger
9	Contrast Radiology	Schering AG Berlin/Bergkamen
10	Transvaginal Ultrasound	David A Nyberg Lyndon M Hill
11	Atlas of Gray Scale Ultrasonography Kenneth J.W. Taylor	Churchill Livingstone
12	Diagnostic Radiology Ananglo- American Textbook Of Imaging 2	R. C. Grainger & D. J. Allison
13	Diagnostic Imaging an Algorithmic Approach	Ronald L Eisenberg
14	Computerized Axial Tomography	J Gambarelli G Guerinel L Chevrot M Mattei
15	Essentials of Nuclear Medicine Imaging 2 ND	Fred A. Mettler, Milton J. Guiberteau
16	Whole Body Computerized Tomography O. H. Wegenar	Schering West Germany
17	Magnetic Resonance Imaging and Spectroscopy In Medicine Concepts and Techniques	P Raghunathan
18	The Radiology of Skeletal Disorders Exercises in Diagnosis 3 RD Edition	Ronald O. Murray Harold G Jacobson, Debbis J. Stoker
19	Text Book OF Radiology and Medical imaging Vol. 2	David Sutton
20	The Radiology of Skeletal Disorders Exercises in Diagnosis 2 RD Edition	Ronald O. Murray Harold G Jacobson, Debbis J. Stoker
21	The Radiology of Skeletal Disorders Exercises in Diagnosis 1 RD Edition	Ronald O. Murray Harold G Jacobson, Debbis J. Stoker

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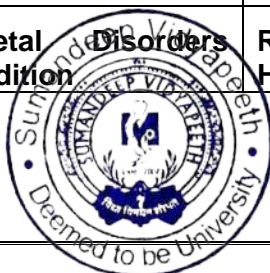
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22	Text Book Abdominal Ultrasound	Barry B Goldberg Editor
23	Ultrasonography in obstetrics and Gynecology	Sanders James
24	Manual of Cranial Computerized Tomography	K. York Chynn , Nathaniel Finby
25	Ultrasonography in obstetrics and Gynecology	Sanders James
26	Cranial MRI an CT Third Edition Internation Edition	Lee, Rao, Zimmerman
27	CT AND MRI OF HEAD AND NECK TUMORS	LENZ MARTIN
28	MRI OF THE SPINE A GUIDE TO CLINICAL APPLICATIONS	KAISER C. MARC
29	MRI THE BASICS	HASHEMI, H. RAY
30	CT AND MYELOGRAPHY OF T HE SPINE AND CORD	PETTERSSON
31	AIDS TO RADIOLOGICAL DIFFERENTIAL DIAGNOSIS	Stephen Chapman and Richard Nakielny
32	AIDS TO RADIOLOGICAL DIFFERENTIAL DIAGNOSIS	Stephen Chapman and Richard Nakielny
33	DIAGNOSTIC ULTRASOUND	RUMACK, M. CAROL
34	TEXTBOOK OF RADIOLOGY AND IMAGING	ED BY SUTTON DAVID
35	TEXTBOOK OF RADIOLOGY AND IMAGING	ED BY SUTTON DAVID
36	CLARKS POSITIONING IN RADIOGRAPHY	ED BY SWALLOW, R.A.
37	A SYNOPSIS RADIOLOGY AND IMAGING	SIDHVA J. SORAB
38	A SYNOPSIS RADIOLOGY AND IMAGING	SIDHVA J. SORAB
39	ARTHOSONOGRAPHY	SATTLER, H.
40	ARTHOSONOGRAPHY	SATTLER, H.
41	RADIOGRAPHIC IMAGING	CHESNEY NOREEN. D.
42	MAGNETIC RESONANCE IMAGING	SIGAL ROBERT
43	CRANIOFACIAL DEFORMITIES: ATLAS OF THREE-DIMENSIONAL RECONSTRUCTION FROM COMPUTED TOMOGRAPHY	DAVID, D. J.
44	AIDS TO RADIOLOGICAL DIFFERENTIAL DIAGNOSIS	Stephen Chapman and Richard Nakielny
45	POCKET RADIOLOGIST BRAIN TOP 100 DIAGNOSES	OSBORN G. ANNE
46	INTERVENTIONAL RADIOLOGY	Benjamin Felson
47	CLINICAL DOPPLER ULTRASOUND	ALLAN, PAUL
48	DIAGNOSTIC ULTRASOUND OF THE LOWER ABDOMEN	TRENTA A. AT...AL
49	DIAGNOSTIC RADIOLOGY PAEDIATRIC IMAGING	Manorama Berry

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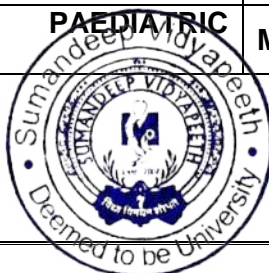
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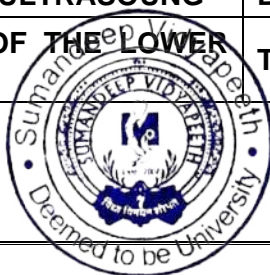
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50	CLARK'S POSITIONING IN RADIOGRAPHY	WHITLEY,A STEWART
51	CLARK'S POSITIONING IN RADIOGRAPHY	WHITLEY,A STEWART
52	DIAGNOSTIC IMAGING	ARMSTRONG,PETER ET ALL
53	CHESNEYS " RADIOGRAPHIC IMAGING	BALL,JOHN
54	DIFFERENTIAL DIAGNOSIS IN ABDOMINAL ULTRASOUNDS	BISSET,R.A.L.
55	FUNDAMANTALS OF BODY CT	WEBB,W RICHARD
56	Basic Concepts in Diagnosis Imaging	B. Damascelli
57	Anatomy Regional and Applied	R J Last 6 th Edition
58	Diagnostic Ultrasound Text & Cases	Dennis A Sartui 2 ND Edition
59	Frontiers in European Radiology 6	Springer - Verlag
60	MEASUREMENTS IN PEDIATRIC RADIOLOGY	PATTERSSON HOLGER
61	Viva in Anatomy 4 th Edition	Yadav
62	Gamut Of Radiology	Elias Theros
63	Vascular Imaging and Doppler Ultrasound Course	Georg Berdejo
64	Radiology Review Manual 2 nd	Wolfgang Dahnert
65	Atlas of Topographical and Applied Human Anatomy	Eduard Pernkopf
66	Human Embryology	A K Datta
67	Ultrasound Imaging Liver Spleen Pancreas	David O. Cosgrove, V. Ralph Mc Cready
68	Handbook of Ultrasound	G. S. Garkal
69	Abdominal Ultrasonography 2 ND	Barry B Goldberg Editor
70	Clark's Positioning In Radiography 10 TH Edition	Heinemann
71	A Short Textbook of Medicine 8 th	J C Houston, C L Joiner, J R Trounce
72	Radiology Review Manual	Wolfgang Dahnert
73	INTERVENTIONAL RADIOLOGY OF THE GALLBLADDER	M McNULTY J.G.
74	EXERCISES IN DIAGNOSTIC ULTRASONOGRAPHY OF THE ABDOMEN	WEILL F.S.
75	EXERCISES IN DIAGNOSTIC ULTRASONOGRAPHY OF THE ABDOMEN	WEILL F.S.
76	EXERCISES IN DIAGNOSTIC ULTRASONOGRAPHY OF THE ABDOMEN	WEILL F.S.
77	EXERCISES IN DIAGNOSTIC ULTRASONOGRAPHY OF THE ABDOMEN	WEILL F.S.
78	A TEXT AND ATALS OF LIVER ULTRASOUND	BISMUTH HENRI
79	DIAGNOSTIC ULTRASOUND OF THE LOWER ABDOMEN	TRENTA A. AT...AL

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80	NEUROACTIVATION AND NEUROIMAGING WITH SPET	GEORGE ,M.S.
81	COMPREHENSIVE MANUALS IN RADIOLOGY ARTHROGRAPHY	DALINKA K. MURRAY
82	RADIOLOGY OF THE SPLEEN	DACHMAN H. ABRAHAM
83	RADIOLOGY OF THE SPLEEN	DACHMAN H. ABRAHAM
84	RADIOLOGY OF OCCUPATIONAL CHEST DISEASE	ED BY SOLOMON A.
85	DEVELOPMENT OF THE VISUAL SYSTEM	Lam And Shatz
86	MRI PHYSICS FOR PHYSICIANS	HOROWITZ L. ALFRED
87	HANDBOOK OF MEDICAL RADIOGRAPHY	RAMAMOCHAN C.
88	RADIOLOGICAL PROCEDURES A GUIDELINE	LAKHKAR,BHUSHAN N.
89	ENDOCRINE IMAGING TEXTBOOK AND ATLAS	ED BY HIGGINS C.B.
90	TEXTBOOK OF DENTAL AND MAXILLOFACIAL RADIOLOGY	KARJODKAR R. FRENY
91	ESSENTIALS OF RADIOLOGY AND IMAGING	BHADURY SMARJIT
92	RADIOIMMUNOASSARY OF GUT REGULATORY PEPTIDES	Stephen Bloom
93	PRINCIPLES OF STATISTICAL RADIOPHYSICS-3	RYTOV, S.M.
94	INSTRUCTORS MANUAL RADIOGRAPHIC POSITIONING AND RELATED ANATOMY	BONTRAGER L. KENNETH
95	COMPUTED TOMOGRAPHY GASTROINTESTINAL TRACT INCLUDING THE PERIONEAL CAVITY AND MESENTERY	ED BY MEYERS A. MORTON
96	MCQS IN RADIOLOGY WITH EXPLANTORY ANSWERS	BHARGAVA K. SATISH
97	MRI PHYSICS FOR PHYSICIANS	HOROWITZ L. ALFRED
98	MCQS IN RADIODIAGNOSIS & RADIOTHERAPY	DAGA V. BIPIN
99	PRACTICAL OF REHABILITATION IN ONCOLOGY	RANGWALA T. RUBAB
100	IMAGING OF VERTEBRAL TRAUMA	DAFFNER H. RICHARD
101	POCKET RADIOLOGIST INTERVENTIONAL TOP 100 PROCEDURES	ROGERS PETER
102	DIAGNOSTIC ULTRASOUND IN GASTROENTEROLOGY	BOLONDI L.
103	A-Z OF EMERGENCY RADIOLOGY	HOLMES, J. ERSKINE
104	REGIONAL RADIOGRAPHY AND RADIOLOGICAL ANATOMY	BHADURY SMARJIT
105	FUNCTIONAL COMPUTED TOMOGRAPHY	Kenneth Miles

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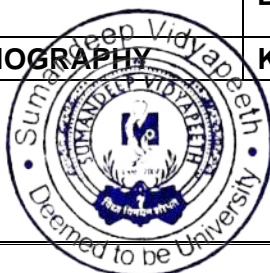
Vice-Chancellor

Sumandeep Vidyapeeth

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106	AN ATLAS OF RECTAL ENDOSONOGRAPHY	BEYNON J. FEIFEL G.
107	TRAUMA OF THE SPINE CT AND MRI	WIMMER B., WENZ, W.
108	RADIOLOGY OF THE SMALL INTESTINE	BRET PIERRE, CUCHE CHRISTINE
109	THERAPEUTIC RADIOLOGY	ED BY MANSFIELD M. CARL
110	RADIOLOGICAL AND IMAGING SECRETS	GUPTA, L.C.
111	RADIOLOGICAL AND IMAGING SECRETS	GUPTA, L.C.
112	X RAY EQUIPMENT FOR STUDENT RADIOGRAPHERS	CHESNEY NOREEN. D.
113	ESSENTIALS OF RADIOLOGY AND IMAGING	BHADURY SMARJIT
114	DIAGNOSTIC ULTRASOUND OF THE LOWER ABDOMEN	TRENTA A.
115	URINARY TRACT BLEEDING DIAGNOSIS AND CONTROL BY MEDICAL, RADIOLOGIC, AND SRUGEICAL TECHNIQUES	ED BY BERN. M. MURRAY
116	DIAGNOSTIC RADIOLOGY MUSCULOSKELETAL AND BREAST IMAGING	Manorama Berry
117	Viva In anatomy 4 th Edition Abd & Head & Neck & Central Nervous system	A Yadav
118	Cunningham's Manual of Practical Anatomy Vol Three Head & Neck and Brain	G. J. Romanes
119	An Imaging Atals of Human Anatomy	Jamie Weir, Peter H. Abrahams
120	The Prostate	John P Blandy
121	Review of Radiology Phisics	Walter Huda, Richard Slone
122	Pocket Radiologist Head & Neck	Harhsb erger
123	Transvaginal Ultrasound 2ND	Melvin G Dodson
124	Diagnosik Radiology and Imaging Vol 1	Kakarla Subbarao, Samir Banerjee
125	Diagnosik Radiology and Imaging Vol 2	Kakarla Subbarao, Samir Banerjee
126	Diagnosik Radiology and Imaging Vol 3	Kakarla Subbarao, Samir Banerjee
127	The Breast Clinical Radiodiagnosi	Jean Louis, Lamarque
128	Atlas of Computer Tomography THE Eye & Orbit	Dr. S. B. Patel
129	Atlas OF Pediatric Gustrointestinal Radiology & Abdomino -Pelvic Tumors	Dr. S. B. Patel

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JOURNALS RECOMMENDED:

1. American journal of Roentgenology (AJR).
2. British Journal of Radiology.
3. Seminars in Roentgenology
4. Radiological Clinics of North America
5. American Journal of Neuroradiology.
6. Indian journal of Radiology and Imaging.
7. Clinical Radiology.
8. Radiographics.
9. Radiology.
10. Pediatric Radiology.
11. Pediatric Radiology Journal
12. Acta Radiologica
13. Journal of Clinical Ultrasound
14. Ultrasound in Medicine and Biology
15. Ultrasound International
16. Ultrasound in Obstetrics and Gynecology
17. Neuroradiology
18. Skeletal Radiology (The Journal of Skeletal Radiology).
19. Clinical Imaging.
20. Seminars in ULTRA SOUND, CT and MR.

Scheme of Examination (MD Course)

Degree: **M.D. (Radio-diagnosis)**

University: **Sumandeep Vidyapeeth, Piparia**

Dissertation: Radiodiagnosis based Topic will be assigned for dissertation work. After getting approval from the institutional ethical committee, the student is expected to complete and submit it to the University for Assessment Purpose SIX months before the expected date of University Examination.

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Theory Examination: (400 Marks)

Paper number	Topics	Marks	Time
I	Radiophysics and Radioanatomy- [Conventional radiophysics, computed radiography, digital radiography, Ultrasonography, Doppler, Computed tomography, MRI, Radioanatomy]	100	3 Hours
II	Radio-diagnosis I – [Respiratory system, CVS, GIT, GUT, Musculoskeletal, Central nervous system]	100	3 Hours
III	Radio-diagnosis II – [Respiratory system, CVS, GIT, GUT, Musculoskeletal, Central nervous system]	100	3 Hours
IV	Recent advances in Radiodiagnosis	100	3 Hours

Note: The distribution of topics in each paper is arbitrary. There may be overlapping of relevant topics in question papers

Each Paper shall have 5 Questions; all compulsory; no options.

Question-1: Long Question (1 or 2 parts)	20 marks
Question-2: Long Question (1 or 2 parts)	20 marks
Question-3: Long Question (1 or 2 parts)	20 marks
Question-4: Long Question (1 or 2 parts)	20 marks
Question-5: Short notes --(4)	20 marks

**Practical Examination: (450 Marks + 150 marks oral including table work) = 600 marks
Duration: Minimum 2 days**

Exercise number	Description	Marks	Time	Assessment
1	long case	200	1 hour	All Four examiners
2	Short case (2), [75 marks x 2]	150	30 minutes for each case	Case- I- Pair-I Case-II pair II
3	Spots (2) [50 marks x 2]	050 050	30 minutes each	Pair-I Pair-II
4	Radiophysics Viva	50	15 minutes	All Four examiners
5	Grand Table Viva	100	30 minutes	All Four examiners

Passing standards: Theory and Practical 50% each separately

Vice-Chancellor

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Scheme of Examination: (Diploma in Radiology Course)Degree: **Diploma in Radiodiagnosis (D.M.R.D.)**University: **Sumandeep Vidyapeeth, Piparia****Theory Examination: (300 Marks)**

Paper number	Topics	Marks	Time
I	Radiophysics and Radioanatomy- [Conventional radiophysics, computed radiography, digital radiography, Ultrasonography, Doppler, Computed tomography, MRI, Radioanatomy and recent advances]	100	3 Hours
II	Radio-diagnosis I – [Respiratory system, CVS, GIT, GUT, Musculoskeletal, Central nervous system]	100	3 Hours
III	Radio-diagnosis II – [Respiratory system, CVS, GIT, GUT, Musculoskeletal, Central nervous system]	100	3 Hours

Note: The distribution of topics in each paper is arbitrary. There may be overlapping of relevant topics in question papers

Each Paper shall have 5 Questions; all compulsory; no options.

Question-1: Long Question (1 or 2 parts)	20 marks
Question-2: Long Question (1 or 2 parts)	20 marks
Question-3: Long Question (1 or 2 parts)	20 marks
Question-4: Short Notes—(4)	20 marks
Question-5: Short notes --(4)	20 marks

Practical Examination: (300 Marks + 100 marks Viva voce) = 400 marks

Duration: Minimum 2 days

Exercise number	Description	Marks	Time	Assessment
1	Long case	150	1 hour	All four examiners
2	Short case [50 marks x 2]	50 50	30 minutes each	Pair- I Pair-II
3	Spots [25 marks x 2]	25 25	30 minutes each	Pair-I Pair-II
4	Viva-voce [Radiophysics and table viva]	100	30 minutes	All Four examiners

Passing standards: Theory and Practical 50 % each separately



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