Program Number _____

Program Name _____

Date _____

Radiation Therapy Curriculum Analysis

DIRECTIONS: Determine the course(s) in which each of the following content areas is covered and enter the course number(s) and/or title(s) into the appropriate column. For guidance in what should be covered for each content area, please refer to the Radiation Therapy Curriculum (2009) published by the American Society of Radiologic Technologists.

Professional Curriculum	Prerequisite Course(s)	Program Course(s)
Clinical Practice		
Essentials of Clinical Practice		
Patient Assessment, Care and Education		
Simulation		
Treatment Planning		
Treatment Delivery		
Quality Assurance and Quality Management		
Ethics in Radiation Therapy Practice		
Ethical Theories and Principles		
Provider/Patient Relationship		
Ethical Decision-making in Health Care Dilemmas		
Biomedical Ethics and Health Care Policy		
Role of the Radiation Therapist in Health Care Issues		
Imaging and Processing in Radiation Oncology		
Basic Principles of Digital Imaging		
Image Acquisition (simulation, portal imaging, onboard image guidance)		
Image Acquisition Errors		
Software (Default) Image Processing		
Fundamental Principles of Exposure		
Image Evaluation		
Quality Assurance and Maintenance Issues		
Display		

Professional Curriculum	Prerequisite Course(s)	Program Course(s)
Imaging and Processing in Radiation Oncology (cont'd)		
Imaging Equipment		
Principles of Operation		
Portal Imaging/On-board Imaging (OBI)/Image Guidance		
Artifacts		
Other Imaging Modalities		
Introductory Law in Radiation Therapy		
Sources of Law		
Intentional Torts		
Negligence		
The Lawsuit		
Components of Informed Consent, Patient Rights, and Standard of Care		
Safety Issues		
Documentation and Record Maintenance		
Risk Management		
Role of the Code of Ethics, Scope of Practice and Practice Standards		
Medical Terminology		
Introduction to the Origin of Medical Terminology		
The Word-building Process		
Medical Abbreviations and Symbols		
Operational Issues in Radiation Therapy		
Continuous Quality Improvement		
Human Resources		
Accreditation		
Insurance and Billing		
Departmental Budget		
Professional Societies and Participation Opportunities		
Orientation to Radiation Therapy		
Policies and Procedures of the Educational Program		
The Health Science Professions		
Hospital and Health Care Organizations		

Professional Curriculum	Prerequisite Course(s)	Program Course(s)
Orientation to Radiation Therapy (cont'd)		
Introduction to Radiation Therapy Practice		
Professional Organizations		
Professional and Community Commitment		
Professional Development		
Pathophysiology		
General Pathology		
Introduction to Human Disease		
Theories of Disease Causation		
Basic Principles and Mechanisms of Disease		
Common Diagnostic Tests and Procedures		
Disorders of Nutrition		
Body Systems and Disorders		
Neoplasia		
Introduction		
Nomenclature		
Carcinogenesis		
Diagnosis		
Grading and Staging		
Prognostic Factors		
Malignancies		
Principles and Practice of Radiation Therapy I		
Cancer Perspectives		
Treatment Determination for Overall Cancer Management		
Radiation Therapy Treatment		
Radiation Therapy Treatment Equipment		
Simulation and Localization		
Treatment Delivery Accessories		
Treatment Delivery		
Quality Assurance		
Technical Aspect		

Professional Curriculum	Prerequisite Course(s)	Program Course(s)
Principles and Practice of Radiation Therapy II		
Introduction to Multidisciplinary Approaches to Neoplastic Disease Management		
Radiation Therapy Treatment of Neoplastic Disease		
Radiation Therapy in the Management of Neoplasms with Special Considerations		
Metastatic and Palliative Treatment Applications		
Emergency Treatment Applications		
Principles of Computed Tomography in Radiation Oncology		
Current Computed Tomography Equipment		
Components, Operations and Processes		
Radiation Protection		
Quality Management		
Introduction		
General Principles		
Clinical Aspects QI Checks		
QA or QC for Treatment and Simulation/Localization		
Particle Accelerators		
Brachytherapy		
Medical Dosimetry and Treatment Planning		
Radiation Biology		
Introduction		
Biophysical Events		
Radiation Effects		
Radiosensitivity and Response		
Biologic Principles of Radiation Therapy		
Radiation Physics		
Units of Measurement		
General Principles		
Structure of the Atom		
Structure of Matter		
Nature of Radiation		
Electromagnetic Radiation		
Electrostatics		

Professional Curriculum	Prerequisite Course(s)	Program Course(s)
Radiation Physics (cont'd)		
Magnetism		
Electrodynamics		
Electromagnetism		
Diagnostic X-Ray Tubes		
Production and Characteristics of Radiation		
Radiation Protection		
Introduction		
Units, Detection and Measurement		
Surveys, Regulatory Agencies and Regulations		
Personnel Monitoring		
Practical Radiation Protection		
Brachytherapy		
Radiation Therapy Patient Care		
Introduction		
Communication in Patient Care		
Patient-family Interactions		
Assessment of Acute Side Effects		
Assessment of Other Physical Needs		
Patient Examination		
Health Safety		
Medications and Their Administration		
Medical Emergencies		
Care of Patients With Tubes		
Brachytherapy Procedures		
Assessment of Nutritional Status		
Physical Activity Considerations		
Patient Transfer		
Patient Education		
Alternative and Complementary Treatments		

Professional Curriculum	Prerequisite Course(s)	Program Course(s)
Radiation Therapy Physics		
Structure of Matter and Properties of Radiation		
Nuclear Transformations		
Review of Production of X-rays		
Radiation Therapy Treatment Units (External Teletherapy)		
Interaction of Ionizing Radiation		
Measurement of Ionizing Radiation		
Quality of X-ray Beams		
Measurement of Absorbed Dose		
Dose Distribution and Scatter Analysis Overview		
Sectional Anatomy		
Anatomic Planes of the Body		
Image Formation, Image Orientation and Pros and Cons		
Other Sectional Imaging Modalities		
Topographic and Sectional Anatomy		
Treatment Planning		
Isodose Descriptions and General Influencing Factors		
Patient Contours		
Radiobiologic Dosimetric Considerations		
Methods of Dosimetric Calculations		
Prevention of Overdose and Underdose		
Wedge Filters (2-D Compensation)		
Tissue Compensators (2-D and 3-D Compensation) (XYZ)		
Clinical Applications of Treatment Beams and Accessories		
Optimal Treatment Planning Considerations, Evaluation, and Implementation		
3-D Conformal Therapy		
Intensity Modulated Radiation Therapy (IMRT)		
Particle Beams and General Dose Distributions at D_{max}, Central Axis and Off-Axis		
Stereotactic Radiation Therapy		
Brachytherapy		
Emerging Treatment Methods and Planning		

General Education Content Note: These are not specific courses, but represent content areas.	
General Education Required Content	**Course(s) in which content area is covered.**
Human Anatomy - Structure of Human Systems	
Integumentary	
Skeletal	
Muscular	
Nervous	
Endocrine	
Sensory	
Circulatory	
Respiratory	
Digestive	
Urinary	
Reproductive	
Human Physiology - Functional Integration of Human Systems	
Integrumentary	
Skeletal	
Muscular	
Nervous	
Endocrine	
Sensory	
Circulatory	
Respiratory	
Digestive	
Urinary	
Reproductive	
Mathematics	
Real Number Systems	
Algebra of Sets	
Exponents	
Equations and Inequalities	
Polynomial Functions	
Graphing	

Radical Expressions	
Operations	
Inverses of Function	
Equations of Lines and Systems of Linear Equations and Elementary Statistics	
Logarithmic and Trigonometric Functions	
Plane Analytic Geometry	
Computer Science	
General Hardware	
Software Applications	
Written Communication	
Verbal Communication	
General Physics	
Physical Principles	
Conservation Laws	
Gravitation	
Wave Motion	
Heat	
Thermodynamics	
Research Methodology	
Research Process and Protocols	
Data Interpretation	
Application of Results	