Self-Study Template for

CAMPEP Residency Program Accreditation

Name Institution Hosting Program:

Name of Program:

Program Type\*:

\*Must be specific, e.g., Residency Program in Radiation Oncology (or Imaging, Nuclear Medicine) Physics

Name of Program Director:

Email Address:

Address:

Telephone Number:

Program Website URL:

Date of Submission:

Template: February 2023

Instructions

* **Do NOT use an old template**. Using an old template makes it very difficult for reviewers to evaluate whether all standards have been met. The self-study may be sent back to you to revise into the correct template and this will delay review of your program.
* The CAMPEP standards for residency programs are printed in blue for reference in each section. *Please do not remove this text since it helps reviewers in their evaluation.*
* The self-study document should address each standard individually and provide the reviewers with sufficient detail to demonstrate compliance without necessarily having to refer to other sections. This may seem repetitive at times, but helps facilitate the review process.
* Do not repeat the standard as your response. For example, instead of responding that the steering committee will meet twice per year, describe how meetings are generally scheduled and what topics are discussed (e.g., annual review during the fall meeting).
* The appendices are required to provide supplemental details. Appendices A-J should be kept as is. Additional appendices may be added as needed. Please use the “Heading Appendix” style so that additional appendices show up in the table of contents.
* Update the table of contents prior to submission and save to PDF (preferred).

**N.B.: All elements of this application are required; missing information will delay review of your application.**

Confidentiality Statement:

The accreditation assessment process and any information produced or disclosed in the accreditation process that is not publicly available shall be kept confidential until the process is completed. At the conclusion of the accreditation assessment process, certain information shall remain confidential, specifically:

* + - * The application/evaluation documents are subject to the confidentiality constraint, subject to the exceptions below;
			* Any verbal requests for confidentiality by either party, which shall be confirmed by a prompt written re-statement of that assertion.

The following types of information are not considered to be confidential:

* Information that is or becomes part of the public domain other than through the unauthorized disclosure by the recipient party;
* Information that was already known or was in the possession of the recipient party before receipt thereof from the disclosing party under the agreement;
* Information that is received legally without restriction on disclosure from a third party who has the right to make such disclosure.

Contents

[1. Program Goals and Objectives 5](#_Toc120781311)

[2. Program Structure and Governance 6](#_Toc120781312)

[3. Admissions 9](#_Toc120781313)

[4. Program Director 10](#_Toc120781314)

[5. Program Staff 11](#_Toc120781315)

[6. Institutional Support 12](#_Toc120781316)

[7. Educational Environment 14](#_Toc120781317)

[8. Residency Curriculum 15](#_Toc120781318)

[Summary 22](#_Toc120781319)

[Appendix A - Letters of Invitation and Institutional Commitment 23](#_Toc120781320)

[Appendix B - Documentation of *Institutional* Accreditation 24](#_Toc120781321)

[Appendix C – Clinical Rotation Summaries 25](#_Toc120781322)

[Appendix D – List of Residents Admitted 26](#_Toc120781323)

[Appendix E – List of Current Residents 27](#_Toc120781324)

[Appendix F – Program Graduates 28](#_Toc120781325)

[Appendix G - Faculty and Staff Biographical Sketches and Program Roles 29](#_Toc120781326)

[Appendix H – Sample Interview Evaluation Form 35](#_Toc120781327)

[Appendix I – Sample Offer Letter and Employment Contract 36](#_Toc120781328)

[Appendix J – Example of Resident’s Evaluation 37](#_Toc120781329)

Introduction

**Program Evolution and History**

Provide a brief history of the program’s evolution.

**Summary of Program Changes since Last Review**

If this is an application for renewal of accreditation, list here all significant changes in the program since the previous self-study submission, details to be provided in the appropriate section of the self-study.

# Program Goals and Objectives

*The program objectives shall, at a minimum, include the development in the resident of:*

* *an understanding of the role of patient safety in the clinical practice of medical physics;*
* *the technical knowledge, skills and competency required for the safe application of the technologies used in the practice of medical physics;*
* *an appreciation of the clinical purpose and applications of sophisticated technologies;*
* *an understanding of the protocols and practices essential to the employment of technologies to detect, diagnose and treat various illnesses and injuries;*
* *the ability to use analytical and research methods to solve problems arising in the clinical environment;*
* *the ability to deploy new strategies within the clinical environment;*
* *the ability to critically evaluate research and scholarship in medical physics;*
* *the communication and interpersonal skills that are necessary to function in a collaborative, multidisciplinary environment;*
* *the professional attributes and the ethical conduct and actions that are required of medical physicists; and*
* *a valuing of career-long continuing education to keep professional knowledge and skills current.*

## The program shall state its mission and objectives.

With reference to the CAMPEP published standards, state your program’s mission and objectives. It would also be helpful to indicate where in the program each topic is addressed.

# Program Structure and Governance

## The institution in which the clinical training is conducted must be accredited by the appropriate healthcare accreditation organization.

Provide details (e.g., copies of certificates) in Appendix B.

## The clinical training must be located in an appropriately structured, well-established clinical environment, with a history of stability and with the infrastructure to support resident education and training.

## The residency program shall be overseen by an appropriate steering committee, which is chaired by the program director or delegate and meets at least twice a year.

Describe how the steering committee fits into the department or institutional organization and the general schedule of meetings.

## Committee membership shall include the program director and relevant staff involved in residency education including a physician.

Describe the general composition of the steering committee and list the current members.

## The process for appointment of the members of the steering committee shall be documented.

Describe how new steering committee members are chosen and how they are appointed.

## Minutes of the steering committee meetings, including a summary of any actions that are proposed or taken, shall be recorded.

Provide steering committee minutes for the preceding 2 years in an Appendix.

## A mechanism for residents to communicate with the steering committee shall be available.

## The steering committee shall establish a process for evaluating the quality of the educational program and annually assess the quality of the educational program based on this process, taking appropriate action to address improvements when needed.

Describe the process and how/when it is done each year.

## The steering committee shall assess and monitor the strengths, weaknesses, needs, and long-term goals of the program.

Describe how this is done and include a narrative of the current status in the Summary section.

## A procedure shall be in place to appropriately counsel, censure, and, after due process, dismiss residents who fail to achieve acceptable learning metrics or clinical competence, “At will” clauses in employment contracts or offer letters will be considered acceptable provided (1) these clauses do not pertain to resident performance, and (2) they are made known to the residency candidate no later than the time of the resident’s interview. In the event that no interview is conducted, this information shall be made known to the resident the earlier of the tendering of an offer to the resident or prior to the date of the Med Phys Match. Employment contracts (if used) shall be consistent with the dismissal procedures and due process described in this Standard.

In the Appendices, include a copy of the resident handbook, appointment documents, and employment contract.

## All courses and practica should use well-defined and consistently applied metrics for evaluating resident progress and performance.

## A program may consist of a single institution or of a primary site plus one or more affiliated institutions. An affiliated site is a participating site that is physically separated from the primary site such that it would be impractical for the program director at the primary site to directly supervise the resident’s training at the affiliated site. Residency programs with multiple physical locations that are reasonable commuting distance, and where the program director can exercise direct supervision of the resident’s training at all physical sites, may be considered to be a single site.

For programs with affiliated sites, a formal agreement must be in place between the main site and the affiliate site(s) describing liability, responsibility, accountability and any financial arrangements.

In an Appendix, provide copies of all such agreements.

## An accredited program must publicly describe the program and the achievements of its residents, preferably through a publicly-accessible website, eadily accessible from the program website home page. This information must be updated no less often than annually and must include the numbers of applicants to the program, of applicants offered admission, of residents entering the program, and of graduates. Information on the subsequent positions of graduates shall also be provided, i.e., numbers in academics, clinical practice, industrial positions, etc. This information should not identify individuals.

Provide the URL where this information can be found, the date of the last update, and how often it is updated.

## A medical physics residency shall consist of at least two years of full-time clinical training, with progressively increasing responsibilities under the supervision of qualified medical physicists. Residents’ responsibilities shall, under appropriate supervision, rise to the level of actual clinical activities. The educational experience may take place at one or more affiliated institutions.

Programs that integrate clinical training with research may extend the training period to achieve two years of full-time equivalent training. Residents in such programs shall be considered full-time residents during the extended training period.

Residency programs shall have a clearly defined policy stating that the maximum number of “Time Off” days a resident may take without requiring an extension in their residency training period shall not exceed an average of eight weeks (40 workdays) per year over the duration of the residency. This 40-day limit includes various types of leave including vacation, bereavement leave, parental leave, medical leave (sick time), caregiver leave, military commitments, and other leave as determined by the Program Director.

This information regarding allowed Time Off shall be made known to the residency candidate no later than the time of the resident’s interview. In the event that no interview is conducted, this information shall be made known to the resident the earlier of the tendering of an offer to the resident or prior to the ranking deadline of the Med Phys Match.

Describe how you ensure that the length of clinical training meets this standard. Describe the program’s time-off policy, how you make the resident aware of the policy, and how you deal with situations where extended time-off is required. This policy should also be in any handbook or policy manual used by the program and included in an Appendix.

## A residency program shall clearly identify the program type (therapy, imaging, imaging + nuclear medicine, etc.).  If that is not clearly delineated in the program name, then the program must identify the program type on the home page of its website.

# Admissions

## Residents entering a medical physics residency educational program shall have a strong foundation in basic physics. This shall be demonstrated either by an undergraduate or graduate degree in physics, or by a degree in an engineering discipline or another of the physical sciences and with coursework that is the equivalent of a minor in physics (i.e., one that includes at least three upper-level undergraduate physics courses that would be required for a physics major).

In addition, residents must either 1) have graduated from a CAMPEP-accredited MS or PhD graduate program, or 2) possess a PhD in physics or related discipline and have completed a CAMPEP-accredited certificate program, or 3) possess a PhD in physics or related discipline and have satisfactorily completed courses equivalent to those in a CAMPEP-accredited certificate program, as determined by the CAMPEP Graduate Education Program Review Committee (GEPRC).

Provide a list of residents admitted, current residents, and residents completing your program in Appendices D, E, and F. Describe how you ensure that undergraduate and graduate education requirements are met.

## The didactic requirements for entering a residency program shall be completed prior to the beginning of clinical education, except for up to two remedial courses, which may be taken for a two-year residency program without extending the duration of the residency program for residents with PhD degree. The two remedial course requirement does not apply to residency programs that are three years or longer. If a residency program conditionally admits applicants with deficiencies in their academic background, the remedial education of such residents shall be well-defined. Courses used for remediation must have been assessed and approved by CAMPEP.

For residents requiring remediation, describe how this is done and is compliant with this standard. If your program does not allow for remediation, simply state that.

## Admission standards including degrees and graduate transcripts, for incoming residents are clearly stated.

Describe the general admission standards and provide the URL where this information can be found.

## The method of processing an application, including evaluating the application and informing the applicant of actions taken, shall be clearly stated.

Describe how applications are processed and evaluated, and how applicants are informed of the process.

# Program Director

## The process for the appointment of the program director shall be documented.

Describe how new program directors are chosen and appointed.

## A sole program director shall be responsible and accountable for ensuring that the residency program satisfies the CAMPEP standards, and shall ensure that all residents receive a high-quality education and training at all training sites.

## The program director must be certified to practice medical physics by the American Board of Radiology, the Canadian College of Physicists in Medicine, or another appropriate certifying agency.

State the certifying board, year of certification, and Maintenance of Certification status (if appropriate) for the program director.

## The program director shall have at least five years of full-time post-graduate experience in medical physics in the specialization of the residency training program.

State when the program director began working in the residency specialty and the total years of experience.

## The program director shall be responsible for coordinating the faculty, recruiting residents into the program, advising the residents, and evaluating and promoting the program.

## The program director shall be responsible for determining and documenting that each student offered entry into the residency program satisfies the CAMPEP admission standards for residency education in medical physics or completes rigorous remedial education to meet the standards.

## The program director shall ensure that all resident statistics, annual reports, and other information that is required by CAMPEP are reported accurately and in a timely fashion.

## The program director shall meet periodically with each resident to assess the resident’s progress, and minutes of the meeting shall be maintained. A copy of the minutes shall be provided to the resident.

Describe how often the program director meets with each resident and how these meetings are documented.

# Program Staff

## The process for the appointment of the program staff shall be documented.

## An adequate number of program staff shall be available with sufficient time for clinical mentoring.

## To provide appropriate full-time supervision of the resident at all sites, including remote sites, the number of program staff shall exceed the number of residents in the program plus 1. The level of supervision will be determined by the Program Director based on the competency level of the resident.

## A majority of the program staff shall be licensed to practice medical physics by an appropriate jurisdiction or be certified in a branch of medical physics by an appropriate certifying agency.

## Program staff members shall be engaged in scholarly activities such as participation in scientific societies and meetings, scientific presentations and publications, and continuing education.

Provide a list of all program staff members below. In Appendix G, add individual biosketches with dates of degrees and appointments according to the provided template.

Alphabetical List of Faculty/Staff

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Degree** | **Position [title]** | **Certification/Area** | **Primary Clinical Responsibilities** |
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# Institutional Support

## The organization that sponsors the residency program shall provide administrative support, including clinical and educational resources, budget, residents’ office or cubicle space and access to computing resources, conference room(s), audiovisual facilities, and office support (e.g. copiers, internet access, email account, and telephones).

## The institution must express its intention to support the program both financially and administratively for the term of the accreditation.

Describe how the program is supported at the department and/or institutional levels, and provide letters of support in Appendix A.

## Any financial support of residents, including benefits, shall be described clearly to prospective applicants prior to their application to the program.

Describe how prospective applicants are made aware of financial support and benefits. If appropriate, include a URL.

## Entering residents shall be provided with orientation information to ensure their efficient integration into the program.

Describe the general orientation process, including an overview of the resident handbook.

## The program shall instruct its residents on the potential hazards that they might encounter and on the appropriate measures for them to take to minimize risks to themselves, others, and equipment.

Describe when this instruction takes place and what is included.

## The program shall instruct its students regarding the professional, ethical, and regulatory issues in the responsible conduct of research and in the protection of the confidentiality of patient information.

## Restrictive covenants, such as non-compete (NC) clauses and non-disclosure (ND) clauses, although not encouraged by CAMPEP, shall be allowed as part of a resident’s terms of employment, provided they are limited in time, geography, and scope, and their terms fully disclosed to prospective residents on the program’s public website. A program may not require any resident to sign any restrictive covenant amended after receipt of the resident’s application.

All restrictive covenants shall be limited in time to not more than two years following completion of the residency, limited in location to within 50 miles of the resident’s primary training location, and limited in scope to working for direct competitors (e.g., other consulting firms or clients), and not existing in-house medical physics positions.

Restrictive covenants shall not restrict residents’ retaining the right to take with them any and all educational materials created by or for them during the residency (including lecture notes, educational presentations, study materials, etc,). Restrictive covenants can legitimately prohibit the departing resident from taking with them intellectual property of the practice such as standardized spreadsheets, or business-related property such as pricing, which they may be shown during the residency, as well as other materials that could be considered business and not educational materials.

Restrictive covenants that in any way limit residents’ rights or abilities to make open and honest statements to CAMPEP about any matter pertaining to the residency program are expressly prohibited.

Restrictive covenants are explicitly prohibited in jurisdictions in which they may be in violation of the law.

Describe any restrictive covenants that residents are subject to, and how residents are made aware of them.

# Educational Environment

## The program shall have mechanisms that encourage open discussion and communication, and facilitate the exchange of knowledge, experience and ideas.

Describe available mechanisms and how they facilitate compliance with this standard.

## Conference, seminar, and journal club activities shall be used for residents to practice their presentation and oral communication skills.

Provide a list of such activities that are available, and any requirements related to those activities.

## Residents shall have access to a variety of journals, books, and appropriate resource materials.

Describe how residents can access relevant reference materials.

## Residents shall have access to clinical and research facilities appropriate for a medical physics residency program.

Provide general details of clinical and research facilities available to the resident.

## Residents shall be provided with a mechanism for regular feedback concerning the quality of their instruction and the diligence of their mentors. The residents shall be protected from unwarranted retribution.

Describe all the feedback mechanisms available to the residents.

## Feedback on the overall effectiveness of the program and recommendations for improvement should be sought from graduates.

Describe how the program gets feedback from graduates.

## Issues and concerns that are identified through feedback shall be evaluated by the steering committee and remedial action shall be taken where appropriate.

Describe how resident and graduate resident feedback is incorporated into the program review process.

## All clinical, educational and scholarly activities engaged in by the resident shall be recorded in an activities journal using any appropriate format maintained personally by each resident and examined regularly by the program director.

Describe how residents are required to track their activity and how often it is reviewed by the program director.

# Residency Curriculum

## The self-study document shall include written expectations of resident performance and behavior as well as the training schedule that is given to incoming residents. This training schedule shall include:

1. *Duration of each clinical rotation*
2. *Clinical rotation objectives*
3. *Didactic educational expectations*
4. *Optional research opportunities which do not compromise clinical training*

## The elements of clinical training shall be consistent with the curriculum described below.

## The self-study document shall include a summary of the elements of clinical training of each clinical rotation to include:

1. *Documentation of specific training objectives;*
2. *Documentation of resident progress evaluation with resident name removed;*
3. *Documentation of any required remedial didactic education;*
4. *List of clinical conferences, seminars and/or journal reviews including their frequency that the resident is expected to attend.*
5. *An appropriate reading list.*

In Appendix C, include descriptions of each rotation. If there are rotation-specific evaluations, they can be included in Appendix C. Generic rotation evaluations can be included in Appendix J.

## The process for creating or modifying training objectives shall be described.

Describe this process. While training objectives may be part of an annual review, they may be created or modified at other times (e.g., after post-rotation resident feedback).

## All facilities used by the residents including their location, availability, and capacity shall be listed.

This is like standard 7.4, but should include more specific details, including any limitations (e.g., only one resident at a time).

## Ethics and Professionalism Curriculum

These standards shall be fully addressed before completion of the resident educational programs.

Indicate how the following topics are covered:

|  |  |  |
| --- | --- | --- |
| **Professionalism and Ethics** | **How covered** | **Comments** |
| Professionalism |  |  |
| * Definition of a profession and professionalism
 |  |  |
| * Elements of a profession
 |  |  |
| * Definition of a professional
 |  |  |
| * Elements of professionalism
 |  |  |
| * How is professionalism judged?
 |  |  |
| * Do’s and don’ts of professionalism
 |  |  |
| * Physician’s charter and applicability to physicists
 |  |  |
| Leadership |  |  |
| * Vision and charisma
 |  |  |
| * Qualities of leaders
 |  |  |
| * Rules of leadership
 |  |  |
| * Causes of leadership failure
 |  |  |
| Ethics |  |  |
| * Ethics of a profession
 |  |  |
| * Ethics of an individual
 |  |  |
| * Interactions with colleagues and co-workers
 |  |  |
| * Interactions with patients and the public
 |  |  |
| * Confidentiality
 |  |  |
| * Peer review
 |  |  |
| * Negotiation skills
 |  |  |
| * Relationships with employers
 |  |  |
| * Conflicts of interest
 |  |  |
| * Ethics in research
 |  |  |
| * Use of animals in research
 |  |  |
| * Use of humans in research
 |  |  |
| * Relationships with vendors
 |  |  |
| * Publication ethics
 |  |  |
| * Ethics in graduate and resident education
 |  |  |
| * Selected case studies
 |  |  |

Sample Training Plan

* Documentation of training shall include a summary of the clinical training during each rotation
* These summarizes shall include:
	1. The documentation of specific training objectives and experience to be gained by the resident during each rotation
	2. The documentation of evaluation of the resident progress in each rotation
	3. The documentation of any didactic education used to satisfy educational requirements
	4. Resident training records should include examples of work assignments, reports, and examinations
	5. Copies of supervising physicist evaluations shall be kept and available for review
	6. Include written expectations of resident performance and behavior as well as the training schedule that is given to incoming residents
	7. The training schedule should include:
1. Dates of each clinical schedule
2. Clinical rotation objectives
3. Didactic educational expectations
4. Optional research opportunities, not compromising clinical training
* Clearly describe the pass/fail criteria for these rotations
* Programs with affiliate sites must clearly describe which components are provided by the primary site and which are available locally

## Imaging Physics Residency Curriculum

Minimum requirements are described below for completing a residency in imaging physics. For tests to be conducted, the number of systems to be tested to demonstrate competency is left to the discretion of the program director and the supervising physicist, except for systems where accrediting agencies define the minimum number of systems that must be tested for an individual to be considered a qualified medical physicist. In these cases, the minimum number of systems to be tested shall be at least the number specified by the accrediting agency. For topics that define quantities that may be measured or computed, the resident should perform actual measurements or computations to demonstrate familiarity with the quantities and their uses.

* Conduct system performance evaluations and quality control, safety and compliance tests, including vendor recommendations, under supervision of a qualified physicist
* Radiography
* Computed radiography
* Fluoroscopy
* Interventional/angiography
* Mammography
* Stereotactic breast biopsy
* Computed tomography
* Magnetic resonance
* Ultrasound
* Image processors/printers
* Safety evaluations
* Entrance exposure estimates
* Organ dose estimates
* Computed tomography dose index (CTDI) and dose length product (DLP)
* Mean glandular dose
* Effective dose
* Risk estimates
* Personnel exposure estimates and reduction
* Fetal dose
* Contrast agents
* Protocol optimization
* MRI hazards
* Organ/fetal dose with MIRD system
* Radiopharmaceutical applications and risks
* Shielding design
* Personnel shielding/monitoring
* Calibration and survey instruments
* Radiation surveys
* Safety/policies
* Compliance audits
* Dose limits
* Informatics
* Picture archiving and communication systems (PACS) and radiology information systems (RIS)
* Digital imaging and communication systems (DICOM) standards
* Health Level 7 (HL7)
* Information acquisition from PACS/images
* Informatics variations among modalities
* Dose reporting
* Use of Integrating the Healthcare Enterprise (IHE) radiology profiles
* Open source software resources
* Quality/maintenance of imaging workstations
* Evaluation of viewing conditions
* Image registration, fusion, segmentation, processing
* Computer-aided detection (CAD) and computer-aided diagnosis (CADx) systems

## Nuclear Medicine Physics Residency

Minimum requirements are described below for completing a residency in nuclear medicine physics. For tests to be conducted, the number of systems to be tested to demonstrate competency is left to the discretion of the program director and the supervising physicist, except for systems where accrediting agencies define the minimum number of systems that must be tested for an individual to be considered a qualified medical physicist. In these cases, the minimum number of systems to be tested shall be at least the number specified by the accrediting agency. For topics that define quantities that may be measured or computed, the resident should perform actual measurements or computations to demonstrate familiarity with the quantities and their uses.

* Conduct systems performance evaluations and quality control, safety and compliance tests, including National Electrical Manufacturers Association (NEMA) and vendor specifications, under supervision of a qualified medical physicist
* Gamma camera, including intrinsic/extrinsic/SPECT performance
* PET/CT, including ACR accreditation tests
* Sufficient test to achieve ACR qualified medical physicist status
* Non-imaging equipment (e.g. dose calibrators, uiptake probes, well counters)
* Image processors/printers
* Computer systems
* Safety evaluations
* Organ/fetal dose with MIRD system
* CTDI and DLP
* Effective dose
* Risk estimates
* Personnel exposure estimates and reduction
* Radiopharmaceutical applications and risks
* Personnel shielding/monitoring
* Unsealed source management (storage, inventory, packaging, transportation, personnel protection)
* Calibration and survey instruments
* Radiation and contamination surveys
* Radionuclide therapy/personnel safety/patient release criteria/public safety
* Safety policies/procedures
* Compliance audits
* Occupational and public dose limits
* National and state regulations
* Radiation exposure to the public
* Waste handling and disposal
* Radioactive spills
* Radiation signage
* Medical events (definition and reporting requirements
* Informatics
* PACS and RIS systems and their integration
* HL-7
* DICOM standards
* Information acquisition from PACS/Images
* Informatics variations among modalities
* Dose reporting features
* Use of IHE radiology profiles
* Open source software resources
* Quality/maintenance of imaging workstations
* Evaluation of viewing conditions
* Image registration, fusion, segmentation, processing
* Quantitative analysis
* Kinetic modeling/computer analysis

## Radiation Oncology Physics Residency

Minimum requirements are described below for completing a residency in radiation oncology physics. For tests to be conducted, the number of systems to be tested to demonstrate competency is left to the discretion of the program director and the supervising physicist, except for systems where accrediting agencies define the minimum number of systems that must be tested for an individual to be considered a qualified medical physicist. In these cases, the minimum number of systems to be tested shall be at least the number specified by the accrediting agency. For topics that define quantities that may be measured or computed, the resident should perform actual measurements or computations to demonstrate familiarity with the quantities and their uses.

* Conduct system calibration, performance evaluations and quality control, safety and compliance tests, including vendor specifications, under supervision of a qualified physicist
* Megavoltage photons
* Megavoltage electrons
* Small field systems (SRS,SBRT)
* GammaKnife (if available)
* 60Co (if available)
* Brachytherapy implants (temporary/permanent)
* Brachytherapy applicators, LDR, HDR
* CT Simulators
* SPECT (if available)
* PET/CT (if available)
* MRI/CT (if available)
* Protons (if available)
* Beam scanning systems
* In-vivo dosimetry (e.g. diodes, thermoluminescent dosimeters (TLDs), optically stimulated luminescence dosimeters (OSLDs)
* External beam dose measuring systems
* 3D external beam treatment planning workstations
* Immobilization devices
* Organ motion-corrected methods
* Inhomogeneity correction algorithms
* Image-guided radiotherapy equipment/techniques [e.g. planar MV and KV imagers, cone beam CT, non-radiographic localization (e.g. ultrasound (US), surface camera, radiofrequency (RF) beacon tracking
* US therapy (if available)
* MRI
* Total body irradiation (TBI)
* Total skin electron therapy (TSET)
* Optional: Conduct evaluations and tests of other therapy items (e.g. fluoro simulation, SPECT, PET/CT, MRI/PET, proton accelerators if in clinical use at the educational institution
* Treatment planning and delivery
* Treatment simulation techniques (e.g. patient positioning, immobilization)
* Beam properties (photons and electrons)
* Beam modifiers (e.g. bolus, compensators wedges)
* Step-and-shoot and sliding window IMRT
* Treatment planning algorithms
* Monitor unit calculations
* Monitor unit calculations/configurations (e.ag. SSD setup, SAD setup, extended distance, off axis and rotational beams)
* Tumor localization and International Commission on Radiation Units and Measurements (ICRU), target definitions [e.g. gross tumor (GTV), clinical target volume (CTV), and planning target volume (PTV)
* Normal tissue anatomical contouring
* 2D and 3D treatment planning
* IMRT/VMAT planning/optimization/QA
* Small field planning/optimization/QA
* Site specific treatment planning
* Plan evaluation [e.g. dose volume histogram (DVH). Conformity index, homogeneity index, biological evaluators)
* Treatment records
* Dose limits to sensitive structures
* Brachytherapy treatment plans and QA
* Clinical applications of various radiation treatments
* Safety evaluation
* Failure mode effects analysis (FMEA) principles/applications
* Root cause analysis (RCA) principles/applications
* Sealed source storage/safety/protection
* Sealed source inventory/check in/out procedures
* Sealed source packaging/transportation (e.g. Title 19 CFR)
* Calibration of sealed sources
* Exposure and contamination surveys
* Radiation signage
* Definition and reporting requirements for medical events
* Radiation safety of personnel during radionuclide therapy
* Patient release criteria following radionuclide therapy and radiation safety for the public
* Safety policies/procedures
* Compliance audits
* Occupational and public dose limits
* National and state regulations
* Radiation exposure to the public
* Shielding design (primary and secondary barrier calculations)
* Neutron shielding
* Facility radiation surveys
* Personnel dosimetry
* Informatics
* Beam data acquisition/management
* Beam modeling
* Validation of imported images
* PACS systems and their integration
* HL-7
* DICOM standards
* DICOM in radiation therapy (DICOM-RT)
* Information acquisition from PACS/images
* Quality/maintenance of imaging workstations
* Evaluation of viewing conditions
* Image registration, fusion, segmentation, processing
* Quantitative analysis
* Record and verify systems
* Treatment record design/maintenance
* IHE – Radiation Oncology (IHE-RO)
* Network integration/management, and roles of physics and information technology staff
* Therapeutic radiopharmaceutical training should be included in the curriculum of radiation oncology physics residents

Summary

Provide a brief summary of your program strengths, weaknesses and goals for the future.

Appendix A - Letters of Invitation and Institutional Commitment

Appendix B - Documentation of *Institutional* Accreditation

Appendix C – Clinical Rotation Summaries

Rotation Title:

Preceptor/Mentor:

Duration:

Rotation Objectives:

Recommended References:

Evaluation Scheme:

List of Competencies:

Rotation Appendix: Rotation evaluation of the resident and by the resident

Appendix D – List of Residents Admitted

Provide a reverse chronological list of residency program admissions for the past 5 years.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Ref #** | **Start Year** | **Graduate Degrees** | **Date** | **Institution** | **CAMPEP accreditation** |
| **Graduate** | **Certificate** | **Not Accredited** |
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If Resident's degree is NOT from a CAMPEP-accredited program, indicate where required didactic courses were taken.

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| --- | --- | --- |
| **Ref #** | **Course** | **Institution** |
|  | **Radiological physics and dosimetry** |  |
|  | **Radiation protection and safety** |  |
|  | **Fundamentals of medical imaging** |  |
|  | **Radiobiology** |  |
|  | **Anatomy and physiology** |  |
|  | **Radiation therapy physics** |  |

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| --- | --- | --- |
| **Ref #** | **Course** | **Institution** |
|  | **Radiological physics and dosimetry** |  |
|  | **Radiation protection and safety** |  |
|  | **Fundamentals of medical imaging** |  |
|  | **Radiobiology** |  |
|  | **Anatomy and physiology** |  |
|  | **Radiation therapy physics** |  |

Appendix E – List of Current Residents

Provide an alphabetical list of current residents in your program.

|  |  |  |  |
| --- | --- | --- | --- |
| **Resident** | **Supervisor** | **Year Entered** | **Funding Source** |
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Appendix F – Program Graduates

Provide a reverse chronological list of residency program graduates for the past 10 years.

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| --- | --- | --- | --- | --- |
| Name | Time in Program (dates) | Supervisor | Current Occupation | Board Certification |
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# Appendix G - Faculty and Staff Biographical Sketches and Program Roles

Provide biographical sketches in alphabetical order (last name, first name), in the format given below of faculty members involved in the program. **Biosketches for staff members who are not directly involved in the program are not required.**

***Not to exceed 3 pages, add or delete rows where applicable***

|  |
| --- |
| **Name** (last, first, MI)**:** |
| **EDUCATION** |
| **Institution Name** | **Degree** | **Year Awarded** | **Field of Study** |
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| **POSTGRADUATE TRAINING** |
| **Institution Name** | **Start & End Dates****mmm/yyyyy** | **Nature of Training** |
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| **ACADEMIC APPOINTMENTS** |
| **Institution, Department** | **Start & End Dates****mmm/yyyyy** | **Position or Rank** |
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| **HOSPITAL and OTHER APPOINTMENTS** |
| **Hospital, Clinical, Company etc.** | **Start & End Dates****mmm/yyyyy** | **Position or Title** |
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|  |  |  |
|  |  |  |
| **CERTIFICATION, REGISTRATION and LICENSURE** |
| **Granting Body** | **Specialty** | **Year Granted** | **Year of Next MOC** |
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| **ACADEMIC SUPERVISION** |
| *Number of present and past Ph.D and M.S. students whose research you have directly supervised.* |
| **ROLES IN PROGRAM** |
| *Examples: Courses/Classes taught (with contact hours), membership of program committees (steering committee, admissions committee, student research committees, etc.)* |
| **CLINICAL RESPONSIBILITIES** |
|  |
| **Scholarly Activities** |
| *Examples: participation in scientific societies and meetings, scientific presentations, continuing education, etc.* |
| **RESEARCH INTERESTS** |
|  |
| **RESEARCH SUMMARY** |
| **Item** | **Total** | **In last 5 years** |
| Peer-reviewed papers in referred journals |  |  |
| Book chapters & conference proceedings |  |  |
| Published abstracts |  |  |
| Presentations at national & international conferences |  |  |
| **RESEARCH FUNDING SUPPORT** |
| **Source of Funding** | **Title of Research Grant** | **Dates of Support** | **Funding Amount** |
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| **LIST OF SELECTED PUBLICATIONS – Reverse Chronological Order***Last 5 years.* |
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| --- |
| **Name** (last, first, MI)**:** |
| **EDUCATION** |
| **Institution Name** | **Degree** | **Year Awarded** | **Field of Study** |
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| **POSTGRADUATE TRAINING** |
| **Institution Name** | **Start & End Dates****mmm/yyyyy** | **Nature of Training** |
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| **ACADEMIC APPOINTMENTS** |
| **Institution, Department** | **Start & End Dates****mmm/yyyyy** | **Position or Rank** |
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| **HOSPITAL and OTHER APPOINTMENTS** |
| **Hospital, Clinical, Company etc.** | **Start & End Dates****mmm/yyyyy** | **Position or Title** |
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| **CERTIFICATION, REGISTRATION and LICENSURE** |
| **Granting Body** | **Specialty** | **Year Granted** | **Year of Next MOC** |
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| **ACADEMIC SUPERVISION** |
| *Number of present and past Ph.D and M.S. students whose research you have directly supervised.* |
| **ROLES IN PROGRAM** |
| *Examples: Courses/Classes taught (with contact hours), membership of program committees (steering committee, admissions committee, student research committees, etc.)* |
| **CLINICAL RESPONSIBILITIES** |
|  |
| **Scholarly Activities** |
| *Examples: participation in scientific societies and meetings, scientific presentations, continuing education, etc.* |
| **RESEARCH INTERESTS** |
|  |
| **RESEARCH SUMMARY** |
| **Item** | **Total** | **In last 5 years** |
| Peer-reviewed papers in referred journals |  |  |
| Book chapters & conference proceedings |  |  |
| Published abstracts |  |  |
| Presentations at national & international conferences |  |  |
| **RESEARCH FUNDING SUPPORT** |
| **Source of Funding** | **Title of Research Grant** | **Dates of Support** | **Funding Amount** |
|  |  |  |  |
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| **LIST OF SELECTED PUBLICATIONS – Reverse Chronological Order***Last 5 years.* |
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Appendix H – Sample Interview Evaluation Form

Appendix I – Sample Offer Letter and Employment Contract

Appendix J – Example of Resident’s Evaluation