CyberKnife®

CyberKnife® Physics Essentials (In-person)

Training for Physicists on the CyberKnife® Treatment Delivery System and the Accuray Precision® Treatment Planning System.

The CyberKnife Physics Course is designed for Medical Physicists responsible for performing commissioning and quality assurance (QA) tasks on the CyberKnife® Treatment Delivery System. This course provides an overview of clinical operation with in-depth instruction on commissioning procedures and routine QA tools and practices.

The course curriculum blends conceptual instruction with hands-on exercises to prepare Physicists for active involvement in the ATP as well as to perform routine QA tests. This course includes a brief introduction to the Accuray Precision treatment planning system as well as hands-on practice with the CyberKnife System. Completion of the course prepares the Physicist to perform the necessary commissioning and testing to ensure the system is ready for clinical use. Physicists who create clinical treatment plans are recommended to enroll in the Accuray Precision Treatment Planning for CyberKnife System course.

This course meets core curriculum requirements for CyberKnife New System Implementation.

COURSE OBJECTIVES

Upon completion of this course, attendees will be able to:

- Discuss the typical treatment workflow
- Summarize commissioning tasks
- Explain the clinical operation, safety considerations, and QA procedures
- Explain treatment delivery techniques for various targets

SKILLS

Upon completion of this course, attendees will be able to perform the following tasks:

- Perform patient plan QA and dose verification
- Demonstrate alignment and tracking with different image guidance methods
- Monitor and evaluate treatment delivery
- Perform routine QA test procedures
- Perform CyberKnife commissioning operations

COURSE FORMAT
In-person
Instructor-led presentations
System demonstrations
Hands-on labs

COURSE PRE-WORK
Assigned online learning modules are designed to augment classroom curriculum

DURATION
Five (5) days in classroom

TARGET AUDIENCE
Medical Physicists

PARTICIPANT BACKGROUND
Knowledge of the standards of practice in the field of radiation oncology

NO CE CREDITS OFFERED

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Course Outline

Note: Course agenda is subject to change without notice.

Pre-work (remote eLearning)

SELF-PACED

- Required pre-work will be sent to course attendees and must be completed before attending the CyberKnife Physics Essentials Course.

Week 1 (Monday – Friday: In-Person course)

DAY ONE

- Review of eLearning
- In-room overview of the CyberKnife System
  - Teach Pendant
  - Physics Tools
  - Collimator Exchanges
- Water Tank Setup
- Beam Data Workbook Review
- Accuray Precision Commissioning

DAY TWO

- Monte Carlo Commissioning
- Absolute Dose Calibration
- Introduction to the CyberKnife Treatment Delivery System user interface
- Patient Preparation
- Overview of CyberKnife Deliveries: (lecture and hands-on delivery)
  - Synchrony® Skull Tracking™
  - Synchrony® Spine Tracking Supine™
  - Synchrony® Fiducial Tracking™

DAY THREE

- Tracking moving targets with Synchrony®
- Synchrony® Spine Tracking Prone™
- Treatment options for lung
- Hands-on Respiratory tracking modalities delivery
  - Synchrony® Fiducial with Respiratory tracking™
  - Synchrony® Lung with Respiratory tracking™
- Single Beam QA
- Film Scanner Calibration Check
- Machine QA: AQA testing
- Machine QA: E2E testing

DAY FOUR

- Machine QA: Laser to Radiation Field Alignment
- Machine QA: Image Alignment and Path Verification
- Machine QA: Iris QA
- Machine QA: MLC QA

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DAY FIVE

- Treatment Planning Labs:
  - QA plan templates
  - Patient QA
  - Authorizing QA plans
- Water tank setup & QA review

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