

# CyberKnife® Physics Essentials (Remote)

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

The virtual 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 a virtual review of 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.

**NOTE:** At least one site physicist from a new site should attend an in-person CyberKnife Physics Essentials course prior to installation, as there is significant detail in the use of the teach pendant, physics tools and water tank set-up specific to the S7 and MLC that benefit from hands-on training.

Likewise, sites who are upgrading from a pre-M6 CyberKnife (i.e.: G3, G4, VSI) to an S7 with MLC should send at least one physicist to an in-person CyberKnife Physics Essentials course prior to installation.

Exceptions could be made if there is a physicist on-site who is already experienced in CyberKnife MLC commissioning or if an experienced third-party will be used for commissioning the new CyberKnife.

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

### COURSE FORMAT

Remote  
Instructor-led presentations  
System demonstrations  
Hands-on labs

### COURSE PRE-WORK

Assigned online learning modules are designed to augment classroom curriculum

### DURATION

Four (4) days remote

### TARGET AUDIENCE

Medical Physicists

### PARTICIPANT BACKGROUND

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

### NO CE CREDITS OFFERED

## 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 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 – Thursday: Instructor-led remote course)

### DAY ONE – REMOTE

- Review of eLearning
- CyberKnife Physics tools and Collimator Exchanges
- Water Tank Setup
- Beam Data Workbook Review
- Accuray Precision Commissioning
- Introduction to the CyberKnife Treatment Delivery System user interface

### DAY TWO – REMOTE

- Monte Carlo Commissioning
- Machine QA and Absolute Dose Calibration
- Patient Preparation
- Overview of CyberKnife Deliveries (lecture, video, and virtual review):
  - Synchrony® Skull Tracking™
  - Synchrony® Spine Tracking Supine™
  - Synchrony® Fiducial Tracking™
- Tracking moving targets with Synchrony®
- Synchrony® Spine Tracking Prone™
- Treatment options for lung

### DAY THREE – REMOTE

- Lung Optimized Treatment workflow (lecture, video, and virtual review)
- Single Beam QA
- Scanner Calibrations
- Machine QA: AQA Testing
- Machine QA: E2E Testing

### DAY FOUR – REMOTE

- Machine QA: Laser to Radiation Field Alignment
- Machine QA: Image Alignment and Path Verification
- Machine QA: Iris
- Machine QA: MLC QA
- Treatment Planning Labs:
  - QA plan templates
  - Patient QA
  - Authorizing QA plans