

PHASE CONTRAST MICROSCOPY

Photo of Instrument:



Instrument Name	PHASE CONTRAST MICROSCOPY
Instrument Model & Serial No.	OLYMPUS
Instrument Make	OLYMPUS ch20i
Category of Instrument	Analytical Instrument
Description of Instrument	Phase-contrast microscopy is an optical microscopy technique that enhances the contrast of transparent, colorless, or nearly transparent specimens. It is particularly useful for observing living cells and other samples that would be damaged or altered by traditional methods.
Instrument Technical Description and Major Specifications (This Specifications Limited to Major 5)	<p>Principle of Phase Contrast: In a typical bright-field microscope, the image formation is based on the absorption of light by the specimen. However, in transparent specimens, there is minimal absorption, leading to low contrast images. Phase contrast takes advantage of the phase differences in the light waves that pass through different parts of a transparent specimen. This phase difference is typically not visible in a standard microscope.</p> <p>Phase Plate: A phase-contrast microscope includes a specialized phase plate located in the condenser. The phase plate shifts the phase of the light passing through the specimen, converting</p>

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	<p>phase differences into variations in light intensity.</p> <p>Annular Aperture: In the objective lens, there is an annular aperture that further manipulates the light.</p> <p>The annular aperture blocks the direct, un-deviated light (called the zero-order light) while allowing the diffracted light (phase-shifted light) to pass through.</p> <p>Image Formation: The phase-shifted light and the un-deviated light interfere to produce a visible image.</p> <p>This interference creates a bright image against a dark background, enhancing the contrast of the specimen.</p>
Application of Instrument (Limited to Major 4 or 5)	<p>Phase-contrast microscopy is particularly useful for observing live cells, as it doesn't require staining or fixing, which can alter cell behavior.</p> <p>It is commonly used in microbiology, cell biology, and other fields where transparent specimens need to be studied.</p>
Type of Sample Required for Analysis/Testing (Quantity, Pre-Preparation, State etc.) Guidelines for Sample Submission – User Instructions	The sample used in phase-contrast microscopy is typically thin and transparent, such as live biological cells or unstained tissue sections
Types of Analysis/Testing (Quantity, Pre-Preparation, State etc.) Guidelines for Sample Submission – User Instructions	Optical microscopy technique
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Technical Staff Name / Email / Contact	Muhammed Munaver Muhammedmunaver@nitc.ac.in 04952285484
Location of Instrument	Instrumentation Lab
Other Details	

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User Charges:

S.NO.	Type of Analysis/Testing	Internal - within Department of NITC	Internal - Other Departments NITC	External Academic Educational Institutes	National Labs	Industry
1	Optical microscopy technique		100	200	200	400

Slot Booking and Payment Work Flow:

- Discuss the slot availability with the technical staff in the instrumentation lab of chemical engineering department.
- Collect the request form.
- Payment should be at the accounts section of the institute.
- Get the request form signed from the faculty in charge.
- Submit the request form and samples in the instrumentation lab.