# Contents


**List of Figures** ix
**Acknowledgement** xix
**Editors** xxi
**Contributors** xxiii

**1 Introduction to Microscopy** 1
ASHISH BADIYE, NEETI KAPOOR, AND RITESH K. SHUKLA

**2 Optical Components of a Light Microscope** 19
MARINELLA PIROZZI AND SEETHARAMAN PARASHURAMAN

**3 Introduction to Simple (Handheld) Microscopes** 41
NEETI KAPOOR, RITESH K. SHUKLA, AND ASHISH BADIYE

**4 Forensic Applications of Simple (Handheld) Microscope** 57
ASHISH BADIYE, SAMIKSHA LANDGE, SANJAY THAKARE, SURAJNARAYAN S. KUSHWAHA, AND NEETI KAPOOR

**5 Introduction to Compound Microscope** 72
ASHISH BADIYE, ANUPUMA RAINA, RASIKA KAKAD, PRADNYA SULKE, RAJESH SINGH YADAV, AND NEETI KAPOOR

**6 Forensic Applications of Compound Microscope** 83
RITESH K. SHUKLA, PRONIT BISWAS, AND RAJESH SINGH YADAV

**7 Introduction to Comparison Microscope** 107
HANSI BANSAL, NEETI KAPOOR, RAMDAS ATRAM, AND ASHISH BADIYE

**8 Forensic Applications of Comparison Microscope** 117
KAPIL KUMAR AND PARVESH SHARMA

**9 Introduction to Fluorescence Microscope** 123
ANUREKHA YADAV, NEETI KAPOOR, AND ASHISH BADIYE

**10 Forensic Application of Fluoroscence Microscope** 135
VINEETA SAINI AND RITESH K. SHUKLA

**11 Introduction to Stereo Microscope** **150**
ABDULKHALIK MANSURI AND ASHUTOSH KUMAR

**12 Forensic Applications of Stereomicroscope** **156**
PARVESH SHARMA, PALAK ANEJA, SUMIT KUMAR CHOUDHARY, AND SURBHI MATHUR

**13 Introduction to Polarized Light Microscope** **182**
HIMANSHU KHAJURIA, SAPNA GUPTA, AND BISWA PRAKASH NAYAK

**14 Forensic Applications of Polarized Microscope** **191**
RAKHI AGARWAL AND AVAISH CHAND

**15 Introduction to Dark-field Microscope** **201**
R. APARNA

**16 Forensic Applications of Dark-field Microscope** **210**
POONAM MOON, ASHISH BADIYE, SAMIKSHA LANDGE, ARCHANA KAMBLE, ANKIT SRIVASTAVA, AND NEETI KAPOOR

**17 Introduction to Phase Contrast Microscope** **219**
SAPNA GUPTA, BISWA PRAKASH NAYAK, AND HIMANSHU KHAJURIA

**18 Forensic Applications of Phase-Contrast Microscope** **227**
ASHISH BADIYE, MAGDY KHAROSHAH, POONAM MOON, RITESH K. SHUKLA, AND NEETI KAPOOR

**19 Introduction to Electron Microscope** **237**
SOMU YADAV, DEEPIKA, AND PAWAN KUMAR MAURYA

**20 Forensic Applications of Electron Microscope** **251**
ASHISH BADIYE, NEETI KAPOOR, AND RITESH K. SHUKLA

**21 Introduction to Atomic Force Microscope: Basic Concepts and Applications** **271**
AISHWARYA JOSHI, GAURANG PATEL, AND SANJAY SINGH

**22 Forensic Applications of Atomic Force Microscope** **295**
NIHA ANSARI AND RITESH K. SHUKLA

**23 Forensic Histopathology** **311**
MOHAMMED MADADIN, ANUSHA S. BHATT, ALOK ATREYA, SHARADA RAI, PRATEEK RASTOGI, AND RITESH G. MENEZES

**Index** **335**