

## **Syllabus**

### **56901852 – Advanced Research Techniques**

		2 AKTS
Cellular machinery in DNA transcription	Week1	1h
Understanding the basis of PCR		
PCR	Week2	1h
The technique.		
RT-qPCR	Week3	1h
Plasmids, phages, restriction enzymes etc.		
Gene Cloning: Part I	Week4	1h
Various techniques for molecular cloning		
Gene Cloning: Part II	Week5	1h
Various techniques for molecular cloning		
Introduction of DNA into living cells	Week6	1h
Western, Southern, Northern blotting	Week7	1h
How does blotting work		
Western blotting	Week8	1h
DNA Microarray	Week9	1h
Theory		
Microscopy in biological systems	Week10	1h
Introduction to fluorescence		
Advanced Microscopy Techniques	Week11	1h
FRET, BiFC, FLIM, FLIP, FRAP, FLAP		

#### **Resources:**

- Molecular Cell Biology n<sup>th</sup> Edition. by Harvey Lodish
- Confocal Microscopy Methods and Protocols Editors: Paddock, S., W. (Ed.)
- Protein-Protein Interactions Methods and Applications Editors: Fu, H. (Ed.)
- Principles of Gene Manipulation and Genomics, 7th Ed., Primrose, S. B., Twyman, R.
- Concepts and Techniques in Genomics and Proteomics 1st Ed. Saraswathy N., Ramalingam P. (Ed.)
- PubMed for the most up-to date information