**TRANSCRIPTOMICS CREDIT HOURS 2+1**

**LEARNING OUTCOMES:**

**Students will be able to:**

1. The methods relevant to transcriptomic studies.
2. Applications and methods of sequencing approaches in transcriptomics.

**COURSE CONTENTS:**

Overview of transcriptome and transcriptomics, Traditional techniques for mRNA expression analysis, Global expression analysis of mRNA by microarray, different types of microarray, Application of expression profiling in human diseases, Expression sequence tag (EST), Serial analysis of gene expression (SAGE), Cap analysis of gene expression (CAGE), Massively parallel signature sequencing (MPSS), *In silico* analysis and comparison of different transcriptomes.

**PRACTICALS:**

1. *In silico* analysis and comparison of different transcriptomes
2. Gene expression profiling by conventional PCR/ Qubit Fluormeter

**RECOMMENDED BOOKS:**

1. Alexander N G. Hiroshi. N. 2007. Microbial Biotechnology. Ch. The world of Omics: Genomics, Transcriptomics, Proteomics and Metabolomics pp147-168. Springer, NY USA.
2. Detrich, H. William, III, Zon, Leonard, & Westerfield, Monte. 2016. The Zebrafish: Genetics, Genomics, and Transcriptomics. Academic Pr.
3. Guenter K. 2015. The Dictionary of Genomics, Transcriptomics and Proteomics and Proteomics. 5th Edition. Published by Wiley Blackwell.
4. Passo. G. A. 2014. Transcriptomics in Health and Disease. Springer, NY USA.
5. Virendra G. Somath T. 2009. Tanscriptomics: Expression pattern analysis VDM Verlag, Germany

Wu, J. 2016. Transcriptomics and gene regulation. Dordrecht: Springer