INVERTIS
UNIVERSITY BAREILLY

Department of Biotechnology

20 Jan 2022

CIRCULAR

VALUE ADDED COURSE

(Understanding genomics with Next Generation Sequencing (NGS))

Student of B.Sc. M.Sc. and B. Tech Biotech are hereby informed that value added course "**Understanding genomics with Next Generation Sequencing (NGS)**" is scheduled from February 1, 2022 in your respective classroom, Academic Block-III.

Schedule:

- Time Slot: 03:00 PM to 05:00 PM
- Key Speaker: Mr. Amit Joshi
- Duration: 2 hrs

Program Overview:

The main objectives of the program is to aware young students to understand the pattern of genes, Single nucleotide polymorphism (SNP), Transcription Factor Binding Sites (TFB), Open Reading Frames (ORF) etc in the genome of the organisms.

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

Dr. Pankaj Kumar Rai

(HOD)

Head
Department of Biotechnology
Invertis University, Bareilly (U.P.)

Registrar
Invertis University
Bareilly

Understanding genomics with Next Generation Sequencing

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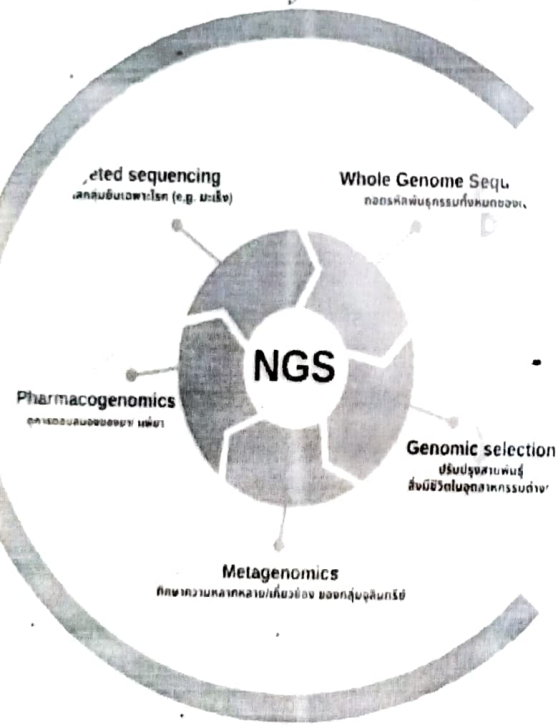
Organised by:-

Department of Biotechnology



Program :-B.Sc. M.Sc. B.Tech Biotech

03:00 PM TO 05:00 PM

FEB 01 - FEB 25 2022

HOD :
Dr. Pankaj Kumar Rai

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Key Speaker :
Mr. Amit Joshi

Head
Department of Biotechnology
Invertis University, Bareilly (U.P.)

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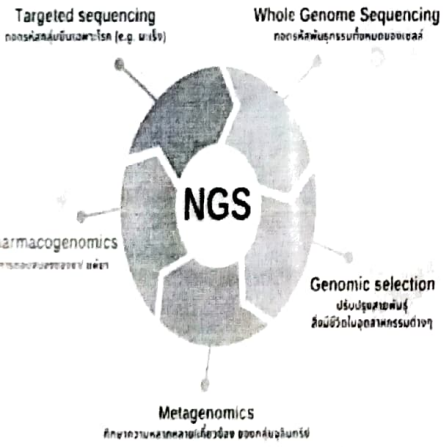
Understanding genomics with Next Generation Sequencing



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BT – 03 Understanding genomics with Next Generation Sequencing (NGS)

Course Name	Understanding genomics with Next Generation Sequencing (NGS)
Objective of the Course	The Value Added Courses aim to provide additional learner centric graded skill oriented bioinformatics training, with the primary objective of improving the employability skills of engineering students. The main objectives of the program are as follows 1. To provide students an understanding of the Linux platform and software associated with NGS. 2. To improve employability skills of engineering students in programming language like R and Python. 3. To bridge the skill gaps and make students research orientated. 4. To provide an opportunity to students t o develop inter-disciplinary skills and apply there theoretical knowledge with practical's.
Eligibility of participants	The participate should have gone through following basics: 1. Basics of Molecular Biology: Mutations, SNPs, Genome and genes. 2. Bioinformatics Practical: BLAST, NGS Data Generation, clustering algorithms. 3. Programming: Data Structure, R and Python (not mandatory)

Course duration	36 hours (2 Hours Per Day; Monday to Saturday)
Certificate (if Yes then criteria)	Not Applicable
Syllabus	1. Understanding t he Linux platform and commands used f or text manipulation by the help of awk, sed, grep etc. 2. Understanding t he data generation from different types of NGS sequencing platforms like Illumina, Solex etc. 3. Understand the fastq file format, Quality Control and Pre processing of fastq file generated from different platforms. 4. Mapping with the reference genome and understanding the

	alignment with the help of different mapping software BWA, Bowtie etc. 5. Preprocessing of the mapped file, statistical analysis of the mapped data, summary generation and filtering. 6. Population based analysis of SNP association and statistical analysis by means of Principal component Analysis (PCA) and Clustering algorithms.
Course Coordinator	**Mr. Amit Joshi**

Head
Department of Biotechnology
Invertis University, Bareilly (U.P.)

Course Coordinator

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