INVERTIS
UNIVERSITY BAREILLY

Department of Biotechnology

1 October 2019

CIRCULAR

VALUE ADDED COURSE

(Understanding genomics with Next Generation Sequencing (NGS))

Student of B. Tech Biotech are hereby informed that value added course "**Understanding genomics with Next Generation Sequencing (NGS)**" is scheduled from October 9, 2019 in your respective classroom, Academic Block-III.

Schedule:

- Time Slot: 03:00 PM to 05:00 PM
- Key Speaker: Ms. Ashal Ilyas
- 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.

Dr. Shashank Upadhyay

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

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

Registrar
Invertis University
Bareilly

Understanding genomics with Next Generation Sequencing

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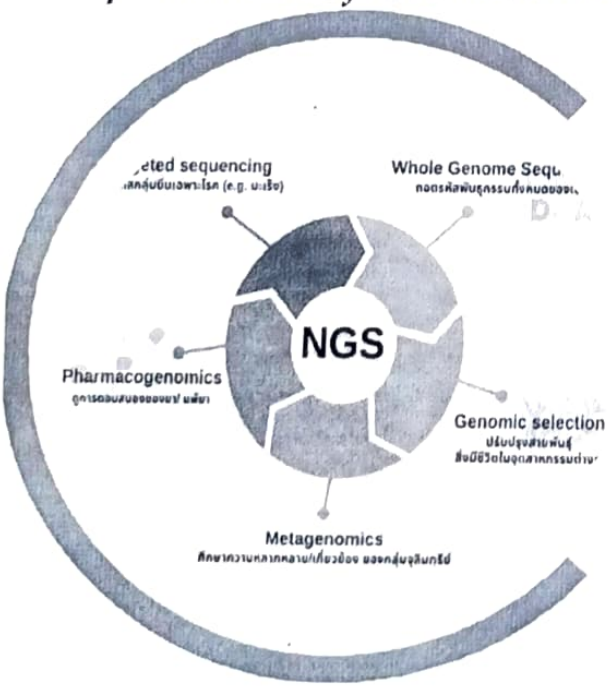
Organised by:-

Department of Biotechnology



Program :- B. Tech Biotech

03:00 PM TO 05:00 PM

Oct. 09 – Nov.1, 2019

HOD :
Dr. Shashank Upadhyaya

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

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

Key Speaker :
Ms. Ashal Ilyas

Ashal
(Course Coordinator)

Registrar
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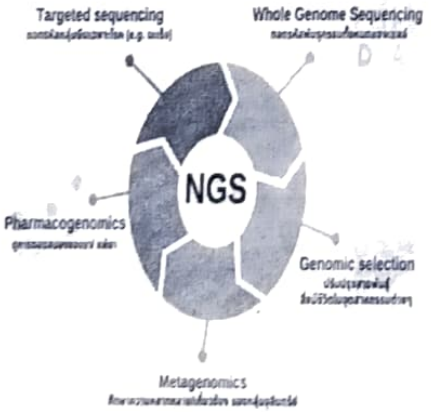
Understanding genomics with Next Generation Sequencing



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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 oopportunity to students to develop inter-disciplinary skills and apply there theoretical knowledge with practical's.
Brief Outline of the Course	1. Understanding the Linux platform and commands used for text manipulation by the help of awk, sed, grep etc. 2. Understanding the data generation from different types of NGS sequencing platforms like Illumina, Solex etc. 3. Understand the fastq, file format, Quality Control and Preprocessing 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.

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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
Certificate (if Yes then criteria)	Not Applicable
Syllabus	1. Understanding the Linux platform and commands used for text manipulation by the help of awk, sed, grep etc. 2. Understanding the data generation from different types of NGS sequencing platforms like Illumina, Solex etc. 3. Understand the fastq file format, Quality Control and Preprocessing 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	**Ms. Ashal Ilyas**

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Value Added Courses

Course Name- Understanding Next Generation Sequencing

Course Code - BT03

Duration - 36 Hours

List of Enrolled Students

S.No.	Student ID	Student Name	Year	Progarm
1	BT2016026	KULDEEP NAGARKOTI	2019-20	B. Tech Biotech
2	BT2016007	Monika Narwani	2019-20	B. Tech Biotech
3	BT2016024	MUKARRAM ALI KHAN	2019-20	B. Tech Biotech
4	BT2016031	Muskan Gupta	2019-20	B. Tech Biotech
5	BT2016012	NAINCY VARSHNEY	2019-20	B. Tech Biotech
6	BT2016029	NAZIM ALI	2019-20	B. Tech Biotech
7	BT2016023	NIDHI SINGH	2019-20	B. Tech Biotech
8	BT2016032	PRAVESH KUMAR	2019-20	B. Tech Biotech
9	BT2016001	PRIYA ASAWA	2019-20	B. Tech Biotech
10	BT2016035	SANJEEV MAURYA	2019-20	B. Tech Biotech
11	BT2016009	RITU	2019-20	B. Tech Biotech
12	BT2016015	SAUMYA GUPTA	2019-20	B. Tech Biotech
13	BT2016027	SHAGUFTA ANSARI	2019-20	B. Tech Biotech
14	BT2016017	SHAILENDRA KUMAR	2019-20	B. Tech Biotech
15	BT2016010	SIDDHARTH GUPTA	2019-20	B. Tech Biotech
16	BT2016014	SURAJ VERMA	2019-20	B. Tech Biotech
17	BT2016008	AFIFA KHAN	2019-20	B. Tech Biotech
18	BT2016030	AAYUSH MISHRA	2019-20	B. Tech Biotech
19	BT2016020	TANVEER	2019-20	B. Tech Biotech

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Value Added Course

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Course Code - BT03

Duration - 36 Hours

(October, 9 — November, 1, 2019.)

S.No.	Student ID	Course	Student ID	Year	9	10	11	12	14	15	16	17	18	19	21	22	23	24	25	30	31	1
1	KULDEEP NAGARKOTI	B. Tech Biotech	BT2016026	2019-20	P	A	P	P	P	P	A	P	P	P	P	P	P	P	A	P	A	P
2	Monika Narwani	B. Tech Biotech	BT2016007	2019-20	P	P	P	A	P	P	P	P	P	P	P	A	P	A	A	A	P	P
3	MUKARRAM ALI KHAN	B. Tech Biotech	BT2016024	2019-20	P	P	P	A	P	P	A	A	P	P	A	P	A	A	P	P	P	P
4	Muskan Gupta	B. Tech Biotech	BT2016031	2019-20	A	P	A	P	P	P	P	P	A	P	P	P	A	P	P	P	P	P
5	NAINCY VARSHNEY	B. Tech Biotech	BT2016012	2019-20	P	A	A	P	P	P	A	P	A	P	P	P	A	P	P	A	P	P
6	NAZIM ALI	B. Tech Biotech	BT2016029	2019-20	P	A	A	P	P	P	P	P	A	A	P	P	A	P	P	A	P	A
7	NIDHI SINGH	B. Tech Biotech	BT2016023	2019-20	A	P	P	P	A	P	P	A	A	A	P	A	A	P	P	P	P	A
8	PRAVESH KUMAR	B. Tech Biotech	BT2016032	2019-20	A	P	P	A	P	P	P	P	P	P	P	A	A	P	P	P	P	A
9	PRIYA ASAWA	B. Tech Biotech	BT2016001	2019-20	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	A
10	SANJEEV MAURYA	B. Tech Biotech	BT2016035	2019-20	P	A	P	P	A	P	A	P	P	A	P	A	P	A	P	P	P	A
11	RITU	B. Tech Biotech	BT2016009	2019-20	P	A	P	P	P	A	A	A	P	A	A	P	P	A	P	A	A	P
12	SAUMYA GUPTA	B. Tech Biotech	BT2016015	2019-20	P	A	P	P	P	A	P	A	P	P	A	P	P	A	P	P	P	P
13	SHAGUFTA ANSARI	B. Tech Biotech	BT2016027	2019-20	A	P	A	P	A	A	P	P	P	A	A	A	P	P	P	A	A	P
14	SHAILENDRA KUMAR	B. Tech Biotech	BT2016017	2019-20	A	P	P	P	A	P	P	P	A	P	P	P	P	P	A	P	A	P
15	SIDDHARTH GUPTA	B. Tech Biotech	BT2016010	2019-20	A	P	A	P	P	A	P	A	A	A	P	P	A	P	A	A	P	P
16	SURAJ VERMA	B. Tech Biotech	BT2016014	2019-20	P	P	A	A	P	P	A	P	A	P	P	A	A	P	P	A	P	P
17	AFIFA KHAN	B. Tech Biotech	BT2016008	2019-20	P	A	P	P	A	A	A	P	P	A	P	P	P	P	P	P	P	P
18	AAYUSH MISHRA	B. Tech Biotech	BT2016030	2019-20	P	A	P	P	P	A	P	P	P	P	P	A	A	A	P	A	P	P
19	TANVEER	B. Tech Biotech	BT2016020	2019-20	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P
					Total Student Present=13	10	13	14	14	13	12	14	12	12	14	12	10	13	15	9	15	14

Head
Department of Biotechnology

Ashok
(Course Coordinator)

Dean

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