10 MONTHS PROGRAM PLAN

MONTH	WEEK	ACTIVITY	CURRICULUM
1	1	Video drop and study materials	**THE FUNDAMENTALS OF BIOINFORMATICS** • Introductory bioinformatics • Database, internet tools and their application • Practical introduction study of the basics and major bioinformatics analytical software tools, pipelines and their application
	2	Video drop and study materials	• Multiple sequence alignment • Phylogenetics analysis
	3	Video drop and study materials	Bacteria phylogenetic analysis at genome level
	4	Live session	Zoom meeting: live practical guide and completion of the course, review, discussion (q & a) and evaluation.
2	1	Video drop and study materials	**PROFESSIONAL COURSE: COMPREHENSIVE AND FUNCTIONAL GENOMICS (NGS DATA ANALYSIS)** • Accessing of reads on database and processing • Genome assembly
	2	Video drop and study materials	• Genome annotation • Gene prediction
	3	Video drop and study materials	• Evaluation of result for study
	4	Live session	Zoom meeting: live practical guide and completion of the course, review, discussion (q & a) and evaluation
3	1	Video drop and study materials	**PROFESSIONAL COURSE: COMPARATIVE ANALYSIS OF MICROBIAL GENOMICS (NGS DATA ANALYSIS)** • Understanding the concept of comparative genomics in exploring microbes • Aim and objective of study
	2	Video drop and study materials	• Building analytical workflow for comparative study • Accessing the WGS data sample for comparative study
	3	Video drop and study materials	• Reads processing and genome assembly • Comprehensive genome analysis
	4	Video drop and study materials	• Finishing comprehensive analysis
4	1	Video drop and study materials	• Pan-genomics • Evolutionary study
	2	Video drop and study materials	• Functional system category • Specialty genes (antibiotic and mobile elements)
	3	Video drop and study materials	• Exploring and evaluating the comparative study workflow • Data visualization
	4	Live session	Zoom meeting: live practical guide and completion of the course review, discussion (q & a) and evaluation.

5	1	**Live session**	**COMMENCEMENT OF RESEARCH PROJECT FOR PAPER PUBLICATION** • Research proposal (discussing topic, aim and objective of study). • Assigning research group and project work • Practical guide in accessing of sample data of interest • Individual and group work on project on commencing analysis • Collection of data (individual and group work)
	2		Commencement of data analysis using the workflow (individual and group work)
	3	‘’	Zoom meeting: research project practical guide, group mini presentation, discussion, (q & a) and evaluation
	4		Continuation of analysis based on workflow
6	1	‘’	Accessing results and interpretation (individual and group work)
	2	‘’	Putting together the paper (individual and group work)
	3	‘’	Zoom meeting: research project practical guide, group mini presentation, discussion, (q & a) and evaluation
	4	‘’	Final presentation of project
7	1	Video drop and study materials	**PROFESSIONAL COURSE: NGS DATA METAGENOMICS COURSE (EXPLORING THE MICROBIAL COMMUNITY)** • Introduction to concept of metagenomics, samples and database • Accessing high-quality soil and water environmental ngs samples
	2	Video drop and study materials	• Comprehensive analysis of metagenomic samples, which includes functional annotation, gene prediction, functional protein, drug targets, enzymes, transporter etc.
	3	Video drop and study materials	**Taxonomic study (biodiversity, evolution, taxa, phylogenetics e.t.c**
	4	Video drop and study materials	**AMR analysis:** • Identifying antibiotic resistant genes • Resistant mechanisms • **Visualization of results**
8	1	Live session	**COMMENCEMENT OF RESEARCH PROJECT (METAGENOMICS) FOR PAPER PUBLICATION** • Research proposal (discussing topic, aim and objective of study). • Assigning research group and project work • Building analytical workflow • Commencement of data analysis using the workflow (individual and group work)
	2	‘’	• Still working on analysis of data
	3	‘’	• Accessing results and computation of data
	4	‘’	• Putting together figures, tables etc.

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9	1	‘’	• Literature review
	2	‘’	• Discussion and conclusion
	3	‘’	• Finalizing the paper work
	4	-	• Mini presentation of project
10	1	‘’	• Final presentation
	2	‘’	**HANDS-ON PRACTICAL TRAINING ON DRUG DESIGN AND DISCOVERY**
	3	‘’	**HANDS-ON PRACTICAL TRAINING ON DRUG DESIGN AND DISCOVERY**
	4	‘’	**GRADUATION**