Noorul Islam Centre for Higher Education

(Deemed to be University u/s 3 of the UGC Act 1956)

Kumaracoil, Thuckalay, Kanyakumari District - 629 180

Accredited by NAAC with 'A' Grade

BM27-M.Sc Human Genetics and Molecular Biology

Student Performance and Learning Outcomes

BM27-M.Sc Human Genetics and Molecular Biology

Programme Outcomes – PO	
PO-A	Students are familiar with basic subjects of Human genetics and Molecular Biology
PO-B	Knowledge on the interdisciplinary subjects make them excel in the programme
PO-C	Provides solutions for their experiments through their theoretical knowledge.
PO-D	Based on the theoretical knowledge obtained, new solutions can be formulated for the genetic disorders
PO-E	Knowledge on genetics and their applications will help them to Diagnose prenatal disorders
PO-F	Provide genetic counselling to the society
PO-G	Giving awareness to the society about existing technologies in human genetics
PO-H	Group assignments and projects will make them to understand and cooperate with co-workers
PO-I	They can communicate with well versed with the team members about the problems and solutions in an effective manner
PO-J	In-plant training enables them to understand their roles and responsibilities as an professional geneticist in the society
PO-K	Designing new experimental methods for society in concern with genetics and social ethics
PO-L	Innovating reliable cost effective technology which can be affordable for all sector of the society
PO-M	Motivating the student to acquire update knowledge and innovations will make them continuous learner

PROGRAMME SPECIFIC OUTCOME(PSO)	
PSO-1	Empower the students to acquire technological knowledge by connecting disciplinary and interdisciplinary aspects of Human Genetics and Molecular Biology.
PSO-2	Students are able to learn the modern molecular biological techniques viz, chromatography, SDS-PAGE, Agarose Gel Electrophoresis, fermentation, downstream processing and PCR which are very much required for the large-scale production of biotechnology derived products.
PSO-3	Students acquire knowledge required for the production of Antibiotics, Vitamins, Hormones, enzymes, proteins and manufacturing industrially important secondary metabolites through fermentation process.
PSO-4	Recognize the importance of IPR, TRIPS, GATT, PATENT, Bioethics, communication and skills so as to prepare the next generation
PSO-5	Integrate the basic Principles of Analytical techniques for the implementation of such technique to facilitate the development of Bio Pharma products
PSO-6	Familiar with the Principles underlying the relevant compounds and their Clinical Importance
PSO-7	Expert in using online Database understanding, Creation and Testing of Scientific hypothesis and critical evaluation of Experimental Data.

Sl.No	Subject Code	Subject Name
SEMESTER II		
1.	BM2705	MOLECULAR GENETICS
2.	BM2706	DEVELOPMENTAL AND BEHAVIOURAL GENETICS
3.	BM2707	IMMUNOLOGY AND IMMUNOGENETICS
4.	BM27S2	GENETIC ENGINEERING
5.	BM2772	IMMUNOLOGY & IMMUNOGENETICS LAB
SEMESTER IV		
6.	BM27P5	PROJECT WORK

Course Outcomes of all subjects
Year/Sem: I/II

BM2705 MOLECULAR GENETICS	
CO1	The course teaches the students about genes at molecular level
CO2	They learn about DNA, RNA and their replication, mutations, DNA repair mechanism.
CO3	To train the students in understanding genetics and relate modern DNA technology for disease diagnostics and therapy
CO4	After completing the course on genetics complete knowledge as how genes are transmitted in humans from one generation to another will be imparted.
CO5	Along with this, the course will highlight the role of genetics / mutations in human breeding.

BM2706 DEVELOPMENTAL AND BEHAVIOURAL GENETICS	
CO1	The students will learn about early development of an embryo.
CO2	The students will learn about different stages of embryonic development
CO3	The students will understand about genetic experiments to investigate animal and human behaviour
CO4	The student builds up practical knowledge on applications of cognitive psychology in improving memory processes. The course helps the students to understand the principles of cognitive neuroscience
CO5	It enables them to learn the development of perception, spatial recognition, memory, speech, decision making and reasoning.

BM2707 IMMUNOLOGY AND IMMUNOGENETICS	
CO1	Get a deep foundation in the immunological processes. Students will gain knowledge on how the immune system works and also on the immune system network and interactions during a disease or pathogen invasion.
CO2	This course gives an overview on the immune system including organs, cells and receptors
CO3	The main goal of the course is to provide basic understanding of immunology and immune responses in response to various infectious and non infectious diseases.
CO4	The students learns about molecular basis of antigen recognition, hypersensitivity reaction, antigen-antibody reactions
CO5	The course develops in the student an appreciation for principles of immunology and its applications in treating human diseases

BM27S2-GENETIC ENGINEERING	
CO1	Understand and explain the concept of genetic engineering including the techniques, applications and limitations.
CO2	Students are able to learn the modern molecular biological techniques by applying information extracted from a variety of sources including journal articles, technical bulletins, product manuals, and drug information sheet to solve problems.
CO3	Genome sequencing techniques will be learned and it will be useful to their future research.
CO4	The knowledge on gene expression and transcriptomics will be enhanced
CO5	Demonstrate the ability to design recombinant molecules and apply information extracted from a variety of sources including journal articles, technical bulletins, product manuals

BM2772 IMMUNOLOGY & IMMUNOGENETICS LAB	
CO1	Apply principles of safety, quality assurance and quality control in Immunology. Evaluate specimen acceptability
CO2	Learn the molecular basis of microbial pathogens. Learn various disease caused by immune response.
CO3	Identify the structure, function, and characteristics of immunoglobulins.
CO4	Understand the Innate and Acquired immune responses against microbial pathogens. Learn immune diagnostic tests and assays against pathogens
CO5	Evaluate and correlate test results with associated diseases or conditions.

BM27P5 -PROJECT WORK	
CO1	Formulate a scientific question.
CO2	Present scientific approach to solve the problem.
CO3	Interpret, discuss and communicate scientific results in written form.
CO4	Gain experience in writing a scientific proposal.
CO5	Learn how to present and explain their research findings to the audience effectively.