

# **COURSES OFFERED BY THE DEPARTMENT OF MEDICAL LABORATORY SCIENCE**

## **FOURTH YEAR FIRST SEMESTER**

### **AH 4101 English & Communication Skills V (Non-credit)**

Scientific writing: What is a scientific paper, Different types of sources of literature, Keeping a card index, Project proposals, The parts of a scientific paper – IMRAD, Titles, Headings and numbering, Abstract, Reference styles, Contents page, Page numbering, Tables, Figures, Appendices, Acknowledgements, Scientific English.

Assignments – 40% End semester -60%

### **AH 4102 Applied Statistics (Credits-02)**

Additive and non-additive ANOVA models, Mean separation, incidence data and proportions, odds and odds ratios, models for proportions, non-parametric methods for two-sample case; independent sample and paired observations, non-parametric methods for data from designed experiments.

Assignments – 25% Midsemester -25% End semester -50%

### **AH 4103 Proposal Formulation and Presentation (Credits-02)**

Introduction to undergraduate research project proposal, selection of priority research areas, justification, formulation of research objectives, Development of research hypothesis, Literature survey and citation of references, Planning and Development of research proposal, Formulate the research design, Preparation of the presentation & improving presentation skills

Continuous Assessment-50% End course assessment-50%

### **AH 4104 Human Resource Management (Credits-02)**

Introduction to management, History of HRM, Definitions and principles of HRM, Introduction to SHRM, Recruitment and selection, Training & development, Performance management, Reward management, Employee relations, Industrial Law, HRM relating to performance in health sector, Use of IT in HRM, Roles and responsibilities for HR & HR outsourcing, Group assignment on HR practices of an organization

Assignment-30% End semester -70%

### **ML 4101 Clinical Laboratory Accreditation (Credits-02)**

Introduction to laboratory accreditation, ISO 15189 standards, sequence of accreditation, preparation of necessary documents for accreditation, management and technical principles, method of internal auditing, measurement of uncertainty for different tests, calibration of equipment, identify the opportunities for continual improvement within an organization.

Mid semester -30% End semester -70%

### **ML 4102 Scientific Seminars (Credits-02)**

Students are supposed to retrieve literature on given 2 scientific topics and self selected 3 topics approved by the department and collate the information into a hand written script not less than 5 pages with the given format. They are required to prepare teacher guided power point presentations on each topic and make the presentations in front of peers and teachers. Each student is expected to question their peers on rotation basis during the discussion period.

Assignments- 30% Presentations-30% End of Semester (Theory/ Essay)-40%

### **ML 4103 Biotechnology (Credits-02)**

Nucleic acid structure and function, DNA replication, transcription, translation, chromosome structure, remodeling and regulation of gene expression in prokaryotes and eukaryotes. Extended topics to be covered including the methods in advanced recombinant DNA technology, microarrays, and micro-RNA, functional genomics, mechanisms of differential gene expression, DNA methylation, silencers, enhancers, genomic imprinting, microarray analysis and DNA fingerprint

Assignments/ Labs-30% Midsemester -20%End semester -50%

### **ML 4104 Bioethics and Professional Issues (Credits-01)**

Introduction and definition of terms, health care professionals, patients and their families-rights and obligations, truth telling and informed consent, confidentiality, guilt and innocence in treating patients, cases for study and discussion, views of the major ethical theories on bioethical issues.

Assignments/ Labs-10% Midsemester -30%End semester -60%

### **ML 4105 Environmental Toxicology and Biomonitoring(Credits-02)**

Introduction to Toxicology, classification of toxic agents, toxicological information sources, types of environments and routes of exposure, risk assessment in public health, survey of toxic substances, basic techniques of biomonitoring (chemical compounds, elements and their metabolites in body fluids such as blood, urine, hair, semen, breast milk, saliva).

Assignments/ Labs-20% End semester -80%

### **ML 4106 Biomaterials for Medical Devices(Credits-01)**

Introduction to Biomaterials, Implants/prostheses, Cell-material interactions, Different types of biomaterials (according to cellular responses and material composition), Different applications of biomaterials, Biocompatibility and biofunctionality, Evaluation of biocompatibility.

Assignments/ Labs-10% End semester -90%

## **FOURTH YEAR SECOND SEMESTER**

### **AH 4201 English & Communication Skills VI (Non-credit)**

Business communication: Business letters (covering letters, resignation letters, excuse letters, request letters), Memos, Curriculum vitae, Online application forms, Personal statements. Presentation skills, Public speaking: Welcome address, Introducing a guest speaker, Vote of thanks, Job interviews.

Assignments – 40% End semester -60%

### **ML 4201 Clinical Laboratory Seminars (Credits-01)**

Students are supposed to retrieve literature on given 1 clinical laboratory related scientific topic and self selected 2 topics approved by the department and collate the information into a hand written script not less than 5 pages with the given format. They are required to prepare teacher guided power point presentations on each topic and make the presentations in front of peers and teachers. Each student is expected to question their peers on rotation basis during the discussion period.

Assignments-30% Presentations- 40%End of Semester (Written/ Essay)-30%

### **ML 4202 Portfolio Assessment (Credits-03)**

Introductory workshop on Portfolio assessment, Gather supportive evidence and/ documents, Reflective self analysis of the available artifacts, Introduction of the selected artifacts as proof of accomplishments, Preparation of event narrative portfolio and Students are instructed to gather information at the beginning of the fourth year and required to submit the final version of the portfolio before the end of the fourth academic year.

Portfolio assessment-100%

### **ML 4203 Procedural manual(Credits-04)**

Basic and specific laboratory procedures used in the fields of Haematotechnology, Clinical Biochemistry, Microbiology+Parasitology and Histotechnology+Cytotechnology  
Haematotechnology-25% Clinical Biochemistry -25% Microbiology+Parasitology25%  
Histotechnology+Cytotechnology-25%

### **ML 4204 Research Project(Credits-04)**

Problem identification and project formulation, search for and retrieval of information required such as conducting literature surveys, identification and optimal utilization of available resources, project execution, socio-economic, ethical evaluation and safety evaluation when applicable, data analysis, scientific report writing and presentation.

Dissertation-50% Presentation evaluation and Defense Examination-25%

Supervising committee evaluation-25%