MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB
Syllabus of B. Sc. In Medical Lab Technology
(Effective for 2020-2021 Admission Session)
Choice Based Credit System
140 Credit (3-Year UG) MAKAUT Framework
w.e.f 2020-21

1st Semester

Subject Type	Course Name	Course Code	Credit Distribution			Credit Points	Mode of Delivery			Proposed Moocs
			Theory	Practical	Tutorial		Offline	Online	Blended	
CC 1	Human Anatomy I	BML(T) 101	4	0	0	6	✓			As per MAKAUT Notification
		BML 191	0	2	0					
CC 2	Human Physiology I	BML(T) 102	4	0	0	6	✓			
		BML 192	0	2	0					
GE 1	Students will have to select from the GE Basket					6			✓	
AECC 1	English Communications	BML 164	2	0	0	2	✓			
Semester Credits						**20**				

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Semester 1

CC 1- Human Anatomy 1

Course Objective: The course is designed to provide a working knowledge and skills on cells and tissues and to understand anatomy of human body. Students will be able to develop an understanding of the structure and function of organs and organ systems in normal human body.

Sl	Course Outcome
1	Able to apply the concepts and knowledge of the general terminology of the human anatomy
2	Understand the cell and tissue structure
3	Describe the structure of skeletal, muscular, respiratory system
4	Recognise the parts of digestive system
5	Illustrate the different parts of Human body
6	Explain interrelationships among molecular, cellular, tissue and different organs.

THEORY- BML(T) 101

CO	Blooms Level (if applicable)	Modules	%age of questions
CO1	1, 2	M1	15
CO2	1, 2	M2	15
CO3	1,2	M3	25
CO4	1,2	M4	25
CO5	2 3	M5	10
CO6	2, 3	M6	10
			100

PRACTICAL- BML 191

CO	Blooms Level (if applicable)	Modules	%age of questions
CO1			
CO2			
CO3			
CO4			
CO5	1,2	M5	50

CO6	1, 2	M6	50
			100

Credits- 4T +2P

Module 1-Body Plan: 8h

Terminology and General Plan of the Body, Body Parts and Areas,Terms of Location and Position, Body Cavities and Their Membranes, Dorsal cavity, Ventralcavity, Planes and Sections.

Module 2 -Cells and Tissue: 10h

Cells: Structure, function and location, Prokaryotic and eukaryotic cells, Cell organelles, CellDivision

Tissue, Types, Structure, Location and Function of Epithelial Tissue, Connective Tissue, Muscle Tissue, Nerve Tissue, Membranes, Glandular tissue. The Integumentary System: structure and function of The Skin, Subcutaneous Tissue

Module 3- Musculoskeletal and Respiratory System: 10h

Musculoskeletal System: Basic anatomy of important muscles and bones

Respiratory system: Basic anatomy of nose, larynx, trachea, bronchi and lungs

Module 4-Digestive System: 10h

Basic anatomy of oesophagus, stomach, small intestine, large intestine,liver, gall bladder, pancreas

Module 5-Practical 1 (15 h)

Demonstration of Major organs through models and slides

a. parts of circulatory systems
b. parts of respiratory system
c. digestive system
d. excretory system

e. nervous system

Module 6- Practical (25 h)

Demonstration of

a) structure of eye and ear from model

b) structural differences between skeletal, smooth and cardiac muscles.

c) various bones and joints

d) various parts of male & female reproductive system from models

Text Books:

1. Chaurasia B D, (2016), Human Anatomy, 7th edition, CBS publishers.
2. SamareshMitra, Anatomy, 7the edition, Academic Publishers.

Reference Books:

1. Ross & Wilson,(2014),Anatomy & Physiology in health & illness,11th edition, Elsevier Publications.
2. Gerard J. Tortora and Bryan H.Derrickson,(Principles of Anatomy and Physiology,14th edition,Wiley Publications.

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CC 2- Human Physiology 1

Course Objective: The course is designed to provide basic knowledge of cells, tissues, blood, physiological functions and diseases phenomenon. The students will be able to develop an understanding of the physiological concepts associated with Medical Lab Technology.

Sl	Course Outcome
1	Understand the cell physiology and composition of body and body fluid.
2	Illustrate the knowledge and apply the concept and principles of blood and cardiovascular system.
3	Explain the physiological function of respiratory system.
4	Develop physiological knowledge of gastrointestinal system.
5	Apply the knowledge, concept of physiological techniques in medical laboratory technology.
6	Apply the skill in diagnostic laboratory by using the modern tools and techniques and correlate betweeninterdisciplinary branches.

THEORY- BML(T) 102

CO	Blooms Level (if applicable)	Modules	%age of questions
CO1	1, 2	M1	15
CO2	1, 2	M2	25
CO3	1, 2	M3	15
CO4	1, 2	M4	25
CO5	1, 2	M5	10
CO6	1, 2	M6	10
			100

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PRACTICAL- BML 192

CO	Blooms Level (if applicable)	Modules	%age of questions
CO1			
CO2			
CO3			
CO4			
CO5	1,2	M5	50
CO6	1, 2	M6	50
			100

Credits- 4T+2P

Module I- Cellular Physiology and Lymphatic System: 8h

Cell physiology: Structure, membrane, transport across cell membrane, Active,Passive, Diffusion, Osmosis, Tonicity, Homeostasis.

Organization of the Body, Body Composition, Body Fluid Volumes and itsMeasurement.

Lymphatic system-Composition & function of lymph, lymphatic tissue, Immunitywith the role of thymus.

Module 2-Blood and Cardiovascular System:12h

Blood-composition, function, cellular component & their function, haemoglobin &anaemia, blood groups and coagulation.

General arrange, heart, arteries, veins and capillaries, heartstructure and function, cardiac cycle, heart sounds, heart rate, blood pressure,mechanism of circulation, definition of hypertension & shock.

Module 3- Respiratory System: 10h

Parts of respiratory system, mechanism of respiration,pulmonary function, pulmonary circulation, lungs volume, Gas transport between lungs and tissues.

Definition of hypoxia, dyspnoea, cyanosis, asphyxia and obstructive airways diseases.

Module 4- Gastrointestinal Physiology:10h

Organs of GIT and their structure & function, secretion,digestion, absorption and assimilation, gastrointestinal hormones, physiology ofdigestion of carbohydrates, proteins & lipids, Structure & function of liver, spleen,gall bladder & pancreas, Jaundice, Cirrhosis & Pancreatitis.

Module 5: Practical (16h)

1. To measure pulse rate
2. To measure blood pressure
3. Demonstration of ECG

Model 6: Practical (21 h)

1. Collection of blood sample and separate serum and plasma.
2. To perform Hemoglobin by Sahli's Method
3. To perform Hemoglobin by CMG method.
4. To perform Total RBC count.
5. To perform total leucocyte count.
6. To perform differential leucocyte count.
7. To perform PCV

Text Books:

1. C.C. Chatterjee, Human Physiology (vol 1 &2) 12 Ed, , Medical Allied Agency
2. G.K. Pal, Comprehensive Textbook of Medical Physiology,Jaypee Brothers Medical Publishers
3. Sembulingam K, (2012), Essentials of Medical Physiology, 6th edition, Jaypee Publications

Reference Books:

1. Guyton and Hall,(2011) Textbook of Medical Physiology,12th Edition,Saunder/Elsevier
2. Ross & Wilson,(2014),Anatomy & Physiology in health & illness,11th edition, Elsevier Publications
3. SujitChaudhury,(2011),Concise Medical Physiology,6th edition, NCBA
4. Gerard J. Tortora and Bryan H.Derrickson,(Principles of Anatomy and Physiology,14th edition,Wiley publications

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Course: English Communication

Code: BML 164

Course Objective:

The course is designed to develop the student's communicative competence in English by giving adequate exposure in the four communication skills - LSRW - listening, speaking, reading and writing and the related sub-skills, thereby, enabling the student to apply the acquired communicative proficiency in social and professional contexts.

Course Outcome:

Sl	Course Outcome	Mapped modules
1	Students will be able to Remember & Understand the basic concepts of the usage of English grammar & vocabulary in communication.	M1
2	Students will be able to Comprehend facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating the main ideas given in written texts.	M1,M2
3	Students will be able to Synthesise and Apply acquired linguistic knowledge in producing various types of written texts	M1, M3
4	Students will be able to Comprehend facts and ideas from aural inputs and Synthesise and Apply acquired linguistic knowledge in giving spoken response	M1, M4

Syllabus:

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Functional grammar & Vocabulary	2	10	1,2	
M 2	Reading Skills	2	20	1,2	
M 3	Writing Skills	8	40	2,3,4,	
M 4	Listening & Speaking Skills	8	30	2,3,4	
		20	**100**		

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Detailed Course Curriculum:

Paper: English Communication
Code:
Contact Hours / Week: 2L

Credits: 2

Module 1 : Functional Grammar & Vocabulary : Tense: Formation and application; Affirmative / Negative / Interrogative formation; Modals and their usage; Conditional sentences; Direct and indirect speech; Active and passive voice; usage of common phrasal verbs, synonyms & antonyms.

1L + 1T

Module 2 : Reading Skills: Comprehension passages; reading and understanding articles from technical writing. Interpreting texts: analytic texts, descriptive texts, discursive texts; SQ3R reading strategy.

1L + 1T

Module 3 : Writing Skills: Writing business letters - enquiries, complaints, sales, adjustment, collection letters, replies to complaint & enquiry letters; Job applications, Résumé, Memo, Notice, Agenda, Reports – types & format, E-mail etiquette, advertisements 4L + 4T

Module 4 : Listening & Speaking
Listening: Listening process, Types of listening; Barriers in effective listening, strategies of effective listening
Speaking: Presentations, Extempore, Role-plays, GD, Interview
4L + 4T

Suggested readings:

1. Bhatnagar, M &Bhatnagar, N (2010) Communicative English for Engineers and Professionals. New Delhi: Pearson Education.
2. Raman, M & Sharma, S (2017) Technical Communication. New Delhi: OUP.
3. Kaul, Asha (2005) The Effective Presentation: Talk your way to success. New Delhi: SAGE Publication.
4. Sethi, J &Dhamija, P.V. (2001), A Course in Phonetics and Spoken English. New Delhi:PHI.
5. Murphy, Raymond (2015), English Grammar in Use. Cambridge: Cambridge University Press.