BS DENTAL TECHNOLOGY

1. Introduction To Program

Dental Technology is field of dentistry where technicians design and construct dental appliances to improve oral health. Dental technologists are members of the dental healthcare team who work in the laboratory on prescription from a dental clinician. The BS (Hons) Dental Technology program of UHS is a 4 years program that focuses on developing skills of the student to meet updated requirements of dental technology in terms of the design, construction, repair or alteration of dental prosthetic, restorative and orthodontic devices.

2. Aims of the Program

The aim of BS (Hons) Dental Technology program is to equip the students with relevant professional knowledge, skills, techniques and ethical values to enable them to apply their acquired expertise at
level between the doctors and the patient for efficient health service delivery.

3. Objectives of the Program

Dental Technology education and training should enable the student to:

- Develop accuracy and meticulousness to attain high levels of ethics and technical proficiency.
- Assess the technical and non-technical skills in a standardized and reproducible environment.
- Strengthen the decision power and exercise appropriate judgment skills, to be applied especially during crisis.
- Develop good leadership, problem solving and administrative skills.
- Develop and analyze innovative strategies for effective communication with the patients and the allied healthcare personnel.
- Demonstrate interdisciplinary team building strategies for effective coordination between various Allied Health Disciplines.
- Demonstrate understanding of the basic concepts of professional behavior and legal implications of the work environment.
- Demonstrate the knowledge of his / her role in health care delivery system.
- Establish and maintain continuing education as a function of growth and maintenance of professional competence.

4. Learning Outcomes of the Program

Dental Technology education and training should enable the student to:

- Understand the current advances in dental technology and learn updated knowledge and skill.
- Describe the role of the dental technician in health care settings.
- Demonstrate a capacity to design, implement and evaluate technical skills at the individual or community level.
- Understand, use, manage and handle problems in dental equipment and dental materials and new. advances in appliance uses, application and environment through referrals for protection and recycling.
- Assisting a Dentist in making dental ceramics.
- Recommending & designing the dental structures for a patient and designing the dental accessories.
- Demonstrate the acquisition or update of dental health knowledge and skills

relevant to their professional practice.
- Have an understanding of the scope, scientific basis, capabilities and limitations of the major subject areas within dentistry.
- Be proficient in understanding, diagnosis and basic dental care procedures.
- Work as technical assistants to dental surgeons for dental surgeries.
- Understand their own limitations when fabrication restoration and thus know when to refer for specialist advice.
- Understand and undertake all health research and to apply key findings into dental health practice.
- Help in establishment of better technical facilities in a hospital.
- Be updated with mechanical, chemical and other relevant Engineering disciplines.
- Involved in procedures of high-quality dental research e.g. implant

5. Carrier Opportunities of the Graduates
- Setting up their own dental laboratory
- Teaching
- Post graduations in fields relevant
- Working in research and development with International dental companies
- Become technical advisors

6. Program Details
Courses (with Learning objectives, Content, Reference Books/Materials)
- General Subjects (Minimum 30 Credit Hours)
- Interdisciplinary (Minimum 12 Credit Hours)
- Major Subjects (Minimum 72 Credit Hours)
- Capstone Project (03 Credit Hours)
- Internship/Field Experience (03 Credit Hours)

SCHEME OF STUDIES

SEMESTER	COURSE CODE	COURSE TITLE	THEORY	PRACTICAL	CREDIT HOURS
1st Semester	GEFE	Functional English	03	0	03
	GEQR	Quantitative Reasoning-I	03	0	03
	GENS	Natural Sciences	02	1	03
	GEAH	Arts and Humanities	02	0	02
	GEICP	Ideology and Constitution of Pakistan	02	0	02
	IDC	Basic Biochemistry	03	0	03
	PERL-I	PERL-I	01	0	01
				Total Credit Hours	17
2nd Semester	GEEW	Expository Writing	03	0	03
	GEQR	Quantitative Reasoning-II	03	0	03
	GESS	Social Sciences	02	0	02
	GEIE	Islamic Studies/Ethics	02	0	02
	BAN	Basic Anatomy	03	0	03
	BPH	Basic Physiology	03	0	03
	PERL-II	PERL-II	01	0	01
				Total Credit Hours	17
3rd Semester	GEE	Entrepreneurship	02	0	02
	GECCM	Citizenship Education and Community Engagement	02	0	02
	GEICT	Applications of Information and Communication Technologies	02	1	03
	GPA	General Pathology	03	0	03
	TM	Tooth Morphology	02	1	03
	DO	Dental Occlusion	01	01	02
	EPC-1	English Proficiency-1	02	0	02
	PERL-III	PERL-III	01	0	01
				Total Credit Hours	18
4th Semester	FSDM	Fundamentals of Science of Dental Materials	02	0	02
	OB	Oral Biology	03	0	03
	PDM	Prosthetic Dental Materials	02	1	03
	PDA	Partial Denture Acrylic	01	3	04

	OP	Oral Pathology	02	1	03
	EPC-2	English Proficiency-2	02	0	02
	PERL-IV	PERL-IV	01	0	01
			Total Credit Hours		**18**
5th Semester	RDM	Restorative Dental Materials	01	1	02
	PD	Periodontology	02	0	02
	FO	Fundamentals of orthodontics	01	2	03
	CPAD	Cast Partial Denture	02	2	04
	FFP	Fundamentals of fixed Prosthodontics	02	2	04
	FOMR	Fundamentals of Oral and maxillofacial radiology	01	1	02
	EPC-3	English Proficiency-3	02	0	02
	PERL-V	PERL-V	01	0	01
			Total Credit Hours		**20**
6th Semester	FMR	Fixed Metal Restorations	01	3	04
	PCD	Preventive Dentistry	02	0	02
	MO	Myofunctional Orthodontics	01	2	03
	CPD-I	Complete Denture Prosthodontics-I	02	2	04
	CPD-II	Complete Denture Prosthodontics-II	01	2	03
	EPC-4	English Proficiency-4	02	0	02
	PERL-VI	PERL-VI	01	0	01
			Total Credit Hours		**19**
7th Semester	DDT	Digital Dental technology	02	01	03
	BBM	Biosafety and Biowaste Management	03	0	03
	RO	Removable Orthodontic Appliances	01	3	04
	MP	Maxillofacial Prosthodontics	01	1	02
	In	Internship/Field Experience	03	0	03
	EPC-5	English Proficiency-5	02	0	02
	PERL-VII	PERL-VII	01	0	01
			Total Credit Hours		**18**
8th Semester	IMD	Implant Dentistry	01	1	02
	FOP	Fixed orthodontic appliances	01	3	04
	ADP	Advanced Prosthodontics	02	1	03
	CR	Ceramic Restorations-I	01	2	03

	CR	Ceramic Restorations-II	01	2	03
	Cap	Capstone Project	03	0	03
	EPC-6	English Proficiency-6	02	0	02
	PERL-VIII	PERL-VIII	01	0	01
				Total Credit Hours	**21**

BS. MEDICAL IMAGING TECHNOLOGY

Introduction to Program:

The Medical Imaging Technology course is a four-year undergraduate program designed to provide students with foundational knowledge in radiological investigations. The focus is on imparting essential technical skills for the operation and maintenance of diverse imaging equipment, including X-ray machines, ultrasound/Echocardiography devices, magnetic resonance imaging (MRI) scanners, computed tomography (CT) scanners, nuclear medicine, and specialized Interventional Radiology/cardiac equipment. In response to the expanding healthcare sector in Pakistan, there is a demand for proficient medical imaging technologists capable of operating and maintaining imaging equipment. These professionals play a vital role in supporting radiologists and physicians in image interpretation, ensuring patient safety during imaging procedures, and contributing significantly to the diagnosis, treatment, and monitoring of various medical conditions.

SCHEME OF STUDIES

SEMESTER	COURE CODE	COURSE TITLE	THEORY	PRACTICAL	CREDIT HOURS
1st Semester	GEFE	Functional English	03	0	03
	GEQR-I	Quantitative Reasoning-I	03	0	03
	GENS	Natural Sciences	02	1	03
	GEAH	Arts & Humanities	02	0	02
	GEICP	Ideology & Constitution of Pakistan	02	0	02
	IDBB	Basic Biochemistry	03	0	03
	PERL-I	PERL-I	01	0	01
		Total Credit Hours			**17**
2nd Semester	GEEW	Expository Writing	03	0	03
	GEQR-II	Quantitative Reasoning-II	03	0	03
	GESS	Social Sciences	02	0	02
	GEIE	Islamic Studies/Ethics	02	0	02
	IDBA	Basic Anatomy	03	0	03
	IDBP	Basic Physiology	03	0	03
		Medical Physics in MIT	03	0	03
	PERL-II	PERL-II	01	0	01
		Total Credit Hours			**20**
3rd Semester	GEE	Entrepreneurship	02	0	02
	GECCM	Civics and Community Engagement	02	0	02
	GEICT	Fundamentals of ICT	02	1	03
	IDGP	General Pathology	03	0	03
	GIA-I	Gross and Imaging Anatomy-I	03	01	04
	GR-I	General Radiography-I	02	01	03
	EPC-I	English Proficiency-I	02	0	02
	PERL-III	PERL-III	01	0	01
		Total Credit Hours			**20**
4th Semester	GIA-II	Gross and Imaging Anatomy-II	03	01	04
	GR-II	General Radiography-II	02	01	03
	RST	Radiation Sciences for Technologist	03	0	03
	PCD	Pharmacology and Clinical Decision making in Imaging	03	0	03
	MD	Medicine	03	0	03
	BS	Biostatistics	02	01	03
	EPC-2	English Proficiency-2	02	0	02
	PERL-IV	PERL-IV	01	0	01
		Total Credit Hours			**22**

Semester	Code	Subject			
5th Semester	RRP	Radiobiology and radiation Protection	03	00	03
	NA	Neuroanatomy	02	01	03
	UPI	Ultrasound Physics and Instrumentation	02	01	03
	CM	Contrast Media	02	0	02
	MG	Mammography	02	01	03
	FSR	Fluoroscopy and Special Radiological Technique	02	01	03
	EPC-3	English Proficiency-3	02	0	02
	PERL-V	PERL-V	01	0	01
		Total Credit Hours			**20**
6th Semester	ECG	Echocardiography	02	01	04
	SI	Surgical Imaging	02	01	03
	PCC	Patient Centered Care	01	01	02
	UDI	Ultrasound & Doppler Imaging	02	02	04
	II	Imaging Informatics	02	01	03
	AIR-I	Angiography and Interventional radiology-I	02	01	03
	EPC-4	English Proficiency-4	02	0	02
	PERL-VI	PERL-VI	01	0	01
		Total Credit Hours			**22**
7th Semester	AIR-II	Angiography and Interventional Radiology-II	02	01	03
	CT-I	Computed Tomography-I	02	01	03
	MRI-I	Magnetic Resonance Imaging I	02	01	03
	NM-I	Nuclear Medicine-I	02	01	03
	SIRM	Scientific Inquiry & Research Methodology	02	01	03
	Int.	Internship/Field Experience	00	03	03
	EPC-5	English Proficiency-5	02	0	02
	PERL-VII	PERL-VII	01	0	01
		Total Credit Hours			**21**
8th Semester	NM-II	Nuclear Medicine-II	02	02	04
	MRI-II	Magnetic Resonance Imaging-II	02	02	04
	CT-II	Computed Tomography-II	02	02	04
	Res.	Research Project	00	03	03
	ES	Elective Subject	01	01	02
	EPC-6	English Proficiency-6	02	0	02
	PERL-VIII	PERL-VIII	01	0	01
		Total Credit Hours			**20**

<h1 style="text-align:center">BS MEDICAL LABORATORY TECHNOLOGY</h1>

Basic Layout for all Curriculum

1. Introduction To Program:

BS Medical Laboratory Technology (MLT) is an Undergraduate Program by University of Health Sciences is an Allied Health specialty concerned with the diagnosis, treatment and prevention of diseases through the use of clinical laboratory tests. MLT is a vital component of modern healthcare. The work of medical laboratory technologists directly impacts patient outcomes, and their dedication to providing accurate and reliable laboratory results is essential for the effective functioning of the healthcare system. In fact, the practice of modern medicine depends on the laboratory technology so these graduates of MLT will play vital role in medical field.

2. Aims of the Program

Aim of the Program is to produce medical laboratory professionals that will play a critical role in laboratory diagnosis and collecting the information required to give the best care to patients.

3. Objectives of the Program

The Bachelor of Science in Medical Laboratory Technology program offered by UHS is designed to prepare UHS graduates to enter the workforce as competent and skilled medical laboratory professionals, contributing to the diagnosis, treatment, and prevention of diseases through laboratory testing

4. Learning Outcomes of the Program

The learning outcomes of a Bachelor of Science in Medical Laboratory Technology (MLT) program typically cover a range of knowledge, skills, and competencies that prepare students for a successful career in the field. The specific learning outcomes of MLT program offered by UHS are,

I. **Core Knowledge:**

Demonstrate a comprehensive understanding of the principles and theories underlying medical laboratory science, including anatomy, physiology, biochemistry, and microbiology.

II. **Laboratory Techniques:**

Develop proficiency in performing a variety of laboratory tests and techniques, including but not limited to hematology, clinical chemistry, microbiology, immunology, and molecular diagnostics.

III. **Instrumentation and Technology:**

Gain hands-on experience with modern laboratory equipment, automation, and technology used in diagnostic testing. This includes the ability to operate and troubleshoot laboratory instruments.

IV. **Specimen Collection and Processing:**

Learn proper techniques for collecting, handling, and processing various biological specimens, ensuring the accuracy and integrity of laboratory results.

V. Quality Assurance and Control:

Understand and apply principles of quality assurance and quality control in the laboratory setting to maintain the accuracy, precision, and reliability of test results.

VI. Ethical and Professional Practices:

Demonstrate ethical behavior and adhere to professional standards and regulations in the practice of medical laboratory technology. Understand the importance of patient confidentiality and privacy.

VII. Critical Thinking and Problem-Solving:

Develop the ability to critically analyze laboratory data, interpret results, and troubleshoot issues that may arise during testing. Apply problem-solving skills to address challenges in the laboratory setting.

VIII. Communication Skills:

Effectively communicate laboratory findings verbally and in writing to healthcare professionals, colleagues, and patients. Develop interpersonal skills for collaborative work within the healthcare team.

IX. Safety Protocols:

Adhere to strict safety protocols and practices in the laboratory environment, ensuring the well-being of oneself, colleagues, and patients.

X. Continuing Education and Professional Development:

Recognize the importance of lifelong learning and stay abreast of advances in medical laboratory science. Pursue opportunities for continuing education and professional development to enhance knowledge and skills.

XI. Clinical Experience:

Gain practical experience through clinical rotations or internships in real-world healthcare settings. Apply theoretical knowledge to actual patient care scenarios and develop competence in performing laboratory tests under supervision.

XII. Research Literacy:

Develop an understanding of research methods and the ability to critically evaluate scientific literature. Some programs may include opportunities for students to engage in research projects.

These learning outcomes collectively will prepare UHS graduates of an MLT program to enter the workforce as competent and skilled medical laboratory professionals, contributing to the diagnosis, treatment, and prevention of diseases through laboratory testing

5. Carrier Opportunities of the Graduates

Clinical Laboratory Technologist/Technician, Blood Bank Technologist, Microbiology Technologist, Molecular Diagnostics Technologist, Vaccine and Pharma industry, Research Positions, Quality Assurance/Control.

SCHEME OF STUDIES

SEMESTER	COURSE CODE	COURSE TITLE	THEORY	PRACTICAL	CREDIT HOURS 128
1st Semester	GEFE	Functional English	03	0	03
	GEQR	Quantitative Reasoning-I	03	0	03
	GENS	Natural Sciences	02	1	03
	GEAH	Arts and Humanities	02	0	02
	GEICP	Ideology and Constitution of Pakistan	02	0	02
	IDC	Basic Biochemistry	03	0	03
	PERL-I	PERL-I	01	0	01
Total Credit Hours					**17**
2nd Semester	GEEW	Expository Writing	03	0	03
	GEQR	Quantitative Reasoning-II	03	0	03
	GESS	Social Sciences	02	0	02
	GEIE	Islamic Studies/Ethics	02	0	02
	BAN	Basic Anatomy	03	0	03
	BPH	Basic Physiology	03	0	03
	BLI	Basic Lab instrumentation	02	01	03
	PERL-II	PERL-II	01	0	01
Total Credit Hours					**20**
3rd Semester	GEE	Entrepreneurship	02	0	02
	GECCM	Civics and Community Engagement	02	0	02
	GEICT	Fundamentals of ICT (Computer Sciences)	02	1	03
	GPA	Gen Pathology	03	0	03
	HP-I	Histopathology -I	03	1	04
	HM-I	Hematology-I	03	1	04
	EPC-1	English Proficiency 1	02	0	02
	PERL-III	PERL-III	01	0	01
Total Credit Hours					**21**
4th Semester	HP-II	Histopathology -II	03	1	04
	HM-II	Hematology-II	03	1	04
	Mic-I	Microbiology -1 Basic Bacteriology	02	1	03
	CP-I	Chemical Pathology-I	03	1	04
	BMB	Basic Molecular Biology	02	0	02
	EPC-2	English Proficiency 2	02	0	02
	PERL-IV	PERL-IV	01	0	01

			Total Credit Hours		**20**
5th Semester	HP-III	Histopathology III	02	02	04
	HM-III	Hematology III	03	01	04
	Mic-II	Microbiology II	02	01	03
	CP-II	Chemical Pathology II	03	01	04
	BIS	Basic Immunology and Serology	02	01	03
	EPC-3	English Proficiency 3	02	0	02
	PERL-V	PERL-V	01	0	01
			Total Credit Hours		**21**
6th Semester	Mic-III	Microbiology III	02	1	03
	CP-III	Chemical Pathology III	03	01	04
	MBG	Molecular Biology and Genetics	03	01	04
	BB	Blood Banking (Transfusion Medicine)	02	01	03
	AI	Advance Immunology	02	01	03
	EPC-4	English Proficiency 4	02	0	02
	PERL-VI	PERL-VI	01	0	01
			Total Credit Hours		**20**
7th Semester	Mic-IV	Microbiology IV	02	1	03
	MPC	Molecular Pathology and Cytogenetics	03	1	04
	Ent	Entrepreneurship	02	0	02
	BS	Biostatistics	03	0	03
		Internship/Field Experience	03	0	03
	EPC-4	English Proficiency 4	02	0	02
	PERLVI	PERL-VI	01	0	01
			Total Credit Hours		**18**
8th Semester	QCA	Quality control and Accreditation	03	0	03
	RM	Research Methodology	03	0	03
	BRM	Biosafety and Risk management	02	01	03
	CP	Capstone Project	0	03	03
	EPC-4	English Proficiency 4	02	0	02
	PERLVI	PERL-VI	01	0	01
			Total Credit Hours		**15**