Number and Type of Credits and Tables of the Courses

Total Number of Credits: 207

DDS program Course Syllabus
for
International Students

DDS- 1st semester

	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Anatomical Sciences I*	*3.0*	*1.0*		*4.0*
2	*Biochemistry*	*4.0*	*1.0*		*5.0*
3	*Application of computer in dentistry*	*1.0*			*1.0*
4	*Devine ethics*	*2.0*			*2.0*
5	*Introduction to Religion I*	*2.0*			*2.0*
6	*General English Language*	*3.0*			*3.0*
	Total	15.00	2.0		17.00

DDS- 2nd semester

	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Anatomical Sciences II*	2.0	1.0	*Anatomical Sciences I*	3.0
2	*Parasitology*	1.0			1.0
3	*Medical Physics*	1.0			1.0
4	*Social Health*	1.5	0.5		2.0
5	*Family Health*	2.0			2.0
6	*Psychology*	2.0			2.0
7	*Persian Language*	3.0			3.0
8	*Medical Terminology I*	1.0		*General English Language*	1.0
9	*Physical Training I*		1.0		1.0
10	*Introduction to Religion II*	2.0		*Introduction to Religion I*	2.0
	Total	15.5	2.5		18.0

DDS- 3rd semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Anatomical Sciences III*	1.0	1.0	*Anatomical Sciences II*	2.0
2	*Physiology*	5.0	1.0	*Biochemistry*	6.0
3	*Immunology*	2.0	1.0		3.0
4	*Virology*	1.0			1.0
5	*Microbiology*	3.0	1.0		4.0
6	*Medical Genetic*	2.0			2.0
7	*Divine texts*	2.0			2.0
	Total	16.0	4.0		20.0

DDS- 4th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Pathology*	2.5	0.5		3.0
2	*Radiology Sciences I*	1.0	1.0		2.0
3	*Cariology*	1.0			1.0
4	*Dental Anatomy and Morphology*	2.0			2.0
5	*Infection control*	1.0			1.0
6	*Clinical Communication Skills*	1.0			1.0
7	*Advanced Terminology II*	1.0		*Medical Terminology I*	1.0
8	*Iran Revolution*	2.0			2.0
9	*Physical Training II*		1.0	*Physical Training I*	1.0
	Total	11.5	2.5		14.0

DDS- 5th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*General Pharmacology*	2.0			2.0
2	*Theoretical Oral and Maxillofacial (OMF) Surgery 1*	1.0			1.0
3	*Diagnostic Dentistry 1*	1.0			1.0
4	*Theoretical Restorative Denitstry1*	1.0			1.0
5	*Practical OMF Pathology 1*		1.0		1.0
6	*Specialized English 1*	1.0			1.0
7	*Specialized English 2*	1.0			1.0
8	*Basics of Restorative Dentistry*	2.0			2.0
9	*Practical DMF Radiology 1*		1.0		1.0
10	*Medical Emergencies in Dentistry*	1.0			1.0
11	*Basics of Dental Materials*	1.0			1.0
12	*Basics of Complete Prosthodontics*	2.0			2.0
13	*Basics of Partial Prosthodontics*	1.0			1.0
	Total	14.0	2.0		16.0

DDS- 6th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Practical OMF Surgery 1*		1.0		1.0
2	*Practical OMF Surgery 2*		1.0		1.0
3	*Practical Restorative Dentistry 1*		1.0		1.0
4	*Practical OMF Pathology 2*		1.0		1.0
5	*Pulp and Periodical complex*	1.0			1.0
6	*Theoretical Endodontics 1*	1.0			1.0
7	*Diagnostic Dentistry 2*	2.0			2.0
8	*Theoretical OMF Surgery 2*	1.0			1.0
9	*Systemic Diseases 1*	2.0			2.0
10	*Treatment of Complete Edentulous Patients*	1.0			1.0
11	*Theoretical DMF Radiology2*	1.0			1.0
12	*Practical DMF Radiology2*		1.0		1.0
13	*Practical Complete Prosthodontics 1*		2.0		2.0
	Total	9.0	7.0		16.0

DDS- 7th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Practical DMF Radiology3*		1.0		1.0
2	*Practical Oral and Maxillofacial (OMF) Diseases 1*		2.0		2.0
3	*Diagnostic Dentistry 3*	2.0			2.0
4	*Specialized English 3*	1.0			1.0
5	*Specialized English 4*	1.0			1.0
6	*Geriatrics*	1.0			1.0
7	*Practical Partial Prosthodontics 1*		2.0		2.0
8	*Theoretical Orthodontics 1*	1.0			1.0
9	*Theoretical Periodontics 1*	1.0			1.0
10	*Dental Equipments and Ergonomics*	1.0			1.0
11	*Pain and pharmacology in Dentistry*	1.0			1.0
12	*Basics of Fixed Prosthodontics*	2.0			2.0
13	*Basics of Endodontics 1*	1.0			1.0
14	*Practical OMF Surgery 3*		2.0		2.0
	Total	12.0	7.0		19.0

DDS- 8th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Practical Fixed Prosthodontics 1*		2.0		2.0
2	*Basics of Endodontics 2*	1.0			1.0
3	*Practical Restorative Dentistry 2*		2.0		2.0
4	*Practical Orthodontics 1*		1.0		1.0
5	*Practical Periodontics 1*		1.0		1.0
6	*Oral and Maxillofacial Traumatology*	1.0			1.0
7	*Theoretical Oral Health and Community Dentistry 1*	1.0			1.0
8	*Systemic Diseases 1*	2.0			2.0
9	*Diagnostic Dentistry 4*	1.0			1.0
10	*Theoretical Restorative Dentistry 2*	1.0			1.0
11	*Theoretical Orthodontics 2*	1.0			1.0
12	*Medical Ethics, Professional Commitment and Law*	1.0			1.0
13	*Research Methodology 1*	1.0			1.0
14	*Research Methodology 2*	1.0			1.0
15	*Theoretical Advanced Prosthodontics*	1.0			1.0
	Total	10.0	12.0		22.0

DDS- 9th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Practical Endodontics 1*		2.0		2.0
2	*Practical Pediatric Dentistry 1*		2.0		2.0
3	*Practical Restorative Dentistry 3*		2.0		2.0
4	*Practical Complete Prosthodontics 2*		2.0		2.0
5	*Practical Fixed Prosthodontics 2*		2.0		2.0
6	*Practical Oral Health and Community Dentistry 1*		1.0		1.0
7	*Practical OMF Diseases 2*		1.0		1.0
8	*Theoretical Endodontics 2*	1.0			1.0
9	*Practical Orthodontics 2*		1.0		1.0
10	*Practical Periodontics 2*		1.0		1.0
11	*Theoretical Orthodontics 3*	1.0			1.0
12	*Theoretical Periodontics 2*	1.0			1.0
13	*Theoretical Pediatric Dentistry 1*	1.0			1.0
14	*Diagnostic Dentistry 5*	1.0			1.0
15	*Thesis 1*	1.0			1.0
	Total	6.0	14.0		20.0

DDS- 10th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Practical Periodontics 3*		1.0		1.0
2	*Practical Orthodontics 3*		1.0		1.0
3	*Theoretical Periodontics 3*	1.0			1.0
4	*Practical Pediatric Dentistry 2*		2.0		2.0
5	*Theoretical Pediatric Dentistry 2*	1.0			1.0
6	*Practical Partial Prosthodontics 2*		2.0		2.0
7	*Theoretical Oral Health and Community Dentistry 2*	1.0			1.0
8	*Practical OMF Diseases 3*		1.0		1.0
9	*Practical OMF Surgery 4*		2.0		2.0
10	*Diagnostic Dentistry 6*	1.0			1.0
11	*Nutrition in Oral Health*	1.0			1.0
12	*Systemic Diseases 2*	2.0			2.0
13	*Practical Endodontics 2*		2.0		2.0
14	*Thesis 2*	1.0			1.0
15	*Scientific Writing*	1.0			1.0
	Total	9.0	11.0		20.0

DDS- 11th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Practical Periodontics 4*		1.0		1.0
2	*Practical Orthodontics 4*		1.0		1.0
3	*Practical Pediatric Dentistry 3*		2.0		2.0
4	*Practical Oral Health and Community Dentistry 2*		1.0		1.0
5	*Theoretical Advanced Prosthodontics 2*	1.0			1.0
6	*Clinical Governance and Quality Improvement*	1.0			1.0
7	*Diagnostic Dentistry 7*	1.0			1.0
8	*Systemic Diseases 3*	1.0			1.0
9	*Systemic Diseases 4*	1.0			1.0
10	*Practical Endodontics 3*		1.0		1.0
11	*Psychological Disorders*	1.0			1.0
12	*Ear, Nose, Throat*	1.0			1.0
13	*Thesis 3*	1.0			1.0
14	*Comprehensive Care1*	2.0			2.0
	Total	10.0	6.0		16.0

DDS- 12th semester					
	Subject	Number of credits			Total credits
		Credit (theory)	Credit (practical)	prerequisite	
1	*Comprehensive treatment2*	2.0			2.0
2	*Community Dentistry and Oral Health 3*	2.0			2.0
3	*Practical advanced Prosthodontics*		2.0		2.0
4	*Theoretical Implantology*	1.0			1.0
5	*Thesis 4*	4.0			4.0
	Total	9.0	2.0		11.0

COURSE NAME: Biochemistry

NUMBER OF CREDITS: 4.0 (theory) – 1.0 (practical)

COURSE TYPE: Theoretical and Practical

GENERAL AIMS and DESCRIPTION:

This is the first term of DDS program in Tehran University of Medical Sciences, the Biochemistry Program fosters interactions among students and faculty, helping to broaden the students' appreciation of diverse research opportunities and to encourage interdisciplinary thinking in a highly collaborative atmosphere. This program has been an integrative force that aims to tie together the various disciplines of genetics, biochemistry, microbiology, immunology, cell biology and others. The goal is to train our students to examine scientific problems from many perspectives through individualized, flexible programs of coursework and research.The biochemical pathways of living organisms are studied with a focus on metabolic processes. Topics include pathways linking nutritional intake and energy yielding processes as well as the application of underlying. Broad content includes a study of the chemistry and reactions of constituents of living matter, including carbohydrates, lipids, proteins, nucleic acids, vitamins, coenzymes, and minerals. In addition, the chemistry and regulation of the reactions and processes of whole organisms will be examined including: endocrinology, enzymology, nutrition, intermediary metabolism and biochemical mechanisms involved in select disease states.

References

1. **Junqueira's Basic Histology**. McGraw-Hill Medical 2010; 12th edition, chapters 1, 2, 3
2. **Guyton and Hall Textbook of Medical Physiology**. Saunders 2011, 12th edition, chapters 4 & 5
3. Cohen B.J. **Medical terminology: an illustrated guide.** Walter Kluwer/Lippincott Williams & Wilkins 2008. 5th edition
4. Devlin T.M. **Textbook of Biochemistry with Clinical Correlation**. John Wiley & Sons 2010; 7th edition
5. Murray R. et al. **Harpers Illustrated Biochemistry**. McGraw-Hill Medical 2009; 28th edition
6. **Ganong's Review of Medical Physiology**. McGraw-Hill Medical 2009; 23rd edition

Biochemistry (theory) subjects

Session Title	*Hrs.*
Introduction to Cell & Molecule	**2**
Water and buffer	**2**
Introduction to Histology	**2**
Cell	**4**
Amino acid Structure & Classification	**2**
Amino acids & proteins classification	**2**
Amino acids & proteins functions	**2**
Amino acids & proteins Hemoglobin	**2**
Carbohydrates Mono- & Di- Saccharides	**2**
Carbohydrates Glycoconjugates	**2**
Lipids & Lipoproteins Structure	**4**
Enzymes	**6**
Vitamins & Coenzymes	**2**
Water Soluble Vitamins	**2**
Fat soluble vitamins	**2**
Amino Acids Structure	**2**
DNA Replication	**2**
Molecular biology Transcription	**2**
Molecular biology Translation	**2**
Molecular biology Repair mechanisms	**2**
Molecular biology Regulation of gene expression	**2**
Metabolism of carbohydrates	**6**
Metabolism of amino acids & other nitrogen compounds	**4**
Metabolism of non-protein nitrogen compounds	**4**
Clinical Enzymology	**2**
Metabolism of lipids & lipoproteins	**6**
Total hrs.	**72**

Biochemistry (practical) subjects

Session Title	*Hrs.*
Titration	**2**
Carbohydrates	**2**
AminoAcides	**2**
Enzymes	**2**
Spectrophotometer	**2**
DNA Extraction	**2**
Chromatography	**2**
FlamePhotometery	**2**
Osmose	**2**
Total hrs.	**18**

COURSE NAME: Anatomical Sciences I

NUMBER OF CREDITS: 3.0 (theory) – 1.0 (practical)

COURSE TYPE: Theoretical and Practical

GENERAL AIMS and DESCRIPTION:

This is a lecture and laboratory course that examines the microanatomy of cells, tissues and organs. Lectures illustrate the microstructure of major tissues and organs in relation to their function. Laboratory exercises use the light microscope to study these components and make use of slides and electron micrographs for review and discussion. This lab-oriented program presents the molecular biology and histology of normal cells, tissues and organ systems at various developmental functional stages. Students learn how individual cell functions interact with one another and how such interactions are accomplished from the tissue levels to the organ levels. The course introduces molecular and control systems and prepares students for an understanding of normal (homeostasis) systems and pathological conditions. In addition, students learn how molecular building blocks are utilized for growth and differentiation, wound healing and tissue repair, defence mechanisms and transfer of hereditary characters.

References

1. **Junqueira's Basic Histology**. McGraw-Hill Medical 2010; 12th edition; chapters 4-10 and 12-13 and 18
2. **Langman's Medical Embryology**. Lippincott Williams & Wilkins 2012, 12th edition; chapters 2-9, pages 10-129
3. **Guyton and Hall Textbook of Medical Physiology**. Saunders 2011, 12th edition, chapters 6, 7, 8
4. **Ganong's Review of Medical Physiology**. McGraw-Hill Medical 2009; 23rd edition

Anatomical Sciences I (theory) subjects

Session Title	*Hrs.*
Epithelial Tissue	**2**
Connective Tissue	**2**
Types of Connective & Adipose Tissue	**2**
Cartilage Tissue & Joints	**2**
Osseous Tissue & Ossification	**2**
Blood & Hematopoiesis	**2**
Muscular Tissue	**2**
Nervous Tissue	**4**
Skin	**2**
Introduction to Embryology	**2**
Gametogenesis	**2**
Ovulation & Fertilization	**2**
Embryonic Period	**2**
1st & 2nd Weeks of Embryonic Period	**2**
3rd Weeks of Embryonic Period	**2**
Fetal Period	**2**
Placenta & Fetal Membranes	**2**
Congenital Malformations	**2**
Osteology & Joints	**6**
Muscles	**4**
Circulatory System	**2**
Nervous System	**4**
Digestive System	**4**
Respiratory System	**4**
Urogenital System	**4**
Endocrine System	**2**
Total hrs.	**68**

Anatomical Sciences I (practical) subjects

Session Title	*Hrs.*
Microscopes	**2**
Epithelial Tissue	**2**
Connective & Osseous Tissue	**2**
Blood smears and cell differentiation	**2**
Cartilage Tissue	**2**
Muscular Tissue	**2**
Nervous Tissue	**2**
Skin	**2**
Respiratory system Tissue	**2**
Digestive system Tissue	**2**
Urogenital system Tissue	**2**
Endocrine system Tissue	**1**
Bones of the Vertebral Column ,Ribs & Sternum	**2**
Upper and Lower osteology & Limbs	**4**
Total hrs.	**16**

COURSE NAME: Anatomical Sciences II

NUMBER OF CREDITS: 2.0 (theory) – 1.0 (practical)

COURSE TYPE: Theoretical and Practical

GENERAL AIMS and DESCRIPTION:

Identify key events and stages in development of Head and Neck system structures (Anatomy, Histology and Embryology). Summarize the main structures and functions within the major divisions of the normal nervous system: the brain, spinal cord and peripheral nervous system along with Histology of Head and neck . Describe how regional nervous system structures interact to perform specific functions. Locate nervous system dysfunction based on common neurological syndromes. Synthesize vascular anatomy and neuroanatomy to locate dysfunction in ischemic stroke syndromes. Exhibit critical thinking, effective communication, problem solving and interpersonal skills to contribute to a high-performance team. Provide constructive feedback to peers and use peer feedback to identify and improve strengths and limitations in skills and attitudes.

References

1. **Langman's Medical Embryology**. Lippincott Williams & Wilkins 2021, 11th edition
   - chapter 17, pages 260-286
   - Chapter 10, pages 133-142
   - Chapter 19, pages 321-328
   - Chapter 20, pages 329-338

Anatomical Sciences II (theory) subjects

Session Title	*Hrs.*
Overview of Skull & Osteology	**8**
Sinuses & Fontanelles	**2**
Carotid Triangle	**2**
Posterior Triangle	**2**
Suprahyoid & Prevertebral Region	**2**
Infrahyoid Region	**2**
Face (Muscles, Parotid Gland)	**2**
Scalp, Temporal & Infratemporal Region	**2**
Oral & Nasal Cavity	**2**
Pharynx, Lymph Nodes of Head & Neck	**2**
Embryology of Head and Neck 7 Jaw & Tooth	**4**
Oral Mucosa & Special Mucosa & Salivary Glands	**4**
Tooth Enamel and Dentin & Cementum	**6**
Dental Pulp & Periodontal Ligament	**2**
Larynx & Pharynx Histology	**2**
Thyroid & Parathyroid Histology	**2**
Total hrs.	**46**

Anatomical Sciences II (practical) subjects

Session Title	*Hrs.*
Skull Osteology	**6**
Carotid Triangle	**2**
Posterior Triangle	**2**
Face (Muscles, Parotid Gland)	**2**
Temporal & Infratemporal Region	**2**
Applied Anatomy of head and Neck	**4**
Histology of Anatomical Sciences II	**14**
Total hrs.	**32**

COURSE NAME: Anatomical Sciences III

NUMBER OF CREDITS: 1.0 (theory) – 1.0 (practical)

COURSE TYPE: Theoretical and Practical

GENERAL AIMS and DESCRIPTION:

This required system-based block integrates the basic sciences into a study of neuroscience and behavior in both health and disease. Each of the basic science topics is incorporated into an integrated body of knowledge covering neuroanatomy, neurophysiology, neurological correlations, neuropharmacology, neuropathology, human behavior and psychiatry, utilizing both didactic and self-directed learning methods and clinical models.

References

1. **Snell Clinical neuroanatomy**
2. **Junqueira's Basic Histology**. McGraw-Hill Medical 2010; 12th edition,
3. • chapter 9, pages 152-158
4. **Langman's Medical Embryology**. Lippincott Williams & Wilkins 2012, 12th edition,
5. • chapter 18, pages 287-320
6. **Guyton and Hall Textbook of Medical Physiology**. Saunders 2011, 12th edition
   - Chapters 45-48
   - Chapters 54-60

Anatomical Sciences III (practical) subjects

Session Title	*Hrs.*
Anatomy of the vertebral canal and spinal cord	**2**
Spinal cord and spinal nerves	**2**
Autonomic nervous system and the body dermatome	**2**
Brainstem and cerebellum	**2**
Dyansfal and the cerebral hemispheres	**2**
Vessels and membranes of the brain and cranial nerves	**2**
Applied anatomy of the brain vessels, blinds and sinus Cranial venous	**2**
Histology of the spinal cord, cerebellum, cerebral cortex and nerve tissue	**2**
Investigating the neural reflex	**2**
Two-point discrimination	**2**
Total hrs.	**20**

Anatomical Sciences III (theory) subjects

Session Title	*Hrs.*
Division of the nervous system & spinal cord appearance	**2**
The internal structure of the spinal cord	**2**
Medulla oblongata	**2**
Pons	**2**
Midbrain	**2**
Cerebellum	**2**
Diencephalon	**2**
Cerebral hemispheres	**2**
The cerebral hemispheres and basal Nuclei	**2**
Limbic system and reticular formation	**2**
Vessels and Meninges	**2**
The structure of cranial nerves	**2**
Embryology of Nervous system	**2**
Radiological and clinical anatomy of brain and spinal cord	**2**
Total hrs.	**28**

COURSE NAME: Medical Microbiology

NUMBER OF CREDITS: 3.0 (theory) – 1.0 (practical)

COURSE TYPE: Theoretical and Practical

GENERAL AIMS

1. Learning the principles of microbiology, including the structural and physiological properties of microorganisms and their roles in diseases and the methods to control them.
2. Classification of pathogens
3. Treatment of bacterial diseases
4. Familiarizing students with the structure of microorganisms, staining, lam preparation

LEARNING OUTCOMES

Students must:

1. Know microbial and physiological principles
2. Know the methods and problems of microorganism classification
3. Know pathogenic and epidemiological mechanisms
4. Know antiseptic effect mechanisms
5. Know control methods the mechanisms of antibiotic effects
6. know the methods to determine the effect mechanisms of antibiotics
7. Be able to explain the relationship between dosage, parasite and the drug.
8. Know protection methods while working with microorganisms
9. Know methods to work with microorganisms, microscope use and microscopic and macroscopic identification of microorganisms
10. Be able to do cell culture and perform identification experiments
11. Perform antibiogram tests and know and examine antibiotic effects
12. Know microbiology lab equipment
13. Know staining methods
14. Be able to prepare culture medium
15. Know microorganism identification methods

COURSE NAME: Immunology

NUMBER OF CREDITS: 2.5 (theory) – 0.5 (practical)

COURSE TYPE: Theoretical and Practical

GENERAL AIMS

Familiarizing students with the science of immunology and its use in understanding, preventing, diagnosis and treatment of disease.

The functions of the immune system and body defense mechanisms, different body organs which have significant roles in the functions of the immune system and the different types of immunity in body will be covered. Moreover in practical the aim is familiarizing students with different lab equipment and diagnostic testing kits and their use.

LEARNING OUTCOMES

Students must:

1. Know pathogens and immunologic mechanism of diseases
2. Know resistance against diseases
3. Know lab diagnosis methods
4. Know immunologic substances used to cure diseases

COURSE NAME: Medical Genetics

NUMBER OF CREDITS: 2.0 (theory)

COURSE TYPE: Theoretical

GENERAL AIMS

The increasing impact of genetics in healthcare and the development of newer sophisticated technologies require close collaboration between research scientists, clinical laboratory scientists and clinicians to deliver a high quality service to patients. The Medical Genetics course covers basic concepts of genetically disorders and the clinical genetics service, including risk analysis and application of modern genetic and genomic technologies in medical genetics research and in diagnostics and population screening.

LEARNING OUTCOMES

Students must:

1. Know the History and Significance of Medical Genetics in the clinic.
2. Know the Genetics of Metabolic, Neurologic and Musculoskeletal Disorders.
3. Know Population Genetics and Medicine.
4. Know Modern Molecular Medicine- Gene Therapy.

COURSE NAME: Psychology

NUMBER OF CREDITS: 2.0 (theory)

COURSE TYPE: Theoretical

GENERAL AIMS

Knowing the basic principles of psychology, different sense and thought processes is central to building a more effective relationship between the pharmacist and the patient and therefore this course will increase the knowledge of the pharmacist and familiarizing students with the principles of psychology and learning methods, thought process and perception

LEARNING OUTCOMES

Students must:

1. Know the relationship between psychology and human mind and soul.
2. Know the principles of psychology.
3. Be able to explain different sense stages.
4. Know learning methods and thought processes.
5. Know human motivation.
6. Know psychological health.
7. Know the physiological principles of psychology.