



TEHRAN UNIVERSITY
OF
MEDICAL SCIENCES

School of Allied Medical Sciences

Course Description Guide

Bachelor of Science in Health Information Technology

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Program name and definition:

Bachelor of Science in Health information Technology

Mission: Knowing about management of Health Information technology department , methods of storage and processing of data (organization , classification and statistical accounting), retrieval of information, Indicators and Analysis of health data.

Course Names & Credits:

The total number of credits includes as follows:

General Courses	22 Credits
Basic Courses, Special Courses	92 Credits
Internship	16 Credits
Total	130 Credits

Table A. General Courses in Continuous Bachelor's Program in Health Information Management

Row	Title	No. of Credits	Course Hours			Prerequisite
			Theoretical	Practical	Total	
1	Two Courses from among Theoretical Foundations of Islam Courses*	4	68	-	68	-
2	One of the Islamic Ethics Courses*	2	34	-	34	-
3	One of the Islamic Revolution Courses*	2	34	-	34	-
4	One of the Courses on Islamic History & Civilization*	2	34	-	34	-
5	One of the Courses on the Introduction to Islamic Sources*	2	34	-	34	-
6	Persian Literature	3	51	-	51	-
7	General English	3	51	-	51	-
8	Physical Education (1)	1	-	34	34	-
9	Physical Education (2)	1	-	34	34	8
10	Population and Family Planning	2	34	-	34	-
Total		22				

Note: These courses should be taken from among the ones in the following table

	Orientation	Course Code	Title	No. of Credits	Course Hours		
					Theoretical	Practical	Total
Islamic Education Courses	1) Theoretical Foundations of Islam	011	Islamic Thought(1) (Origin & Resurrection)	2	34	-	34
		012	Islamic Thought(2) (Prophethood & Imamat)	2	34	-	34
		013	Humanity in Islam	2	34	-	34
		014	Social & Political Rights in Islam	2	34	-	34
	2) Islamic Ethics	021	Philosophy of Ethics (Emphasis on Educative Issues)	2	34	-	34
		022	Islamic Ethics (Foundations& Concepts)	2	34	-	34
		023	Living Code of Ethics (Applied Ethics)	2	34	-	34
		024	Practical Mysticism of Islam	2	34	-	34
	3) Islamic Revolution	031	Islamic Revolution of Iran	2	34	-	34
		032	Introduction to the Constitution of the Islamic Republic of Iran	2	34	-	34
		033	Imam Khomeini's Political Thoughts	2	34	-	34
	4) History & Islamic Civilization	041	History of Islamic Culture & Civilization	2	34	-	34
		042	Analytic History of Early Islam	2	34	-	34
		043	History of Imamat	2	34	-	34
	5) Introduction to Islamic Sources	051	Thematic Interpretation of the Quran	2	34	-	34
		052	Thematic Interpretation of Nahj al-Balagha	2	34	-	34

Table B. Basic Courses, Special Courses, and Internship in Bachelor of Science in Anesthesiology

Course Code	Title	No. of Credits	Course Hours			Prerequisite
			Theoretical	Practical	Total	
01	Physiology	2	34	-	34	-
02	Anatomy	2	34	-	34	-
03	Medical Terminology	2	34	-	34	-
04	Pathogens and Infections disease	2	34	-	34	01,02
05	Specialized Nosology (1)	2	34	-	34	04
06	Mathematics	2	34	-	34	-
07	Fundamentals of Epidemiology	2	34	-	34	-
08	Indicators and Analysis of health data	2	26	17	43	06,21,22
09	Health Information Management (1)	2	34	-	34	-
10	Health Information Management (2)	2	34	-	34	09
11	Technology Management In Health Care	2	34	-	34	-

12	Current Nomenclature and Classification of diseases and procedure system (1)	2	26	17	43	03
13	Current Nomenclature and Classification of diseases and procedure system (2)	2	26	17	43	12
14	Specialized English Language IT (1)	2	34	-	34	General English Language
15	Specialized English Language IT (2)	2	34	-	34	14
16	Introduction To Operating System and Applied Planning	2	17	34	51	-
17	Data structure and Computer Programing	4	34	68	102	16
18	Principle of Management	2	34	-	34	-
19	Management Principles of Individual in work environment	2	34	-	34	-
20	Pharmacology	2	34	-	34	-
21	Descriptive Biostatistics	2	34	-	34	-
22	Inferential Vital Statistics	2	34	-	34	21
23	The Research Method	3	51	-	51	-
24	Specialized Nosology (2)	2	34	-	34	04
25	Specialized Nosology (3)	2	34	-	34	04
26	Computer Network and System Security	2	17	34	51	-
27	Health Information Technology (1)	3	34	34	68	-
28	Health Information Technology (2)	2	34	-	34	27
29	Health Information technology (3)	2	34	-	34	28
30	Specialized English Language Health Information Management (1)	2	17	34	51	-
31	Specialized English Language of Health Information Management (2)	2	17	34	51	30
32	Insurance and payment systems in Health care systems	2	34	-	34	-
33	Health Information resources management	1	17	-	17	-
34	Health Information Management in Crisis	1	17	-	17	-
35	Specialized nomenclature and classification of disease and procedures systems	2	17	34	51	13

36	Mortality Nosology/coding	2	17	34	51	13
37	Data Quality and Health Information System	2	34	-	34	10
38	Electronic Health Record	2	34	-	34	37
39	Research Project	3	17	68	85	23
40	Management of Health Information Technology Department	2	34	-	34	-
41	Health Care Informatics (1)	2	34	-	34	29
42	Health Care Informatics (2)	2	34	-	34	41
43	First Aids	1	9	17	26	-
44	Accounting Principles and Health economy	2	34	-	34	06
45	Introduction of Health System Structure and Plans in Iran	2	34	-	34	-
Total		92				

TableC.Internship in

Course Code	Title	Credit	Hours	
			Internship	Total
46	Internship (1)	4	204	204
47	Internship (2, 3, 4)	12	612	612
Total				816

Title: Data Quality and Health Information System 37

Prerequisite: Health Information System (2)

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Fundamentals and Mechanisms of Data Quality

Course Description: Definition and types of data quality, types of information errors, control types for data quality, quantitative and qualitative survey of health information, types of managerial information systems such as R/AbT, patient scheduling, types of clinical information systems such as LIS, RIS mortality codes.

Title: Mortality Nosology 36

Prerequisite: Current Systems for Classification of disease and Medical Procedures (2)

No. of Credits: 2

Type of the Course: Theoretical & Practical

Main Objective: Rules and Regulation for coding mortality and importance of statistics application them about mortality in national and international levels.

Course Description: Regulations of selection courses of death during some courses in patients 'medical record, Definition and differentiation of underlying cause of death, and originating antecedent causes, rules for selecting of underlying cause of death.

Title: Management of Health Information Technology Department 40

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Familiar with applying some of management methods for management of health information technology department.

Course Description: Depicts of Process in a department based on standards, definition and steps Implementation some of methods and techniques such as six sigma and fs.

Title: Health Care Informatics (1) 41

Prerequisite: Health Information Technology (3)

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Getting to know about fundamental concepts about health informatics, and role of health informatics in health area.

Course Description: Being Familiar with aspects of health informatics, clinical Decision support systems, knowledge creation cycle, Export systems, E- health, Mobile health, Health portals.

Title: Electronic Health Record 38

Prerequisite: Data Quality and health information system (3)

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Familiar with fundamental concepts about electronic health record (EHR) and implement of HER.

Course Description: Compassion advantage and disadvantage of paper-based record and EHR, EPR, EMR, CPR, data types in HER, best practices of HER, acceptance barriers of EHR, EHR's standards such as HL7, DI com, X12, XML, New technologies and EHR, Accessibility in EHR, Conceptual and logical model, security.

Title: Research Project 39

Prerequisite: Research Methodology

No. of Credits: 3

Type of the Course: (1) Theoretical, (2) Practical

Main Objective: Doing a project in health information technology and management area.

Course Description: Student should able to select a research topic, conduct a research, and report result of research.

Title: Health Care Informatics (2)⁴²

Prerequisite: Medical Informatics (1)

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Learning with Information architecture Models, Tools and Information Technology, application of information Technology in Medical Informatics Domain.

Course Description: (34 Hours Theory) Information architecture models and Conceptual and Cognitive Domain of them are caused comprehensive knowledge of medical informatics.

Learning Tools based on Technology in medical domain are necessary for Health information management.

This Course Contains macroscopic model for information flow in Electronic health.

Health information technology architecture, patient identification protocols, Mobile technology in diagnosis process, Telemedicine in patient monitoring.

Title: First Aids⁴³

Prerequisite: None

No. of Credits: 1

Type of the Course: Theoretical

Main Objective: Learning the First aids in emergency and crucial situation.

Course Description: Learning the first aids contain: principles of first aids, General principles for prevention, Vital function, Definition and causes of respiratory disorders, Types of Artificial breathing CPR, Cardiac arrest, Cardiac message, measuring hypertension, shock and methods of preventive, fractures and type of them, epilepsy and convulsion, foreign body in eye–ear-nose and other site, muscular and venous injection.

Title: Accounting Principles and Health economy⁴⁴

Prerequisite: Mathematics

No. of Credits: 1

Type of the Course: Theoretical

Main Objective:

Course Description: Acquaintance with concepts in accounting and health economy in data/information gathering, Documentation, registration and summarization of financial activities.

-source flow in care systems

-economic evaluation in health services

-other related subject

Title: Introduction of Health System Structure and Plans in Iran⁴⁵

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: -

Course Description: Learning about structure and program health system and types of health services and programs.

- This course contains: concept and definition of health.
- Acquaintance with WHO
- Primary health care
- Structures and levels of health care Network system
- Structure of hospitals
- Programs and services against communicable and non-communicable disease
- Acquaintance with environmental health, health professional, mental health, maternal and child health, early health in health system.
- Acquaintance with nutritional services
- Acquaintance with health education services
- Acquaintance with preventive service in events and emergencies in health system

Title: Internship (1)⁴⁶

Prerequisite: -

No. of Credits: 4

Type of the Course: Practical

Main Objective: Acquisition of practical skills based theoretical education for best services.

Course Description: Practice in field (hospital) based theoretical education, in health information management department.

Title: Internship (2, 3, 4)⁴⁷

Prerequisite: -

No. of Credits: 12

Type of the Course: Practical

Main Objective: Acquisition of practical skills based theoretical education for best services in computer department and IT department.

Course Description: Practice in field (hospital) based theoretical education, in information technology department or computer department for best skill.

Title: Management Principles of Individual in work environment¹⁹

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: We expect the learner to understand:

- 1- Different methods of psychology and individual communication.
- 2- Personal differences based on character features.
- 3- The effect of different cultures on people's personality.
- 4- Problem solving skills.

Course Description: The main emphasize of this course is to review the physiology principles and relationships among individuals; the role of these principals for people and businesses growth proficiently.

Title: Principle of Management¹⁸

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Learners to be familiar with Management Principle, Organization, manager duties and responsibilities.

Course Description: To define management and organization, manager types, duties and new theories of management.

Title: Data structure and Computer Programming¹⁷

Prerequisite: To be familiar with operating system

No. of Credits: 4

Type of the Course: (2) Theoretical, (2) Practical

Main Objective: Course learner to be familiar with information technology and its application in other sciences.

Course Description: To understand the concept of information technology and its application in science and to be familiar with data structure and programming language for coding purpose.

Title: The Research Method²³

Prerequisite: -

No. of Credits: 3

Type of the Course: Theoretical

Main Objective: To be Familiar with the fundamental concepts of research and report development in the area of health information technology.

Course Description: To improve research skills practically through applying learned techniques for a research for a research proposal.

Title: Specialized Nosology (1)05

Prerequisite: Pathologic and infectious disease

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Basic understanding of disease of respiratory cardiovascular and gastrointestinal tract.

Course Description: Provide relevant content with generalities and concepts of health and disease conditions and states.

Title: Specialized Nosology(2)24

Prerequisite: Pathologic microorganism and infectious disease

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: To be Familiar with circulation system and Neoplasms, Glands, Nervous system and Nephron productive system.

Course Description: To recognize the most common internal and surgical disease of adults and children, to code different diagnosis and also to participate to analyses health data and information.

Title: Specialized Nosology (3)25

Prerequisite: Microorganisms and infectious disease

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: To be familiar with skin, ear, eye disease, Maternal and neonatal disease, mental disease and muscle to system diseases.

Course Description: In this course definition and etiology of different organs diseases are reviewed.

Title: Computer Network and System Security²⁶

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical& Practical

Main Objective: To be familiar with computer network and systems security and their application in health care centers.

Course Description: Due to progress of computer technology and use in health centers, it is required to students become familiar with network.

Title: Health Information Technology (1)²⁷

Prerequisite: -

No. of Credits: 3

Type of the Course: 2 Theoretical& 1 Practical

Main Objective: To be familiar with computer data structure and health information technology stages using technical knowledge and applying computer resources to acquisitive information, information system life cycle and to model Health information systems.

Course Description: To be familiar with system and its life cycle particularly in the stage of design and implementation of systems.

Title: Health Information Technology (2)²⁸

Prerequisite: Health Information Technology (1)

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: To be familiar with the structure and performance of different types of health information systems, to understand and to value of every integrated information system and software development.

Course Description: The integration of different systems in clinics and movement toward an interoperability and integrity system in hospitals and health centers.

Title: Pharmacology²⁰

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: To be familiar with the fundamental and introduction of pharmacology.

Course Description: To understand the main category of medication and pharmacology used to therapy of patients, their risks and side effects.

Title: Descriptive Biostatistics²¹

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: We expect learners to be familiar with statistical calculations and to enable them to draw tables and figures as well as central and dispense indicators calculation.

Course Description: The importance of medical sciences issues prediction to understand the specific position of phenomenon.

Title: Inferential Vital Statistics²²

Prerequisite: Descriptive Biostatistics

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: To be able of applying proper statistical methods for information analysis purpose in a research project.

Course Description: To be familiar with statistical society, precise definition of sampling, to calculate confidence interval and its anticipation, to be familiar with statistical tests and their application in medical sciences.

Title: Health Information technology (3)²⁹

Prerequisite: Health information technology (2)

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: To be familiar with structure and performance of different type of health information systems, to recognize and to value each of integrated information systems and software development.

Course Description: In this course, students get familiar with standards along with applying them in systems.

Title: Specialized English Language Health Information Management (1)³⁰

Prerequisite: -

No. of Credits: 2

Type of the Course: 1 Theoretical & 1 Practical

Main Objective: To promote learner's skills to use dictionary, reading and comprehension of Health information management text books and papers.

Course Description: To provide English materials and related points using dictionary, literature review of specialized texts and promote students general comprehensive.

Title: Specialized English Language of Health Information Management (2)³¹

Prerequisite: Specialized English Language of HIM (1)

No. of Credits: 2

Type of the Course: 1 credit Theoretical & 1 credit Practical

Main Objective: To improve oral, listening and writing skills practically.

Course Description: To provide English material and important points related to vocal, oral, writing and reading skills in different areas.

Title: Insurance and payment systems in Health care systems³²

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: History, Definitions of different types of insurance companies, health care providers, reimbursement systems and their pros and cons as well as relationship between coding systems and insurance.

Course Description: Related definitions, the description of insurance systems in Iran and other countries, reimbursement systems and coding systems related to Insurance.

Title: Health Information resources management³³

Prerequisite: -

No. of Credits: 1

Type of the Course: Theoretical

Main Objective: To be familiar with informative resources in medical sciences and to manage them.

Course Description:

- Types of Information resources in medical sciences and their applications
- Structure and details of information
- Need assessment for users of information resources
- Principle of data collection
- To optimize information resources comp able with needs in different levels of users

Title: Health Information Management in Crisis³⁴

Prerequisite: -

No. of Credits: 1

Type of the Course: Theoretical

Main Objective: To understand the principal of Health information management and planning in distress and emergencies, responsiveness, readiness and rehabilitation in disasters, natural, technical and biological emergencies.

Course Description: This course is provided based on lecture giving using power point, team work and active participation of all audiences. This course would present the principle of Health Information Management and Health information planning in disasters and emergencies readiness to response and rehabilitate in disasters and Biological and natural emergencies. The course will empower learners to be skill falls in those situations.

Title: Health Information Management (1)09

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Introducing with career and health information management department and introducing with information gathering and storing mechanism.

Course Description: In this course, student familiar with information processing (cycle) theory, information management definition , role of medical record in health information management , role of health information in financial , QA,UR, RM and medical personal , responsibilities about health information management department , introducing with international community effective on health information management like AHIMA, HIMAA, ZFHRS.

Title: Health Information Management (2)10

Prerequisite: Health Information Management (1)

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Introducing with career of health information management department and introducing with health information process mechanism and notices and legal health information dimensions.

Course Description: In this course, student familiar with health information organizing ways like SOMR, POMR,ZMR, benefits and disadvantages of organizing ways, use of information classification in indexing, physicians, surgery, statistical , retrieval and reporting of health information , security and policies for information disclosure.

Title: Technology Management In Health Care 11

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Introducing with information management as an academic paradigm.

Course Description: In this course, student becomes familiar with technology concepts and its importance as a principle driver in economic development. In this lesson emphasize that the wealth is not based on economic development, also technology is the resource of wealth also in this lesson said technology management is the way for optimized of economic growth.

Title: Current Nomenclature and Classification of diseases and procedure system (1) 12

Prerequisite: Medical Terminology

No. of Credits: 2

Type of the Course: 1/5 Theoretical& 0/5 Practical

Main Objective: Introducing with main concepts about latest common diseases classifications systems and latest system of procedures classifications and ability in coding, storing and information retrieval of general and diagnostic procedures.

Course Description: Information documented in health records are base of many retrospective research and comparative studies in medical sciences and health plans. Classification of this information with use of classification system is effective steps in support of researches and health managers. This lesson helps to students familiar with classifications systems and coding, storing and retrieval of diagnostic and procedural information.

Title: Current Nomenclature and Classification of diseases and procedure system (2) 13

Prerequisite: Current Nomenclature and Classification of diseases and procedure system (1)

No. of Credits: 2

Type of the Course: 1/5 Theoretical& 0/5 Practical

Main Objective: Gain more skills about coding and classifications of disease, introducing with specific instructions of some chapters of latest version of ICD.

Course Description: With regard of expansion of disease specifically disease with research values, it's very necessary, students with principles and rules of disease coding at professional level become familiar.

Title: Specialized English Language IT (1) 14

Prerequisite: Basic English

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Promote language skills of students about use of four skills for reading skill promotion.

Course Description: According to limitation of person resources, it is necessary students have sufficient skill for understudying professional texts in health information technology.

Title: Specialized English Language IT (2) 15

Prerequisite: Specialized English Language IT (1)

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: understanding professional resources about health information technology.

Course Description: According to limitation of person resources, it is necessary students have sufficient skill for understandings professional texts in health information technology.

Title: Introduction to Operating System and Applied Planning 16

Prerequisite: -

No. of Credits: 2

Type of the Course: 1 credit Theoretical & 1 credit Practical

Main Objective: Introducing with main concepts of latest version of windows operating system and ability to use of this system.

Course Description: Nowadays windows is one of the powerful operative system and most of the softwares are based on windows. So get familiar with this operating system is very essential for students to do their works.

Title: Physiology01

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Necessary understanding of organ function compared to normal physiology familiar with failure.

Course Description: Understanding the operation of various parts of body under to understanding disorders based student needs, includes cell function, function of body tissue, ligament, muscles, movement, mechanisms, physiology of respiratory system.

Title: Anatomy02

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective:

Course Description:

Title: Medical Terminology03

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Learn common medical terms

Course Description: Providing general medical common terms in the form of words and explanations of their different.

Title: Pathogens and Infections disease⁰⁴

Prerequisite: Physiology and anatomy

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: To be familiar with the principles and concepts of disease and understanding human health and disease states and familiarity with pathogens (Bacteria, Virus, Parasite, mushroom)

Course Description: Provide relevant content with generalities and concepts of health and disease presentation disease and conditions associated with the identification of pathogens.

Title: Indicators and Analysis of health data⁰⁸

Prerequisite: Mathematics, descriptive vital statistics and inferential vital statistics.

No. of Credits: 2

Type of the Course: Theoretical and Practical

Main Objective: Theoretical object of the course is to become familiar student with the fundamentals of health indicators and health data analysis.

Course Description: Presentations on various tests theory, the amount and proportion and variety of health indicators and hospital practical use of excel software as one of the software used in the hospital.

Title: Mathematics⁰⁶

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: To be familiar student with math and special purpose of enabling learners.

Course Description: Forecasting in medical sciences from the other side conscious of the need to backend issue a special place for mathematical theorems is created includes: function and charting Functions, the extent and continuity of its theorems, Derivative and its application, calculus indefinite. To Definite integral and its applications, exponential and logarithm are other topics of this course.

Title: Fundamentals of Epidemiology⁰⁷

Prerequisite: -

No. of Credits: 2

Type of the Course: Theoretical

Main Objective: Definition of epidemiology, measuring health and disease, Types of epidemiological studies, epidemiology of health care and health policy. Planning and evaluation of health care.

Course Description: Forecasting in medical sciences from the other side conscious of the need to backend issue a special place for mathematical theorems is created includes: function and charting Functions, the extent and continuity of its theorems, Derivative and its application, calculus indefinite. To Definite integral and its applications, exponential and logarithm are other topics of this course.

Title: Specialized nomenclature and classification of disease and procedures systems³⁵

Prerequisite: Common classification systems for disease and medical procedures

No. of Credits: 2

Type of the Course: 1 credit Theoretical and 1 credit practical

Main Objective: to be familiar with coding methods and nosology in specialized centers by using specialized international systems.

Course Description: To be familiar with disease categories differences between classification and terminology

The relationship between classification and terminology systems

To be familiar with specialized international coding and terminology systems such as CDDG, CDR-10, ICD-DA, ICD-03, ICD-NA.