COURSE DESCRIPTIONS* UPDATED STUDY PLAN 2019
Bachelors in Health Informatics
Department of Health Informatics
Faculty of Public Health and Tropical Medicine - Jazan University

215 PHS Medical Terminology (2 credit hours)

This course introduces students about basic medical terminologies used in the healthcare. This course focuses on many components of a medical terms and how to break down the terms by simply knowing the meaning of suffix and prefix. It also helps students to learn how to combine word to make a meaningful medical term.

221 HID Introduction of Health Informatics (2 credit hours)

This course highlights the systematic application of information science and technology to health practice, research, and learning in the area of healthcare. Key challenges of health informatics and IT applications for the core public health areas of epidemiology, environmental health, health policy, community assessment, and international health are included in the course. Student are introduced to basic concepts of health IT applications.

316 EPI Disease Process (3 credit hours)

The course outlines basics of physiology and pathology. The course includes the causes of infection, transmission of infection, chain of infection, basic understanding of pathology, types of pathology, handling tissue samples (theoretically), and process of diseases in human beings. The course teaches the students the basics of body responses to various stimuli. It covers the understanding for process of inflammation, immunity, cell injuries, allergic responses and reactions, basic normal structure of cell and its response to different injuries. The course also covers the function and structure of skin, musculoskeletal diseases, diseases of blood and lymph nodes including general anatomy and physiology. The course provides a base for Health Informatics students while handling patient files, coding and billing sections.

322 HID Applications in Health Informatics (2 credit hours)

The course outlines the applications, practices and developments in the field of e-Health. It highlights the use of advanced technology to achieve provision of better quality healthcare services. The course provides an outline of using health applications like electronic health record software, clinical decision support systems, Telemedicine, mHealth and patient monitoring systems. It also describes the use of standards for the purpose of electronically integrating health services.

323 HID Health Records (3 credit hours)

This course focuses on orienting the students to the health information profession and functions and duties of health record department. This course emphasizes on creating, structuring, organizing and maintaining paper based health record in a Medical Record Department (MRD). The course provides an overview of documentation in nursing wards, infection control department and long term care. The relationship of medical record to health care delivery system is discussed along with various formats of medical records used

locally and globally. The course then shifts the focus to 'Computerization of Health records' highlighting the need to implement electronic record systems and the phases required to do so. Students will also explore principles of information management like records disposition, principles and procedure used in health record organization, maintenance and retention, filing system and procedure, form control and design, and imaging. Professional standards in filing, naming, numbering, merits and demerits are discussed.

331 HID Fundamentals of Information Systems in Healthcare (2 credit hours)

This course aims to introduce students to the basic concepts and topics related to Information Systems (IS) in healthcare. It covers topics such as: health care information, types of health care information, systems concepts, subsystem concepts, system components, types of health care information systems, architecture of healthcare information systems, technologies that support health information systems, healthcare networks quality and security of information; It explores the concept and application of major information technologies and approaches in the delivery of modern health care systems. The main focus in this course is on the processes of health information systems and how they interact for the safe and secure exchange of personal health information. Students will learn how data is collected, analyzed, processed and the role of data in decision making.

332 HID Introduction to Database (3 credit hours)

The database is designed to manage data. The Database field is concerned with the development of methodologies for designing a base of data, and with the development of computers for utilizing data from stored place. This course is designed to provide students database application and design skills through the use of Microsoft Access database software. This course emphasizes the concepts to plan, create, and revise a database system by introducing and working with objects of MS Access, and provides the student the tools to effectively utilize those objects within various environments.

313 HSM Organisational Behaviour (2 credit hours)

This is a core management course which examines the interrelationship of behavioral phenomena at various levels and provides a basic understanding of owns own and others' behavior in places of work. The course intends to enhance the ability to communicate and work effectively with others and strengthen the people management skills. The broad areas which are covered in this course include individual and group dynamics encompassing communicating, team building, power and influence, decision making, conflict, motivation, stress management and a host of other issues that drive the effectiveness and ultimately the performance of organizations.

324 HID Sociology of Health and Illness (2 credit hours)

This course reviews the sociology of health and illness, with a focus on the complex relationships that exist between social factors (e.g., social class, gender, race, ethnicity, age, etc.) and health among different social groups. It discusses the origins of scientific medicine and analyzes disease and illness in present-day society. It also examines the role of health

care providers, and discusses issues shaping health care systems and policies as well as their implications.

325 HID Health Data Classification and Coding Systems (4 credit hours)

This course introduces the health coding and classification systems, keeping in reference the international standards of ICD 10 and ICD 9. In addition, ICD-9-CM, Current Procedural Terminologies, Correct Coding Initiative, coding resources (Virtual Lab of AHIMA), and ethical issues in coding and classification is also discussed. It describes in detail about diseases and procedures classification by using International Classification of Disease (ICD9 &ICD 10) Clinical Modification and Current Procedural Terminology (CPT). Students learn about the basic principles of coding healthcare data by using ICD 9CM, and understand the application of ICD 9CM including coding guidelines required for using codes such as E and V codes, E/M codes, Modifiers and CPT procedure codes. The students will be familiarized with the Super bill and CMS 1500 form which are commonly used in Healthcare for Reimbursement. It also outlines how to use ICD Manuals and CPT Manual for diseases and procedures respectively. This course also describes briefly about medical insurance and the procedure of reimbursement.

333 HID Programming 1 (2 credit hours)

This course aims to inspire the innovative ability of the student. This course emphasizes on creating web pages and develops computer program. The course provides the basic information about Web Technology and a fundamental understanding of HTML. Students will learn how to draw flow chart for a simple and complex problem and can solve problems using algorithms. The course provides a scope for developing a webpage using HTML and programs using C programming. This course helps the student in developing logical thinking and problem solving techniques.

334 HID Database Management Systems (3 credit hours)

An in-depth introduction to the database management system (DBMS), with an emphasis on how to design a database, and use DBMS efficiently. Topics include basic functions and capabilities of database management systems (DBMS),data models, Functional dependencies, normal forms, relation algebra, data modeling, design of normalized relational database, using structure query language (SQL),storing data which includes the memory hierarchy, RAID, disk space management, and data protection. The students will be trained to develop the database system using CASE tools; and familiarized with what it means to develop and implement a DBMS in an organization.

352 GPH Research Methodology (3 credit hours)

The course will provide the students with the understanding of research concepts with the exploration of key aspects. The students will be introduced the elements of research process within qualitative, quantitative and mixed approaches. Students will utilize their theoretical understandings of the course which will assist them in writing the research document and for the health research design course where they will conduct an actual research.

413 HSM Health Economics (2 credit hours)

The course introduces the students to the terms of economics, difference between macro and micro economics, health care markets, universal access to basic healthcare is still a distant dream for many people around the globe and the provision of such care is constrained not only because of the scarcity of resources but also because of the absence of proper allocation and prioritization in healthcare systems. Health economics, relatively a young discipline, is a branch of economics concerned with issues related to scarcity in the allocation of health and health care. It aims at improving the health status of people with effective and efficient allocation and utilization of resources. Also the economic aspects of healthcare systems with special reference to developing countries and to demonstrate their potential application for better healthcare.

415 HSM Healthcare Quality and Patient safety (2 credit hours)

Quality concerns with every product or service a consumer seeks. Primary mission of most organizations in healthcare is to deliver quality services. This course aims to introduce to the students' basic quality improvement strategies and concepts of performance improvement. Various models of quality improvement have been discussed, in addition with concepts of organizational learning and outcome management. Course outlines successful quality practices in healthcare and methods to achieve quality service delivery such as quality planning, improvement, assurance and control. Students will also study the importance of quality and its relation to patient safety. Implications of medical errors and Errors reporting systems have been discussed in the course. Performance improvement by improving structure, process and outcomes of healthcare organizations is widely covered.

424 STA Hospital Statistics (2 credit hours)

This course includes instructions on how to understand, manage and manipulate the hospital related data. Students will be taught as to how the health records are the primary source of data used in compiling health care statistics and the implications of collection, analysis, interpretation and presentation of statistical data.

427 HID Project Management (3 credit hours)

The course uses the project life cycle as the organizational guideline, and contents will cover the whole process of project management, including project initiation, project planning, project implementation and project termination. Students will study the characteristics of project and project management, look at how to define a project, how to organize a project, how to plan a project, how to implement, trace and control a project, and how to terminate and post-evaluate a project.

435 HID Programming 2 (3 credit hours)

This course acquaints students with the designing and developing projects using visual programming. This course emphasize on developing small projects for health care sectors. The course focuses to create projects with forms that may include labels, picture boxes, textboxes, list boxes, check boxes, and radio buttons and modify applicable control properties. This course provides the student with fundamental knowledge of the various aspects of computer networks and enables students to appreciate recent developments in

the area. This is a practical-based course with more weightage to computer lab requirements, where students will learn these applications by working on class assignments in the lab.

436 HID Health Systems Analysis and Design (3 credit hours)

This course introduces the evolving methodologies for the analysis, design, and development of an information system in healthcare. The course covers the important concepts and theories of systems analysis and designing, organizational structure, human computer interaction, and information processing; role of information systems analyst in an organization, structured analysis and modeling techniques, object oriented analysis and design, as well as unified modeling language.

451 HID Health Research Design (3 credit hours)

This course describes methods for planning and conducting scientific research. It includes identifying the research problem, formulating the research question, setting research objectives, designing the study, identifying methods of data collection, statistical analysis, interpretation and dissemination of the results.

414 HSM Health Service Management (2 credit hours)

The course has been designed to provide students with the fundamentals of management in the field of health services. The course in total will provide the students with knowledge and competencies to critically analyze the health care systems and health services, and to effectively manage health organizations and address their current and future challenges. The course provides thorough understanding of principles of management and includes in depth knowledge about the principles of planninng, controlling, leading and staffing. It highlights the roles, skills and competencies required for being a good manager in an organisation.

426 HID Legal and Ethical Aspects in Health Informatics (2 credit hours)

This course introduces the study of legal and ethical principles related to patient care and health information; legal terminology and procedures; court systems; and liability of health care providers. Legal requirements governing policies designed to safeguard and maintain health information, including how to appropriately respond to requests for patient specific information will be explored. Students will explore ethical issues and apply a decision making model to selected case studies. The course also focuses on legal liability involved in unauthorized access, disclosure, abuse of health data in accordance with Saudi Law and ethical considerations in reference with AHIMA's code of ethics and HIPAA's privacy rule. In addition, students will learn about statutory requirements involved in maintaining medical information and methods to protect the data and steps to resolve ethical conflicts.

428 HID Trends in Health Informatics (3 credit hours)

This course will exposes students to the latest topics in health informatics and the emerging technical solutions that can help improve healthcare delivery and health decision-making not only for clinicians but also for patients and general health consumers. Students will attend and participate in seminars and tutorials provided by invited experts from academia,

government and industry. These seminars and tutorials will include but not limited to the following topics: personal health records, personalized medicine, mobile phone apps, precision medicine, business intelligence in healthcare, citizen science, big data, etc. Along with these seminars, students will receive a set of relevant readings from scientific journals associated with each of the seminars for analysis and interpretation. Students will also present their findings.

429 HID Data Management and Visualization (2 credit hours)

Data warehousing and data mining are two major areas of exploration for knowledge discovery in databases. As more data is collected by health, businesses and scientific institutions alike, knowledge exploration techniques are needed to gain useful decision and business intelligence. This course will cover a wide spectrum of industry standard techniques using widely available database and tools packages for knowledge discovery. Data mining is for relatively unstructured data for which more sophisticated techniques are needed. The course aims to cover powerful data mining techniques including clustering, association rules, and classification. It introduces high volume data processing mechanisms by building warehouse schemas such as snowflake, star and OLAP query retrieval techniques. Students will also be trained on some well-known data mining software such as WEKA.

437 HID Human Computer Interaction

This course covers Human-Computer Interaction (HCI), a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. The course considers the inherently multi- and interdisciplinary nature of HCI and situates various HCI issues in the organizational and societal contexts. It introduces theories of human psychology, principles of computer systems and user interfaces designs, a methodology of developing effective HCI for information systems, and issues involved in using technologies for different purposes. It is intended to give students an overview of the entire HCI field by covering most aspects of it. Students will have an opportunity to explore further on topics of their interest.

459 HID Graduation Project (2 credit hours)

This course provides the opportunity to students to evaluate their strengths and weaknesses prior to stepping in professional life. This is a supervised professional practice experience that includes managerial or other related professional practice roles and experience in health information management departments and other health information related areas. Hospitals, medical centers, clinics and alternative healthcare facilities will be used for student visits. Students will prepare a project or carry out a research based study at the end.

Electives:

417 HSM Financial Accounting in Healthcare (2 credit hours)

The course introduces the students to the principles of financial accounting and provides an insight into the concepts and uses of financial accounting information in context of a business environment. The course implies the importance of financial management for the

overall benefits of any organization and its role in the economic decision-making process. Primary areas of study include the theories of debits and credits, accounting journals, the accounting cycle, notes and interest, receivables and payables, accruals and deferrals, measurement and valuation of assets and liabilities (appreciation and depreciation), the determination of net profit and the preparation and analysis of basic financial statements (balance sheets). Related topics covered include computation of diluted earnings per share, disclosure issues, earnings management, and basic financial statement analysis of cash flows. By the end, the course aims to provide the students a foundation for developing their skills in interpreting financial statements.

434 HID Mobile Computing in Healthcare (2 credit hours)

Mobile computing is the set of IT technologies, products, services, and operational strategies and procedures that enable end users to gain access to computation, information, and related resources and capabilities while mobile. Mobile most commonly refers to access in motion and is therefore unrestricted to a given geographic location.Mobile may also, however, refer to access in a fixed location via equipment that users can relocate as required, but is stationary while in operation. This mode of operation is often called nomadic computing. The applications of mobile computing today have become ubiquitous and pervasive in business, consumer, industrial, entertainment and many specialized vertical-market activities.

438 HID Network and Cybersecurity (2 credit hours)

The course outlines the current practices and developments of the computer network security system in the field of Health. It covers the TCP/IP architecture and other various models to achieve provision of better quality healthcare services. The course provides an outline of using techniques like farewells to adopt the security concept in health care organization. This course allows students to delve further into the field of computer security. Students will study many different attack techniques with an emphasis on the defense against these attacks. Topics include applied networking, features of various network systems, attacks and defenses, methods for network reconnaissance and scanning, network attacks against confidentiality and integrity, denial of service attacks, and secure network architecture.

439 HID Geographic Information Systems fo Public Health (2 credit hours)

This course covers applications of Geographic Information Systems (GIS) in public health and describes how these tools can be used to explore connections between people, their dynamic physical and social environments, and their health. The materials covered will provide an introduction to geographic methods, GIS tools and a unique framework from which to understand health outcomes and develop public health strategies to reduce disease and improve the public's health. More specifically it will provide an introduction to basic GIS concepts and an overview of the most common geographic methods utilized in public health and epidemiology for mapping and analyzing geographic variation in health events, health disparities, risk factors, and health services.

***Include department specific subjects.**