Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
- Programming Assignments
- Final Exam

Mapping of COs to Assessment Rubrics:

	Internal Exam	Assignment	Seminar *	Quiz	End Semester Examinations
CO1	✓				✓
CO2	✓		✓		✓
CO3	✓			✓	✓
CO4	✓	✓			✓
CO5	✓	✓			✓

***** Seminar on search strategies (to be conducted as group)

9. HEALTH INFORMATICS

Discipline	Computer Science				
Course Code	UK1DSCCSC108				
Course Title	HEALTH INFORMATICS				
Type of Course	DSC				
Semester	I				
Academic Level	1 ▪				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week

	4	4 hours	-	-	4 hours
Pre-requisites	Basic knowledge on health is desirable.				
Course Summary	Health informatics focuses on the use of information technology to improve healthcare delivery, patient outcomes, and population health. This course provides an overview of key concepts, methods, and technologies in health informatics, with a focus on practical applications and case studies.				

Detailed Syllabus:

Module	Unit	Content	Hrs (L)
I		**Overview**	12
	1	Introduction, Informatics Definitions, Background, Historical Highlights, Key Players in Health Information Technology, Organisations Involved with HIT, Barriers to Health Information Technology Adoption, Health Informatics Programs, Organizations and Careers, Health Informatics Resources, Future Trends.	
	2	Healthcare Data, Information and Knowledge: Definitions and Concepts- Data, Information and Knowledge, Informatics vs. Information Technology and Computer Science, Converting Data to Information to Knowledge, Clinical Data Warehouses (CDWs), Difficulties of Informatics, Why Health IT Fails Sometimes.	
II		**Healthcare Data Analytics and Electronic Health Records**	12
	3	**Healthcare Data Analytics:** Introduction, Terminology of Analytics, Challenges to Data Analytics, Research and Application of Analytics, Role of Informaticians in Analytics.	
	4	**Electronic Health Records:** Electronic Health Record Definitions, Need for Electronic Health Records, Institute of Medicine's Vision for EHRs, Electronic Health Record Key Components, Computerized Physician Order Entry (CPOE), Clinical Decision Support Systems (CDSS), Electronic Prescribing, Practice Management Integration, Electronic Health Record Adoption, Electronic Health Record and Meaningful Use Challenges, Logical Steps to Selecting and Implementing an EHR.	
III		**Data Standards and Medical Coding**	12

	5	Introduction; **Content Standards**: Extensible Markup Language (XML), Health Level Seven (HL7), The Consolidated Clinical Document Architecture (Consolidated CDA), Digital Imaging and Communications in Medicine (DICOM); **Terminology Standards:** Logical Observations- Identifiers, Names and Codes (LOINC), RxNorm, Systematized Nomenclature of Medicine: Clinical Terminology (SNOMED-CT) , MEDCIN®	
	6	**Transport Standards:** EHR-Lab Interoperability and Connectivity Standards (ELINCS), IEEE 11073, National Council for Prescription Drug Programs (NCPDP), Accredited Standards Committee (ASC) X12; Medical Coding and Reimbursement	
IV	**Health Information - Privacy, Security and Ethics**		**12**
	7	Introduction; HIPAA Review, Basic Security Principles, HIPAA, Meaningful Use, and the HITECH Act, Authentication and Identity Management, Security Breaches and Attacks, Medical Privacy and Security Stories in the News	
	8	Health Informatics Ethics: Informatics Ethics, International Considerations: Ethics, Laws and Culture, Codes of Individual Countries, Difficulties Applying Medical Ethics in the Digital World.	
V	**Flexi Module (Not included for end semester exam)**		**12**
	9	Consumer Health Informatics: The Origins of Current State of Consumer Health Informatics, Classification of Consumer Health Informatics Applications, Health Education & Information Applications	
	10	Mobile Technology and mHealth: Mobile Health (mHealth), Mobile Technology and Patients, Mobile Technology and Clinicians, Mobile Telemedicine Projects	

References

Core

1. Robert E. Hoyt and Ann K. Yoshihashi, “Health Informatics Practical Guide for Healthcare and Information Technology Professionals”, Sixth Edition.

Additional

2. William Hersh, “Health Informatics: A Practical Guide"
3. Stephan P. Kudyba and Richard M. Hillestad, "Healthcare Informatics: Improving Efficiency through Technology, Analytics, and Management"

Case Study

1. Familiarise with any one Health informatic systems
2. Identify and categorise various tools available in Health Informatic systems
3. Prepare a report on various Health Informatic systems, its advantages and limitations.

Course Outcomes

No.	Upon completion of the course the graduate will be able to	Cognitive Level	PSO addressed
CO1	Explain the basic concepts of Health Informatics	U	PSO-1
CO2	Illustrate the role of Healthcare Data Analytics and Electronic Health Records	Ap	PSO-1, 3
CO3	Summarise Data Standards and Medical Coding concepts	U	PSO-1
CO4	Infer the role of privacy, security and ethics in health systems	U	PSO-1

R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create

Note: 1 or 2 COs/module

Name of the Course: HEALTH INFORMATICS

Credits: 4:0:0 (Lecture: Tutorial: Practical)

CO No.	CO	PO/PSO	Cognitive Level	Knowledge Category	Lecture (L)/ Tutorial (T)	Practical (P)
CO1	Explain the basic concepts of Health Informatics	PO-6,7 PSO-1	U	F, C	L	-
CO2	Illustrate the role of Healthcare Data Analytics and Electronic Health Records	PO-4, 5, 6,7 PSO-1, 3	Ap	F, C, P	L	-
CO3	Summarize Data Standards and	PO-6,7 PSO-1	U	F, C	L	-

	Medical Coding concepts					
CO4	Infer the role of privacy, security and ethics in health systems	PO-6,7, 8 PSO-1	U	F, C	L	-

F-Factual, C- Conceptual, P-Procedural, M-Metacognitive

Mapping of COs with PSOs and POs :

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO 1	-	-	-	-	-	2	1	-	2	-	-	-
CO 2	-	-	-	2	2	2	2	-	2	-	2	-
CO 3	-	-	-	-	-	2	1	-	2	-	-	-
CO 4	-	-	-	-	-	2	1	3	2	-	-	-

Correlation Levels:

Level	**Correlation**
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Assessment Rubrics:

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- Midterm Exam
- Lab Assignments
- Final Exam