Discipline	COMPUTER SCIENCE				
Course Code	UK2DSCCSC109				
Course Title	Health Data Analytics and Electronic Health Records System				
Type of Course	**DSC** / DSE / MDC / SEC / VAC / AEC				
Semester					
Academic Level	.				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	4	4 hours	-	-	4 hours
Pre-requisites	Basic awareness in health-related informatics				
Course Summary	This course helps the student to comprehend the concepts of Electronic Health Records systems and their importance in healthcare, applications, regulations governing them, and other concerns involved.				

Detailed Syllabus:

Module	Unit	Content	Hrs
I		**Health Data Analytics and EHR Systems**	**12**
	1	Definition and Characteristics of Big Data	
	2	Importance of Big Data Analytics in Healthcare Challenges and Opportunities	
	3	Electronic Health Record Systems-EHR- definition, Attributes, Benefits and Shortcomings, Challenges faced	
	4	Applications of EHR	
II		**Regulations for EHR**	**12**
	5	EHR: System Regulations	
	6	Meaningful Use	

	7	Certification Standards	
	8	Certification Commission for Health Information Technology (CCHIT), Office of the National Coordinator for Health Information Technology (ONC) Certification, Health Level Seven International (HL7), International Organization for Standardization (ISO), European Committee for Standardization (CEN) and European Committee for Electrotechnical Standardization (CENELEC), Healthcare Information and Management Systems Society (HIMSS), Certified Electronic Health Record Technology (CEHRT)	
III		**Security of Data in EHR**	**12**
	9	EHR Data Security	
	10	Regulatory Frameworks- HIPAA, GDPR	
	11	Other Relevant standards	
	12	Threats and breaches	
	13	Encryption in EHR	
	14	Role based access control, multi factor authentication	
	15	Encryption at Rest	
	16	Secure transmission- Secure Sockets Layer (SSL) / Transport Layer Security (TLS), Virtual Private Networks	
	17	HER Systems and Liability	
IV		**Medical Big Data**	**12**
	18	Medical Big Data - Definition	
	19	Benefits	
	20	Sources of Medical Big Data- Electronic Health Records (EHR) Medical Imaging Data, Wearable Devices and Remote Monitoring, Genomic and Molecular Data	
	21	Quality and Analysis concerns	
	22	Privacy and Autonomy concerns	
V		**Title of the Module**	**15**
	23	Open Data- A special Case, Best practices in EHR	

| | 24 | Emerging trends-Blockchain in Healthcare
Artificial Intelligence for Security | |
| | 25 | Predictive Analytics for Threat Detection | |

References

1. Sharona Hoffman, Electronic Health Records- law and Policy, Cambridge University press, 2016, 1st Edition

Web Resources

NIST Special publications

HIPAA guidelines

Course Outcomes

No.	Upon completion of the course the graduate will be able to	Cognitive Level	PSO addressed
CO-1	Outline basic concepts on EHR	U	PSO-1,3
CO-2	Relate with the regulations applicable in EHR	U	PSO-1,3
CO-3	Identify security issues in EHR and solutions available	U	PSO-1,3
CO-4	Summarize on Medical Big Data	U	PSO-1,3

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

Note: 1 or 2 COs/module

Name of the Course: Credits: 4:0:0 (Lecture:Tutorial:Practical)

CO No.	CO	PO/PSO	Cognitive Level	Knowledge Category	Lecture (L)/Tutorial (T)	Practical (P)
CO-1	Outline basic	PO-6,7,8	U	F, C	L	-

	concepts on EHR	PSO-1,3					
CO-2	Relate with the regulations applicable in EHR	PO-4, 6,8,7 PSO-1,3	U	F, C	L	--
CO-3	Identify security issues in EHR and solutions available	PO-4, 6,7,8 PSO-1,3	U	F, C	L	-
CO-4	Summarise on Medical Big Data	PO-6,7,8 PSO-1,3	U	F, C	L	-

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

Mapping of COs with PSOs and POs :

	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	-	-	-	-	-	2	2	1	2	-	2	-
CO 2	-	-	-	2	-	2	2	1	2	-	2	-
CO 3	-	-	--	2	-	2	2	1	2	-	2	-
CO 4	-	-		-	--	2	2	1	2	-	2	-

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	End Semester Examinations
CO 1	✓			✓
CO 2	✓		✓	✓
CO 3	✓		✓	✓
CO 4	✓	✓		✓

MDA

11. DIGITAL MARKETING

Discipline	COMPUTER SCIENCE
Course Code	UK2MDCCSC100
Course Title	DIGITAL MARKETING
Type of Course	MDC