HEALTH / NURSING INFORMATICS AND TECHNOLOGY

PLACEMENT: II SEMESTER

THEORY: 2 Credits (40hours)

PRACTICAL/LAB:1 Credit(40hours)

DESCRIPTION: This course is designed to equip novice nursing students with knowledge and skills necessary to deliver efficient informatics-led health care services.

COMPETENCIES: On completion of the course, the students will be able to

1. Develop a basic understanding of computer application in patient care and nursing practice.
2. Apply the knowledge of computer and information technology in patient are and nursing education, practice, administration and research.
3. Describe the principles of health informatics and its use in developing efficient health care.
4. Demonstrate the use of information system in health care for patient care and utilization of nursing data.
5. Demonstrate the knowledge of using Electronic Health Records (EHR) system in clinical practice.
6. Apply the knowledge of interoperability standards in clinical setting.
7. Apply the knowledge of information and communication technology in public health promotion.
8. Utilize the functionalities of Nursing Information System (NIS) system in nursing.
9. Demonstrate the skills of using data in management of health care.
10. Apply the knowledge of the principles of digital ethical and legal issues in clinical practice.
11. Utilize evidence based practices in informatics and technology for providing quality patient care.
12. Update and utilize evidence-based practices in nursing education, administration, and practice.

HEALTH / NURSING INFORMATICS AND TECHNOLOGY

Unit	Time(Hrs)		Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
	T	P/L				
I	10	15	Describe the importance of computer and technology in patient care and nursing practice	**Introduction to computer applications for patient care delivery system and nursing practice** • Use of computers in teaching, learning, research and nursing practice	• Lecture • Discussion • Practice session • Supervised clinical practice on HER use • Participate in data analysis using statistical package with statistician	(T) • Short answer • Objective type • Visit reports • Assessment of assignments
			Demonstrate the use of computer and technology in patient care, nursing education, practice, administration and research.	• Windows, MS office :Word, Excel, PowerPoint • Internet • Literature search • Statistical packages • Hospital management information system	• Visit to hospitals with different hospital management systems	(P) • Assessment of skills using checklist
II	4	5	Describe the principles of health informatics Explain the ways data ,knowledge and information can be used for effective health care	**Principles of Health Informatics** • Health informatics – needs ,objective sand limitations • Use of data, information and knowledge for more effective healthcare and better health	• Lecture • Discussion • Practical session • Work in groups with health informatics team in a hospital to extract nursing data and prepare a report	(T) • Essay • Short answer • Objective type questions • Assessment of report
III	3	5	Describe the concepts of information system in health Demonstrate the use of health information system in hospital setting	**Information Systems in Health care** • Introduction to the role and architecture of information systems in modern health care environments • Clinical Information System(CIS)/Hospital information System(HIS)	• Lecture • Discussion • Demonstration • Practical session • Work in groups with nurse leaders to understand the hospital information system	(T) • Essay • Short answer • Objective type

Unit	Time (Hrs)		Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
	T	P/L				
IV	4	4	Explain the use of electronic health records in nursing practice Describe the latest trend in electronic health records standards and interoperability	• **Shared Care & Electronic Health Records** • Challenges of capturing rich patient histories in a computable form • Latest global developments and standards to enable lifelong electronic health records to be integrated from disparate systems.	• Lecture • Discussion • Practice on Simulated HER system • Practical session • Visit to health informatics department of a hospital to understand the use of HER in nursing practice • Prepare a report on current HER standards in Indian setting	(T) • Essay Short answer Objective type(P) • Assessment of skills using checklist
V	3		Describe the advantages and limitations of health informatics in maintaining patient safety and risk management	**Patient Safety & Clinical Risk** • Relationship between patient safety and informatics • Function and application of the risk management process	• Lecture • Discussion	(T) • Essay • Short answer • Objective type
VI	3	6	Explain the importance of knowledge management Describe the standardized languages used in health informatics	**Clinical Knowledge & Decision Making** • Role of knowledge management in improving decision-making in both the clinical and policy contexts • Systematized Nomenclature of Medicine, Clinical Terms, SNOMED CT to ICD-10-CMMap, standardized nursing terminologies (NANDA, NOC), and Omaha system.	• Lecture • Discussion • Demonstration • Practical session • Work in groups to prepare a report on standardized languages used in health informatics. • Visit health informatics department to understand the standardized languages used in hospital setting	(T) • Essay • Short answer • Objective type
VII	3		Explain the use of information and communication technology in patient care Explain the application of public health informatics	**eHealth: Patients and the Internet** • Use of information and communication technology to improve or enable personal and public health care • Introduction to public health informatics and role of nurses	• Lecture • Discussion • Demonstration	• Essay • Shortanswer • Objectivetype • Practicalexam

VIII	3	5	Describe the functions of nursing information system Explain the use of health care data in management of health care organization	**Using Information in Health care Management** • Components of Nursing Information system(NIS) • Evaluation, analysis and presentation of health care data to inform decisions in the management of health-care organizations	• Lecture • Discussion • Demonstration on simulated NIS software • Visit to health informatics department of the hospital to understand use of health care data indecision making	(T) • Essay • Short answer • Objective type
IX	4		Describe the ethical and legal issues in health care informatics Explains the ethical and legal issues related to nursing informatics	**Information Law & Governance in Clinical Practice** • Ethical-legal issues pertaining to health care information in contemporary clinical practice • Ethical-legal issues related to • Digital health applied to nursing	• Lecture • Discussion • Case discussion • Roleplay	(T) • Essay • Short answer • Objective type
X	3		Explain the relevance of evidence-based practices in providing quality healthcare	**Health care Quality & Evidence Based Practice** • Use of scientific evidence in improving the quality of healthcare and technical and professional informatics standards	• Lecture • Discussion • Case study	(T) • Essay • Short answer • Objective type

Distribution of teaching hours in Health / Nursing informatics and Technology

STRATEGY		**Teaching hours**	
Didactic (40 Hrs)	Lectures	40	40
Non- didactic (40 hrs)	Labs/Practical	40	40
	Tutorial		
Total			80

Topics & outcomes in Health / Nursing informatics and Technology

Subject	Number of Themes*	Number of outcomes**
Health / Nursing informatics and Technology	10	34

Distribution of theory hours (40)

SR NO	Theme	Topics	Teaching hrs
1	Introduction to computer applications for patient care delivery system and nursing practice	Introduction to computer applications for patient care delivery system and nursing practice	10 Hrs
2	Principles of Health Informatics	Principles of Health Informatics	04 Hrs
3	Information Systems in Healthcare	Information Systems in Healthcare	03 Hrs
4	Shared Care & Electronic Health Records	Shared Care & Electronic Health Records	04 Hrs
5	Patient Safety & Clinical Risk	Patient Safety & Clinical Risk	03 Hrs
6	Clinical Knowledge & Decision Making	Clinical Knowledge & Decision Making	03 Hrs
7	eHealth : Patients and the Internet	eHealth : Patients and the Internet	03 Hrs
8	Using Information in Health care Management	Using Information in Health care Management	03 Hrs.
9	Information Law & Governance in Clinical Practice	Information Law & Governance in Clinical Practice	04 Hrs.
10	Health care Quality & Evidence Based Practice	Health care Quality & Evidence Based Practice	03 Hrs.
TOTAL			40

HEALTH / NURSING INFORMATICS AND TECHNOLOGY

					Core competencies		Non-core competencies	Total Hours
Theme and total hours allotted	Objectives	Topic	Code No	Competency	Must know	Desirable to know	Nice to know	
I 10 (T)	At the end of unit student are able to **Knowledge:** Understand and describe the importance of computer and technology in patient care, nursing practice, administration and research. Acquire knowledge regarding Windows, MS-Word, Excel, Power point. **Skill:** Operate various operating systems. **Attitude:** Recognizes the importance of computers in nursing.	Introduction to computer applications for patient care delivery system and nursing practice.	HNIT 145:IISEM1.1	Explain the use of computers in teaching, learning, research and nursing practice.	• Use of computers in teaching, learning, research and nursing practice			1hour
			HNIT 145:IISEM1.2	Describe the all version of windows.	• Windows,			1hour
			HNIT 145:IISEM1.3	Illustrate the use of MS office Word,	• MS office: Word,			1hour
			HNIT 145:IISEM1.4	Explain protection feature of MS Excel & function of MS EXCEL.	• MS office: Excel			1hour
			HNIT 145:IISEM1.5	Illustrate the use of Power Point.	• Power Point			1hour
			HNIT 145:IISEM1.6	Describes use of Internet and internet services to improve nursing practice.	• Internet			1 hour
			HNIT 145:IISEM1.7	Explain the use of literature search in nursing.		• Literature search		1 hour
			HNIT 145:IISEM1.8	Explain the types of statistical packages. Describe the features of statistical package and useful in nursing.		• Statistical packages		2hour
			HNIT 145:IISEM1.9	Describes the types and uses of hospital management system.			• Hospital management information system	1 hour
II 4 (T)	At the end of unit student are able to	Principles of Health	HNIT 145:IISEM2.1	Describe Health informatics	• Health informatics			1hour

	Knowledge: Describe Health informatics. **Skill:** Apply data for more effective healthcare and better health. **Attitude:** Use this knowledge in nursing practice.	Informatics	HNIT 145:IISEM2.2	Explain the needs, objectives and limitations of Health informatics.	• needs, objectives and limitations			2hour
			HNIT 145:IISEM2.3	Explain the data,		•Use of data,		1/2 hour
			HNIT 145:IISEM2.4	Explain the information and knowledge for more effective healthcare and better health		Information and knowledge for more effective healthcare and better health.		1/2 hour
III 3 (T)	At the end of unit student are able to **Knowledge:** Understand and explain information systems in modern healthcare environments. **Skill:** Operate various operating systems. Clinical Information System (CIS) Hospital information System (HIS) **Attitude:** Use clinical and hospital information system in clinical practice.	Information Systems in Healthcare	HNIT 145:IISEM3.1	Describe the role and architecture of information systems in modern healthcare environments.	• Introduction to the role and architecture of information systems in modern healthcare environments			1hour
			HNIT 145:IISEM3.2	Explain Clinical Information System (CIS)		• Clinical Information System (CIS)		1hour
			HNIT 145:IISEM3.3	Describe Hospital information System (HIS)			• Hospital information System	1hour
IV 4 (T)	At the end of unit student are able to **Knowledge:** Understand and describe challenges of capturing rich patient histories in a computable form. **Skill:** Recognize the electronic health records to be integrated from disparate systems. **Attitude:** Apply the use electronic health records in nursing.	Shared Care & Electronic Health Records	HNIT 145:IISEM4.1	Explain challenges of capturing rich patient histories in a computable form.	• Challenges of capturing rich patient histories in a computable form.			1hour
			HNIT 145:IISEM4.2	Describe the electronic health records	Electronic Health Records			2 hour
			HNIT 145:IISEM4.3	Describe the latest trend in electronic health records standards and interoperability .		• Latest global developments and standards to enable lifelong electronic health records to be integrated from disparate systems.		1 hour
V 3 (T)	At the end of unit student are able to:	Patient Safety & Clinical Risk	HNIT 145:IISEM5.1	Explain the patient safety and the relationship between patient safety and	• Patient safety Relationship between patient			2 hour

	Knowledge: Understand and describe Relationship between patient safety and informatics. **Skill:** Recognize patient safety and informatics **Attitude:** Application of the risk management process in the field of nursing..			informatics.	safety and informatics			
			HNIT 145:IISEM5.2	Explain the risk management process		• Function and application of the risk management process		1 hour
VI 3 (T)	At the end of unit student are able to **Knowledge:** Understand and explain the importance of knowledge management. **Skill:** Recognize the standardized languages used in health informatics. **Attitude:** Apply standardized nursing terminology in clinical practice	Clinical Knowledge & Decision Making	HNIT 145:IISEM6.1	Describe the role of knowledge management in improving decision-making in both the clinical and policy contexts.	• Role of knowledge management in improving decision-making in both the clinical and policy contexts.			1 hour
			HNIT 145:IISEM6.2	Describe Systematized Nomenclature of Medicine, Clinical Terms, SNOMED CT to ICD-10-CM Map		Systematized Nomenclature of Medicine, Clinical Terms, SNOMED CT to ICD-10-CM Map,		1hour
			HNIT 145:IISEM6.3	Describe the standardized languages used in health informatics.			Standardized nursing terminologies (NANDA, NOC), Omaha system	1 hour
VII 3 (T)	At the end of unit student are able to **Knowledge:** Understand and describe the use of information and communication technology in patient care. **Skill:** Application of public health informatics. **Attitude:** Recognize the use of public health informatics	eHealth : Patients and the Internet	HNIT 145:IISEM7.1	Describe the information and communication technology.	Use of information and communication technology to improve or enable personal and public health care			2 hour
			HNIT 145:IISEM7.2	Explain the public health informatics and role of nurses.		• Introduction to public health informatics and role of nurses		1hour
VIII 3 (T)	.At the end of unit student are able to	Using Information in Health care	HNIT 145:IISEM8.1	Explain the Nursing Information system (NIS).	• Components of Nursing Information system(NIS)			2hour

	Knowledge: Describe the functions of nursing information system. **Skill:** Apply the use of health care data in management of health care organization. **Attitude:** Use evaluation, analysis and presentation of health care data.	Management	HNIT 145:IISEM8.2	Describe the evaluation, analysis of health care data. Explain the presentation of health care data to inform decisions in the management of health-care organizations.		•Evaluation, analysis of health care data. presentation of health care data to inform decisions in the management of health-care organizations		1hour
IX 4 (T)	At the end of unit student are able to **Knowledge:** Understand and describe the ethical and legal issues in health care informatics. **Skill:** Acquire proficiency in using the ethical and legal issues. **Attitude:** Apply ethical and legal issues in nursing.	Information Law & Governance in Clinical Practice	HNIT 145:IISEM9.1	Described the information and clinical governance. Explain the ethical and legal issues in health care informatics.	• Information and clinical governance Ethical-legal issues			1 hour
			HNIT 145:IISEM9.2	Illustrate ethical-legal issues pertaining to healthcare information in contemporary clinical practice.	Ethical-legal issues pertaining to healthcare information in contemporary clinical practice.			2 hour
			HNIT 145:IISEM9.3	Determine ethical-legal issues related to digital health applied to nursing		•Ethical-legal issues related to digital health applied to nursing.		1 hour
X 3 (T)	At the end of unit student are able to **Knowledge:** Understand and describe the relevance of evidence-based practices in providing quality health care **Skill:** Acquire proficiency in using the evidence-based health care. **Attitude:** Apply evidence-based practices in providing quality health care.	Health care quality & Evidence Based Practice	HNIT 145:IISEM10.1	Describe quality of health care.	• Use of scientific evidence in improving the quality of health care.			1 hour
			HNIT 145:IISEM10.2	Illustrate the evidence based health care.		•Evidence based health care.		1 hour
			HNIT 145:IISEM10.3	Explain the technical and professional informatics standards.			• Technical and Professional informatics standards.	1 hour

Distribution of Non-didactic hours (40)

PRACTICALS 40 hrs.

SR NO	Number	Competency	Domain	T-L Method	Teaching Hrs.
1.	HNIT 145:IISEM1.1	Demonstrate the use of computer and technology in patient care, nursing education, practice, administration and research.	K,S	Demonstration	02
2.	HNIT 145:IISEM1.2	Demonstrate on Windows	K,S	Demonstration	02
3.	HNIT 145:IISEM1.3	Demonstrate on MS Word	K,S	Demonstration	02
4.	HNIT 145:IISEM1.4	Demonstrate on MS Excel	K,S	Demonstration	02
5.	HNIT 145:IISEM1.5	Demonstrate on MS PowerPoint	K,S	Demonstration	02
6.	HNIT 145:IISEM1.6	Describes use of Internet and internet services to improve nursing practice.	K,S	Demonstration	02
7.	HNIT 145:IISEM1.8	Explain SPSS Software	K,S	Small Group Discussion	01
8.	HNIT 145:IISEM1.10	Demonstrate the use of health information system in hospital setting.	K,S	Demonstration	02
9.	HNIT 145:IISEM2.2	Explain the ways data, knowledge and information can be used for effective health care.	K,S	Small group discussion	02
10.	HNIT 145:IISEM2.2	Explain Types of Multimedia	K,S	Small group discussion	03
11.	HNIT 145:IISEM3.2	Demonstrate Clinical Information System (CIS)	K,S	Demonstration	02
12.	HNIT 145:IISEM3.3	Demonstrate Hospital information System (HIS)	K,S	Demonstration	03
13.	HNIT 145:IISEM4.2	Demonstrate the simulated electronic health record system.	K,S	Small group discussion	04
14.	HNIT 145:IISEM6.3	Demonstrate the standardized languages used in health informatics.	K,S	Demonstration	06
15.	HNIT 145:IISEM8.1	Demonstrate the simulated NIS software.	K,S	Demonstration	03
16.	HNIT 145:IISEM8.2	Demonstrate the skills of using data in management of health care.	K,S	Demonstration	02
TOTAL					**40 Hours**

Modified Tutorials

No	Comp. no	TOPIC	Domain	T-L Method
1.	HNIT 145:IISEM1.1	Explain the use of computers in nursing.	K,S	Tutorials
2.	HNIT 145:IISEM5.1	Explain the patient safety and the relationship between patient safety and informatics.	K,S	Tutorials
3.	HNIT 145:IISEM7.1	Describe the information and communication technology.	K,S	Tutorials
4.	HNIT 145:IISEM10.2	Illustrate the evidence based health care.	K,S	Tutorials

TEACHING STRATEGY:

Total Hours: 80 Theory Hours: 40 Lab/Practical Hours: 40

Theory

Continuous Assessment: 10 Marks

Sr. No	Assignments	Percentage of Attendance	Allotted marks	Total Marks for attendance
1	Attendance	95-100%	2	2 marks
		90-94%	1.5	
		85-89%	1	
		80-84%	0.5	
		<80%	0	
		Number assignments	Marks	Total Marks
2	Written Assignments 1.Home assignment 2.Case Study	2	2X5	10
3	1. Microteaching on Case discussion evidence based health care. 2. Demonstration on simulated NIS software	2	2x6	12
4	Visit to health informatics department of the hospital to understand use of health care data indecision making	1	1x6	06
			Total	30/3=10Marks

Formative Assessment :

a. Theory:

Type of questions	Number of questions	Marks allotted
MCQ	4*1M	4
Essay/situation type	1*10M	10
Short	2*5M	10
Very short	3*2M	6
		30 M

1. Sessional Examinations: Theory: I

Sr. No.	**Question paper – Theory**	**Total**
Maximum marks	30	30

2. Sessional Examinations: Theory: II

Sr. No.	**Question paper – Theory**	**Total**
Maximum marks	30	30

c. Calculation of Internal Assessment (IA): Theory

- Total marks of two sessional examinations along with continuous assessment 30marksx2=60/4=15
- 10+15 = 25 Marks
- Minimum required - 50 %

3. Summative Assessment

a. Theory: College level exam

Type of questions	Number of questions	Marks allotted
MCQ	8X1	08Marks
Essay/situation type	1x10	10Marks
Short	4x5	20Marks
Very short	6x2	12Marks
	Total	50 marks **(50/2 = 25 marks)**

Datta Meghe Institute of Medical Sciences (Deemed to be University)

Smt. Radhikabai Meghe Memorial College of Nursing

Sawangi (Meghe) Wardha

Name of the Institute: SRMM College of Nursing

Name of Examination: Basic B.Sc. Nursing

Semester II: Health/ Nursing

HNIT 145: II-SEM/Primary/2021-2025

	Must to Know (MK 60%)	Desirable to know (DK 30%)	Nice to know (NK 10%)	Marks = 50
ESSAY (2) 1/2	(2) Level- 1 Level-II-1			10Mx1=10M
SHORT (5) 4/5	(2) Level-I-1 Level-II-1	(2) Level-I-1 Level-II-1	(1) Level-I-1	5Mx4=20M
VERY SHORT (7) 6/7	(3) Level-I-2 Level-II-1	(2) Level- I-1 Level-II-1	(1) Level-I-1	2Mx6=12M
MCQ (8) 8/8	(4) Level-I-2 Level-II-2	(3) Level-I-2 Level-II-1	(1) Level-I-1	1Mx8=8M
Total				**Total = 50 Marks**

Level I: 40 **Level II: 10**

Practical:

- In each term one home assignment and one practical performances assessment shall be conducted.
- Marks of Theory and Practical Assignments shall be amalgamated as an Assignment is theory as there is no practical examination for the subject.

LIST OF RECOMMENDED BOOKS:

- Introduction to Computers by Subramanian N.
- Fundamentals of Information Technology by Leon and Leon
- Textbook of Computers in Nursing by Shrinandan Bansal
- Essentials for computers for Nurses by Leslie H. Nicoll
- Microsoft Office 2007 by Gary B. Shelly.
- Fundamentals of Computer by Subramanian.