

## HEALTH/NURSING INFORMATICS AND TECHNOLOGY

PLACEMENT: II SEMESTER

THEORY: 2 Credits (40 hours)

PRACTICAL/LAB: 1 Credit (40 hours)

**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 care and nursing education, practice, administration and research.
3. Describe the principles of health informatics and its use in developing efficient healthcare.
4. Demonstrate the use of information system in healthcare 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.

COURSE OUTLINE

T – Theory, P/L – Lab

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	<p>Introduction to computer applications for patient care delivery system and nursing practice</p> <ul style="list-style-type: none"> <li>• Use of computers in teaching, learning, research and nursing practice</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Practice session</li> <li>• Supervised clinical practice on EHR use</li> <li>• Participate in data analysis using statistical package with statistician</li> </ul>	<p>(T)</p> <ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> <li>• Visit reports</li> <li>• Assessment of assignments</li> </ul>
			Demonstrate the use of computer and technology in patient care, nursing education, practice, administration and research.	<ul style="list-style-type: none"> <li>• Windows, MS office: Word, Excel, Power Point</li> <li>• Internet</li> <li>• Literature search</li> <li>• Statistical packages</li> <li>• Hospital management information system</li> </ul>	<ul style="list-style-type: none"> <li>• Visit to hospitals with different hospital management systems</li> </ul>	<p>(P)</p> <ul style="list-style-type: none"> <li>• Assessment of skills using checklist</li> </ul>
II	4	5	<p>Describe the principles of health informatics</p> <p>Explain the ways data, knowledge and information can be used for effective healthcare</p>	<p><u>Principles of Health Informatics</u></p> <ul style="list-style-type: none"> <li>• Health informatics – needs, objectives and limitations</li> <li>• Use of data, information and knowledge for more effective healthcare and better health</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Practical session</li> <li>• Work in groups with health informatics team in a hospital to extract nursing data and prepare a report</li> </ul>	<p>(T)</p> <ul style="list-style-type: none"> <li>• Essay</li> <li>• Short answer</li> <li>• Objective type questions</li> <li>• Assessment of report</li> </ul>
III	3	5	<p>Describe the concepts of information system in health</p> <p>Demonstrate the use of health information system in hospital setting</p>	<p><u>Information Systems in Healthcare</u></p> <ul style="list-style-type: none"> <li>• Introduction to the role and architecture of information systems in modern healthcare environments</li> <li>• Clinical Information System (CIS)/Hospital information System (HIS)</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Demonstration</li> <li>• Practical session</li> <li>• Work in groups with nurse leaders to understand the hospital information system</li> </ul>	<p>(T)</p> <ul style="list-style-type: none"> <li>• Essay</li> <li>• Short answer</li> <li>• Objective type</li> </ul>
IV	4	4	<p>Explain the use of electronic health records in nursing practice</p> <p>Describe the latest trend in electronic health records standards and interoperability</p>	<p><u>Shared Care &amp; Electronic Health Records</u></p> <ul style="list-style-type: none"> <li>• Challenges of capturing rich patient histories in a computable form</li> <li>• Latest global developments and standards to enable lifelong electronic health records to be integrated from disparate systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Practice on Simulated EHR system</li> <li>• Practical session</li> <li>• Visit to health informatics department of a hospital to understand the use of EHR in nursing practice</li> </ul>	<p>(T)</p> <ul style="list-style-type: none"> <li>• Essay</li> <li>• Short answer</li> <li>• Objective type</li> </ul> <p>(P)</p> <ul style="list-style-type: none"> <li>• Assessment of skills using checklist</li> </ul>

Unit	Time (Hrs)		Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
	T	P/L				
					<ul style="list-style-type: none"> <li>• Prepare a report on current EHR standards in Indian setting</li> </ul>	
V	3		Describe the advantages and limitations of health informatics in maintaining patient safety and risk management	<u>Patient Safety &amp; Clinical Risk</u> <ul style="list-style-type: none"> <li>• Relationship between patient safety and informatics</li> <li>• Function and application of the risk management process</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> </ul>	(T) <ul style="list-style-type: none"> <li>• Essay</li> <li>• Short answer</li> <li>• Objective type</li> </ul>
VI	3	6	Explain the importance of knowledge management  Describe the standardized languages used in health informatics	<u>Clinical Knowledge &amp; Decision Making</u> <ul style="list-style-type: none"> <li>• Role of knowledge management in improving decision-making in both the clinical and policy contexts</li> <li>• Systematized Nomenclature of Medicine, Clinical Terms, SNOMED CT to ICD-10-CM Map, standardized nursing terminologies (NANDA, NOC), Omaha system.</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Demonstration</li> <li>• Practical session</li> <li>• Work in groups to prepare a report on standardized languages used in health informatics.</li> <li>• Visit health informatics department to understand the standardized languages used in hospital setting</li> </ul>	(T) <ul style="list-style-type: none"> <li>• Essay</li> <li>• Short answer</li> <li>• Objective type</li> </ul>
VII	3		Explain the use of information and communication technology in patient care  Explain the application of public health informatics	<u>eHealth: Patients and the Internet</u> <ul style="list-style-type: none"> <li>• Use of information and communication technology to improve or enable personal and public healthcare</li> <li>• Introduction to public health informatics and role of nurses</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Essay</li> <li>• Short answer</li> <li>• Objective type</li> <li>• Practical exam</li> </ul>
VIII	3	5	Describe the functions of nursing information system  Explain the use of healthcare data in management of health care organization	<u>Using Information in Healthcare Management</u> <ul style="list-style-type: none"> <li>• Components of Nursing Information system(NIS)</li> <li>• Evaluation, analysis and presentation of healthcare data to inform decisions in the management of health-care organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Demonstration on simulated NIS software</li> <li>• Visit to health informatics department of the hospital to understand use of healthcare data in decision making</li> </ul>	(T) <ul style="list-style-type: none"> <li>• Essay</li> <li>• Short answer</li> <li>• Objective type</li> </ul>
IX	4		Describe the ethical and legal issues in healthcare informatics  Explains the ethical and legal issues	<u>Information Law &amp; Governance in Clinical Practice</u> <ul style="list-style-type: none"> <li>• Ethical-legal issues pertaining to healthcare information in contemporary clinical practice</li> <li>• Ethical-legal issues related to</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Case discussion</li> <li>• Role play</li> </ul>	(T) <ul style="list-style-type: none"> <li>• Essay</li> <li>• Short answer</li> <li>• Objective type</li> </ul>

Unit	Time (Hrs)		Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
	T	P/L				
			related to nursing informatics	digital health applied to nursing		
X	3		Explain the relevance of evidence-based practices in providing quality healthcare	<u>Healthcare Quality &amp; Evidence Based Practice</u> <ul style="list-style-type: none"> <li>Use of scientific evidence in improving the quality of healthcare and technical and professional informatics standards</li> </ul>	<ul style="list-style-type: none"> <li>Lecture</li> <li>Discussion</li> <li>Case study</li> </ul>	(T) <ul style="list-style-type: none"> <li>Essay</li> <li>Short answer</li> <li>Objective type</li> </ul>

## SKILLS

- Utilize computer in improving various aspects of nursing practice.
- Use technology in patient care and professional advancement.
- Use data in professional development and efficient patient care.
- Use information system in providing quality patient care.
- Use the information system to extract nursing data.
- Develop skill in conducting literature review.

## Books Recommended

1. McGonigle D, Mastrian K. Nursing informatics and the foundation of knowledge. Jones & Bartlett Publishers; 2021 Mar 8.
2. Ball MJ, DuLong D, Newbold SK, Sensmeier JE, Skiba DJ, Troseth MR, Gugerty B, Hinton-Walker P, Douglas JV, Hannah KJ. Nursing informatics. Springer; 2011.
3. McCormick K, Saba V. Essentials of nursing informatics. McGraw-Hill Education; 2015.
4. Hebda T, Czar P, Mascara C. Handbook of informatics for nurses and health care professionals. Pearson Prentice Hall; 2005.
5. Ball MJ, JA EM. Introduction to nursing informatics. New York: Springer; 2006.

### Suggested Assessment/ Evaluation Methods

<b>Scheme of Internal Assessment of theory out of 25 marks</b>					
<b>Sr. No</b>	<b>Theory</b>	<b>Quantity</b>	<b>Marks</b>	<b>Round off</b>	<b>Final Round off IA</b>
<b>1.</b>	Class Test I		50 marks	30	Out of 15
<b>2.</b>	Class Test II		75 Marks	30	
<b>3.</b>	Written Assignment	2	50	10	Out of 10
<b>4.</b>	Seminar/Microteaching/individual presentation	2	50	12	
<b>5.</b>	Group project/Work/Report	1	50	6	
<b>6</b>	Attendance	(95-100%: 2 marks, 90-94: 1.5 marks, 85-89: 1 mark, 80-84: 0.5 mark, <80: 0)		2	
<b>(Marks of each component to be rounded of the respective columns marks and the final IA need to be calculated out of 25 (15+10).</b>					