Semester: II
Core Course
9. Course Code & Title: MPC 52 04 & Health Technology and Informatics
Credit: 3

Course objective:
The objective of this course is to develop basic understanding of health technology and informatics tools among the post-graduate public health students. The course is designed to equip students with the knowledge and application of information, communication and technology (ICT) in the field of public health.

Course outcomes:
On completion of this course, students will be able to:
1. Learn the importance of ICT in revolutionizing healthcare delivery, administration, education, and research.
2. Understand the importance of data and information in healthcare decision making process.
3. Evaluate policies pertaining to ICT and its implications on population health
4. Apply tools of health technology in the prevention, promotion, control, treatment and management of diseases in communities.

Skills developed:
On successful completion of the course the students shall be skilled at health information standards, and application of health technologies for prevention and control of diseases.

Teaching methods: The delivery of this course will take place using a variety of methods and modalities. Classroom lectures using power point presentations, demonstration using YouTube videos, self-study, case studies analysis, Group work, seminar presentation, organizational visit to understand a telemedicine centre etc., be utilized to deliver this course.

Units and Topics	Teaching Methods								Mandatory Readings
Unit-I: Overview of Health Technology and Public Health Informatics									
	L	FW	FV	CS	GW	SS	SP	P	

Definitions, scope, importance and limitations of health technology and public health informatics.	**X**					**X**			Athavale, A. V., & Zodpey, S. P. (2010). Public health informatics in India: the potential and the challenges. Indian journal of public health, 54(3), 131. Hovenga E, Kidd M, Cesnik B (1996). Health Informatics: An Overview. Churchill Livingstone, Australia. Jamal, A., McKenzie, K., & Clark, M. (2009). The impact of health information technology on the quality of medical and health care: a systematic review. *Health Information Management Journal*, *38*(3), 26-37. Electronic Health Record Standards-2016, Govt. of India. Available at: https://www.nhp.gov.in/ehr_standards_mtl_mtl
Concept of data, data sources, information, knowledge, insight and decision-making process.	**X**					**X**			
Health information standards and types of standards like systems, vocabulary, messaging, and security standards and EHR Standards in India (ISO, DICOM, ICD-11, and SNOMED).	**X**				**X**	**X**			
Interoperability and levels of interoperability (basic, technical and semantic interoperability).	**X**					**X**			Iroju, O., Soriyan, A., Gambo, I., & Olaleke, J. (2013). Interoperability in healthcare: benefits, challenges and resolutions. International Journal of Innovation and Applied Studies, 3(1), 262-270.
Unit-II: Building Blocks of Health Informatics									
Health data security, privacy and confidentiality	**X**					**X**			Barrows Jr, R. C., & Clayton, P. D. (1996). Privacy, confidentiality, and electronic medical records. Journal of the American Medical Informatics Association, 3(2), 139-148.
Health Registry, Types of registries (Hospital and Population based registries) and disease specific registries such as Cancer registry and diabetes registries in India.	**X**					**X**			Cancer Registry in India: Kishore Chaudhry & Usha K. Luthra. Published in MoHFW, website Govt. of India.

									Behera, P., & Patro, B. K. (2018). Population Based Cancer Registry of India – the Challenges and Opportunities. *Asian Pacific Journal of Cancer Prevention: APJCP*, *19*(10), 2885–2889.
Concept of Knowledge Management (KM), Knowledge management in Public Health, and Role of Health Informatics in KM.	**X**					**X**			Dobbins, M., DeCorby, K., Robeson, P., Husson, H., Tirilis, D., & Greco, L. (2010). A knowledge management tool for public health: health-evidence. BMC public health, 10(1), 1-16.
Unit-III: Tools of Health Technology and Informatics									
EHR and EMR, m-Health and apps, health trackers, wearables and home health devices, Tele-medicine and virtual consultation, Social media and public health, GIS and its role in disease surveillance and other public health interventions.	**X**		**X**		**X**	**X**	**X**		Mishra, S. K., Kapoor, L., & Singh, I. P. (2009). Telemedicine in India: current scenario and the future. Telemedicine and e-Health, 15(6), 568-575. Ganapathy, K., & Ravindra, A. (2009). Telemedicine in India: the Apollo story. Telemedicine and e-Health, 15(6), 576-585. Srivastava, S. K. (2016). Adoption of electronic health records: a roadmap for India. Healthcare informatics research, 22(4), 261-269. Thackeray, R., Neiger, B. L., Smith, A. K., & Van Wagenen, S. B. (2012). Adoption and use of social media among public health departments. *BMC public health*, *12*(1), 1-6. Cromley, E. K., & McLafferty, S. L. (2011). GIS and public health. Guilford Press.
Unit-IV: eHealth Policy, Organizations and Regulations									

Digital India initiative by Govt. of India, National Digital Health Blue-Print, Tele-medicine Guidelines, and Role of National e-Health Authority (NeHA) in India.	**X**			**X**		**X**			*Ranganathan, Sheetal (2020). Towards a Holistic Digital Health Ecosystem in India. Observer Research Foundation.*

L- Lecture; FW- Field work; FV - Field Visit; CS - Case study; GW- Group work; SS- Self-study; SP- Seminar presentation; P-Practical

Evaluation: As per CBCS guidelines, this course will be evaluated for 100 marks with a Continuous Evaluation (CA) component of 40 marks and End-Semester Evaluation (ESA) component of 60 marks.

Additional Readings

1. Singh, A. K., Kohli, M., Trell, E., Kohli, S., & Wigertz, O. (1997). Primary care informatics: Bhorugram, India: revisited. Studies in health technology and informatics, 43, 884-888.
2. Prinja, S., Downey, L. E., Gauba, V. K., & Swaminathan, S. (2018). Health technology assessment for policy making in India: current scenario and way forward.
3. Koo, S. H. (2017). Consumer differences in the United States and India on wearable trackers. Family and Consumer Sciences Research Journal, 46(1), 40-56.
4. Kalpa, S. (2012). Health IT in Indian healthcare system: A new initiative. Research Journal of Recent Sciences, 2277, 2502.
5. Sarbadhikari, S. N. (2018). Will health informatics gain its rightful place for ushering in digital India? Indian Journal of Community Medicine, 43(2), 126.
6. Croner, C. M. (2003). Public health, GIS, and the Internet. Annual Review of Public Health, 24(1), 57-82.
7. Thrall, G. I. (1999). The future of GIS in public health management and practice. Journal of Public Health Management and Practice, 5(4), 82.