MALLA REDDY
VISHWAVIDYAPEETH
(Deemed to be University)

SCHOOL OF DIGITAL HEALTH SCIENCES & TECHNOLOGY

Fellowship in Health Informatics

Created in 2025

Academic regulations for fellowship programmes

1. **DEFINITION**

   Fellowship: A fellowship is an advanced, structured programme focused on developing specialized competencies after the completion of a qualifying degree or equivalent experience. It offers structured learning and practical experience in a focused area. The purpose of the fellowship is to develop advanced knowledge, strengthen specialized skills, and prepare participants for professional growth within their chosen field.

2. **AIMS AND OBJECTIVES**

   The aim of the program is to provide program nurtures graduate and postgraduate candidates, building their expertise and skills to drive career excellence and impact in their chosen field.

   Full-Time Candidate: A full-time candidate is an individual who is enrolled exclusively in the fellowship program and is not engaged in any other professional, academic or employment obligations during the training period. These candidates are required to dedicate their time and effort to the structured fellowship programme, meeting the assigned outcomes through full-time participation that ensures immersive training and continuous engagement in all programme activities, including assigned duties, learning sessions, and assessments. Stipends for full-time fellowship candidates will be awarded as per MRV policy.

   Internal Candidate: An internal candidate is an individual currently employed by MRV or its affiliated institutes who wish to enhance their skills through the fellowship during their tenure at the institution. This includes faculty, residents, or staff. Internal candidates are not eligible for a stipend. Applications are subject to institutional approval.

   External Candidate: An external candidate is someone not employed by MRV or its affiliated hospitals and institutes at the time of applying for the fellowship. They may come from other academic institutions, healthcare organizations, or private practice. External candidates are required to complete all fellowship requirements as per MRV guidelines. No stipend will be provided.

   Sponsored Candidate: A sponsored candidate is nominated and financially supported by a recognized institution, organization, or employer such as a government body, healthcare institution, academic organization, or industry partner to pursue a fellowship at MRV. The sponsor typically covers fees or other program-related costs and may require the candidate to fulfill certain obligations, if any, upon completion as required by the sponsor. Employees sponsored by organizations must provide a formal no-objection certificate. Sponsored candidates are not eligible for a stipend.

3. PREREQUISITES

Criteria	Details
Eligibility	To be eligible for admission into the fellowship program at MRV, candidates must meet the following criteria: • Hold a recognized graduate or postgraduate degree with a completion certificate. • The fellowship must align with the candidate's prior qualifications and may require professional registrations. • Detailed eligibility criteria for ach fellowship, including approved qualifications are available on the MRV website.
Duration	• Undergraduate Degrees – Any recognized undergraduate degree – 12 months • Postgraduate Degrees – Any recognized undergraduate degree – 6 months • Super specialty Degrees – Any recognized speciality or advanced degree – 3 months * Duration for any category may be adjusted based on program requirements, as recommended by the Selection Committee.
Mode of Study	Theoretical, Lab-based Development, Simulation Workshops, Clinical Scenario Building, Capstone Project, Practical, Skill, Case-based

4. SELECTION AND COMMENCEMENT OF FELLOWSHIP

Fellowship Committee: The Fellowship Committee is established to uphold principles of transparency, fairness, and meritocracy in the selection process for the MRV Fellowship Program.

Composition of Fellowship Selection Committee

Sr. No.	Role/Position	Description / Designation
1	Chairperson	The Dean of the respective colleges and Schools of Eminence at MRV
2	Subject Expert	A Professor or Associate Professor from the concerned colleges and Schools of Eminence, MRV
3	Guide / Co-Guide	A Professor, Associate Professor, or Assistant Professor from the concerned colleges and Schools of Eminence, MRV
4	Convener	The Fellowship Coordinator of MRV
5	Ex officio Members	The Registrar and the Controller of Examinations,

		MRV

Duties of the Fellowship Selection Committee

- Ensure that the MRV fellowship program commences twice a year in accordance with the academic calendar issued by the university.
- Oversee the preparation and communication of the program schedule, including application deadlines, interview dates, and the start of training through the MRV website and relevant academic departments.
- Thoroughly evaluate all applications to ensure candidates meet the minimum requirements for completion.
- Assess academic credentials, prior qualifications, and overall suitability for the fellowship program.
- Conduct interviews for shortlisted candidates to evaluate knowledge, skills, and overall preparedness.
- Recommend a final list of eligible candidates for approval by the Vice-Chancellor based on the evaluation and interview outcomes.
- Oversee all aspects of the fellowship program from scheduling, implementation, to completion.

5. FEE STRUCTURE

Program Fees: The basic fee structures for each fellowship program are available on the respective program on the MRV website.

6. PROCEDURE FOR SELECTION AND ADMISSION

- **Eligibility Check:** Verify that applicants meet the basic eligibility criteria, including academic qualifications, professional experience, and relevant skills.
- **Document Review:** The Selection Committee reviews all applications for completeness and ensures they satisfy the program's eligibility requirements.
- **Personal or Virtual Interviews:** Shortlisted candidates may be invited for interviews, either in person or virtually. This allows the Committee to assess communication skills, motivation, and overall suitability for the fellowship.
- **Merit-Based Selection:** The Committee selects the most qualified candidates based on a combination of academic performance, professional experience, interview performance, and alignment of the applicant's goals with the objectives of the fellowship.

7. ALLOTMENT OF FELLOWSHIP GUIDE

Assignment of Guides: The allotment of fellowship Guides shall be undertaken by the Selection Committee, ensuring that only eligible and approved faculty members are assigned as Guides or mentors.

Criteria for Allotment are based on:

- Alignment of the fellow's area of interest with the Guide's specialization
- Availability and consent of the Guide
- Existing rotation or merit-based preferences as determined by the Committee

Role and Responsibilities of the Guide:

- Mentoring the fellow to acquire required skills and academic knowledge
- Providing guidance and support to ensure progress throughout the fellowship

- Conducting regular evaluations and offering academic and professional advice and submit periodic report to the Fellowship coordinator
- Supporting the fellow in meeting program requirements and objectives

External Collaborators: External collaborators from recognized institution may serve as fellowship co-Guides in conjunction with a Guide from MRV.

Change of Guide: Fellows may request a change of Guide, subject to approval by the Selection Committee.

8. FELLOWSHIP PROGRAM DESIGN

The fellowship program is designed to provide a structured and comprehensive learning experience that develops relevant skills, knowledge, and professional competencies. Upon completion, they should demonstrate proficiency in core skills, apply their knowledge effectively in professional settings, maintain professional standards, and document their progress.

Logbook Maintenance: Fellows must maintain a logbook throughout the program. The required entries may vary depending on the fellowship. The logbook will be reviewed and evaluated on a daily or weekly basis by the assigned Guide. Regular face-to-face feedback sessions with the Guide will be conducted to monitor progress and provide guidance.

Final Assessment and Exit Examination:

The final assessment by the assigned guides includes the following components:

1. Multiple Choice Questions (MCQs): 25 marks
2. Practical Skills Assessment: Three case scenarios with discussion; each case carries 20 marks (total 60 marks)
3. Logbook Maintenance: 15 marks

The candidate must appear and secure a minimum of 50% marks in each of the above listed components. The total marks are 100, and a minimum aggregate score of 50% is required to successfully complete the fellowship.

Any additional outputs or deliverables may be determined in consultation with the Guide and require prior written approval from the Selection Committee.

9. MINIMUM STANDARD AND CREDITS FOR THE AWARD OF THE FELLOWSHIP

- Fellows must maintain a **minimum of 80% attendance** across all program activities.
- A **minimum overall score of 50%** is required to pass the fellowship.

10. FELLOWSHIP COMPLETION CERTIFICATE

Issued by MRV: Upon successful completion of all training, periodic evaluations, and final examinations, fellows will be awarded a certificate.

The certificate should include details such as:

- Name of the candidate
- Fellowship program details
- Program completion status

Fellowship in Health Informatics

Course Overview

The Fellowship in Health Informatics is a specialized program designed to equip healthcare professionals, data analysts, informatics leaders, and digital health innovators with the skills required to conceptualize, manage, and analyze clinical and population-level health information systems. The course provides a deep understanding of healthcare data sources, interoperability standards, clinical documentation systems, data analytics, visualization, terminology standards, GIS-based health surveillance, and cybersecurity.

Through practical exercises, case studies and real-world implementation exposure, participants learn how to design clinical informatics workflows, build dashboards, analyze datasets, utilize interoperability (HL7/FHIR), implement telemedicine registries, and leverage analytics to improve care, public health intelligence, and administrative efficiency.

Course Objectives

1. To provide foundational knowledge of health informatics concepts and digital healthcare ecosystems.
2. To develop competency in clinical data management, terminology systems, interoperability standards and documentation.
3. To impart analytical skills including statistical modeling, epidemiological analytics, data visualization and GIS mapping.
4. To provide hands-on exposure to EHR architectures, FHIR APIs, remote monitoring systems, and clinical decision support.
5. To strengthen the understanding of cybersecurity, privacy frameworks, health data governance and audit compliance.
6. To introduce digital health implementation strategies including change management and maturity assessment frameworks.
7. To prepare participants for informatics-based roles across hospitals, public health programs, IT companies, and digital health innovations.

Curriculum with Part-wise Syllabus & Modules

Part 1: Foundations of Health Informatics

Module	Topics Covered
Introduction to Health Informatics	Evolution of informatics systems; clinical informatics, public health informatics; workflows; clinical documentation structure; HIS integration
Healthcare Data Standards & Terminologies	ICD, SNOMED CT, LOINC, RxNorm, local coding practices; standardized vocabularies; controlled terminology systems
Healthcare Interoperability & FHIR	HL7 messaging; FHIR architecture; resources; APIs; implementation cases; interoperability demonstrations
Electronic Health Records & EMR	EHR architecture; use cases; EMR workflow; structured vs unstructured datasets; privacy and audit trails; clinical documentation errors
Data Analytics & Visualization	Exploratory analytics; summary statistics; trend visualization; clinical performance indicators; health outcome dashboards
Health Data Governance & Cybersecurity	Security risks; encryption; audit logs; data sharing agreements; data lifecycle; local and global governance frameworks

Part 2: Advanced Informatics, Analytics & Implementation

Module	Topics Covered
Clinical & Population Health Analytics	Disease surveillance analytics; GIS-based health mapping; spatial-temporal monitoring; epidemiological indicators
Clinical Decision Support Systems (CDSS)	Decision rule engines; alert systems; risk scoring; prescription support; integration with EMR; clinical quality dashboards
Telemedicine & Remote Monitoring Registries	Teleconsultation data pipelines; IoMT integration; chronic disease monitoring; national telemedicine guidelines
Database Systems & Workflow Integration	SQL & NoSQL for health data; database integration with analytics; electronic registries; patient demographic repository
Cybersecurity & Privacy for Health Data	Authentication; data access layers; role-based permissions; incident response; compliance frameworks
Capstone Project	Design and demonstration of an informatics application: data pipeline, interoperability mapping, clinical analytics or GIS visualization; viva and presentation

Program Outcomes

SR.N.	Program Outcome	Detailed Description
1	**Understanding Health Informatics Ecosystems**	Demonstrate comprehensive knowledge of informatics workflows, clinical documentation, data pipelines and digital system architecture
2	**Competence in Data Standards & Interoperability**	Apply HL7, FHIR, ICD, SNOMED CT and LOINC for structuring, exchanging and mapping clinical documentation
3	**Analytical & Epidemiological Intelligence**	Use dashboards, analytics, and GIS-based surveillance to support decision-making at clinical and public health levels
4	**Legal & Governance Compliance**	Apply privacy regulations, cybersecurity safeguards, and medico-legal frameworks to health data management
5	**Expertise in EHR & Clinical Data Workflows**	Design and interpret documentation flows, extract EHR datasets, and integrate decision-support models
6	**Healthcare Data Architecture Planning**	Evaluate relational and non-relational database designs, registry models, and data warehouse concepts
7	**Leadership in Informatics-driven Transformation**	Lead informatics projects using workflow redesign, data audits, maturity assessment and implementation planning
8	**Practical Innovation & Evaluation**	Apply hands-on skills to informatics tools, databases, and analytics platforms to produce novel digital health insights

Course Outcomes

	Course Outcome	Detailed Description
1	**Explain Health Informatics Architecture & Workflows**	Understand clinical documentation layers, data flows, registries, and workflow integration in digital health systems
2	**Use Interoperability Standards in Practice**	Apply HL7, FHIR, ICD, LOINC, and SNOMED CT to structure, exchange and map clinical data across systems
3	**Apply Analytics & GIS in Healthcare**	Build analytical models, dashboards, and GIS maps to support population surveillance and health decision-making
4	**Interpret Cybersecurity & Governance Requirements**	Implement privacy frameworks, access controls, encryption, audit logging, and regulatory compliance protocols
5	**Evaluate EHR Systems & Clinical Documentation**	Assess EMR/EHR architecture, structured clinical data entry, metadata, and record validation processes
6	**Design and Implement Informatics**	Create visual dashboards with KPIs,

	Dashboards	alerts, clinical indicators, and performance metrics for decision support
7	**Plan and Execute Informatics Implementation Projects**	Perform workflow assessment, data maturity evaluation, stakeholder mapping, and road-mapping for adoption
8	**Demonstrate Hands-On Informatics Capability**	Use interoperability sandboxes, analytics tools, GIS platforms, and health data pipelines to deliver a capstone project

Recommended Books & E-Resources
Textbooks:

- Clinical Decision Support — Berner & Sittig
- Healthcare Information Management — AHIMA
- Principles of Health Interoperability — Tim Benson
- Digital Health Transformation — Wickramasinghe
- Cybersecurity in Healthcare — Luis Ayala

Journals & E-Resources:

- ABDM Portal
- HL7 International
- FHIR Documentation
- WHO Digital Health Guidelines
- NHA Health Data Management Policy
- MIT OpenCourseWare — Health Informatics
- NPTEL — AI & Health Informatics