RVCE- Center of Excellence in Computational Genomics

RVCE- Certificate Course on Healthcare Analytics

Internship Modules for Engineering students

Module 1: Introduction to Healthcare Systems and Biomedical Data (Foundations)

Overview of healthcare delivery systems. Types of biomedical and clinical data: structured, unstructured, imaging, and omics, Health data standards: HL7, ICD, SNOMED, LOINC, Basics of epidemiology and public health indicators, Data privacy and ethics (HIPAA, GDPR).

Module 2: Data Analytics in Healthcare (Core Skills)

Data preprocessing: handling missing data, normalization, Descriptive and inferential statistics in health, Visual analytics using Python (Matplotlib, Seaborn) or R. Time series and cohort analysis (e.g., COVID-19 trends, chronic disease progression), Real-world data exploration (e.g., NHANES, WHO datasets).

Module 3: Machine Learning & AI for Precision Health (Advanced Applications)

ML algorithms: regression, classification, clustering (k-NN, SVM, Decision Trees, Random Forest). Use cases: cancer prediction, drug response modeling, disease outbreak prediction. Deep learning in medical imaging (overview of CNNs). Introduction to Natural Language Processing (NLP) for clinical notes. AI in personalized medicine and genomics.

Module 4: Translational Applications & Healthcare Innovation (Capstone + Career Orientation).

Real-world healthcare case studies from Indian context (e.g., Ayushman Bharat, Aarogya Setu). Startups and entrepreneurship in digital health and biotech. Data-driven public health policies and surveillance systems. Capstone project: Analyze a real/curated health dataset and present insights. Guest lectures from industry/healthtech startups.

For Further Information Contact:

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