

RKMVERI Syllabus for M. Sc. 3rd Semester Hematology

Course	Course Code	Credit
Routine hematology	MH301	2+1
Hematology II	MH302	2+1
Coagulation	MH303	2+1
Bone marrow study	MH304	2+1
Immunophenotyping	MH305	2+1
Blood banking	MH306	2
Hematology Management	MH307	1
Total		18

MH301 Routine hematology

Introduction to laboratory hematology

Preparation and staining of blood films, BM smear, touch imprint and CSF cytopsin

Basic morphology of blood cells and bone marrow

Performance of WBC differential counts, assessment of platelet counts, supravital stain, Heinz body and HBH preparation

Preparation and staining of thick and thin blood films for malarial parasites

Principles of automated cell counters and interpretation of scattergram, histograms and flags

Measurement and significance of ESR

MH302 Hematology II

Hemoglobin electrophoresis and HPLC and its uses

Sickle cell anemia and thalassemia including Sickling and sickle solubility test

Red cell enzymopathy-G-6-PD deficiency (Screening test and quantitative assay)

Hereditary spherocytosis and osmotic fragility test

Special stains and cytochemistry (SBB, MPO, NSE, PAS)

Decalcification, Hematoxylin and eosin, Reticulin and Masson trichrome staining of bone marrow biopsy and lymph node specimens

Overview of normal hemostatic mechanism

Screening coagulation tests (PT, APTT, Fibrinogen and D-dimer, Modified IVY's BT), Clot solubility test for factor XIII and Clot retraction

MH303 Coagulation

Preanalytical variables of coagulation studies

Laboratory diagnosis of platelet function defects (Sample processing for PFT)

Laboratory diagnosis of coagulation disorders (Mixing study and Factor assays including Factor VIII and Factor IX)

Hemophilia diagnosis and genetics

Diagnosis of acquired inhibitors of coagulation (Bethesda assay)

Antiphospholipid antibody syndrome-Diagnosis (LA-APTT, DRVVT, KCT)

Overview of VWD and diagnostic tests

Overview of microangiopathic hemolytic anemia (TTP/HUS/DIC)

Idiopathic thrombocytopenic purpura

MH304 Bone marrow study

- Overview of acute leukemia
- Overview of chronic lymphoproliferative disorder (CLL and MCL)
- Overview of myeloproliferative neoplasm (CML, ET, PV, PMF)
- Myelodysplastic syndrome
- Plasma cell disorders
- Aplastic anemia

MH305 Immunophenotyping

- Sample processing for immunophenotyping studies for leukemia diagnosis by flowcytometry with basic gating strategies
- Sample processing for MRD analysis
- CD34 enumeration
- Overview of PNH and detection of PNH clone by flowcytometry and gel card
- DNA polidy by flow cytometry
- Osmotic fragility test by flow cytometry
- HLA-B27 and EMA by flowcytometry

MH306 Blood banking

- Serology (TTI)
- Component preparation
- Apheresis
- Direct and Indirect Coomb's test

MH307 Hematology Management

- Maintenance and organization of laboratory instruments
- Quality assurance in hematological laboratory
- Health and Safety measures (Physical/Chemical/Biological/Radiation).
- Waste disposal
- Use of computers and generation of laboratory statistics