



JHARKHAND
Rai University
RANCHI

**B.Sc. in Medical Laboratory Technology
(BMLT)**

Batch: 2024-2027

SYLLABUS

DEPARTMENT OF ALLIED HEALTH
(सहबद्ध स्वास्थ्य विभाग)

Faculty of Health Sciences, Jharkhand Rai University, Ranchi

COURSE SCHEME

SEMESTER - V						
LEVEL – 5.5	Major Courses - Compulsory		L	T	P	Credits
	42ABMT 501	Forensic & Medical Ethics	3	0	0	3
	42ABMT 502	Histopathology & Histotechniques Lab-II	0	0	2	1
	42ABMT 503	Biostatistics	3	0	0	3
	Major Courses-Compulsory (Any One)					
	42ABMT 504	Techniques in Molecular Biology	3	0	0	3
	42ABMT 505	Hematology & Blood Banking (Group-I)	3	0	0	3
	Minor Course – Compulsory					
	42ABMT 506	Bacteriology & Virology	3	0	0	3
	42ABMT507	Bacteriology & Virology Lab	0	0	2	1
	Minor Course – Compulsory (Any One)					
	42ABMT 508	Clinical Instrumentation (Group-II)	3	0	0	3
	42ABMT509	Biomedical imaging Devices and Concept	3	0	0	3
	Multidisciplinary Courses					
	42ABMT510	Laboratory Management	2	0	0	2
	Common Value – Added Course					
	42AVAC 301	Character Building and Holistic Development of Personality – II (Yoga and Physical Fitness)	2	0	0	2
Total						21

SEMESTER- V

Program: BMLT

Semester: V

Subject: Forensic & Medical Ethics

Code: 42ABMT501

L	T	P	C
3	0	0	3

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Explain the basic concepts of forensic science, medical ethics, jurisprudence, and the laws of India.

CO2: Describe the setup and applications of forensic science laboratories and the methods used for examination of biological fluids and evidence.

CO3: Apply the concepts of drug abuse, drug dependence, drug resistance, and their forensic significance in different situations.

CO4: Analyze various types of poisoning, causes, symptoms, complications, and preventive measures related to food poisoning and poisonous substances.

CO5: Evaluate medico-legal cases related to the Medical Termination of Pregnancy (MTP) Act, including consent, protocols, legal requirements, and ethical considerations.

COURSE CONTENT:

TOPICS	HOURS
MODULE-I:- Legal and ethical aspects of Forensic & medical ethics and related terms	9
Introduction of forensic sciences, legal and ethics. Basic principles of medical ethics and its type. Introduction to jurisprudence, scope and its significance. Introduction of laws of India; criminal laws, civil laws, types of inquest and offences. Objective of autopsy, types of autopsies, legally defined manner of death, initial examination and record.	
MODULE-II:- Setup of Forensic Science laboratory and examination of biological fluids	9
Introduction and setup of forensic science laboratory and its applications. Investigation and examination of biological fluids, traces evidences and other materials by using different methods. Principle and applications of chromatography. Introduction, applications and its type of electrophoresis. Introduction, classifications and applications of Spectrophotometry.	
MODULE-III:- Introduction to drug, drug abuse and dependence	9
Introduction of drug and drug abuse. Function of legal and illegal drugs in forensics. Role and effects of Drug resistance, physical dependence, tolerance and related terms. Drug addiction, habituation, sign, symptoms and its solutions. Drug dependence, its prevention and management.	
MODULE-IV:- Food Poison and different types of poisoning	9
Introduction of poison, food poisoning, sign and symptoms. Main reason for outbreak of food poisoning. Introduction of mushrooms, types, nutritional values and characteristics of poisonous mushrooms. Poisoning from vegetables, soybeans, bacteria and other forms of substances and their complications. Precaution, prevention and management of food poisoning.	
MODULE-V:- Medico-legal Aspects of Medical Termination of Pregnancy Act, protocol, record and policy	9
Objective of medico-legal aspects of Medical Termination of Pregnancy Act (MTP). Procedure of legal abortion, consent and protocol. Medical termination, registered medical practitioner, confidential record and monitor quality of services. Condition not possible to perform termination of pregnancy and violation. Regulatory body, application and approval of place for terminations, cancellation and medical insurance policy.	

REFERENCE BOOKS:

1. Handbook of Forensic Medicine and Toxicology (Medical Jurisprudence), P.V. Chadha, Jaypee Brothers Medical Publishers.
2. Textbook of Medical Ethics, Erich H. Loewy, Springer Netherlands.
3. Textbook of Forensic Medicine & Toxicology: Principles & Practice, Krishan Vij, Elsevier India

Program: BMLT

Semester: V

Subject: Histopathology & Histotechniques Lab-II

Code: 42ABMT502

L	T	P	C
0	0	2	1

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Explain the fundamental concepts of histology, histopathology, and histotechniques involved in tissue processing and preparation.

CO2: Describe the various steps of histotechniques, tissue processing procedures, fixatives, solvents, and chemicals used in histopathology laboratories.

CO3: Apply the operating principles and handling procedures of microscopes, microtomes, laboratory instruments, and glassware used in histopathology.

CO4: Analyze the effects of different chemicals, fixatives, and staining agents on cells and tissue specimens and compare their advantages and limitations.

CO5: Evaluate and interpret histological slides of various tissue specimens using appropriate microscopic techniques and staining methods.

COURSE CONTENT: Histopathology & Histotechniques Lab-II

TOPICS	HOURS
MODULE-I:-	6
Advance knowledge in Histology, histopathology and Histotechniques - Tissue Processing and preparations	
MODULE-II:-	6
Study the various types of Instruments, glassware, fixative agents and chemicals	
MODULE-III:-	6
To improve the knowledge of various types of sophisticated microscope (Simple and advances) and microtome (manual and semi- automated) Haematoxylin & Eosin stain	
MODULE-IV:-	6
Anatomical and morphological study of cells and tissues specimen and effects of chemical an staining agents	
MODULE-V:-	6
Advance Interpretation of prepared Histological slides with the standard with different types of tissues specimen	

REFERENCE BOOKS:

1. Pathology Practical Book, Harsh Mohan; Jaypee Brothers Medical Publishers (P) Ltd.
2. Bancroft's Theory and practice of Histopathological Techniques, Kim S Suvarna, Christopher Layton, John D. Bancroft; Elsevier Health Sciences.
3. Histology Practical Manual, Balakrishna, Jaypee Brothers.

Program: BMLT

Semester: V

Subject: Biostatistics

Code: 42ABMT503

L	T	P	C
3	0	0	3

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Define and recall fundamental statistical concepts, types of data, scales of measurement, and their relevance in biological and medical research.

CO2: Explain descriptive statistics, measures of dispersion, probability concepts, and probability distributions used in health sciences.

CO3: Apply sampling techniques, study designs, hypothesis testing, and basic statistical methods to solve health research problems.

CO4: Analyze biological and medical data using correlation, regression, survival analysis, and statistical software such as SPSS/R.

CO5: Evaluate research articles and statistical reports by critically appraising methodologies, results, and statistical interpretations.

COURSE CONTENT: Biostatistics

TOPICS	HOURS
MODULE-I:- Introduction to Biostatistics, Data Presentation & Measures of Central Tendency	
Definition and scope of biostatistics. Role in public health and biomedical research. Types and sources of data. Scales of measurement: nominal, ordinal, interval, ratio. Tabulation of data. Graphical methods: bar charts, histograms, pie charts, line graphs, box plots. Mean, median, and mode. Uses and limitations.	9
MODULE-II:- Measures of Dispersion, Probability Concepts & Probability Distributions	
Range, interquartile range, variance, standard deviation. Coefficient of variation. Understanding variability in health data. Basics of probability. Rules of probability (addition, multiplication). Conditional probability. Discrete: Binomial and Poisson distributions. Continuous: Normal distribution.	9
MODULE-III:- Sampling Techniques, Study Designs in Biostatistics & Hypothesis Testing Basics	
Sampling vs population. Random, stratified, cluster, and systematic sampling. Sampling bias and errors. Cross-sectional, case-control, cohort, and experimental designs. Sample size estimation (intro). Null and alternative hypothesis. Type I and II errors. P-values, significance levels. Confidence intervals.	9
MODULE-IV:- Correlation and Regression, Introduction to Survival Analysis & Use of Statistical Software	
Pearson and Spearman correlation. Simple linear regression: interpretation and assumptions. Introduction to multiple regression. Concepts of censoring. Life tables and Kaplan-Meier curves. Log-rank test. Data entry and cleaning. Coding variables. Running analyses in SPSS/R. Graphical representation and exporting results.	9
MODULE-V:- Critical Appraisal and Report Writing	
Interpreting statistical sections in journal articles Common statistical errors in publications Writing the statistical analysis section of a report	9

REFERENCE BOOKS:

1. Biostatistics: A Foundation for Analysis in the Health Sciences – Wayne W. Daniel
2. Intuitive Biostatistics – Harvey Motulsky
3. Practical Statistics for Medical Research – Douglas G. Altman
4. Rosner, B. – Fundamentals of Biostatistics

Program: BMLT
Semester: V
Subject: Techniques in Molecular Biology
Code: 42ABMT504

L	T	P	C
3	0	0	3

Course Outcomes: -

On completion of the Course, the students will be able to:

- CO1:** Define and recall the fundamental concepts, terminology, and applications of molecular biology techniques used in diagnostics, forensics, and research.
- CO2:** Explain the principles of nucleic acid extraction, PCR, electrophoresis, blotting techniques, cloning, and recombinant DNA technology.
- CO3:** Apply molecular biology techniques and laboratory procedures for nucleic acid analysis, cloning, protein expression, and molecular diagnostics.
- CO4:** Analyze experimental data and molecular workflows using PCR variants, bioinformatics tools, genome editing technologies, and diagnostic techniques.
- CO5:** Evaluate molecular biology methodologies, troubleshoot experimental outcomes, and assess ethical and safety considerations in molecular research and clinical applications.

COURSE CONTENT: Techniques in Molecular Biology

TOPICS	HOURS
MODULE-I:- Introduction to Molecular Biology, Nucleic Acid Extraction & Quantification and Quality Analysis of Nucleic Acids	
History and scope. Overview of molecular techniques and their applications in diagnostics, forensics, and research. Isolation of DNA and RNA from cells/tissues. Principles of lysis, separation, and purification. Use of organic extraction vs. column-based methods. Spectrophotometry. Fluorimeter. Gel electrophoresis.	9
MODULE-II:- Polymerase Chain Reaction (PCR), Variants of PCR & Electrophoresis and Blotting Techniques	
Principle and components. Optimization of PCR: annealing temp, cycle number. Applications of conventional PCR. Reverse Transcriptase PCR (RT-PCR). Real-Time PCR (qPCR): SYBR Green, TaqMan probes. Multiplex PCR, Hot-start PCR, Nested PCR. Agarose and polyacrylamide gels. Southern blot (DNA), Northern blot (RNA), Western blot (Protein). Transfer methods and detection systems (chemiluminescence, colorimetric).	9
MODULE-III:- Cloning and Recombinant DNA Technology, Plasmid DNA Isolation and Verification	
Restriction enzymes, ligation, and cloning vectors, Competent cells and transformation (Chemical/ electroporation). Alkaline lysis method. Restriction digestion and gel verification.	9
MODULE-IV:- Protein Expression and Purification, CRISPR and Genome Editing Tools & Molecular Diagnostics Techniques	
Prokaryotic and eukaryotic expression systems (E. coli, yeast, mammalian). Affinity chromatography. Protein quantification. Basics of CRISPR-Cas9 mechanism. Applications in functional genomics, therapy, diagnostics. ELISA. DNA microarrays. LAMP (Loop-mediated isothermal amplification). Applications in pathogen detection and mutation screening.	9
MODULE-V:- Bioinformatics in Molecular Biology & Recent Advances & Project Presentations	
Sequence databases (NCBI, EMBL). Synthetic biology. Molecular barcoding. Single-cell genomics. Student presentations of mini-projects.	9

REFERENCE BOOKS:

1. Molecular Biology of the Gene – Watson, et al.
2. Molecular Cloning: A Laboratory Manual – Sambrook & Russell
3. Principles and Techniques of Biochemistry and Molecular Biology – Wilson & Walker
4. Gene Cloning and DNA Analysis – T.A. Brown

Program: BMLT

Semester: V

Subject: Hematology & Blood Banking

Code: 42ABMT505

L	T	P	C
3	0	0	3

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Understand various types of anemia and leukemia and identify the investigations required for their diagnosis.

CO2: Apply knowledge of laboratory techniques for assessment of bleeding disorders including platelet function, BT, PT and APTT procedures.

CO3: Apply and interpret different laboratory investigations used for diagnosis of Disseminated Intravascular Coagulation (DIC) and fibrinolysis disorders.

CO4: Analyze and evaluate the applications of cytogenetic techniques in diagnosis and laboratory investigations.

CO5: Evaluate and develop understanding of blood banking procedures including blood grouping, Rh typing, cross matching and compatibility testing for safe transfusion practices.

COURSE CONTENT: Hematology & Blood Banking

TOPICS	HOURS
MODULE-I:- Anemia and Leukemia	9
Definition and classification of anemia, Laboratory investigation procedures of megaloblastic anemia and iron deficiency anemia (IDA). Definition and classification of leukemia, Laboratory investigation procedures of Leukemia.	
MODULE-II:- Laboratory Techniques of assessing bleeding disorders	9
Platelet functions and their interpretations, Various methods of bleeding time determinations Various methods of bleeding time determinations, Prothrombin time (PT) determination Activated Partial Thromboplastin Time (APTT) determination.	
MODULE-III:- Disseminated Intravascular Coagulation (DIC) and Fibrinolysis	9
Etiology of DIC, Mechanism of DIC, Laboratory investigation of disseminated intravascular coagulation, Mechanism of fibrinolysis: Tests for fibrinolysis.	
MODULE-IV:- Cytogenetic Studies	9
Definition of Cytogenetics, Techniques available for cytogenetic studies Applications of cytogenetic studies	
MODULE-V:- Blood Bank	9
Introduction, Blood Grouping and Rh typing, Cross matching & Compatibility testing.	

REFERENCE BOOKS:

1. An introduction to medical laboratory technology, Baker et al., Seventh Edition, A Hodder Arnold Publication.
2. Blood coagulation and homeostasis, Thomson J, Churchill Livingstone.

Subject: Bacteriology & Virology
Code: 42ABMT506

L	T	P	C
3	0	0	3

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Understand the characteristics, classification and identification of Gram positive and Gram-negative cocci.

CO2: Understand the morphology, classification and laboratory identification of Gram positive and Gram-negative bacilli.

CO3: Apply knowledge of general properties, structure, replication and classification of viruses.

CO4: Analyze and evaluate common viral infections, modes of transmission and laboratory diagnostic methods for viral diseases.

CO5: Evaluate emerging viral infections and apply diagnostic knowledge for understanding new viral threats and infection control strategies.

COURSE CONTENT: Bacteriology & Virology

TOPICS	HOURS
MODULE-I:- Gram positive cocci & Gram negative cocci – staphylococci , streptococci & Neisseria	9
MODULE-II:- Gram positive bacilli & Gram negative bacilli Corynebacterium, Mycobacterium, Actinomyces, Listeria, Bacillus, Clostridia, Enterobacteriaceae, Pseudomonas, Alcaligenes, Vibrio, Aeromonas, Plesiomonas, Campylobacter, Bacteroides, Fusobacterium, Brucella, Haemophilus, Bordetella, Pasteurella, Francisella, Spirochaetes, Chlamydia, Rickettsia, Mycoplasma, L forms, etc.	9
MODULE-III:- General properties of viruses Structure, replication, growth Classification, identification. Bacteriophage – Phage typing.	9
MODULE-IV: - Common viral disease – mode of infection, spread. Laboratory Diagnosis Polio, Influenza, Para influenza, Mumps, Measles, Rubella, Respiratory syncytial, Rhino, Rota, Hepatitis, arbo viruses prevalent in India (Dengue, West Nile, Japanese Encephalitis, KFD), Chicken pox, Adeno, Papova, Herpes, HIV, Cytomegaloviruses, etc. 3	9
MODULE-V:- Emerging viral infections: SARS, MERS CoV, Zika, Crimean Congo hemorrhagic Fever, Nipah, Influenza viruses etc.	9

REFERENCE BOOKS: -

1. Text Book of Parasitology by K.D. Chatterjee, Chatterjee Medical Publishers, Calcutta.
2. Parasitic diseases in man by Richard Knight English Language Book Society (ELBS)
3. Medical Microbiology by R. Cruick shanketal, vol.I ELBS 4. Text book of Medical Parasitology by S.C. Parija

Subject: Bacteriology & Virology Lab

Code: 42ABMT507

L	T	P	C
0	0	2	1

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Understand and demonstrate the principles of clinical specimen collection, transportation and basic laboratory procedures for microbiological diagnosis.

CO2: Apply proper methods for collection, processing and microbiological examination of food, water and milk samples.

CO3: Apply appropriate methods for collection, preservation and handling of biological specimens in laboratory and field settings.

CO4: Analyze and evaluate tissue culture techniques, virological procedures and diagnostic methods including sensitivity and specificity of tests.

CO5: Evaluate and select appropriate specimen collection methods, containers and identification techniques for fungal pathogens based on infection site.

COURSE CONTENT: Bacteriology & Virology Lab

TOPICS	HOURS
MODULE-I:-	6
Collection and transportation of clinical specimens. Procedures and tests required in the laboratory diagnosis of the infections caused by the pathogenic bacteria listed above.	
MODULE-II:-	6
Examination of urine, stool, etc. for isolation and identification of pathogenic bacteria. Bacteriology of food, water, milk	
MODULE-III:-	6
Collection, transportation and preservation of specimens. Preparation of glassware and media for tissue culture.	
MODULE-IV:-	6
Preparation and maintenance of tissue culture. Serological tests in virology. Antigen detection by various techniques.	
MODULE-V:-	6
Collection of specimens for fungal examination. Direct KOH examination. Isolation and identification of fungi from clinical specimens.	

REFERENCE BOOKS: -

1. Text Book of Parasitology by K.D. Chatterjee, Chatterjee Medical Publishers, Calcutta.
2. Parasitic diseases in man by Richard Knight English Language Book Society (ELBS)

L	T	P	C
3	0	0	3

Subject: Clinical Instrumentation

Code: 42ABMT508

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Understand the principles of human physiology and man-machine interaction in the medical environment.

CO2: Understand and apply the fundamentals of biomedical sensors, transducers and biomedical data acquisition systems.

CO3: Apply knowledge of biosignals and their pattern analysis for interpretation of clinical signals such as ECG, EEG and EMG.

CO4: Analyze and evaluate the principles, design and applications of biomedical equipment used in clinical practice.

CO5: Evaluate electrical hazards associated with medical equipment and develop appropriate safety measures for clinical environments.

COURSE CONTENT: Clinical Instrumentation

TOPICS	HOURS
MODULE-I:- Clinical Cardiology	9
Electrocardiography, patient preparation for ECG recording, Electrode placement of electrodes, distinguishing the artifacts in ECG recording and their removal, stress testing; interpretation of ECG signals for clinical diagnosis; defibrillator and cardiac pacing	
MODULE-II:- Clinical Electroencephalography	9
EEG, Different type of Machine and their electrical characteristics placement of electrodes, different artifacts in EEG and their removal, Montages for EEG, types of conducting paste for recording and their preparation, effects of different climatic conditions on recording of EEG, interpretation of EEG signals for clinical diagnosis	
MODULE-III:- Clinical Electromyography	9
EMG, single unit and compound myography, types of electrodes and important signal characteristics of EMG; Nerve and muscle conduction: MNCV, SNCV, F wave, H reflex, blink reflex, VEP, BAER, SSEP test	
MODULE-IV:- Clinical Therapeutic and Intensive-care	9
Instruments Electro-shock therapy instrumentation, Polygraph, Bio feed-back Instrument, Lie detector instrument; Central monitoring system for intensive care unit, different types of diathermy, physiotherapy and surgical diathermy and their different electrodes for cutting and coagulation	
MODULE-V:- Special Clinical Devices and System	9
Devices applied in auditory, ophthalmic and dental clinics; Types of ambulances and their accessories; Types of hazards in a hospital and their mitigation	

REFERENCE BOOKS:

1. Praveen J. Kumar and Michael Clark, —Clinical Medicine, ELBS.
2. Operating Manual of Neuro perfect, Medicaid Systems
3. Operating Manuals of ECG machine, TMT machine, Bio feedbacks machine, Diathermies machine.

L	T	P	C
3	0	0	3

Subject: Biomedical Imaging Devices and Concept

Code: 42ABMT509

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Understand the basic principles of physics involved in biomedical imaging systems including X-ray, ultrasound and MRI.

CO2: Understand and apply the instrumentation principles of different biomedical image acquisition systems.

CO3: Apply image processing concepts to analyze anatomical and physiological biomedical images.

CO4: Analyze and evaluate radiation hazards associated with imaging systems and recommend appropriate preventive measures.

CO5: Evaluate safety protocols and develop appropriate precautionary measures for safe operation of biomedical imaging devices.

COURSE CONTENT: Biomedical Imaging Devices and Concept

TOPICS	HOURS
MODULE-I:- X-ray Techniques	9
X-ray Generation and Interaction with Matter, Concept of Dose Selection, Parameters Affecting the Quality of Image, X-ray Tube and Machine, CT-Scan and Generations, Contrast Media Application in X-ray Imaging, Dark Room and Film Processing	
MODULE-II:- Ultrasound	9
Interaction with Matter, Different Modes of Operation, Construction of Ultrasonic Transducer, Ultrasonic Probes and their Selection, Gel, Knobology Course	
MODULE-III:- Magnetic Resonance Imaging	9
Concept of MRI, Type of Magnets, Charging of Liquid Helium and Charging of Magnet, Radio Frequency Interference and its Prevention, Installation of MRI, Patient Preparation and Selection of Coil, Contrast Application and its Hazard Management	
MODULE-IV:- :Nuclear Medicinal Techniques	9
Radioisotope, Radiopharmaceuticals, Scintillation, Gamma Camera, SPECT, PET, Clinical Applications	
MODULE-V:- Safety and Precaution	9
Radiation Dose, Personal Dosimetry Techniques, Radiation Detectors and Counters	

REFERENCE BOOKS:

1. X-ray Diagnosis and Imaging by L.C. Gupta, Abhitabh Gupta; JAPPEE Brothers Medical Publisher (P) Ltd., Delhi.
2. Ultrasound Physics & Instrumentation, Davind Hykes, Wayne R. Hedrick, Dale E. Starchman, Churchill Livingstone, N.Y.
3. Hand Book for X-ray Technician by Palmer, W.H.O. Publication.
4. Radiological Procedure by Chapman, Elsevier.
5. Handbook for Technicians: Darkroom Procedure by Palmar, W.H.O. Publication

L	T	P	C
2	0	0	2

Course Outcomes: -

On completion of the Course, the students will be able to:

CO1: Understand and apply the principles of material management for maintaining quality and accuracy in laboratory services.

CO2: Understand the procedures, principles and practices involved in laboratory purchasing and procurement systems.

CO3: Apply the principles of inventory control including stock management, EOQ and ABC analysis in laboratory settings.

CO4: Analyze and evaluate store management practices, record maintenance and safety measures for efficient laboratory operations..

CO5: Evaluate materials handling systems, equipment requirements and safety issues to improve laboratory management practices.

COURSE CONTENT: Laboratory Management

TOPICS	HOURS
MODULE-I:- Concept of Material Management	6
Importance, objective and Significance of material management, Scope of materials management, Classification of material management, Materials control.	
MODULE-II:- Purchasing	6
Basic ideas of purchasing, purchasing vs procurement, Objective and principles of purchasing, Purchasing function and Purchase procedure.	
MODULE-III:- Inventory Control	6
Basic principles of inventory control, Fixation of stock level, Concept of EOQ, Inventory control through ABC analysis	
MODULE-IV:- Store Management	6
An overview of Stores management, location – different types of stores – methods of storing – safety and security of materials – stores equipment – materials handling equipment, Stores system and procedures. Store records.	
MODULE-V:- Materials Handling	6
Principles of Materials handling system, Materials handling equipment's, Safety Issues	

REFERENCE BOOKS:

1. Materials management in Integrated Approach, P. Gopal krishna & M. Sunderasan, PHI Learning Pvt. Ltd.
2. Purchasing and Materials Management, Donald W. Dobler, Lamar Lee Jr, David N. Burt McGraw Hill.
3. Materials Management Inventory Control and Logistics, AK Dutta, Prentice Hall of India

SEMESTER - VI

Course scheme

SEMESTER VI						
LEVEL-5.5	42ABMT601	Internship Project				16
	Multidisciplinary Courses					
	42ABMT602	Open Elective				4
	Total					20