

**DM (ONCOPATHOLOGY)****[Syllabus approved by board of studies, Medical & Health Sciences]**

<b>Programme Code</b>	:	HLTH10A05
<b>Programme Details</b>	:	DM ONCOPATHOLOGY
<b>Programme Learning Outcomes (PLOs/PSOs)</b>	:	ANNEXED IN THE BELOW FORMAT
<b>Eligibility Criteria</b>	:	<b>AS PER NMC NORMS</b>
<b>Duration of the Course</b>	:	3 YEARS
<b>Programme Structure (Credit-Based)</b>	:	NA
<b>Detailed Course Syllabus</b>	:	ANNEXED IN THE BELOW FORMAT
<b>Teaching–Learning Methodologies</b>	:	3 YEARS RESIDENCY PROGRAM
<b>Examination &amp; Evaluation System</b>	:	ANNUAL APPRAISALS FOLLOWED BY FINAL YEAR EXAMINATION AS PER NMC NORMS
<b>Internship / Project / Dissertation Guidelines</b>	:	1 YEAR MANDATORY BOND
<b>Program In Charge</b>	:	HEAD, DEPT OF ONCOPATHOLOGY Dr. Tanuja Shet, <a href="mailto:tanuja.shet@tmc.gov.in">tanuja.shet@tmc.gov.in</a> Academic Coordinator Dr. Ayushi Sahay, <a href="mailto:ayushi.sahay@tmc.gov.in">ayushi.sahay@tmc.gov.in</a>
<b>Annexure (Books / Journals etc)</b>	:	

## **D.M. (ONCOPATHOLOGY)**

*Program Code: HLTH10A05*

*Programme Outcome:*

- Diagnose routine and complex cancers on the basis of Histopathology (Surgical Pathology) and Cytopathology specimens, Blood and Bone Marrow examination.
- Participate and contribute in multidisciplinary team discussion in oncology for better patient management
- Interpret molecular diagnostic reports and Advice on the nature of molecular tests necessary to arrive at a diagnosis or prognosis in cases
- Teach basic oncopathology to, postgraduates and develop more specialist oncopathologist
- Carry out research.
- Understand and apply principles of oncopathology( grossing, immunohistochemistry) for rendering a meaningful oncopathology report
- Understand importance of multi-disciplinary management of patients and contribute to same effectively
- Provide exposure in various branches of oncopathology including solid tumors, cytology, fluid hematopathology and molecular diagnostics
- Engage in research and life long learning to adapt to changing needs of oncology

# DETAILED SYLLABUS

## Competency Based Post graduate training programme for DM in Oncopathology

### ▪ PREAMBLE

Competency based Post graduate training program for DM in Oncopathology aims to produce an Oncopathologist who after completion of training program should be able to offer adequate and timely laboratory support services in oncology diagnosis and be able to work as part of multidisciplinary team for overall management of patients with malignancies. He or she will understand all ancillary techniques used in oncology today and will be able to decide on the point of referral. He or she will also be able participate in quality management process in a histopathology laboratory.

### ▪ NEED BASED ASSESSMENT OF COURSE

Cancer related morbidity and mortality forms a huge burden on the medical health care systems. Burden of oncologic diseases is increasing at an alarming rate in India. The past couple of decades have witnessed many scientific advances with an exponential expansion in our comprehension of pathobiology and tumorigenesis of malignancies leading to rapid evolution of diagnostic and treatment modalities that has led to improved outcomes. There is a huge unmet need in our country of skilled pathologists for diagnostic testing and monitoring of malignancies. Some of which are potentially curable if detected early and diagnosed accurately. The WHO classification of malignancies in new era, requires integration of clinical morphological, immunohistochemical and molecular data for diagnosis. There is currently no structured training program in India that provides training with a focus on all aspects of oncopathology. The above tests are available under one roof for training program in a handful of apex centres only whereas the requirement of these tests is in all comers of India. Every patient cannot reach these apex institutes for therapy. The oncologists treating these patients are handicapped to manage the patients without the requisite laboratory support. Lack of structured training also results in varied caliber of skilled pathologists. This leads to delay in diagnosis and management of the patients with its dire consequences. The proposed course is an attempt to bridge the gap in requirement, by training pathologists in skills related to cancer diagnosis and research.

There is a significant difference between a report signed out by a general surgical pathologist versus that signed out by a trained oncopathologist as basic training and philosophy is different. The minimal data set for histologic reporting that influences patient management based on the first surgical excision is actually generated at this first point of care. It is vital know that lack of inclusion of important criteria in a surgical pathology report to make it complete.

Over the years the Diagnostic oncopathology has grown with leaps and bounds and extended beyond morphology. The diagnostic armamentarium today includes many advanced ancillary techniques like immunohistochemistry, FISH, molecular techniques, flow cytometry etc. These tests are complex and require training of significant duration. These tests not only help in diagnosis and prognosis but also in personalization of therapy by detecting the target. The targeted therapy reduces the overall cost and toxicity of therapy and improves patient's outcome.

Current MD Pathology curriculum in majority of pathology training centres is restricted to basic and generalized pathology tests with focus on morphological training in surgical and cytological specimens. Students in MD PATHOLOGY course are mostly devoid of exposure to immunohistochemistry and/molecular tests for diagnostic work up as these centers lack facilities for such tests. This is due to requirement of high investment in infrastructure and technical expertise for establishing these tests. Recently, a number of predictive and prognostic markers in oncology are being incorporated into routine testing and are increasingly impacting treatment decision-making. These tests require close interaction between both the laboratory physician and treating physician and also understanding of therapeutic options for optimal management of the patient This is unavailable in the non-specialized training centers in India. Naturally this reflects on the training which can not be comprehensive.

Currently oncopathology is dealt by surgical pathologist and not an oncopathologist due to unavailability of formal training program. There is an evidence to show that trained oncopathologists are able to make a difference in diagnosis and overall management of malignancies world over. In fact, a dedicated oncopathology service is considered to be the back bone of cancer management as a proper and integrated diagnosis is a major determinant in outcome of the cancer patients in the era of targeted therapies. As the world of newer therapies based on molecular markers expands there will be a growing need for specialist oncopathologists in secondary and tertiary care levels of health care, in academic/government institution, large corporate hospitals, private laboratories, research

laboratories and pharmaceutical companies in the next decade. There are excellent placement opportunities for trained oncopathology specialist in both private and public sector.need of centers with significant oncologic burden by providing the necessary laboratory support.

There is large pool of fresh MD pathologist who do not have any avenues for structured training for sub-specialization as the number of training posts in different fields of pathology is limited in India. This course will offer a novel avenue for further training. Young pathologists interested in cancer service or cancer research would avail of this course. After successfully completing the course, the “Oncopathology specialist’ would get excellent placement opportunities in the private and public cancer centres.

- The specialists trained in DM Oncopathology will work as teachers in Medical college departments, teaching oncopathology and also sign out cancer related cases.
- The specialists trained in DM Oncopathology can also work in public or private pathology laboratories doing specialized testing for Oncopathology cases.
- The specialists trained in Oncopathology can pursue career in research in oncopathology

## ■ **ELIGIBILITY FOR THIS DEFINED COURSE**

The trainee applying for the DM course in Oncopathology should be a postgraduate having MD degree in Pathology recognized by the Medical Council of India (MCI) or its equivalent degree recognized by Medical Council of India.

The other eligibility criteria would be as per general MCI rules/ condition. Admissions should be made through competitive examination as applicable in a particular state or medical institution and approved by the MCI.

## ■ **MINIMUM STANDARD REQUIREMENT (PLEASE REFER PG REGULATION, 2000 AVAILABLE ON MCI WEBSITE)**

The General minimum standard for running a postgraduate training program for DM in oncopathology shall be as per the Post Graduate Medical Education Regulation 2000.

However on account of DM in Oncopathology being newly instituted postgraduate training program in India and resource constraints in Public – Funded Medical Institution the following relaxation would remain applicable for the initial period of about 10 years from date of approval of the course by Academic Council of MCI

**Clause 11: Departmental training Facilities**

There should be a department/ unit of Pathology as a stand-alone facility It should have a requisite minimum strength of fulltime faculty as prescribed in PG Medical Education Regulation,2000. They should have supportive department like major OT, Minor OT, ICU facility, microbiology, hematology and biochemistry laboratories.

The proposed three year degree program offers a very promising and rewarding career choice in oncopathology to post-graduates of pathology. The DM course in oncopathology should lead to a holistic growth and development of Oncopathology as a specialty in India from the academic and research point of view in addition to the basic need of offering comprehensive service.

At the end of training, the qualified resident doctor should have acquired thorough and comprehensive training in the various aspects of the specialty of Oncopathology to enable him/her to

1. To function as a faculty/consultant in the specialty, confidently signing out report.
2. To shoulder the responsibility of an oncopathology section in a busy tertiary care hospital single handedly.
3. To understand the principle, application, interpretation and limitation of Oncopathology tests in relation to clinical problems
4. To participate actively in joint multi-disciplinary clinics making significant contribution in the patient care
5. To plan and set-up independent oncopathology service set-up catering to oncology care establishments
6. To set up, standardize and validate new test methodologies and maintain quality assurance for the same.
7. To teach, impart training and supervise students of oncopathology and junior Colleagues
8. To carry out and help in conducting applied research in the field of oncopathology

9. To contribute towards growth of specialty including diagnostic, teaching and Research

The curriculum, teaching and learning methodology and assessment methods shall be reassessed and reviewed every year.

Avenues available for this course

With advent in medical science, malignancies are detected early and are becoming increasingly treatable. The treatment costs are also reducing leading to more patients going in for curative intent therapy. For many cancers, specialized testing for predictive markers, for example, HER2 status, KRAS or EGFR mutation is critical for deciding choice of treatment. Next generation sequencing is being used regularly and hence understanding of molecular pathology will be helpful in guiding patient management. Likewise digital pathology and artificial intelligence based software. This has led to a pressing need for skilled pathologists trained in specialized tests essential for oncologic care. The specialists trained in DM Oncopathology will cater to these advances.

#### Clause 11.1: Staff- Faculty

The minimum requirement for faculty should be 3 full time faculty members one of whom should be a Professor, one Associate Professor and one Assistant Professor. This number will depend on student intake. This requirement is for guidance in apex centers with extended staff managing a larger infrastructure. The minimum educational qualification for faculty is as follows

Title	Qualification	Experience
Professor	MD in Pathology	At least 10 years Post MD experience of which 5 years at least should be as Associate Professor in a MCI recognized teaching hospital in Pathology Laboratory  Minimum of 4 research publications in Indexed Journal
Associate Professor	MD in Pathology	At least 5 years Post MD experience of which 2 years at least should be as Assistant Professor in a MCI recognized teaching hospital in Pathology Laboratory  Minimum of 2 research publications in Indexed Journal
Assistant Professor	MD in Pathology	At least 5 years Post MD experience of which 3 years teaching experience at MCI recognized teaching hospital in Pathology Laboratory

**Clause 11.2: Minimum requirements for a Post Graduate Institution -**

The department shall satisfy the minimum requirements for Post graduate training institution as per the MCI regulation :

<b>Title</b>	<b>Qualification</b>	<b>Experience</b>
Professor	MD in Pathology	At least 10 years Post MD experience of which 5 years at least should be as Associate Professor in a MCI recognized teaching hospital in Pathology Lab. Minimum of 4 research publication in Indexed Journal
Associate Professor	MD in Pathology	At least 5 years Post MD experience of which 2 years at least should be as Assistant Professor in a MCI recognized teaching hospital in Pathology Laboratory Minimum of 2 research publications in Indexed Journal
Assistant Professor	MD in Pathology	At least 5 years Post MD experience of which 3 years teaching experience at MCI recognized teaching hospital in Pathology Laboratory

**Clause 11.3: Bed Strength in Clinical Departments**

The department / Unit recognized for training in DM Oncopathology shall have attached training hospital with MCI recognized training for MCH in surgical oncology and / DM Medical Oncology.

**Clause 11.4 Out-Patient departments**

The department / Unit recognized for training shall have minor OT for performing biopsy and OPD cubicles for fine needle aspiration procedure.

**Clause 11.5 Laboratory Facilities**

The institution shall have adequate laboratory facilities for the training of the oncopathology students, and such laboratory shall provide all the facilities required for relevant investigations. These shall be regularly updated keeping in view the continuous advancement of knowledge, technology and research requirements. For training of students in non-clinical departments, proper and contemporary laboratory facilities shall be made available.

Pathology Laboratory: The laboratory should have a minimum annual work load of

- 25000 specimens / year belonging to different systems
- 5000 FNAC / year
- 5000 Exfoliative cytology specimens, including Gynaec cytology / year
- 1000 frozen sections/ year

Haematology Laboratory: The laboratory should have a minimum work load of

- 100 Complete blood counts/day
- 50 Peripheral Blood smears/day
- 50 Coagulation tests/day
- 1000 bone marrow aspiration smears/years
- 500 bone marrow biopsies/ years
- 100 body fluids specimens/ years

**Immunohistochemistry Laboratory :**

Laboratory should have facility for adequate panels of immunohistochemistry for cancer diagnosis and prognostication/prediction. The laboratory should have a minimum work load of 3000 IHC tests / years

**Molecular and Cytogenetics Laboratory :**

Laboratory should have facility for in-situ hybridization and molecular testing. There should be a minimum workload of 500 tests per year for different malignancies ( solid and hematolymphoid malignancies)

**Flow Cytometry Laboratory :**

There should be a flow cytometry laboratory processing at least 500 specimen per year for immunophenotyping.

**Digital Pathology :**

There should be at least one scanner that makes students aware of digital pathology and computational biology.

**Clause 11.5 : Equipment**

The department / Unit recognized for training shall be equipped with the following Equipment's.

- Microscopes including teaching microscope
- Equipments for tissue processing & cutting
- Equipment for Immunohistochemistry
- Equipments for frozen section
- Cyto centrifuge for cytospin preparation
- Equipments for processing samples for molecular testing
- Flow cytometer
- Thermal cyclers and other molecular laboratory equipments including equipments for PCR,
  - in-situ hybridization and gene sequencing
- Fluorescent microscopes for FISH

- Biosafety cabinets

**Clauses 12 : Number of Post Graduate Students to be admitted -**

The number of students to be admitted in case of DM Oncopathology courses shall be one student per year per MCI recognized Post Graduate teacher in department of pathology.

▪ **CURRICULUM**

The program has been designed to give the student comprehensive training in laboratory service of oncology, to enable them to follow a subsequent career pathway in either academic or oncology.

The curriculum of three years in training in DM Oncopathology includes

1. **Theoretical knowledge in the subject**
2. **Practical and clinical skills**
3. **Writing Project / Research articles**
4. **Interpersonal relationship and communication skills.**
5. **Training in Research Methodology , Medical Ethics and Medico- legal aspects**

1. **Theoretical Knowledge :**

The course for Theoretical knowledge is under following heads normal :

- Basic anatomy, embryology, physiology and immunophenotype of normal histologic tissues of different systems.
- Basic cell biology, carcinogenesis and molecular pathways.
- Proto-oncogenes and Tumor Suppressor Genes in Malignancies
- Grossing protocols of all common oncosurgical specimens and guidelines for handling all other specimens. Protocols for Obtaining tissues for ancillary methods
- Parts, working and quality assurance of important instruments like light and fluorescent microscopes, tissue processor, microtome, cryostat immunohistochemistry staining set-up ( manual and automated ), flow cytometer, PCR and nucleic acid sequencers.
- Types of fixatives, reagents in tissue processing, routine stains, histochemical stains and molecular techniques.
- Immunohistochemistry principle, basics, methods, [ manual automated ],

trouble shooting and quality assurance

- Frozen section principle, technique, stains, artifacts and indication
- Principle, quality control and interpretation of data from automated counters
- Bone marrow aspiration techniques, staining, interpretation
- Flow cytometry- principles and applications
- Molecular diagnostic and approach to different tests
- Knowledge of evidence based guidelines and principles
- Pathogenesis and diagnostic approach and work up benign and neoplastic disease of Head and Neck, including recent advances
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Breast, including recent advances
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Gastrointestinal tract, including recent advances.
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Lung and mediastinum, including recent advances.
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Female genital system, including recent advances.
- Pathogenesis and diagnosis approach and work up of benign and neoplastic diseases of Male genital system. Including recent advances
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Soft tissue, including recent advances
- Pathogenesis diagnostic approach and work up of benign and neoplastic diseases of Bone, including recent advance
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Hematolymphoid organs, including recent advance
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Urinary tract, including recent advances
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Endocrine organs, including recent advances
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Paediatric age group, including recent advances
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Central nervous system, including recent advances
- Pathogenesis and diagnostic approach and work up of benign and neoplastic diseases of Skin, including recent advances
- WHO classification of tumours
- AJCC/TNM classification of cancer

- Bone marrow and liver transplantation
- HLA and Transplant immunology
- Research methodology
- Quality management system including quality control, quality assurance and quality indicators in laboratory medicine
- Laboratory accreditation
- Safety in laboratory practices
- Medico-legal aspects and ethical guidelines in oncopathology.

## 2. Practical and Clinical Skills

The trainee should be able to do the following in cognitive and psychomotor domain. :

- Grossing of all types of oncopathology tissue specimens
- Interpretation and diagnosis of routine and complex clinical problems and various tests under the domain of oncopathology
- Interpret and integrate clinical and laboratory data with reasonable accuracy
- Correlate and advise further on relevant pathology data such that various
- Staining and quality control of Hematoxylin and eosin, Papanicolaou and Giemsa stains
- Staining, standardization and quality control of Histochemical stains (including Mucicarmine, Alcian Blue, Reticulin, Periodic Acid Schiff (PAS), Pearls stain, ZielNeelson stain, Gomori's Methanamine Silver, Elastic Van Gieson, Masson Trichrome stain, PTAH, Myeloperoxidase Nonspecific Esterase, Toluidine Blue stain and Congo Red stain )
- Prepare and stain peripheral blood smear, bone marrow aspiration smear, imprint cytology and squash cytology smear
- Perform Bone marrow aspirate and biopsy
- Tissue processing techniques and quality control
- Performing Fine Needle Aspiration (FNA), and preparing smears
- Performing on-site adequacy testing for image guided biopsies
- Processing all types of cytology specimens
- Interpretation of frozen section and principles.
- Standardization and validation of newer antibodies and quality assurance in IHC lab
- Technique of staining and interpretation of immunohistochemistry
- Processing and Interpretation of flow cytometry data

- Extraction of Nucleic acids from blood, bone marrow and cytology Specimens
- Extraction of nucleic acids from Formalin fixed paraffin embedded tissues
- Interpretation of RT-PCR, FISH , DNA sequencing and next generation sequencing
- Familiarity with the function, handling and routine care of equipment in Lab.
- Teaching oncopathology to postgraduates, nurses and paramedical staff including laboratory personnel
- Supervising work of subordinate laboratory staff and colleagues
- Initiate research questions and systematically write or present a paper and publish in a journal
- Be aware of quality control and bio-safety and waste disposal issues in a Laboratory
- Constantly update knowledge of recent advances in oncopathology and allied subjects

### **3. Writing project/ Research Articles**

- Identification of important peer reviewed journals.
- Demonstrate ability to search literature for information
- Evaluate levels of evidence in literature
- Demonstrate ability to critically evaluate published studies
- Demonstrate ability to design, plan and do a research study/audit as part of curriculum
- Demonstrate ability to take informed consent before procedures

### **4. Inter-personal Relationship and Communication Skills**

- Understanding of importance and criticality of the laboratory tests and reports
- Demonstrate objectivity in interpretation of morphology
- Understand ones limitation in interpretation of tests and knowledge and to communicate the same to colleagues
- Give importance to patient safety and safety of staff in the laboratory
- Demonstrate skills in teaching junior staff, laboratory workers and medical Colleagues
- Demonstrate effective communication skills in explaining reports to patients, delay in reports and counseling them if necessary including disclosure of laboratory errors

- Demonstrate effective communication skills in interacting with clinical and multidisciplinary teams in difficult cases
- Demonstrate capability to work in a team and avoid communication breakdowns
- Understanding of managerial and administrative responsibility of laboratory.
- Demonstrate leadership skills in managing laboratory
- Ability to perform root cause analysis of critical including occurring in laboratory in technical and interpretative processes
- Understand importance of maintaining and improving quality in pre and post analytical phases

**5. Training in Research Methodology, Medical Ethics and Medicolegal aspects :**

- Training in study design, power analysis, data collection and defining outcome measures
- Training in descriptive statistics and inferential statistics
- Understanding privacy and confidentiality of patient data
- Adopting ethical practices in conducting research

**6. Teaching and Learning Methodology**

- Lectures
- Slides Meetings by faculty
- Slides meeting by students
- Specialty discussion/ case reviews
- Clinicopathologic conferences
- Multidisciplinary joint meeting and Tumor boards
- Journal Clubs
- Gross /Specimen meetings
- PPT of staff presentation

The trainees shall maintain a log book of their academic activities

**Training schedule over 36 months**

<b>Sr.No</b>	<b>Rotation to specialty/ name of service</b>	<b>Duration</b>
1.	Grossing of specimens	2 months
2.	Frozen section lab	1 month
3.	Surgical Pathology, specialty-wise training	24 months
4.	Techniques in immunohistochemistry and histopathology laboratory including histochemistry	2 months
5.	Molecular pathology lab	2 months
6.	Cytology lab	1 months

7.	Hematology lab	2 months
8.	Research/Thesis	2 months

This posting includes rotation through all sub-specialties and encompasses training in surgical pathology, FNAC, exfoliative cytology, IHC and molecular pathology reporting related to each sub-speciality

The resident shall attend joint-clinics and academic meetings of the sub-speciality in which he/she is posted

The resident shall complete a minimum of one Institute ethics committee (IEC)-approved project/thesis during his tenure under the guidance of his teacher

Project/ thesis plan shall be submitted to IRB within the first 4 months of joining for approval of IEC .The resident shall be trained in Good Laboratory Practices (GLP)

## ■ ASSESSMENT

Assessment would comprise of (I) Formative Assessment during residency program & (II) Summative Assessment at the completion of training

### (I) Formative Assessment (Total score- 200 Marks): This have two parts-

- A) Appraisal ( at the end of two years ) ( Maximum score – 100 )
- The assessment shall consist of a combination of Structured MCQ and Short answers [50 marks]
  - There shall be in addition assessments by faculty for teaching ability, interpersonal communication skills and professionalism [50 marks]
- B) Academic assessment( over 3 years course period ) (Maximum score – 100 )
- 10 points for each publication [ other than a case report ] in a peer reviewed journal during the 3 years course
  - 5 Points for publication of a case report in peer reviewed journal
  - 5 point for each state, national conference or major hospital presentation
  - 10 points for each national conference paper presentation in award session
  - 10 points for each international conference presentations
  - 5 Points for each Case based analysis/ interpretation for morphology and approach
  - 5 points for receiving an award

There shall be regular appraisal and feedback to the teachers for the formative assessments.

Candidate with a minimum of 40% score [ 80 marks ] in the internal assessment will be allowed to appear in the Final examination

**(II) Summative Assessment shall be at the end training of 3 years and shall consist of**

1. Theory evaluation
2. Practical Skill evaluation

***Theory Evaluation : Shall consist of 4 papers of 100 marks each***

**Paper-I** – Basic Cancer Biology and Laboratory Techniques

**Paper-II** – Systemic Oncopathology I (Breast, Hematolymphoid, Bone and Soft tissues, neuro-oncopathology, Paediatric oncopathology and endocrine pathology)

**Paper III** – Systemic Oncopathology II (Head Neck, gastrointestinal, thoracic, Urologic, male genital and female genital tract)

**Paper IV** – Recent advances in Oncopathology and molecular pathology

***Practical Skill Evaluation: Shall consist of following components (600 Marks) :***

1. **Histopathology Slides ( Spots, Frozen and MDSR) (250 Marks)**
2. **Cytology and Haematology slides (150 Marks)**
3. **Biopsy Interpretation (50 Marks)**
4. **Molecular Spots (25 Marks)**
5. **Gross (25 Marks)**
6. **Evaluation of Thesis/Project: (50 Marks)**
7. **Viva Voce (50 Marks)**

The Final Assessment shall have a component from Formative assessment [200 marks] and Component from Summative Assessment [1000 marks] with total marks pf 1200.

Minimum 600 marks [with individual passing in theory and practical] need to be obtained for successfully passing the examination.