

# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN MEDICINE**

**ANAESTHESIOLOGY**

**Course Code: 501**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in Anaesthesiology

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers:

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

**2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

**2.4 Course outline**

Present in clause 2.10 of the curriculum.

**2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

**2.6 Syllabus**

Present in clause 2.10 of the curriculum.

The concept of healthcare counselling shall be incorporated in the relevant areas.

**2.7 Total number of hours**

Present in clause 2.10 of the curriculum.

**2.8 Branches if any with definition**

Present in clause 2.10 of the curriculum.

**2.9 Teaching learning methods**

**Learning Activity**

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months. Also the candidate should have at least 80%

attendance in the clinical & academic activities of each year for appearing the examination.

**The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity, mortality and clinicopathologic correlation meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.

- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.

- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.
- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

### **Maintenance of Record of Work done.**

1. A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should

also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids .

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

## **2.10 Content of each subject in each year**

### **Syllabus**

It includes topics not only of Anaesthesiology but also those aspects of all the other branches of medicine relevant to Anaesthesia vine., Medicine and its allied subjects, Surgery and its allied braches, Paediatrics, applied Anatomy, Physiology, Pathology, Pharmacology, Microbiology etc. It is intended as a guide to candidates and it is not comprehensive. As and when there is newer development, it becomes eligible for inclusion. Hence, the candidates should be familiar themselves with the current content of the scientific journals and reviews of major topics, in Anaesthesia.

### **History of Anaesthesiology:**

Basic Sciences related to Anaesthesia including Anatomy, Physiology, Pharmacology, Biochemistry, Patho physiology, Immunology and Genetics.

### **Medicine applied to Anaesthesiology:**

Physics related to Anaesthesiology, Electronics, Computers and Lasers, in Anaesthesiology, Internet/ Medline and its uses and applications

### **Anaesthesiology:**

1. Pre anaesthetic evaluation and preparation.
2. Principles and Practice of Anaesthesiology including pre, per and post operative care, of patients belonging to General Surgery and other subspecialities like Cardiothoracic surgery, neurosurgery, orthopaedics, Plastic surgery and surgical

endocrinology, surgical oncology, paediatric, Obstetrics and Gynaecology, ENT, Ophthalmology, Urology, Dental Surgery, Laproscopy surgery etc.

3. Blood transfusion fluid and Electrolyte balance, - Acid base Balance.
4. Fires and Explosion in operation theatre.
5. Operation theatre sterilization procedures.

Pain clinic organization and management. Pain pathway, and management of pain. Respiratory Therapy and management of both acute and chronic respiratory insufficiencies and ventilator commitments in ICU.

Critical Care Anaesthesiology and Trauma Care unit management.

- Different methods of anaesthetic Techniques.
- Regional anaesthesia including spinal, epidural and caudal etc.
- Local anaesthesia including nerve blocks.
- Anaesthesia in abnormal environments like high altitude anaesthesia etc. Complication in Anaesthesiology and their management both per and post operatively.
- Anaesthesia for day care surgery.
- Anaesthesia for diagnostic procedure like endoscopy, C.T. scan M.R.I etc. Informed consent/ medicolegal issues: understanding the implications of acts of omission and commission in practice. Issues regarding consumer protection

Implications in medico legal cases:

Communication skills with colleagues teachers, patients and patients relatives. Principles of Anaesthesia audit understanding and audit process and outcome; methods adopted for the same. Essentials of Research methodology:

1. Basics of Biostatistics and its application.
2. Ability to undertake clinical and basic research.
3. Ability to publish result of one's work.

Principles of evidence based medicine and its application in anaesthetic practice. Medical ethics/social responsibilities of the anaesthesiologists.

Record keeping: Ability to keep records as scientifically as possible; knowledge of computers is beneficial.

### **Skills to be acquired**

#### Basic Graduate skills:

- Insertion of IV lines
- Insertion of Nasogastric tube
- Monitoring vital signs

#### Anaesthesia Skills:

- Basic airway management

#### Difficulty airway management:

- Orotracheal / Nasotracheal intubation
- Airway equipments
- Local anaesthesia
- Regional Anaesthesia
- Neuraxial blockade
- Intravenous Regional Anaesthesia
- Total intravenous Anaesthesia
- Monitored Anaesthesia Care
- General Anaesthesia
- Perioperative monitoring

#### Critical Care procedures:

- Airway Management (Cricothyrotomy, tracheostomy)
- Fibreoptic bronchoscopy
- Arterial cannulation

- Central venous cannulation
- Pulmonary artery catheterisation
- Sampling & interpretation of ABG
- Fluid & Electrolyte management
- Ventilatory care
- Intercostal drainage
- Intensive Care Therapy
- Ultrasound and echo in ICU

#### Emergency room procedures:

- Management of airway obstruction
- Cardiopulmonary resuscitation (BLS & ACLS)
- Management of cardiac failure
- Management of respiratory failure
- Management of shock

#### Pain Therapy:

- Common modalities of acute & chronic pain therapy
- Perioperative pain management
- Labour analgesia
- TENS
- PCA
- Common nerve blocks
- Neurolytic & nerve ablation procedures
- Psychological aspects of pain therapy
- Palliative care

**2.11 No: of hours per subject** : Present in clause 2.10

**2.12 Practical training** : Present in clause 2.10

**2.13 Records** : Present in clause 2.21.

**2.14 Dissertation** :Not Applicable.

**2.15 Speciality training if any**

Two weeks training each in cardiology, pulmonology and pain & palliative care

**2.16 Project work to be done if any**

As per the direction of the Head of Department.

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/ Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/ State/ Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18 Prescribed/recommended textbooks for each subject**

Current editions of:

- Anatomy for Anaesthetists (Ellis)
- Drugs & Anaesthesia (Wood)
- Physics for the Anaesthetist (Muschin & McIntosh)
- Miller's Anaesthesia
- A practice of Anaesthesia (Wylie-Churchill-Davidson)
- Clinical Anaesthesia (Barash, Cullen, Stoelting)
- Anaesthesia & Co-existing diseases (Stoelting)
- Clinical Anaesthesiology (Morgan)
- Understanding Anaesthesia equipments (Dorsch & Dorsch)
- Kaplan's Cardiac Anaesthesia
- Thoracic Anaesthesia (Kaplan)
- Obstetric Anaesthesia (Chestnut)
- Pediatric Anaesthesia (Gregory)

- Neurosurgical Anaesthesia (Hunter)
- Benumof's Airway management
- Textbook of Pain (Cusine)
- Anaesthesia & Intensive care (Yeatis)
- Acute Pain (Raymond Sinatra)
- Medicine for Anaesthetists (Vickers)
- Monitoring in Anaesthesia & critical care medicine ( Casey D Blitt)
- Management of Trauma ((Wilson & Walt)
- Textbook of Critical care (Fink)

## 2.19 Reference books

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## **2.20 Journals**

- Indian journal of Anaesthesia
- Anaesthesia Analgesia
- British journal of anaesthesia
- Recent advances in Anaesthesiology
- Canadian journal of anaesthesia
- Acta Anaesthesia Scandinavia
- Indian journal of palliative care
- Indian journal of Critical care
- Anaesthesia & intensive care medicine
- Journal of Anaesthesiology Clinical pharmacology

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other

presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

### **3. EXAMINATIONS**

#### **3.1 Eligibility to appear for exams**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. (This is considered as eligibility criteria for appearing for the examination)

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training.

The examination for Diploma at the end of 2nd academic year.

#### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

#### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

##### **Theory**

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

### **Clinical/Practical/Oral**

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

### **SCHEME OF EXAMINATION**

- Theory 300 marks (3 Papers 3 X 100)
- Clinical / practical 200 marks
- Oral 100 marks.

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40	300	150	200	100	300	150	600	300		
2	Paper II	100	40										
3	Paper III	100	40										

### 3.4 Papers in each year

Not applicable

### 3.5 Details of theory exams

As given in clause 3.3

Theory: 3 papers, each 3 hours duration with one structured long essay carrying 20 marks and eight short essays carrying 10 marks each.

Total 3 papers of 100 mark each ( $3 \times 100 = 300$ )

- Paper I- Basic Sciences as Applied to Anaesthesiology
- Paper II – Clinical Anaesthesiology
- Paper III – Critical Care, Pain Medicine & Recent Advances

### 3.6 Model question paper for each subject with question paper pattern

QP Code:

Reg.No:

**P.G. Diploma Examinations in Anaesthesiology (DA)**

**(Model Question Paper)**

**Paper I- Basic Sciences as Applied to Anaesthesiology**

**Time: 3 hrs Max marks:100**

- Answer all questions

**Essay: (20)**

1. Describe the anatomy of Brachial plexus. What are the different approaches and methods of Brachial plexus block. Describe supraclavicular approach of this block. What are the complications of this procedure. (5+5+5+5=20)

**Short essays: (8x10=80)**

2. Oxygen dissociation curve.
3. W.T.G. Morton.
4. Coronary circulation.
5. Local anaesthetic toxicity.
6. Midazolam.
7. Procele LMA.
8. Safety features in Anesthesia machine
9. Train of four stimulus

QP Code:

Reg.No:

**P. G Diploma Examinations in Anaesthesiology (DA)**

**(Model Question Paper)**

**Paper II – Clinical Anaesthesiology**

**Time: 3 hrs Max marks:100**

**• Answer all questions**

**Essay: (20)**

1. A 25 year old primi with pregnancy induced hypertension is posted for emergency caesarian section. Describe the pre-operative assessment of this patient. What are the anaesthetic concerns. Discuss the plan of anaesthetic technique and management. (6+7+7=20)

**Short essays: (8x10=80)**

2. Intracranial Hypertension.
3. Caudal epidural block.
4. Hyperthyroidism
5. Complications of blood transfusion.
6. Cardioversion.
7. Post-dural puncture head ache.
8. Post-operative pulmonary complications.
9. Amiadarone.

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QP Code:

Reg.No:

**P.G Diploma Examinations in Anaesthesiology (DA)**

**(Model Question Paper)**

**Paper III – Critical Care, Pain Medicine & Recent Advances**

**Time: 3 hrs Max marks: 100**

**• Answer all questions**

**Essay: (20)**

1. Discuss the aetiology and pathophysiology of Acute Respiratory distress syndrome.

Discuss the diagnosis and management of a patient with ARDS in a Critical care unit.

**(10+10=20)**

**Short essays: (8x10=80)**

2. Metabolic acidosis

3. Fresh Frozen Plasma.
4. Neuraxial opioids
5. Hyperkalemia.
6. Nebulization
7. Non-invasive ventilation
8. Adrenaline
9. Oxygen therapy

### **3.7 Internal assessment component**

Not applicable.

### **3.8 Details of practical/clinical practicum exams.**

**Practicals:** Total 200 marks distributed between one long case (100 marks) & two short cases (100 marks)

### **3.9 Number of examiners needed (Internal & External) and their qualifications**

#### ***Examiners***

1. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
2. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside

the State. One of the internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva**

100 marks for Viva Voce (80 marks for Viva Voce & 20 marks for Log book)

## **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

## **5. ANNEXURES**

### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

#### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

**LOG BOOK OF**

**THE DEGREE OF .....**

**NAME.....**

#### **1. BIODATA OF THE CANDIDATE**

#### **2. EXPERIENCE BEFORE JOINING P.G. COURSE**

#### **3. DETAILS OF POSTING :**

- FIRST YEAR

- SECOND YEAR
- THIRD YEAR

4. THESIS RESEARCH WORK
5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. DAILY ACTIVITIES RECORD (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGES
16. SUMMARY

# REGULATIONS 2016

## Syllabus

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN MEDICINE**

**CLINICAL PATHOLOGY**

**Course Code 502**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in CLINICAL PATHOLOGY

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.

- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

#### Preamble- DCP

The purpose of this programme is to standardize Laboratory Medicine (**Clinical Pathology**) training at Post Graduate level throughout KERALA. This induces uniformity in undergraduate teaching as well, and creates suitable manpower with appropriate expertise in Laboratory Medicine and Clinical Pathology. Management of a Central laboratory with all basic division is the ultimate objective.

### **PROGRAMME OBJECTIVES- DCP**

A candidate appearing and qualifying for the Diploma in clinical Pathology (DCP) should be able to

1. Attain proficiency in both theoretical and practical aspects of the

Disciplines of :

1. **BIOCHEMISTRY**
2. **PATHOLOGY**
3. **MICROBIOLOGY.**

- 2) They are expected to be able to conduct diagnostic procedures, interpret and offer an opinion /recommendation where required independently in routine lab setting
- 3) They must be able to oversee the technical staff and ensure that recommended procedures are followed in collection of samples, registering, processing, reading and interpreting diagnostic tests performed.

#### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

#### **2.4 Course outline**

Present in clause 2.10

#### **2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

## **2.6 Syllabus**

Not applicable

The concept of healthcare counselling shall be incorporated in the relevant areas.

## **2.7 Total number of hours**

Not applicable since the course is Residential Programme.

## **2.8 Branches if any with definition**

Not applicable

## **2.9 Teaching learning methods**

### **Learning Activity**

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months by the senior faculty for which at least 50% marks are needed for appearing the final examination. Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

### **The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
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- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
  - Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes,

both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.

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#### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

#### **Maintenance of Record of Work done.**

1. A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

### **SPECIFIC LEARNING OBJECTIVES- DCP**

At the end of the course of DCP the student shall be able to Diagnose/interpret/perform the following

1. Clinical chemistry tests
2. Basic microbiology tests
3. Routine tests of blood and all body fluids
4. Peripheral smear and bone marrow
5. Cytopathology specimens
6. Basic surgical pathology specimens (like endometrial curetting) including describing and grossing of specimens
7. Blood banking techniques

**At the end of the course of DCP the student should have basic knowledge of :**

1. Good laboratory practice and SOP's
2. Quality control
3. Universal precautions and biosafety
4. Equipment care
5. Biowaste and lab waste disposal
6. Organisation of a laboratory
7. Teaching methodology for taking classes for undergraduates (MBBS), paramedics, nursing etc.

8. Accreditation by Various bodies (NABL, NABH, ISO etc)

Should be able to function as a part of a team, interact well with the patient and the clinicians, adopt ethical principles and to respect the rights of the patient including the right to information and second opinion.

## 2.10 Content of each subject in each year

### A. THEORY:

General Pathology including Immunopathology

- Systematic Pathology
- Hematology
- Blood Banking including transfusion medicine
- Cytopathology
- Laboratory organization including Quality Control
- Basic Microbiology and Clinical biochemistry

### B. PRACTICAL TRAINING

Techniques and their application

#### PATHOLOGY

##### a) General

- Principles of sample collection for Hematology and Clinical Pathology
- Histopathology and cytology specimens, urine analysis, stool examination
- Pregnancy tests, semen analysis, microbiological and biochemical tests
- Waste disposal and universal precautions
- Quality control and use of automated cell counters
- Cleaning of Glass ware

##### b) Cytology

1. Fine needle aspiration cytology – staining and interpretation
2. Cytology of body fluids – Staining and interpretation

##### c) Histopathology

1. Histopathology techniques including section cutting.

Haematoxylin and Eosin stain

2. Diagnosis of common Diseases: Neoplastic and Non Neoplastic

**d) Haematology**

1. Anticoagulants
2. Preparation of Leishman's stain and reagents for blood counts
3. Hands on experience in different methods of hemoglobin estimation, RBC, WBC, Platelets and Reticulocyte counts, AEC, PCV, ESR and absolute indices and coagulation tests/work up.
4. Preparation and interpretation of Peripheral smear and Bone marrow.
5. Hemolytic workup including sickle cell preparation, HBF and electrophoresis etc.
6. Cytochemistry peroxidase/sudan black B, PAS,LAP,NSE and Perls' Stain
7. Quality control and use of automated cell counters
8. Cleaning of Glass ware

**d) Blood Bank**

1. Blood grouping and typing
2. Cross matching
3. Coomb's test
4. Donor screening and blood collection
5. Testing for STS,HIV, hepatitis B & C etc.
6. RH antibody titration
7. Cold agglutinin titer
8. Quality control
9. Blood component preparation

**BASIC MICROBIOLOGY**

Hands or experience in techniques, its interpretation and reporting -

- a. Simple staining
- b. Grams staining
- c. Albert's staining
- d. Ziehl Neelsen staining

- e. Hanging drop
- f. Mycology -KOH / Lacto phenol preparation
- 1. Staining and reporting of Peripheral blood smear for MP/Microfilaria
- 2. Sterilization techniques, culture methods, identification and reporting -
- 3. Hands on experience and interpretation of serological tests like Widal, VDRL, HIV, HBV, CRP, RF, ASO and pregnancy tests.
- 4. Microscopic examination of stools and reporting.
- 5. Collection and despatch of samples to laboratory.

### **BIOCHEMISTRY**

**1. Interpretation.** The Biochemistry applied to biochemical investigations-

**2. Handling of Equipments-** Photo colorimeter, Spectrophotometer

PH meter, Flame Photometer, Semi Autoanalyser and Full Autoanalyser and  
Immunochemistry Autoanalyzers

**3. Procedures-** Electrophoresis, Carrying out biochemical investigations like blood sugar,urea, creatinine, Proteins, bilirubin,SGOT, SGPT, Alkaline Phosphatase etc.

**2.11 No: of hours per subject**

Present in clause 2.10

**2.12 Practical training**

#### **Aspects of Training**

The departments of **BIOCHEMISTRY, PATHOLOGY AND MICROBIOLOGY** can prepare a list of postgraduate exercises, pertaining to basic and applied training. Active learning should form the mainstay postgraduate training but there should be lectures for postgraduates (at least 20 per year) along with seminars, symposia, group-discussions, journal clubs. Each college should have a medical education unit to conduct PG orientation programmes. The two year training programme for the Diploma in Clinical Pathology may be arranged in the form of postings to different Departments or laboratories for specified periods as outlined below. The period of such assignments and postings is recommended for 22 months. Posting schedules may be modified depending on needs, feasibility and exigency.

Postings: Total duration – 22 Months.

• Histopathology	-	2+2 months ( 1 <sup>st</sup> year+2 <sup>nd</sup> Year)
• Cytopathology	-	2+2 months ( 1 <sup>st</sup> year+2 <sup>nd</sup> Year)
• Hematology and -	{	3+3 months ( 1 <sup>st</sup> year+2 <sup>nd</sup> Year)
• Clinical laboratory		
• Blood bank	-	1+1 month ( 1 <sup>st</sup> year+2 <sup>nd</sup> Year)
• Microbiology	-	2+1 month ( 1 <sup>st</sup> year+2 <sup>nd</sup> Year)
• Biochemistry	-	2+1 month ( 1 <sup>st</sup> year+2 <sup>nd</sup> Year)

***The indicated duration of training is mandatory. However the distribution of the training is flexible and may be modified as per needs and is to be assigned through a time table from the Dept of Pathology, planned in consultation with Biochemistry, and Microbiology Departments.***

**The students will have regular scientific discussions during these postings in the form of :**

- Subject seminars including techniques
- Specimen discussion
- Slide seminars, Topic presentation
- Periodic tests
- Journal Club

#### **2.13 Records**

Present in clause 2.21.

#### **2.14 Dissertation:**

Not applicable

#### **2.15 Speciality training if any**

Present in clause 2.12.

#### **2.16 Project work to be done if any**

As directed by the Head of Department.

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/State/Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18. Prescribed/recommended textbooks for each subject**

As stipulated by Head of Department

**2.19 Reference books**

As stipulated by Head of Department.

**2.20 Journals**

As stipulated by Head of Department

**2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

### 3. EXAMINATIONS

#### 3.1 Eligibility to appear for exams [including Supplementary]

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least two State/National conferences during his/her training period. **(This is considered as eligibility criteria for appearing for the examination)**

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training.

The examination for Diploma at the end of 2<sup>nd</sup> academic year.

#### 3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

#### 3.3 Scheme of examination showing maximum marks and minimum marks

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two

short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

#### **SCHEME OF EXAMINATION**

#### **UNIVERSITY (SUMMATIVE) ASSESSMENT**

The post graduates will maintain a log book of their postings and activities. They should have a minimum of 80% attendance in BIOCHEMISTRY, PATHOLOGY AND MICROBIOLOGY Departments (and should be certified by the Heads of the three Departments) for appearing for the final exam and this does not automatically imply completion of the course.

#### **COMPLETION OF THE COURSE**

The course will be deemed to have been completed only after the student completes the prescribed 22 months inclusive of the eligible leaves and should be certified by the Heads of BIOCHEMISTRY, PATHOLOGY AND MICROBIOLOGY Departments and the (Dean or) the Principal of the institution (All four certifications are essential)

#### **EXAMINATION**

The Post Graduate examination shall be in two parts :- **Theory & Practicals**

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min

1	Paper I	100	40	300	150	200	100	300	150	600	300
2	Paper II	100	40								
3	Paper III	100	40								

### THEORY

**There shall be three theory papers with sections A and B**

Paper I : General Pathology and Systematic Pathology

Paper II : Haematology, Clinical Pathology and Cytology

Paper III : Clinical Biochemistry and Basic Microbiology

Paper 1 and 2 will be evaluated by Pathologists and Paper 3 by Microbiologist (section A) and Biochemistry (section B)

**8 Examiners may be appointed solely for Valuation of Theory papers so that each theory paper is valued 4 times as is the practice for Post graduate examinations.**

**PATHOLOGY- 2 Valuators**

**BIOCHEMISTRY- 3 Valuators**

**MICRIBIOLOGY- 3 Valuators**

### PRACTICALS

**There shall be 4 examiners.**

2 internal examiners-one from Pathology and one from Microbiology/Biochemistry

alternatively

2 external examiners-one from Pathology and one from Microbiology/Biochemistry

alternatively

**Total examiners - 4**

### **3.4 Papers in each year**

Not applicable.

### 3.5 Details of theory exams

Paper I : General Pathology and Systematic Pathology

Paper II : Haematology, Clinical Pathology and Cytology

Paper III : Clinical Biochemistry and Basic Microbiology

Exam will be conducted in 3 full days

#### Day 1 MICROBIOLOGY and PATHOLOGY

- Microbiology Exercises –FN
- Clinical pathology case examination/discussion-AN
- Hematology exercise and Urine Analysis
- Gross specimen spotting and discussion

#### Day 2 MICROBIOLOGY and PATHOLOGY

- Reporting on Microbiology exercise-FN
- Histopathology Techniques-FN
- Section cutting
- Hematoxylin – Eosin stain, Special stain
- Cytology staining
- Pathology Slide spotting- **Afternoon**
  1. ***Histopathology slides – 5***
  2. ***Cytology slides – 5***
  3. ***Hematology slides – 5***

#### Day 3 BIOCHEMISTRY

- Biochemistry exercises

***The indicated Examination exercises are mandatory. However, the distribution of the exercises is flexible and may be modified as per needs and is to be assigned through a time table from the Dept. of Pathology in consultation with the departments of Biochemistry and Microbiology.***

## DISTRIBUTION of MARKS

### **MICROBIOLOGY**

1. Slide spotting (5 items)	10 marks,
2. Processing and identification of clinical specimen	20 marks
3. Mixture Plating-	5 marks
4. Serological testing- 1 test	5 marks
5. Parasitology & Mycology	10 marks

### **BIOCHEMISTRY**

1. OSPE ( 10 items)	20 marks,
2. Instrument Handling	20 marks
3. Biochemistry tests 2 tests	10 marks

### **PATHOLOGY**

1. Histopathology techniques	15 marks
2. Clinical pathology	
3. Hematology	
4. blood bank - exercise	
5. Slide spotting	45marks
6. Gross spotting	15marks

### **Pass criteria**

#### **Separate minimum of 50% marks for:**

1. Theory with a 45% minimum for each paper
2. Practical exam including viva voce

Moderation or Grace marks will not be given

The criteria will be, as per existing university (KUHS) rules at the time of Admission

### **3.6 Model question paper for each subject with question paper pattern**

QP Code:

Reg.No.:.....

P.G.Diploma Examinations in Clinical Pathology  
(Model Question Paper)

Paper I- General Pathology & Systemic Pathology

Time: 3 hrs

Max marks:100

- Answer all questions
- Draw diagram wherever necessary

Essay:

(20)

1. Classify chemical mediators of inflammation. Explain the important roles played by them in the different phases of the process. Mention the mediators involved in and the systemic effects of inflammation.

Short essays:

(8x10=80)

2. Briefly describe the pathogenesis and pathology of polar forms of Hansen's disease

3. Explain chemical carcinogenesis with examples

4. Describe the pathogenesis, pathology and diagnosis of antiphospholipid antibody syndrome

5. Describe the glomerular changes seen in systemic lupus erythematosus

6. Explain the pathology and immuno histochemical features of nodular sclerosis type of Hodgkin lymphoma

7. Describe briefly the pathology and differential diagnosis of cystic lesions of the lung in childhood

8. Briefly explain the pathogenesis and pathology of peptic ulcer disease.

9. Pathology and differential diagnosis of osteosarcoma

\*\*\*\*\*

QP Code:

Reg.No.:.....

P.G.Diploma Examinations in Clinical Pathology  
(Model Question Paper)

**Paper II – Hematology, including blood bank, clinical pathology and cytology**

Time: 3 hrs

Max marks:100

- Answer all questions
- Draw diagram wherever necessary

Essay: (20)

1. Describe the current classification of Acute leukemia. Write briefly about the general and molecular pathology, its therapeutic implications and diagnosis of acute promyelocytic leukemia (20)

Short essays: (8x10=80)

2. Classify immune hemolytic anemia. Discuss the diagnostic approach in case of a spherocytic hemolytic anemia.

3. Describe the pathology of plasma cell myeloma and its diagnostic work up.

4. Explain the inheritance, clinical features and laboratory diagnosis of von Willebrand disease

5. Explain briefly the preparation and interpretation of urinary sediment.

6. Explain blood component separation, their preservation and uses

7. Discuss the adverse reaction due to transfusion of leucocytes

8. Explain the principle & technique of liquid based cytology and its advantages and disadvantages over conventional smearing techniques.

9. Explain briefly the diagnostic approach to a case of hemorrhagic ascites by fluid cytology

QP Code:

Reg.No.:.....

**P.G.Diploma Examinations in Clinical Pathology**

**(Model Question Paper)**

**Paper III – Clinical Biochemistry and Basic Microbiology**

Time: 3 hrs

Max marks:100

- Answer all questions
- Draw diagram wherever necessary
- Write SECTION A and SECTION B in separate Answer books  
(32 Pages).

Do not mix up questions from Section A and Section B.

QP Code: Section A - Biochemistry 50

Essay:

(15)

1. Explain the pathogenesis of atherosclerosis and biochemical evaluation of its risk factors including hyperlipidemia

Short essays:

(7x5=35)

2. High precision liquid chromatography and its applications
3. Quality control in chemical laboratory
4. Cardiac biomarkers
5. WHO recommended oral glucose tolerance test
6. Renal function tests for glomerular function
7. Liver function tests in a case of acute hepatitis
8. Mass spectrometry

\*\*\*\*\*

QP Code: Section B - Microbiology 50

Essay:

(15)

1. Classify mycobacteria. Describe the pathogenesis of pulmonary tuberculosis.

Briefly describe the current methods for its laboratory diagnosis

Short essays: (7x5=35)

2. Immunodiffusion
3. ELISA
4. Staining techniques in parasitology
5. Opportunistic fungal infections
6. Cultivation of viruses
7. Chemical disinfection
8. Type I hypersensitivity

\*\*\*\*\*

**3.7 Internal assessment component**

Not applicable.

**3.8 Details of practical/clinical practicum exams**

Present in clause 3.3

**3.9 Number of examiners needed (Internal & External) and their qualifications**

**Examiners**

1. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.

2. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva**

Viva Voce : 100 marks

Oral : 80 marks

Log Book : 20 marks

### **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

### **5. ANNEXURES**

#### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

#### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

**LOG BOOK OF**

**THE DEGREE OF .....**

**NAME.....**

1. BIODATA OF THE CANDIDATE
2. EXPERIENCE BEFORE JOINING P.G. COURSE
3. DETAILS OF POSTING :
  - FIRST YEAR
  - SECOND YEAR
  - THIRD YEAR
4. THESIS RESEARCH WORK
5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. Daily activities record (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGES
16. SUMMARY

# REGULATIONS 2016

## Syllabus

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN MEDICINE**

**DERMATOLOGY VENEROLOGY AND  
LEPROSY**

**Course Code 503**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in Dermatology Venereology and Leprosy

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.

- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

### **2.4 Course outline**

Present in clause 2.10

## **2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

## **2.6 Syllabus**

Present in clause 2.10

The concept of health care counseling shall be incorporated in all relevant areas.

## **2.7 Total number of hours**

Not applicable since course is residential programme

## **2.8 Branches if any with definition**

Not applicable.

## **2.9 Teaching learning methods**

### **Learning Activity**

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months by the senior faculty for which at least 50% marks are needed for appearing the final examination. Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

### **The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposia
- Journal clubs
- Case presentations
- Problem oriented case discussions

- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- Weekly Teaching ward rounds
- Clinical case conference
- Seminars
- Journal club
- Case presentation and discussion In Leprosy, STI
- Dermatopathology discussion weekly
- Structured group discussion
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
  - The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the

examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.

- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.
- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

### **Teaching Methods for Dermatopathology**

- Seminars and journal club
- 10 theory lectures in form of seminar, journal club

- Dermatopathology discussion every week.

### **Teaching Methods for Aesthetic dermatology**

- Seminar, group discussion, topic presentation . There should be questions on Aesthetic dermatology in Paper IV.

### **Teaching Methods for Research methodology**

- Introduction to research methodology. There should be questions on Research methodology in Paper I.

### **Teaching methods for Dermatosurgery**

- Seminars and journal club.
- Practical demonstration of techniques by a faculty member of a representative case of each disease would be part of their Minor OT posting and posting in dermatosurgery clinic (4 months). They would also be required to assist the procedures.
- Teaching methods would include at least 10 theory lectures in the form of seminars and journal club.
- Theory – The subject is included in paper II of the theory examination and at least one short note would be from the dematosurgical procedures.
- Practical – They would be subjected to questions on various dermatosurgical procedures and instruments related to these procedures during their viva voce examination.

### **Maintenance of Record of Work done.**

1. A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

## **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

### **2.10 Content of each subject in each year**

Main subjects to be covered

1. Dermatology
2. Venereology
3. Leprosy
4. Dermatopathology
5. Dermatosurgery (including lasers)
6. Aesthetic dermatology
7. Research methodology
8. Communication skill
9. Bioethics

## **DERMATOLOGY**

### **Foundations of Dermatology**

1. *History of Dermatology*
2. *Embryology of skin*
3. *Structure and function of the skin*
4. *Histopathology of the skin : General principles*
5. *Diagnosis of skin disease*
6. *Epidemiology of skin disease*
7. *Health economics and skin disease*
8. *Genetics and the skin*
9. *Inflammation, Immunology, and allergy*
10. *Photobiology*

11. *Cutaneous response to Injury and wound healing*
12. *Psychological and social impact of Long term Dermatological conditions*
13. *Adverse immunological Reactions to Drugs*
14. *Topical drug delivery*
15. *Clinical Pharmacology*

### **Management**

16. *Principles of Holistic Management of skin disease*
17. *Principles of Measurement and Assessment in Dermatology*
18. *Principles of Evidence based Dermatology*
19. *Principles of Topical therapy*
20. *Principles of Systemic therapy*
21. *Principles of skin surgery*
22. *Principles of Phototherapy*
23. *Principles of Photodynamic therapy*
24. *Principles of Cutaneous laser therapy*
25. *Principles of Radiotherapy*

### **Infections and infestations**

26. *Viral infections*
27. *Bacterial infections*
28. *Mycobacterial infections*
29. *Leprosy*
30. *Syphilis and congenital syphilis*
31. *Other Sexually Transmitted Bacterial Diseases'*
32. *HIV and the skin*
33. *Fungal infections*
34. *Parasitic diseases*
35. *Arthropods*

### **Inflammatory Dermatoses**

36. *Psoriasis and related disorders*
37. *Pityriasis rubra pilaris*
38. *Lichen planus and lichenoid disorders*

- 39. *Graft versus host disease*
- 40. *Eczematous disorders*
- 41. *Seborrheic dermatitis*
- 42. *Atopic eczema*
- 43. *Urticaria*
- 44. *Recurrent Angio-oedema without weals*
- 45. *Urticular vasculitis*
- 46. *Autoinflammatory Diseases presenting in the skin*
- 47. *Mastocytosis*
- 48. *Reactive Inflammatory Erythemas*
- 49. *Adamantiades – Behcet Disease*
- 50. *Neutrophilic Dermatoses*
- 51. *Immunobullous diseases*
- 52. *Lupus erythematosus*
- 53. *Antiphospholipid syndrome*
- 54. *Dermatomyositis*
- 55. *Mixed connective tissue Disease*
- 56. *Dermatological Manifestations of Rheumatoid Disease*
- 57. *Systemic sclerosis*
- 58. *Morphea and Allied Scarring and Sclerosing inflammatory Dermatoses*

#### **Metabolic and nutritional disorders affecting the skin**

- 59. *Cutaneous Amyloidoses*
- 60. *Cutaneous Mucinoses*
- 61. *Cutaneous Porphyrias*
- 62. *Calcification of the skin and Subcutaneous Tissue*
- 63. *Xanthomas and Abnormalities of Lipid Metabolism and Storage*
- 64. *Nutritional disorders affecting the skin*
- 65. *Skin disorders in Diabetes Mellitus*

#### **Genetic disorders involving the skin**

- 66. *Inherited Disorders of Cornification*
- 67. *Inherited Acantholytic Disorders*

68. *Ectodermal Dysplasias*
69. *Inherited hair disorders*
70. *Genetic defects of nails and nail growth*
71. *Genetic disorders of pigmentation*
72. *Genetic blistering diseases*
73. *Genetic disorders of Collagen, Elastin and Dermal matrix*
74. *Disorders affecting Cutaneous Vasculature*
75. *Genetic disorders of Adipose Tissue*
76. *Congenital Naevi , and other development abnormalities*
77. *Chromosomal disorders*
78. *Poikiloderma syndromes*
79. *DNA Repair disorders with Cutaneous features*
80. *Syndromes with Premature ageing*
81. *Hamartoneoplastic syndromes*
82. *Inherited metabolic diseases*
83. *Inherited immunodeficiency*

#### **Psychological , sensory and neurological disorders and the skin**

84. *Pruritus , Prurigo and Lichen simplex*
85. *Mucocutaneous pain syndromes*
86. *Neurological conditions affecting the skin*
87. *Psychodermatology and psychocutaneous disease*

#### **Skin disorders associated with specific cutaneous structure**

88. *Acquired disorders of epidermal keratinisation*
89. *Acquired pigmentary disorders*
90. *Acquired disorders of Hair*
91. *Acne*
92. *Rosacea*
93. *Hidradenitis Suppurativa*
94. *Other acquired disorders of the Pilosebaceous unit*
95. *Disorders of sweat glands*
96. *Acquired disorders of the nails and Nail Unit*

97. *Acquired disorders of Dermal connective Tissue*
98. *Granulomatous disorders of the skin*
99. *Sarcoidosis*
100. *Panniculitis*
- 101. *Other acquired disorders of Subcutaneous fat***

#### **Vascular disorders involving the skin**

102. *Purpura*
103. *Cutaneous vasculitis*
104. *Dermatoses resulting from disorders of the veins and arteries*
105. *Ulceration resulting from disorders of the veins and arteries*
106. *Disorders of the lymphatic vessels*
- 107. *Flushing and blushing***

#### **Skin disorders associated with specific sites, sex and age**

108. *Dermatoses of the scalp*
109. *Dermatoses of the External Ear*
110. *Dermatoses of the Eye, Eyelids and eyebrows*
111. *Dermatoses of the oral cavity and lips*
112. *Dermatoses of the Male Genitalia*
113. *Dermatoses of the Female Genitalia*
114. *Dermatoses of Perineal and Perianal skin*
115. *Cutaneous complications of Stomas and Fistule*
116. *Dermatoses of Pregnancy*
117. *Dermatoses of the Neonate*
- 118. *Dermatoses and Haemangiomas of Infancy***

#### **Skin disorders caused by external agents**

119. *Benign Cutaneous Adverse Reactions to drugs*
120. *Severe Cutaneous adverse reactions to drugs*
121. *Cutaneous side effects of Chemotherapy and Radiotherapy*
122. *Dermatoses induced by Illicit drugs*
123. *Dermatological manifestations of Metal poisoning*
124. *Mechanical Injury to the skin*

- 125. *Pressure Injury and pressure ulcers*
- 126. *Cutaneous reactions to cold and heat*
- 127. *Burns and heat injury*
- 128. *Cutaneous photosensitivity diseases*
- 129. *Allergic contact dermatitis*
- 130. *Irritant contact dermatitis*
- 131. *Occupational dermatology*
- 132. *Stings and bites***

#### **Neoplastic, proliferative and infiltrative disorders affecting the skin**

- 133. *Benign Melanocyte Proliferations and Melanocytic Naevi*
- 134. *Benign Keratinocyte Acanthomas and Proliferations*
- 135. *Cutaneous Cysts*
- 136. *Lymphocytic infiltrates*
- 137. *Cutaneous histiocytoses*
- 138. *Soft – tissue Tumours and Tumour – like conditions*
- 139. *Tumours of skin Appendages*
- 140. *Kaposi sarcoma*
- 141. *Cutaneous Lymphomas*
- 142. *Basal cell carcinoma*
- 143. *Squamous cell carcinoma and its Precursors*
- 144. *Melanoma*
- 145. *Dermoscopy of Melanoma and Naevi*
- 146. *Merkel cell Carcinoma*
- 147. *Skin cancer in the Immunocompromised patient***

#### **Systemic disease and the skin**

- 148. *Cutaneous Markers of Internal malignancy*
- 149. *The Skin and Disorders of the Haematopoietic and Immune systems*
- 150. *The Skin and Endocrine disorders*
- 151. *The skin and Disorders of the Heart*
- 152. *The skin and Disorders of the Respiratory system*
- 153. *The skin and disorders of the Digestive system*

154. *The skin and disorders of the Kidney and Urinary Tract*

155. *The skin and disorders of the Musculoskeletal system*

### **Aesthetic dermatology**

156. *Skin Ageing*

157. *Cosmeceuticals*

158. *Soft Tissue Augmentation*

159. *Aesthetic Uses of Botulinum Toxins*

160. *Chemical peels*

161. *Lasers and energy – based devices*

### **Leprosy**

162. *Approach to the patient with leprosy*

163. *Epidemiological Aspects*

164. *Structure, biochemistry, microbiology of *Mycobacterium leprae**

165. *Animal models*

166. *Pathogenesis*

167. *Classification*

168. *Immunology and molecular biological aspects*

169. *Histopathology and diagnosis including laboratory aids*

170. *Clinical features*

171. *Reactions*

172. *Systemic involvement (Ocular, bone, mucosa, testes and endocrine etc.)*

173. *Pregnancy and leprosy*

174. *HIV infection and leprosy*

175. *Therapeutic aspects including newer drugs.*

176. *Immunotherapy*

177. *Disabilities, deformities and Rehabilitation*

178. *Prevention, education and counseling*

179. *National Leprosy Control and Elimination Programme*

### **Venereology**

180. *Clinical approach to the patient of sexually transmitted disease.*
181. *Anatomy of Male & Female Genitalia.*
182. *Epidemiological aspects of STIs*
183. *Viral STI including HIV, Herpes, HPV, Molluscum Contagiosum, EBV, etc*
184. *Bacterial STIs; Syphilis, Gonorrhoea, Chancroid, Donovanosis.*
185. *Chlamydial infections; Lymphogranuloma Venereum, Urethritis, Cervicitis,*
186. *NGU, Nonspecific Vaginitis.*
187. *Fungal Infections; Candidiasis.*
188. *Protozoa ; Trichomoniasis.*
189. *Ectoparasite : Scabies, Pediculosis, Infestation.*
190. *Syndromic Management of STIs*
191. *STIs in Reproductive age group & Pediatric age group*
192. *STIs & HIV.*
193. *Prevention, Counselling & Education of different STDs including HIV.*
194. *National Control Programmes of STIs & HIV.*
195. *Medicolegal, Social Aspects of STIs including Psychological & Behavioural abnormalities in STD patients.*

#### **2.11 No: of hours per subject**

Residency Programme.

#### **2.12 Practical training**

The residents shall be posted indoor for 6 months exclusively. For the remaining months the students will rotate through outdoor, side laboratory, minor OT, speciality clinics, i.e. leprosy, STI, psoriasis, pigmentation, allergy and dermatosurgery.

o Dermatology Ward	—	6 months
o General Skin OPD	—	8months
o Minor OT& Side Laboratory, Phototherapy	—	4months
o STI Clinic	—	2 months
o Speciality Posting	--	2months

Aesthetic clinic

- 2 months

The above schedule is provisional and is subject to modifications as per the discretion of the head of department to ensure sufficient exposure to various facets of training and the departmental and institutional objectives. The postings will be spread over the entire period. During postings 2nd and 3rd year residents or senior residents will give cover to first year residents and have active involvement in the diagnosis, investigations and treatment of the admitted patients.

The postings will be spread over the entire period. Senior residents will give cover to first year residents and have active involvement in the diagnosis, investigations and treatment of the admitted patients.

#### **Teaching Programme**

- ✓ Weekly Teaching ward rounds
- ✓ Clinical case conference
- ✓ Seminars
- ✓ Journal club
- ✓ Case presentation and discussion In Dermatology, Leprosy, STI
- ✓ Dermatopathology discussion weekly
- ✓ Structured group discussion

#### **2.13 Records**

Present in clause 2.21.

#### **2.14 Dissertation:**

Not applicable.

#### **2.15 Speciality training if any**

Present in clause 2.12

#### **2.16 Project work to be done if any**

As per direction of the Head of Department.

#### **2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/ State/Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/State/ Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

#### **2.18 Prescribed/recommended textbooks for each subject :** Present in clause 2.19.

## **2.19 Reference books**

Current editions of:

1. Fitzpatrick's Dermatology in general medicine - 8th edition
2. Rook's Text book of Dermatology - 9th edition
3. Dermatology – 3<sup>rd</sup> edition- Jean L bolognia, Joseph L Jorizzo , Julie V Schaffer
4. IADVL text book of Dermatology 3rd edition
5. Sexually transmitted diseases (King K.Holmes) 2nd edition
6. Venereal diseases (Ambrose King, Claude Nicol, Philip Rodin 4th edition
7. Hand book of Leprosy (Jopling)
8. Leprosy (Robert C Hastings )

## **2.20 Journals**

Current editions of:

1. Journal of American Academy of Dermatology
2. British Journal of Dermatology
3. Indian journal of Dermatology, Venereology & Leprology
4. Indian Journal of Leprosy
5. JAMA Dermatology
6. Paediatric Dermatology
7. Indian Journal of Pediatric Dermatology
8. International journal of Trichology
9. Leprosy review

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal

at the time of his / her appearing at the Final examination. The logbook should record clinical cases presented, procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

### **3. EXAMINATIONS**

#### **3.1 Eligibility to appear for exams**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least two State/National conferences during his/her training period. **(This is considered as eligibility criteria for appearing for the examination)**

The examinations shall be organized on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training. The examination for Diploma course is at the end of 2<sup>nd</sup> academic year.

#### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

#### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the specialty.

***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

**SCHEME OF EXAMINATION**

- Theory - 300 marks
- Clinical / Practical - 200 marks
- Oral - 100 marks

**Theory:** 3 papers , each 3 hours duration with one structured long essay carrying 20 marks and eight short essays carrying 10marks each.

**Practicals**:- Total 200 marks

1 long case	- 80marks
2 short cases	- 60 marks

10 spotters - 60marks

**Oral :** Total 100 marks

Histopathology - 20marks  
 Drugs - 10marks  
 Instruments - 10 marks  
 Viva - 60marks

Sl. No.	Subject	Theory		Theory Group		Practical					Practical Group		Total	
		University				University		Viva		Log boo k				
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Max	Min	Max	Min
1	Paper I	100	40	300	150	200	80	20	20	300	150	600	300	300
2	Paper II	100	40											
3	Paper III	100	40											

### 3.4 Papers in each year

Not applicable.

### 3.5 Details of theory exams

As per clause 3.3

Theory Consists of three papers of three hour duration, each paper consisting of one structured long essay for 20 marks, and eight short essays carrying ten marks each.

Paper I – Basic Sciences as Applied to Dermatology and Recent Advances

Paper II – Clinical Dermatology and Therapeutics

Paper III – Venerology and Leprosy

### 3.6 Model question paper for each subject with question paper pattern

QP Code:

Reg.No.:.....

**P.G. Diploma Examinations in Dermatology , Venerology and  
Leprosy (DDVL)**  
**(Model Question Paper)**

**Paper I – Basic Sciences as Applied to Dermatology and Recent Advances**

**Time: 3 hrs Max marks:100**

- ***Answer all questions***

**Essay: (20)**

1. Describe the structure of the nail unit. -\*Discuss the various nail changes occurring as manifestations of systemic diseases.

**Short essays: (8x10=80)**

2. Corynebacterium
3. Randomised controlled trial
4. Prozone phenomenon
5. Epidermal melanin unit
6. Blaschko's lines
7. Littré's glands
8. Gene therapy
9. Culture medium for *H.ducreyi*

\*\*\*\*\*

**QP Code:**

**Reg.No.:.....**

**P.G. Diploma Examinations in Dermatology , Venerology and  
Leprosy (DDVL)**  
**(Model Question Paper)**

**Paper II – Clinical Dermatology and Therapeutics**

**Time: 3 hrs Max marks:100**

- ***Answer all questions***

**Essay: (20)**

1. Enumerate the causes of exfoliative dermatitis. How will you investigate a patient presenting with exfoliative dermatitis.

**Short essays: (8x10=80)**

2. Henoch-Shonlein purpura
3. Netherton's syndrome
4. Lichen nitidus
5. Tinea imbricata
6. Intravenous immunoglobulins
7. Chromoblastomycosis
8. Acyclovir
9. Fixed drug eruption

\*\*\*\*\*

QP Code:

Reg.No.:.....

**P.G. Diploma Examinations in Dermatology , Venerology and**

**Leprosy (DDVL)**

**(Model Question Paper)**

**Paper III – Venerology and Leprosy**

**Time: 3 hrs Max marks:100**

**• Answer all questions**

**Essay: (20)**

1. What is meant by " syndromic approach to management of sexually transmitted diseases". Discuss its rationale.

**Short essays: (8x10=80)**

2. Pure neuritic leprosy
3. Lucio phenomenon
4. Dapsone syndrome
5. MDT
6. Thalidomide
7. Gay bowel syndrome
8. Chancre redux
9. Nonspecific urethritis

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### 3.7 Internal assessment component

Not applicable.

### 3.8 Details of practical/clinical practicum exams

Total 200 marks

1 long case	- 80marks
2 short cases	- 60 marks
10 spotters	- 60 marks

KUHS

DVD (DERMATOLOGY, VENEREOLOGY AND LEPROSY)

Reg No:	Practicals				Total	Histo-pathology	Drugs	Equipments	Viva	Logbook	Total	Grand total
Dermatology	Venerology	Leprosy	Spotters		200	20	10	10	40	20	100	300
	Long case (80)	Short case (30)	Short case (30)	(60)								

Name of Centre :

Date :

### 3.9 Number of examiners needed (Internal & External) and their qualifications

*Examiners*

1. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
2. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the Internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva**

100 marks for Viva Voce (80 marks for Viva Voce & 20 marks for Log book)

Total 100 marks

Histopathology	- 20marks
Drugs	- 10marks
Instruments	-10 marks
Viva	- 40 marks
Log Book	- 20 marks

## **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

## **5. ANNEXURES**

### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

## **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

DEPARTMENT OF .....

**LOG BOOK OF**

THE DEGREE OF .....

NAME.....

1. BIODATA OF THE CANDIDATE
2. EXPERIENCE BEFORE JOINING P.G. COURSE
3. DETAILS OF POSTING :
  - FIRST YEAR
  - SECOND YEAR
  - THIRD YEAR
4. THESIS RESEARCH WORK
5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. Daily activities record (BLANK PAGES)

ONE PAGE FOR EACH MONTH X 36 PAGES

  

16. SUMMARY

# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN MEDICINE**

**OBSTETRICS AND GYNAECOLOGY**

**Course Code: 504**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 1. Title of course:

Diploma in Obstetrics and Gynaecology

### 2. Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyse relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.

- Function as an effective leader of a health team engaged in health care, research and training.
- The candidate should develop compassionate attitude towards patients and should have an aptitude to give palliative care for patients who are suffering from end stage disease or otherwise

### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

### **2.4 Course outline**

2 completed academic years inclusive of the final exams

### **2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

### **2.6 Syllabus**

As per clause 2.10 of the curriculum.

The concept of healthcare counselling shall be incorporated in the relevant areas.

### **2.7 Total number of hours**

Not applicable since the course is a residency programme.

## **2.8 Branches if any with definition**

Not applicable

## **2.9 Teaching learning methods**

### **Learning Activity**

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months. Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing for the examination.

### **The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)

- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training

programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.

- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.
- All Post Graduate students should take part in the teaching of paramedical students under supervision.

#### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

#### **Maintenance of Record of Work done.**

A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.

A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.

A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

## **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

### **2.10 Content of each subject in each year**

#### **Obstetrics**

Physiology of Pregnancy - Common Problems in Pregnancy - Normal Labour – Delivery – Abnormal Labour – Abortion – Abnormal Pregnancy – Operative Obstetrics – Medical Disorders in Pregnancy - Fetus and Newborn.

#### **Gynaecology**

Physiology of Menstruation – Abnormal Menstruation – Infertility – Genital Injuries including fistula – Genital Displacements – Genital Infections – Neoplasms of genital tract – Abnormal vaginal discharge – Endometriosis – Operative Gynecology – Urological Problems.

#### **Family Planning**

Contraception – Medical Termination of Pregnancy – Tubectomy – Vasectomy

## **First year**

In general acquisition of basic information and an introduction to complicated obstetrics and not for being a primary surgeon in Caesarean section or other major surgical procedures.

Comprehensive obstetric history –obstetric examination – Functional pelvic anatomy of normal pregnancy – Physiological changes of normal pregnancy – Common clinical changes associated with it -Comprehension of all major anatomic, functional and systemic changes of pregnancy – Use of drugs in pregnancy –Development of placentation – Normal placental physiology – Normal carbohydrate metabolism with aberrations in pregnancy – Counselling a patient regarding the advisability of pregnancy – Ability to successfully conduct management of labour and delivery – Fetal monitoring – Assessment of labour – Introduction of the use of forceps – Developing expertise in the management of the immediate postpartum period –Post partum tubal ligation –Review of literature on Obstetrics and Gynaecology – Selection of topics for thesis protocol /pilot study / initiation of thesis – Engaging in journal club / Symposia /Seminars /Conference to attain skills in teaching.

## **Second Year**

Management of Abortion, Ectopic pregnancy and Second trimester pregnancy loss – Procedures for diagnosis – Complications associated with fetal death, methods of termination of pregnancy – Evaluation and management of late pregnancy bleeding- Management of medical and surgical conditions which complicate pregnancy diagnosis – Management of premature rupture of membranes – Induction of labour and indications for inductions – Instrumental delivery- Learning the basics of fetal diagnostic evaluation, amniocentesis and genetic counselling –

### **Cases to be performed or assisted**

First year – Observation and assistance

Second year - Performing under supervision

### **Minimum Number of Cases to be performed or assisted**

Caesarean section - 10

Hysterectomy - Assisting – 10

Performing - 5

MTP – 10

Postpartum sterilization -10

### **Ultrasound scan**

Observing – 10

Assisting - 10

Hands on – 50

### **Laparoscopy**

Assisting - 10

Performing - 10

Laparoscopic sterilization -10

**2.11 No: of hours per subject**

Not applicable.

**2.12 Practical training**

**Training programme**

All candidates joining postgraduate training programme shall work as full time residents during the period of training.

Post graduate students have to maintain a record (log book) of the work carried out by them including the details of surgical operations assisted or performed.

Record book have to be checked by the faculty members.

Post graduate student should participate in teaching and training programmes of under graduate students and interns.

Post graduate student have to participate in state and national conferences and have to present papers.

**2.13 Records**

As mentioned above

**2.14 Dissertation:**

Not Applicable

**2.15 Speciality training if any**

15 days of NICU

1 month of Family planning

**2.16 Project work to be done if any**

As per direction of the Head of the Department.

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/ Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/State/ Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18 Prescribed/recommended textbooks for each subject**

- Practical Guide to High Risk Pregnancy and Delivery Fernando Arias
- MunroKerr Operative Obstetrics
- D.C Dutta Text Book of Obstetrics
- Ian Donald's Practical Obstetric Problems
- Dewhurst's Text book of Obstetrics and Gynaecology
- Shaw's textbook of Gynaecology
- Shaw's Text Book of Operative Gynaecology
- The Management of Labour – S. Arulkumarn
- William's Gynaecology 2<sup>nd</sup> Edition
- Text book of gynaecology – Lakshmi sheshadri

**2.19 Reference books**

Current editions:

- William's Obstetrics 24<sup>th</sup> Edition
- Obstetrics Normal And Problem pregnancies Gabbe
- High Risk Pregnancy Management Options -5th Edition James Steer
- Berek & Novak's Gynaecology 15<sup>th</sup> Edition
- TeLinde's Operative Gynaecology 11<sup>th</sup> Edition
- Clinical Gynaecologic Endocrinology and Infertility Leon Speroff 8<sup>th</sup> Edition
- Jeffcoate Principles of Gynaecology 8<sup>th</sup> Edition
- Berek and Hacker Gynaecologic oncology 6<sup>th</sup> Edition
- Postgraduate Gynaecology by Dr. B. Presannakumary
- Recent Advances in Obstetrics and Gynaecology 24<sup>th</sup>. 25<sup>th</sup>. 26<sup>th</sup> edition
- Progress in Obstetrics and Gynaecology 17<sup>th</sup>. 18<sup>th</sup> Edition
- Ultrasonography in Obstetrics & Gynaecology by Callen 5<sup>th</sup> edition

## 2.20 Journals

Current editions of:

- British Journal of Obstetrics and Gynaecology BJOG
- The Obstetrician and Gynaecologist TOG
- Obstetrics & Gynaecology Survey
- Current Opinion in Obstetrics & Gynaecology
- Clinical Obstetrics and Gynaecology
- American Journal of Obstetrics & Gynaecology
- Clinics of North America
- Best Practice& Research Clinical Obstetrics & Gynaecology
- The Journal of Obstetrics & Gynecology of India JOGI
- Fertility Sterility Journal
- International Journal of Reproduction, Contraception Obstetrics & Gynaecology
- Journal of Gynaecologic Oncology JGO
- Indian Journal of Gynaecologic Oncology

- The European Journal of Contraception and Reproductive Health Care

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

## **3. EXAMINATIONS**

### **3.1 Eligibility to appear for exams**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides he/she must have attended at least one State/National conferences during his/her training period. (This is considered as eligibility criteria for appearing for the examination)

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training. The examination for Diploma will be held at the end of 2nd academic year.

### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

#### ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

#### ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed six for Diploma courses.

### SCHEME OF EXAMINATION

Theory 300 marks

Clinical / practical 200 marks

Oral 100 marks.

**Theory:** 3 papers, each 3 hours duration with one structured long essay carrying 20 marks and eight short essays carrying 10 marks each.

**Practicals:** Total 200 marks distributed between long case/ short case/ practicals depending on the speciality.

Obstetrics :1 Long Case – 100

Gynecology :2 Short Case – 50 each

**Oral:** 100 marks for oral examination.

4 Stations 20 each

Family Planning

Specimen

Instruments

CTG, X-ray, USG, Pulse, Foetal Skull

Log Book 20 marks

**Pass Criteria:** 50 % Separate minimum for:

Theory with 40% minimum for each paper

Clinical / practical, and oral examinations.

Sl. No.	Subject	Theory		Theory Group	Practical				Practical Group		Total		
		University			University		Viva						
		Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
1	Paper I	100	40										
2	Paper II	100	40	300	150	200	100	300	150	600	300		
3	Paper III	100	40										

### 3.4 Papers in each year

Not applicable.

### 3.5 Details of theory exams

As per clause 3.3

Theory: 3 papers, each 3 hours duration with one structured long essay carrying 20 marks and eight short essays carrying 10 marks each.

- Paper I - Applied Basic Sciences in relation to Obstetrics & Gynaecology
- Paper II- Obstetrics & Diseases of the Newborn
- Paper III- Gynaecology including Family Welfare

### 3.6 Model question paper for each subject with question paper pattern

#### **P.G. Diploma Examinations in Obstetrics & Gynaecology (DGO)**

#### **(Model Question Paper)**

#### **Paper I - Applied Basic Sciences in relation to Obstetrics & Gynaecology**

**Time: 3 hrs Max marks:100**

**• Answer all questions**

**Essay: (20)**

1. Describe the changes in carbohydrate metabolism:

- In normal pregnancy.
- Pregnant woman with diabetes.

**Short essays: (8x10=80)**

2. Role of prostaglandins in obstetrics

3. PPTCT

4. GnRh agonists in gynaecology

5. Management of gestational diabetes

6. Long term effects of PCOS

7. PPROM

8. Conservative management of CIN

9. Peripartum cardiomyopathy

\*\*\*\*\*

**P.G. Diploma Examinations in Obstetrics & Gynaecology (DGO)**  
**(Model Question Paper)**

**Paper II- Obstetrics & Diseases of the Newborn**

**Time: 3 hrs Max marks:100**

**• Answer all questions**

**Essay: (20)**

1. Classify the hypertensive disorders of pregnancy. How will you diagnose,

Investigate and manage a case of severe pre eclampsia at 32 weeks gestation.

**5+15=20)**

**Short essays: (8x10=80)**

2. Management of PPH.

3. VBAC.

4. Vacuum delivery

5. Evaluation of recurrent pregnancy loss.

6. Amniocentesis.

7. Hypothyroidism in pregnancy.

8. Neonatal sepsis.

9. Complications of breech delivery.

\*\*\*\*\*

**P.G. Diploma Examinations in Obstetrics & Gynaecology (DGO)**  
**(Model Question Paper)**

**Paper III- Gynaecology including Family Welfare**

**Time: 3 hrs Max marks:100**

**• Answer all questions**

**Essay: (20)**

1. Discuss the causes of primary amenorrhoea. How will you investigate a case of a primary amenorrhoea. (5+15=20)

**Short essays: (8x10=80)**

2. Emergency contraception.

3. Azoospermia.

4. Evaluation of an adnexal mass.

5. Causes of postmenopausal bleeding.

6. MTP Act

7. Medical treatment of endometriosis.

8. HSG.

9. Screening of carcinoma cervix.

\*\*\*\*\*

### **3.7 Internal assessment component**

As mentioned before

### **3.8 Details of practical/clinical practical exams**

As mentioned before

### **3.9 Number of examiners needed (Internal & External) and their qualifications**

#### ***Examiners***

All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post

Graduate Degree. External examiners should have minimum 3 years' experience as a postgraduate examiner in the concerned subject.

For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva**

As mentioned before

### **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

### **5. ANNEXURES**

#### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

##### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

##### **LOG BOOK OF**

THE DEGREE OF .....

NAME.....

#### BIODATA OF THE CANDIDATE

#### EXPERIENCE BEFORE JOINING P.G. COURSE

##### DETAILS OF POSTING :

FIRST YEAR

SECOND YEAR

THIRD YEAR

THESIS RESEARCH WORK

PARTICIPATION CONFERENCES – CME PROGRAMMES

##### DETAILS OF LEAVE AVAILED

##### DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME

SEMINARS /SYMPOSIA PRESENTED

STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS

JOURNAL CLUBS

TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.

SPECIAL DUTIES (IF ANY )

INTERNAL ASSESSMENT

MISCELLANEOUS

DAILY ACTIVITIES RECORD (BLANK PAGES)

ONE PAGE FOR EACH MONTH X 36 PAGES

SUMMARY



# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN MEDICINE**

**OPHTHALMOLOGY**

**Course Code 505**

**(2016-17 Academic year onwards)**

**2016**

## **2. COURSE CONTENT**

### **2.1 Title of course:**

Diploma in Ophthalmology

### **2.2 Objectives of course**

#### **GOAL**

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.

- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.
- Should be aware of the rationale use of antibiotics and its current protocols.
- The candidate should develop compassionate attitude towards patients and should have an aptitude to give palliative care for patients who are suffering from end stage disease.
- Should be able to give visual rehabilitation for patients with very poor vision

**2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

**2.4 Course outline**

Present in clause 2.10

**2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

**2.6 Syllabus**

Present in clause 2.10

The concept of healthcare counselling shall be incorporated in the relevant areas.

**2.7 Total number of hours**

Present in clause 2.10

**2.8 Branches if any with definition**

Not applicable

**2.9 Teaching learning methods**

Learning Activity

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months. Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

**The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training,

and given full time responsibility, assignments and participation in all facets of the educational process.

- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a log book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The log book shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.

- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.
- All Post Graduate students should take part in the teaching of paramedical students under supervision.

### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. The involvement of the student should be documented in the log book. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

### **Periodical Assessment and Progress Report**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department.

### **Internal assessment**

The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student. Marks should be allotted out of 100 as followed.

Sl. No.	Items	Marks
1.	Personal Attributes	20
2.	Clinical Work	20
3.	Academic activities	20

4.	End of term theory examination	20
5.	End of term practical examination	20

### **1. Personal attributes:**

- Behavior and Emotional Stability: Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
- Motivation and Initiative: Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
- Honesty and Integrity: Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
- Interpersonal Skills and Leadership Quality: Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

### **2. Clinical Work:**

- Availability: Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.
- Diligence: Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.
- Academic ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.
- Clinical Performance: Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.

### **3. Academic Activity:**

Performance during presentation at Journal club/ Seminar/ Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.

## **Teaching Program**

### **General Principles**

Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training is skill oriented. Learning in postgraduate program should essentially be self-directed and primarily emanating from clinical and academic work. The formal sessions should merely be meant to supplement this core effort.

### **Teaching Sessions**

- Seminar presentations including detailed topics covering all aspects of ophthalmology shall be taken up by the residents
- Journal clubs shall be held for having wider view of the subject and latest research work and papers discussed in routine.
- Case discussions should be mandatory for PG students so as to be expert in clinical examination, reach a diagnosis and then plan for appropriate and required management.

### **Teaching Schedule**

In addition to bedside teaching rounds, in the department there should be daily hourly sessions of formal teaching per week. The suggested departmental teaching schedule is as follows:

1. Seminar Presentation Once a week
2. Journal Club Once a week
3. PG Case Discussion Once a week
4. Seminar Presentation Once a week
5. Journal Club Once a week
6. PG Case Discussion / Central Session Once a week

### **Note:**

- All sessions shall be attended by all the faculty members except for those on emergency duties. All Junior and Senior Residents are supposed to attend the session.
- All teaching sessions should be assessed by consultants chairing the session.
  - Attendance of the Residents at various sessions has to be at least 75%.

## **2.10 Content of each subject in each year**

### **Theory**



During the training period effort should always be made that adequate time is spent in discussing ocular health problems of public health importance in the country.

- **Section I: Anatomy and Physiology**

- Embryology and Anatomy
- Physiology of the Eye
- The Physiology of Vision
- The Neurology of Vision

- Section II: Ophthalmic Optics**

- Elementary Optics
- Elementary Physiological Optics
- Refraction
- Refractive Errors of the Eye

- Section III: Ocular Examination Techniques and Ocular Therapeutics**

- Ocular Symptomatology
- Assessment of Visual Function
- Examination of the Anterior Segment
- Examination of the Posterior Segment and Orbit
- Ocular Therapeutics
- Ocular Microbiology

- Section IV: Diseases of the Eye**

- Diseases of the Conjunctiva
- Diseases of the Cornea
- Diseases of the Sclera
- Diseases of the Uveal Tract
- The Lens
- The Glaucomas
- Diseases of the Retina
- Diseases of the Vitreous
- Diseases of the Optic Nerve

- Intraocular Tumours
- Injuries to the Eye

#### **Section V: Disorders of Motility**

- Anatomy and Physiology of the Motor Mechanism
- Comitant strabismus
- Incomitant Strabismus

#### **Section VI: Diseases of the Adnexa**

- Diseases of the Lids
- Diseases of the Lacrimal Apparatus
- Diseases of the Orbit

#### **Section VII: Systemic Ophthalmology**

- Diseases of the Nervous System with Ocular Manifestations
- Ocular Manifestations of Systemic Disorders
- Systemic drugs – Effects on eye

#### **Section VIII: Preventive Ophthalmology**

- Genetic Ophthalmology
- The Causes and Prevention of Blindness
- Eye Banking
- Eye Camps

#### **Section IX: Surgical Instruments in Ophthalmology**

- Surgical Instruments in Ophthalmology
- Local Anaesthesia in Ophthalmology
- Lasers in Ophthalmology

#### **Practical**

During the training period, PG students should learn various clinical and skilled work. PG's should be encouraged to perform the procedures (both minor & major including) given below:

#### **Minor Procedures**

- Thorough ocular examination.

- Pediatric ocular examination.
- Removal of Corneal/ forniceal foreign body.
- Syringing and probing
- Pterygium excision
- Chalazion excision
- I & D for Adnexal infections(stye)
- Posterior/Anterior sub tenon injection
- Intravitreal injection
- Tarsorraphy
- Epilation
- Corneal Scrapping
- Conjunctival swab
- Anterior chamber tap
- Subconjunctival injection

### **Major Procedures**

- Cataract Surgery with IOL implantation
- Glaucoma surgery
- Lid surgeries including entropion, ectropion & ptosis
- Ocular trauma management
- Enucleation, Evisceration (and Exenteration)
- Corneal transplant
- Basic Squint Surgery
- Management of trauma including penetrating injury
- DCT and DCR

### **Surgical Training**

- It may be helpful to expose all PG students to artificial eye for various surgical steps and to hone surgical skills.

## **Surgical Skills**

- Thoroughly examine the eye
- Treat medical conditions
- Perform all minor and at least Cataract and Glaucoma surgery

### **2.11 No: of hours per subject**

Present in clause 2.10

### **2.12 Practical training**

#### **Posting**

- All PG students shall be posted in Eye OPD and ward on rotation.
- OT duties shall be mandatory for all PG students
- PG students should be given casualty duty to deal with any ocular emergency in the casualty.
- All PG students should be posted in various speciality Departments – Neuromedicine and Radiology

All PG students should be posted in speciality clinics- Retina, Glaucoma, Refraction and squint.

- Effort should be made to expose PG students to the latest techniques even though they may have to be sent for sometime to other centers performing the surgeries and using latest instruments or surgeries.

### **2.13 Records**

Present in clause 2.21

### **2.14 Dissertation: As per Dissertation Regulations of KUHS**

Not applicable.

### **2.15 Speciality training if any**

Present in clause 2.12.

### **2.16 Project work to be done if any**

As stipulated by the Head of department

### **2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/ State/Regional conference of the same subject during the academic period. It is desirable to present at least one poster/ read one paper in the National/State/ Regional conferences of the same subject during the academic period. This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

#### **2.18 Prescribed/recommended textbooks for each subject**

- Parson's Diseases of the Eye Sihota & Tandon Clinical
- Duanes Text book of Ophthalmology
- Refraction Duke Elder
- Adlers Physiology
- Wolf's Anatomy of eye
- Duke Elder's Refraction
- Stallard's Eye Surgery
- Practical Orthoptics in treatment of Squint Keith Lyle
- Glaucoma Shields

#### **2.19 Reference books**

Current Editions of:

- Ophthalmology Yanoff Duker
- Retina Stephen. J. Ryan
- Systems of Ophthalmology Duke Elder
- Principles and Practices of Ophthalmology Peyman, Sander & Goldberg
- Diagnosis and Therapy of Glaucoma Becker Shaffer
- Glaucoma Chandler & Grant
- Mastering Phacoemulsification Paul. S.Koch
- Cataract Surgery and its complications Jaffe
- Automated Static Perimetry Anderson and Patela
- Cornea Smolin
- Diseases of Uvea – Nozik



- Squint – Pradeep Sharma
- Neurophthalmology - Walsh

## **2.20 Journals**

Current Editions of:

- American Journal of Ophthalmology
- British Journal of Ophthalmology
- Archives in Ophthalmology
- Ophthalmology
- Indian Journal of Ophthalmology
- International Ophthalmology Clinic
- DOS Times
- KJO

## **2.21 Log book**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Log books may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).



### **3. EXAMINATIONS**

#### **3.1 Eligibility to appear for exams**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. (**This is considered as eligibility criteria for appearing for the examination**)

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training. The examination for Diploma at the end of 2<sup>nd</sup> academic year.

#### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

#### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work

as a Specialist / Teacher for which a candidate shall examine one long case and two short cases, two fundus cases and one refraction case. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

**SCHEME OF EXAMINATION**

- Theory 300 marks (3 Papers 3 X 100)
- Clinical / practical 200 marks
- Oral 100 marks.

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40	300	150	200	100	300	150	600	300	600	300
2	Paper II	100	40										
3	Paper III	100	40										

**3.4 Papers in each year**

Not applicable

**3.5 Details of theory exams**

As per clause 3.3

**Theory:** 3 papers, each 3 hours duration with one structured long essay carrying 20 marks and eight short essays carrying 10 marks each.

**Paper I - Basic Sciences Applied to Ophthalmology**

**Paper II - Ophthalmic Medicine**

**Paper III - Ophthalmic Surgery**

### 3.6 Model question paper for each subject with question paper pattern

**QP Code:** \_\_\_\_\_ **Reg. No. :** .....

**P.G. Diploma Examinations in Ophthalmology (DO)**

**(Model Question Paper)**

**Paper I - Basic Sciences Applied to Ophthalmology**

Time: 3 hrs Max marks:100

- Answer all questions

Essay: \_\_\_\_\_ (20)

1. Describe the anatomy of cavernous sinus. Outline its clinical importance.

Short Essays: \_\_\_\_\_ (8x10=80)

2. Pathology of choroidal melanoma

3. Amster's grid

4. Grading of angle structures

5. OCT in glaucoma

6. Corneal transparency

7. Newer carbonic anhydrase inhibitors

8. Nerve fibre arrangement in optic chiasma

9. Intraocular lens power calculation

\*\*\*\*\*

**QP Code:** \_\_\_\_\_ **Reg. No. :** .....

**P.G. Diploma Examinations in Ophthalmology (DO)**

**(Model Question Paper)**

**Paper II - Ophthalmic Medicine**

Time: 3 hrs

Max marks:100

- Answer all questions

Essay:

(20)

1. Discuss the clinical presentation of developmental cataract. Briefly outline the management.

Short Essays:

(8x10=80)

2. V. Exotropia

3. Neovascular glaucoma

4. Corneal preservation

5. Low vision aids

6. Current management of uveitis

7. Clinical appearance of fungal Keratitis

8. ICG angiography

9. Chemotherapy of retinoblastoma

\*\*\*\*\*

**QP Code:**

**Reg. No. :**.....

**P.G. Diploma Examinations in Ophthalmology (DO)**

**(Model Question Paper)**

**Paper III - Ophthalmic Surgery**

Time: 3 hrs

Max marks:100

- Answer all questions

Essay:

(20)

1. Discuss the diagnosis and management of rhegmatogenous retinal detachment.

Short Essays:

(8x10=80)

2. Endonasal DCR

3. Angle recession glaucoma

4. Ophthalmic use of Botulinum toxin

5. Management of Progressive Pterygium
6. Complications of Trabeculectomy
7. Surgical approach to Keratoconus
8. Prevention of postoperative endophthalmitis
9. Cold phaco

\*\*\*\*\*

### **3.7 Internal assessment component**

Not applicable.

### **3.8 Details of practical/clinical exams**

Marks for academic activity should be given by the all consultants who have attended the session presented by the resident. The Internal assessment should be presented to the Board of examiners for due consideration at the time of Final Examinations

### **KERALA UNIVERSITY OF HEALTH SCIENCES**

#### **DIPLOMA (Ophthalmology)**

#### **PRACTICAL & VIVA VOCE Examination Scoring Sheet**

Register No.	CLINICS					VIVA VOCE					Total Max. Marks 100
	Long Case	Short Case	Fundus	Total Max. Marks 200	Charts & Slide	Specimen X-ray/CT	Instruments	Viva	Log Book		
	70	35	35		20	20	20	20	20		

### **3.9 Number of examiners needed (Internal & External) and their qualifications**

#### ***Examiners***

1. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
2. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the Internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva**

100 marks for Viva Voce (80 marks for Viva Voce & 20 marks for Log book)

## **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

## **5. ANNEXURES**

### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

#### **FORMAT OF LOG BOOK**

#### **DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

DEPARTMENT OF .....

**LOG BOOK OF**

THE DEGREE OF .....

NAME.....

1. BIODATA OF THE CANDIDATE
2. EXPERIENCE BEFORE JOINING P.G. COURSE
3. DETAILS OF POSTING :
  - FIRST YEAR
  - SECOND YEAR
4. THESIS RESEARCH WORK
5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. Daily activities record (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGES
16. SUMMARY

# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN MEDICINE**

**ORTHOPAEDICS**

**Course Code 506**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in Orthopaedics

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

**2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

**2.4 Course outline**

As per clause 2.10

**2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

**2.6 Syllabus**

As per clause 2.10

The concept of healthcare counselling shall be incorporated in the relevant areas.

**2.7 Total number of hours**

Not applicable since the course is Residential programme.

**2.8 Branches if any with definition**

Not applicable.

**2.9 Teaching learning methods**

**Learning Activity**

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months .

**The following teaching activities are recommended:-**

- Topic presentations

- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.

- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.
- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

### **Maintenance of Record of Work done.**

1. A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

## 2.10 Content of each subject in each year

### THEORY

The syllabus for D-Ortho and M.S Ortho is essentially the same but the MS trainees are more intensively trained in the management also apart from diagnosis

1. Methods of Clinical Examinations

2. Basic Sciences

(A) Structure & functions of

Bone

Cartilage

Synovium

Muscle

Ligament

Tendon

(B) Relevant surgical Anatomy of Axial and appendicular skeleton

Physiologic basis of functioning of skeletal system

(C) Biochemical basis of function of Bone

(D) Pathologic basis of Orthopaedic diseases

(E) Pharmaco therapeutics in Orthopaedics

(F) Microbiological basis of Orthopaedic infection

(G) Orthopaedic implants, Metals, Corrosion, Lubrication and implant failure

3. Traumatology

Injuries of axial and appendicular skeleton and associated soft tissues, their clinical examination, radiography and modes of treatment

• General Consideration:

- Fracture healing,
- Conservative treatment of fractures
- Internal fixation principles
- External fixation principles

- Open fractures
- Pathologic fractures
- Bone grafting
- Poly Trauma
- Trauma Care
- Individual injuries to upper limb, lower limb, spinal column, shoulder girdle and pelvis girdle in detail

#### 4. Diagnostic Imaging in Orthopedics Radiography

- MRI and CT scan
- Nuclear Medicine
- Ultrasonography

#### 5. Metabolic Bones diseases

#### 6. Endocrine disorders of Bone

#### 7. Bone & Joint infection

#### 8. Polimyelitis of skeletal system

#### 9. Cerebral palsy and other spastic disorders

#### 10. Systemic complication in Orthopaedics

- Shock
- Crush syndrome
- DIC
- Thromboembolism
- Fat Embolism syndrome
- Gas gangrene
- Tetanus

#### 11. Orthopaedic Anaesthesia, Regional blocks, pain management and care of critically ill patient

#### 12. Neoplasms of Bone & Joint

#### 13. Osteoarthritis



14. Rheumatoid arthritis
15. Disorders of synovium
16. Peripheral Nerve injuries and dysfunction
17. Biomaterials in orthopaedics
18. Illizarov – Basic principles and principles of deformity correction
19. Arthroscopy
20. Arthroscopy
21. Hand injuries with reconstruction principles
22. Re implantation
23. Regional Orthopaedic disorders
24. Congenital anomalies
25. Paediatric Orthopaedics
26. Analysis of Gait
27. Microsurgery in Orthopaedics
28. Arthrodesis
29. Prosthetics and Orthotics
30. Amputation
31. Rehabilitation Orthopaedics
32. Disability evaluation
33. Bone substitutes
34. Recent advances in Orthopaedics
35. Navigation in Orthopaedics
36. Pelvi – Acetabular Fractures
37. Spinal Deformities
38. Spinal Infection
39. Degenarative Spine Disorders

Course duration

2 years – Posting in each unit by rotation and 1 month in Physical Medicine of Anaesthesia

**2.11 No: of hours per subject**

Residency programme.

**2.12 Practical training**

As per clause 2.10

**2.13 Records**

As per clause 2.21.

**2.14 Dissertation:**

Not Applicable.

**2.15 Speciality training if any**

As per clause 2.10

**2.16 Project work to be done if any**

As per direction of the Head of the Department.

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/ State/Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/State/ Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18 Prescribed/recommended textbooks for each subject**

1. Graham Apley – System of Orthopaedics
2. Fractures and Joint injuries – Watson Jones
3. Orthopaedics – Samuel F Turck
4. Mercer Orthopaedic Surgery
5. Outline of fractures – Adam's
6. Outline of Orthopaedics – Adam's
7. Clinical Surgery – Das – Chapter on Orthopaedics
8. Crawford Adam's – Operative techniques (orthopaedics)

9. Text book of Orthopaedics and fractures GS Kulkarni

## **2.19 Reference books**

Current editions of:

1. Campbell's Operative Orthopaedics
2. Tachdjian's Pediatric orthopaedics
3. AO principles of fracture management
4. Rockwood and Green Fractures in adults
5. Fractures in children

## **2.20 Journals**

Current editions of:

1. JBJS
2. British Journal of Orthopaedics
3. Indian Journal of Orthopaedics
4. Journal of Paediatric Orthopaedics
5. OCNA (Orthopaedic Clinic of North America)
6. CORR (Clinical Orthopaedics and related research)
7. JOT (Journal of Trauma)

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative,

focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

### **3. EXAMINATIONS**

#### **3.1 Eligibility to appear for exams**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. **(This is considered as eligibility criteria for appearing for the examination)**

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training. The examination for Diploma courses is at the end of 2nd academic year.

#### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

#### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

#### **SCHEME OF EXAMINATION**

• Theory	300 marks
• Clinical / Practical	200 marks
• Oral	100 marks

**Theory examination:** Consists of three papers, each paper consisting of one structured long essay for 20 marks, and eight short essays carrying ten marks each.

**Practicals:** Total 200 marks distributed between long case/ short case/ practicals.

Long case-100, 2 short cases 50 marks each.

Oral: 100 marks for oral examination.

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40	300	150	200	100	300	150	600	300		
2	Paper II	100	40										
3	Paper III	100	40										

### 3.4 Papers in each year

Not applicable

### 3.5 Details of theory exams

As given in clause 3.3

Paper I - Basic Sciences Applied to Orthopaedics & Traumatology

Paper II - Orthopaedics & Traumatology

Paper III – Recent Advances in Orthopaedics & Traumatology

### 3.6 Model question paper for each subject with question paper pattern

QP Code:

Reg.No:

P.G. Diploma Examinations in Orthopaedics (D.Ortho)

(Model Question Paper)

**Paper I - Basic Sciences Applied to Orthopaedics & Traumatology**

**Time: 3 hrs Max marks:100**

**Answer all questions**

**Draw diagrams wherever necessary**

Essays: (20)

1. Discuss the blood supply of femoral head. Discuss the clinical features, diagnosis

and management of Legg Calve Perthes disease

**Short essays: (8x10=80)**

2. Compound palmar ganglion
3. Vascularized bone graft
4. Fibrous dysplasia
5. Neuritis in Hansen's disease
6. Fat embolism
7. Triple deformity of knee
8. Nerve conduction study
9. Indirect reduction of fractures

\*\*\*\*\*

QP Code:

Reg.No:

**P.G. Diploma Examinations in Orthopaedics (D.Ortho)**

**(Model Question Paper)**

**Paper II - Orthopaedics & Traumatology**

**Time: 3 hrs Max marks:100**

**Answer all questions**

**Draw diagrams wherever necessary**

Essays: (20)

1. Define polytrauma. Discuss the evaluation and management of polytraumatized patient with special emphasis on damage control orthopaedics.

**Short essays: (8x10=80)**

2. Chance fracture
3. Fracture scapula
4. Terrible triad of elbow

5. Scapholunate dissociation
6. Foot drop
7. Osteochondritisdissecans
8. Chondroblastoma
9. Management of SCFE

\*\*\*\*\*

QP Code:

Reg.No:

**P.G. Diploma Examinations in Orthopaedics (D.Ortho)**  
**(Model Question Paper)**

**Paper III – Recent Advances in Orthopaedics & Traumatology**

**Time: 3 hrs Max marks:100**

**Answer all questions**

**Draw diagrams wherever necessary**

Essays: (20)

1. Discuss the recent advances in the internal fixation of fractures with special emphasis on the principles, merits and demerits of locking compression plate

**Short essays: (8x10=80)**

2. Femoroacetabular impingement
3. Custom megaprosthesis
4. Distraction osteogenesis
5. Ceramics in orthopaedics

6. Verebroplasty
7. Isotope bone scan
8. Stem cells in orthopaedics
9. Joint lubrication

\*\*\*\*\*

**3.7 Internal assessment component**

Not applicable.

**3.8 Details of practical/clinical practicum exams**

As given in clause 3.3

**3.9 Number of examiners needed (Internal & External) and their qualifications**

***Examiners***

1. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
2. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva**

As given in clause 3.3

## **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

## **5. ANNEXURES**

### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

#### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

**LOG BOOK OF**

**THE DEGREE OF .....**

**NAME.....**

#### **1. BIODATA OF THE CANDIDATE**

#### **2. EXPERIENCE BEFORE JOINING P.G. COURSE**

#### **3. DETAILS OF POSTING :**

- FIRST YEAR
- SECOND YEAR
- THIRD YEAR

#### **4. THESIS RESEARCH WORK**

5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS

15. Daily activities record (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGES

16. SUMMARY

# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN MEDICINE**

**OTO-RHINO LARYNGOLOGY**

**Course Code 507**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in Otorhinolaryngology

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.

- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

**2.4 Course outline**

Present in clause 2.10

**2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

**2.6 Syllabus**

Present in clause 2.10

The concept of healthcare counselling shall be incorporated in the relevant areas.

**2.7 Total number of hours**

Present in clause 2.10

**2.8 Branches if any with definition**

Present in clause 2.10

**2.9 Teaching learning methods****Learning Activity**

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months. Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

**The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations

- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
  - The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
  - Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including

details of surgical operations assisted or done independently similar to the model prescribed by the University.

- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.
- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

#### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

#### **Maintenance of Record of Work done.**

1. A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.

**3.** A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

#### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

#### **2.10 Content of each subject in each year**

##### **Basic Sciences**

1. Anatomy including embryology and osteology.
2. Development of ear, nose, throat , paranasal sinuses, larynx, oesophagus and tracheo-bronchial tree.
3. Detailed anatomy of ear, nose, throat, paranasal sinuses, larynx, oesophagus and tracheo-bronchial tree, salivary glands and all the other structures of neck.
4. Basic anatomy of skull base.

##### **Physiology**

1. Applied physiology of ear, nose, throat, paranasal sinuses, larynx, oesophagus and tracheo-bronchial tree.
2. Audiology, neurophysiology, vestibular function.
3. Basic immunology.

##### **Pharmacology**

A basic idea regarding the pharmacological principles of anti-biotics, anti-histamines, anesthetic drugs, decongestants anti malignancy drugs

##### **Pathology**

Histopathology of all ear, nose, throat and head and neck diseases should be known to postgraduates. This includes preparation and staining of histopathology slides, biopsy and FNAC

### Microbiology

The basic principles and knowledge regarding bacterial fungal and viral infection and the microbiological aspects of the different organisms, their cultural characters

### Statistics

Basic statistics and basics of information technology pertaining to the subject

### Otorhinolaryngology

1. Investigation of the diseases of the ear, nose and throat.
2. Diseases of the ear, nose and paranasal sinuses, pharynx, salivary glands, oesophagus, upper respiratory system and nervous system relevant to Otorhinolaryngology.
3. Principles of operative surgery.

### Syllabus practicals

All the postgraduates are to be posted in all the units equally by rotation

### **Clinical skills**

#### 1. Interpretation of:

- (a) routine audio vestibular testing
- (b) results of imaging and other investigations

#### 2. Management of:

- (a) Airway obstruction
- (b) Epistaxis
- (c) Post operative hemorrhage
- (d) Foreign bodies in air and food passages
- (e) Acute infections of head and neck
- (f) Drainage of Peritonsillar abscess
- (g) Nasal fracture and septal haematoma

## **Surgical skills**

### **Nose**

1. Nasal endoscopy
2. Nasal packing anterior and posterior
3. Removal of foreign bodies from the nose
4. Nasal packing - anterior and posterior
5. Drainage of septal abscess
6. Antral lavage
7. Simple nasal polypectomy
8. Reduction of turbinates
9. Manipulation of fractured nose
10. Submucous resection/septoplasty
11. Caldwell-Luc operation
12. Functional Endoscopic Sinus Surgery (FESS)

### **Ear**

1. Removal of foreign body from ear
2. Pre-auricular sinus excision
3. Perichondritis drainage/excision
4. Myringotomy and grommet insertion

### **Throat**

1. Drainage of quinsy
2. Tonsillectomy and adenoidectomy
3. Rigid endoscopy for foreign body removal from pharynx
4. Tracheostomy

The student will work and take duties in the ENT department of the Medical College Hospital. They will attend O.P.D. regularly and take part in the ward rounds and operations. The course will also include three months attendance in the audiology clinics attached to the Department. The training programmes will include clinical case discussions, seminars, bed-side clinics, case demonstrations and journal clubs

**2.11 No: of hours per subject :** Present in clause 2.10

**2.12 Practical training :** Present in clause 2.10

**2.13 Records :** Present in clause 2.21

**2.14 Dissertation :** Not applicable for Diploma courses.

**2.15 Speciality training if any**

Present in clause 2.12

**2.16 Project work to be done if any**

As stipulated by the Head of Department.

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/ Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/State/ Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18 Prescribed/recommended textbooks for each subject**

As stipulated by the Head of Department

**2.19 Reference books**

Current editions of:

- Cummings' Otolaryngology, Head and Neck Surgery-Elsevier Mosby publications 4th edition
- Scott - Brown's Otolaryngology, Head and Neck Surgery, andth edition,
- Edward Arnold Publishers Ltd.
- Byron J. Bailey and Jonas T. Johnson - Head and Neck Surgery, Otolaryngology, 4th edition-Publishers Lippincott Williams and Wilkinson
- Paparella - Otolaryngology, Head and Neck Surgery
- Ballenger's Otolaryngology, Head and Neck Surgery by Snow and Wackym, centennial edition, PMBH publications.
- Surgery of the Ear - Glasscock- Shambaugh, 5th edition , BC Becker Publications.

- Manual of middle ear surgery by Mirko Tos, 1st edition, Thieme Publications
- Anatlas of Head and Neck Surgery by Lore and Medina, Elsevier Saunders Publications
- An atlas of Head and Neck Surgery by Jathin P Shah
- Atlas of skull base surgery and neurotology by Robert Jackler
- Color Atlas on Temporal Bone Dissection by Vijayendra Honnurappa
- Current Diagnosis and Treatment-Otolaryngology Head and Neck Surgery by Anil K. Lalwani - Tata McGraw Hill Publishing Company, New Delhi
- European Manual of Medicine - Otolaryngology, Head and Neck Surgery by M. Anniko, M. Bernal Sprekelsen, V. Bonkowsky, P. Bradley, S. Iurato
- Editors - Publishers - Springer (India) Private Ltd
- Endoscopic Sinus Surgery - Anatomy, three dimensional Reconstruction and Surgical Technique by Peter-John Wormald. Thieme Publishers
- Endoscopic Sinus Surgery by Stamberger
- Rhinology and Sinus Disease, A Problem Oriented Approach by Steven D Schaefer, M D, Mosby Publishers
- Stell and Maran's Head and Neck Surgery by J C Watkinson, vol 1 and 2, Hodder Arnold Publications, UK 2008
- Principles of Medical Statistics by A Bradford Hill

## 2.20 Journals

Current editions of:

1. Indian Journal of Otolaryngology
2. British Journal of Otolaryngology
3. Laryngoscope
4. North American Clinics of Otolaryngology
5. Annals of Otology, Rhinology and Laryngology
6. Acta Otolaryngologica

7. Archives of Otolaryngology, Head and Neck surgery
8. Journal of Paediatric Otolaryngology

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

## **3. EXAMINATIONS**

### **3.1 Eligibility to appear for exams**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. **(This is considered as eligibility criteria for appearing for the examination)**

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training. The examination for Diploma at the end of 2<sup>nd</sup> academic year.

(Logbook evaluation and formative assessment are done for three semesters only)

### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

### **SCHEME OF EXAM**

#### **Theory**

Theory examinations will be conducted in the middle of fourth semester. There shall be three papers. Each paper is of three hours duration of 100 marks, distributed as per the contents of the question paper. Each paper includes one essay ( $1 \times 20 = 20$  marks). The essay is to be structured and marks distributed. Eight short essays ( $8 \times 10 = 80$  marks).

Total theory marks are  $3 \times 100 = 300$  marks

Paper I: Basic sciences

Paper II: Diseases of Nose and throat

Paper III: Diseases of Throat, Head and Neck & Recent Advances

#### **Clinical [Diploma in Laryngology and Otology (DLO)]**

Total practical marks	200 marks
Long case	100 marks
Short cases ( $2 \times 50$ )	100 marks
<b>Viva voce</b>	<b>100 marks</b>

This includes audiometric charts, drugs, instruments, histopathology, microbiology, pathology specimens, osteology, radiology, etc

#### **Total marking pattern**

Theory	300 marks
Clinical	200 marks
Viva voce	100 marks
<b>Total</b>	<b>600 marks</b>

Internal assessment marks are not counted for pass

(Logbook evaluation and formative assessment are done for three semesters only)

**Pass criteria:**

50 % separate minimum for

- (1) Theory (with 40% minimum for each paper) and
- (2) Clinical and oral examinations

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40	300	150	200		100		300	150	600	300
2	Paper II	100	40										
3	Paper III	100	40										

**3.4 Papers in each year**

Not applicable

**3.5 Details of theory exams**

As per clause 3.3

Theory examinations will be conducted in the middle of fourth semester. There shall be three papers. Each paper is of three hours duration of 100 marks, distributed as per the contents of the question paper. Each paper includes one essay ( $1 \times 20 = 20$  marks). The essay is to be structured and marks distributed. Eight short essays ( $8 \times 10 = 80$  marks).

Total theory marks are  $3 \times 100 = 300$  marks

Paper I: Basic sciences in relation to Otorhinolaryngology

Paper II: Diseases of Nose and throat

Paper III: Diseases of Throat, Head and Neck & Recent Advances

### 3.6 Model question paper for each subject with question paper pattern

#### MODEL QUESTION PAPERS FOR DLO

#### P.G. Diploma Examinations in Laryngology and Otology (DLO)

#### Paper I - Basic Sciences in relation to Otorhinolaryngology

Time: 3 hrs

Max marks: 100

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essay:

(20)

1. Describe the development and clinical significance of mucosal folds of middle ear.

Short Essays:

(8x10=80)

2. Physiology of olfaction
3. Intratympanic muscles
4. Bronchopulmonary segments
5. Rhinosporidium seeberi
6. Pathology of squamous cell carcinoma
7. Pterygopalatine fossa
8. Osteomeatal complex
9. Adolph Rinne

\*\*\*\*\*

**MODEL QUESTION PAPERS FOR DLO**  
**P.G. Diploma Examinations in Laryngology and Otology (DLO)**  
**Paper II – Diseases of Ear and nose**

**Time: 3 hrs**

**Max marks: 100**

*Answer all questions*

*Draw diagrams wherever necessary*

**Essay:**

**(20)**

1. A 40 year old female presented to ENT OP with intermittent episodes of vertigo, tinnitus and impairment of hearing. On examination, ear, nose, throat was normal. What is the most probable diagnosis and differential diagnoses. Discuss the management in detail.

**(5+15=20)**

**Short Essays:**

**(8x10=80)**

1. Choanal atresia
2. Investigations of Vestibular schwannoma
3. Alveolar rhabdomyosarcoma
4. Frontal mucocele
5. Middle ear implants
6. Secondary acquired cholesteatoma
7. Auditory Steady State Response
8. Type I Hypersensitivity reaction

\*\*\*\*\*

## MODEL QUESTION PAPERS FOR DLO

### P.G. Diploma Examinations in Laryngology and Otology (DLO)

#### Paper III – Diseases of Throat, Head and Neck & Recent Advances

Time: 3 hrs

Max marks: 100

*Answer all questions*

*Draw diagrams wherever necessary*

#### Essay:

(20)

1. A 15 year old boy presented to ENT casualty with massive epistaxis. On examination, a smooth surfaced, pink mass in the nasopharynx: Discuss the most probable diagnosis and the differential diagnoses. Discuss the management in detail. (5+15=20)

#### Short Essays:

(8x10=80)

2. Nasolabial flap
3. Juvenile laryngeal papillomatosis
4. Endoscopic dacryocystorhinostomy
5. ENT manifestations of HIV infection
6. Kashima's operation
7. Bedaquiline
8. Spasmodic dysphonia
9. Bone anchored hearing aid

\*\*\*\*\*

#### 3.7 Internal assessment component

Not applicable.

#### 3.8 Details of practical/clinical practicum exams

Total practical marks	200 marks
Long case	100 marks
Short cases (2×50)	100 marks

### **3.9 Number of examiners needed (Internal & External) and their qualifications**

#### ***Examiners***

1. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
2. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the Internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva:**

100 marks for Viva Voce (80 marks for Viva Voce & 20 marks for Log book)

Viva Voce includes audiometric charts, drugs, instruments, histopathology, microbiology, pathology specimens, osteology, radiology, etc

## **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

## **5. ANNEXURES**

### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

#### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

**LOG BOOK OF**

**THE DEGREE OF .....**

**NAME.....**

1. BIODATA OF THE CANDIDATE
2. EXPERIENCE BEFORE JOINING P.G. COURSE
3. DETAILS OF POSTING :
  - FIRST YEAR
  - SECOND YEAR
4. THESIS RESEARCH WORK
5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. Daily activities record (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGES
16. SUMMERY

# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN**

**CHILD HEALTH**

**Course Code 508**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in CHILD HEALTH

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned

speciality.

- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyse relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

### **Goal - DCH**

The goal of DCH program is to produce a competent pediatrician who:

1. Recognizes the health needs of infants, children and adolescents and carries out professional obligations in keeping with principles of national health policy and professional

ethics;

2. Has acquired the competencies pertaining to pediatrics that are required to be practiced in the community and secondary levels of health care system;
3. Has acquired skills in effectively communicating with the child, family and the community;
4. Is aware of the contemporary advances and developments in medical sciences as related to child health; and
5. Has acquired skills in educating medical and paramedical professionals.

Learning objectives- DCH

At the end of the DCH course, the student should be able to:

1. Recognize the key importance of child health in the context of the health priority of the country;
2. Practice the specialty of pediatrics in keeping with the principles of professional ethics;
3. Identify social, economic, environmental, biological and emotional determinants of child and adolescent health, and institute diagnostic, therapeutic, rehabilitative, preventive and promotive measures to provide holistic care to children;
4. Recognize the importance of growth and development as the foundation of pediatrics and help each child realize her/his optimal potential in this regard;
5. Take detailed history, perform full physical examination including neuro-developmental and behavioral assessment and anthropometric measurements in the child and make clinical diagnosis;
6. Perform relevant investigative and therapeutic procedures for the pediatric patient;
7. Interpret important imaging and laboratory results;
8. Diagnose illness in children based on the analysis of history, physical examination and investigate work up;
9. Plan and deliver comprehensive treatment for illness in children using principles of rational drug therapy;
10. Plan and advise measures for the prevention of childhood disease and disability;
11. Plan rehabilitation of children suffering from chronic illness and handicap, and those with special needs;

12. Manage childhood emergencies efficiently;
13. Provide comprehensive care to normal, 'at risk' and sick neonates;
14. Demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation;
15. Recognize the emotional and behavioral characteristics of children, and keep these fundamental attributes in focus while dealing with them;
16. Demonstrate empathy and humane approach towards patients and their families and keep their sensibilities in high esteem;
17. Demonstrate communication skills of a high order in explaining management and prognosis, providing counselling and giving health education messages to patients, families and communities;

**2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

**2.4 Course outline**

Present in clause 2.10

**2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

**2.6 Syllabus**

Present in clause 2.10 .

The concept of healthcare counselling shall be incorporated in the relevant areas.

**2.7 Total number of hours -**

Not applicable

**2.8 Branches if any with definition**

Not applicable

## 2.9 Teaching learning methods

### Learning Activity

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months . Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

### **The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time

residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.

- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
  - The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
  - Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The log books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.

- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

### **Maintenance of Record of Work done.**

2. A LOG BOOK of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

### **2.10 Content of each subject in each year**

## SYLLABUS

### **Neonatology**

- Antenatal diagnosis
- \_ Care during delivery
- \_ Post natal care
- \_ Care of preterm, SFD baby including feeding
- \_ Common neonatal problems
- \_ Birth injury
- \_ Infections
- \_ Congenital malformations
- \_ Acquired diseases of newborn
- \_ Immunisation of newborn

### **Growth and development**

- \_ Normal growth & its disorder
- \_ Normal development & disorders of development
- \_ Adolescent growth and development

### **Nutrition**

- \_ Nutritional requirements of children
- \_ Deficiency states
- \_ Management of nutritional disorders

### **Infections and infestations**

- \_ Communicable diseases , emerging new infections
- \_ Common viral, common bacterial, fungal, protozoal, helminthic infestations

### **Immunization and prevention of diseases**

### **Fluid and electrolyte disturbances in health and disease**

### **Hematology**

- \_ Anemia different types
- \_ Bleeding and coagulation disorder
- \_ Bone marrow aplasia & infiltration of bone marrow disorders

\_ Blood transfusion and component therapy

### **Systemic diseases**

\_ GIT, CVS, RS, CNS, ENT, Genitourinary system, endocrine disorders

\_ Common metabolic disorders

\_ Muscular disorders

\_ Child hood malignancy

\_ Connective tissue and autoimmune disorders

\_ Genetic disorders

\_ Vision, hearing & common ophthalmologic problems

\_ Skin disorders

\_ Common Ped. Surgery problems

\_ Accidents and injury

\_ Poisoning

\_ Medico legal responsibilities of pediatrician

\_ Adoption

\_ Child abuse

\_ Common behavioral problems & psychological problems

\_ First aid and critical care of children

\_ Common drugs - dose, usage, and side effects

\_ Common pediatric procedures

\_ Rights of children

\_ Social programmes for the welfare of children

### **2.11 No: of hours per subject**

Not applicable.

### **2.12 Practical training**

General paediatrics – PG student should rotate through all the clinical units in the department

ICU-- 2month per year,

Neonatology-- two months per year,  
Nephrology , cardiology and neurology 2 weeks each -

CGC, immunization clinic,Dermatology, pediatric surgery , physical medicine : OPD  
postings of 12 hrs each

### **Formal Teaching sessions**

#### **Case Discussion**

Bedside discussion during ward rounds- cases should be presented by JRs briefly and then discussed with the faculty

There should be a detailed case presentation 3-4 per week. Cases may be allotted on the previous day itself and this should be known to all JRs, so that they can also see the case and come prepared.

**Journal Club** -Once in 2weeks

**Clinical club** ( Interesting/difficult cases) once a month

**Seminar/symposia** Once every 2weeks

Mortality meeting – monthly

Departmental meeting with

Statistics PICU and NICU Once a month

**2.13 Records** :Present in clause 2.21.

**2.14 Dissertation** : Not applicable

**2.15 Speciality training if any** : Present in clause 2.12 of the curriculum.

**2.16 Project work to be done if any** :As stipulated by the Head of Department.

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/ Regional conference of the same subject during the academic period  
It is desirable to present at least one poster/ read one paper in the National/State/ Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18 Prescribed/recommended textbooks**

As stipulated by the Head of Department.

## **2.19 Reference books**

1. Essentials of Pediatrics by OP Ghai
2. Clinical methods -Hutchison
3. Care of the newborn by Meharban singh
4. Manual of neonatal care – Cloherty
5. Text book of pediatrics Nelson
6. Development of the infant and young child – Illing worth
7. IAP text book of pediatrics
8. Nutrition and child development – K.E. Elizebath
- 9- Park`s textbook of preventive and social pediatrics M/S Banarsidas Bhanot (publishers) Jabalpur 482001.India
- 10 .S. Sushamabai Clinical Evaluation of Newborns Infants and children, Jaypee brothers Medical publishers (P) Ltd New Delhi 110002. India

## **2.20 Journals**

- Indian J Pediatrics
- Indian Pediatrics
- Indian journal of pediatrics
- Journal of Pediatrics
- Pediatric Clinics of North America
- Archives of Diseases of Childhood

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative,

focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

### **3. EXAMINATIONS**

#### **3.1 Eligibility to appear for exams [including Supplementary]**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. **(This is considered as eligibility criteria for appearing for the examination)**

The examinations shall be organized on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training.

The examination for Diploma at the end of 2<sup>nd</sup> academic year.

#### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

#### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the

Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and three short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

### **SCHEME OF EXAMINATION**

#### **Assessment**

Ratio of marks in theory and practicals will be equal

The pass percentage will be 50%.

Candidate will have to pass theory and practical examinations separately.

#### **Theory : 3 papers - 100 marks each**

Paper 1 : Basic sciences as applied to pediatrics

Paper 2 : Preventive paediatrics, Growth and development, and Neonatology

Paper 3 : General pediatrics

#### **Practicals**

Two external and two internal examiners should conduct the examinations

#### **Practical examination pattern**

DCH Examination - **Clinical (200 marks + 100)**

Long case I	45 min	100marks
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### Short cases 3

Short case I (conventional system)	20min	50marks
Short case II	15 min	30marks
	(Newborn)	
Short case III	10min	20marks

(Outpatient/ emergency)

**Viva (100 marks)** on defined areas by each examiner separately. [20 marks for the log book]

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40										
2	Paper II	100	40	300	150	200		100		300	150	600	300
3	Paper III	100	40										

### 3.4 Papers in each year

Not applicable.

### 3.5 Details of theory exams

Present in clause 3.3

**Theory : 3 papers - 100 marks each**

Paper 1 : Basic sciences as applied to pediatrics

Paper 2 : Preventive paediatrics, Growth and development, and Neonatology

Paper 3 : General pediatrics

### 3.6 Model question paper for each subject with question paper pattern

#### **Paper I –Basic Sciences as Applied to Paediatrics**

Time : 3 Hrs

Max Marks: 100

- Answer all questions

Structured Essay: ( 20)

1. A 4 yrs old child is brought with multiple petechiae and ecchymotic patches scattered all over the body. Discuss the approach and evaluation.

Short Essays: (8x10=80)

2. Vigabatrin

3. Recent advances in the Lab diagnosis of Tuberculosis.

4. Foetal circulation and persistent ductus arteriosus in newborn period

5. Urine examination for etiological diagnosis.

6. Play therapy

7. Physiotherapy in relation to bronchopulmonary segments.

8. Autosomal recessive disorders and genetic counselling

9. Metabolic acidosis

\*\*\*\*\*

#### **Paper II – Preventive Paediatrics, Growth & Development and Neonatology**

Time : 3 Hrs

Max Marks: 100

- Answer all questions

Structured Essay: (20)

1. 6 hours old baby delivered by LSCS indication severe PIH, developed respiratory difficulty. O/E preterm gestational age 32 weeks, resp.rate 86, SPO<sub>2</sub> 84. What is the most probable

diagnosis. What is the pathogenesis and write the management. Describe the complications and follow up plan.

Short Essays: (8x10=80)

2. Growth charts.
3. Failure to thrive.
4. End polio game strategy
5. RBSK - programme
6. Surfactant therapy
7. Pneumococcal vaccines
8. Congenital hypothyroidism
9. Enuresis

\*\*\*\*\*

### **Paper III – General Paediatrics**

Time : 3 Hrs

Max Marks: 100

- Answer all questions

Structured Essay:

(20)

1. 5 month old baby brought with history of watery stools 2 days and fever. O/E baby has sunken eyes, Temp-102, Capillary refill time > 3 sec, restless ,pitting oedema both feet,wt 3.5 kg, liver 4 cm. What is the diagnosis and the assessment of the patient. Write the management and complications.

Short Essays: (8x10=80)

2. Evaluation and management of first episode of Urinary tract infection in children.
3. Step wise management of asthma
4. Scrub typhus- diagnosis and management.
5. Treatment of nephrotic syndrome
- . 6. Ascariasis
- . 7. Fever with convulsions in a 2 year old child
8. Steven –Johnson syndrome
9. Newer modalities in the management of JIA.

\*\*\*\*\*

**3.7 Internal assessment component**

Not applicable.

**3.8 Details of practical/clinical practicum exams**

Present in clause 2.10

**3.9 Number of examiners needed (Internal & External) and their qualifications**

*Examiners*

1. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
2. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

**3.10 Details of viva:**

Viva Voce: 100 marks

Oral: 80 marks for the rest- nutrition, drugs & vaccines, x-rays, CT, MRI and instruments.

Log Book: 20 marks

#### 4. INTERNSHIP

Not applicable for P.G. Medical diploma courses.

#### 5. ANNEXURES

##### 5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.

###### FORMAT OF LOG BOOK

DEPARTMENT OF MEDICAL EDUCATION

MEDICAL COLLEGE .....

DEPARTMENT OF .....

LOG BOOK OF

THE DEGREE OF .....

NAME.....

###### 1. BIODATA OF THE CANDIDATE

###### 2. EXPERIENCE BEFORE JOINING P.G. COURSE

###### 3. DETAILS OF POSTING :

- FIRST YEAR
- SECOND YEAR
- THIRD YEAR

###### 4. THESIS RESEARCH WORK

5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. Daily activities record (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGES
16. SUMMARY

# REGULATIONS 2017

**Syllabus**  
for Courses affiliated to the  
**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN**  
**PHYSICAL MEDICINE AND REHABILITATION**  
**Course Code 509**  
**(2017-18 Academic year onwards)**

**2017**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in PHYSICAL MEDICINE & REHABILITATION

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practised at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and are oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned, the student shall be able to:

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practise the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative and preventive measure/strategies.

- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

### **2.4 Course outline**

As per clause 2.10

### **2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years.

### **2.6 Syllabus**

As in clause 2.10

The concept of healthcare counselling shall be incorporated in the relevant areas.

### **2.7 Total number of hours**

As in clause 2.10

### **2.8 Branches if any with definition**

Not applicable

## 2.9 Teaching learning methods

### Learning Activity

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months by the senior faculty. The candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing for the examination.

**The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- CME programmes & conferences
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.

- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

#### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary

shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

#### **Maintenance of Record of Work done.**

1. A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

#### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids .

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

#### **2.10 Content of each subject in each year**

##### **Basic Sciences as applied to Physical Medicine & Rehabilitation**

###### **1. Anatomy (30 hours of lectures and demonstrations)**

- a) Musculo-skeletal system – Osteology and Myology, Functional Anatomy, Kinesiology and Anthropology.
- b) Neuroanatomy - Brain, Spinal Cord, Peripheral Nerves, Autonomic Nervous System.
- c) Cardiovascular system
- d) Respiratory system

- e) Histology of bones, cartilage, muscles, nerves and skin

## **2. Physiology (25 hours of lectures and demonstrations)**

- a) Muscle – Ultra structure and chemical composition, contraction, fatigue, changes in denervated muscle.
- b) Nerve – properties of peripheral nerve, membrane potential and depolarization, nerve impulse, nerve conduction, neuromuscular transmission, motor unit, muscle spindle, electro-diagnosis.
- c) Central nervous system – sensations and volition, co-ordination of movement and regulation of posture, special senses, language and speech.
- d) Autonomic nervous system
- e) Cardiovascular system
- f) Respiratory system – including assessment of pulmonary function
- g) Endocrine system -
- h) Renal functions, control of micturition
- i) Temperature regulation
- j) Physiology of exercise

## **3. Biochemistry (10 hours of lectures and demonstrations)**

- a) General metabolism and nutrition
- b) Acid base balance
- c) Calcium and Phosphorus metabolism

## **4. Biophysics as applied to Physical Medicine (30 hours of lectures and demonstrations)**

- a) Biomechanics of human movement.
- b) Properties of physical agents used in Physical Medicine – heat, cold, light, electromagnetic spectrum, electricity and ultrasound.

## **5. Pathology and Microbiology (20 hours of lectures and demonstrations)**

- a) Degenerations, circulatory disturbances, inflammation and repair.
- b) Infections of bones and joints, Rheumatoid arthritis and allied disorders ( in detail).

- c) Neuropathology- trauma to central nervous system, degenerations of CNS, infections, cerebrovascular accidents.
- d) Cardiovascular diseases with emphasis on congenital heart diseases, valvular heart diseases, hypertension, coronary heart diseases and peripheral vascular disorders.
- e) Respiratory diseases with emphasis on infections, restrictive and obstructive Disorders.
- f) Diseases of the kidney and urinary tract, common pathogens of the urinary tract
- g) Major endocrine disorders like Hypothyroidism, and Obesity.
- h) Nutritional deficiencies.
- i) Diseases of muscles.
- j) Genetic disorders.
- k) Pathology of aging.
- l) Metabolic disorders like diabetes mellitus, metabolic syndrome.

## **6. Pharmacology (20 hours of lectures and demonstrations)**

- a) Drugs acting on the adrenergic system.
- b) Drugs acting on the peripheral nervous system (somatic) including skeletal muscle relaxants.
- c) Local anaesthetics
- d) Autocoids and related drugs
- e) Drugs for COPD and Asthma
- f) Oxygen Therapy
- g) Hormones
- h) Drugs affecting calcium balance
- i) Sedatives, hypnotics
- j) Anticonvulsants
- k) Antispasticity agents
- l) Anxiolytics
- m) Nonopiod Analgesics and Nonsteroidal Antiinflammatory Drugs
- n) Opioids
- o) Hypolipidaemic agents and Plasma Expanders

- p) Steroids
- q) Antihypertensive agents
- r) Drugs acting on the neurogenic bladder
- s) Drugs acting on the bowel
- t) Antirheumatic agents and biologicals
- u) Antibiotics
- v) Antidepressants
- w) Immunosuppressants
- x) Anti-cancer agents
- y) Drugs in diabetes

### **Clinical Physical Medicine & Rehabilitation (125 hours)**

1. History and scope of the specialty, definitions and terminology
2. Diagnostic application of physical agents including Musculoskeletal Ultrasound
3. Treatment modalities used in Physical Medicine- general properties and detailed clinical use of each
  - a) Heat – general physiological properties and mode of action as a treatment agent, indications and contraindications, forms of heat therapy – superficial and deep heating including treatment techniques. Emphasis will be given to Infrared, Hydro collator, Paraffin Wax bath, convection heating devices, short- wave diathermy, microwave diathermy and ultrasonic therapy.
  - b) Cold as a therapeutic agent
  - c) Ultraviolet radiation – physiological properties of U.V.R., mode of application in clinical use with indications, contraindications and side effects.
  - d) Therapeutic electricity – Low voltage currents, low and high frequency currents.
  - e) Hydrotherapy
  - f) Prescription of physical modalities and their applications in medical, surgical and gynaecological disorders.
  - g) LASER

4. Clinical use of massage, manipulation, stretching and traction
5. General principles of therapeutic exercises (for muscle strength, endurance, power, motor re-education, co-ordination and joint mobility), maintenance of physical fitness through optimum exercise
6. Prescription of exercise therapy and other supportive measures
7. Analysis of gait – kinetics and kinematics, normal and pathological gaits
8. Energy costs of functional activities in health and disease, experimental and clinical use of ergometry in Physical Medicine
9. Principles of occupational therapy, training in activities of daily living for rehabilitation, self-help devices, instrumental activities of daily living, environmental control units, access to home, community and workplace, evaluation of occupational and functional performance
10. Rehabilitation aids including walking aids, wheelchairs, tricycles, modified vehicles
11. Electro diagnosis and electromyography and application of electrophysiological testing of muscles and nerves for diagnostic and prognostic purposes
12. Disability evaluation and certification
13. Sports Medicine- fitness training, rehabilitation of the injured athlete, sports for the disabled
14. Rehabilitation management of cases with various systemic disorders+
  - a) Neuromuscular disability – with particular emphasis on strokes, post-polio paralysis, cerebral palsy, spinal cord injuries and demyelinating disorders, muscular dystrophies, spinal muscular atrophy, disorders of the neuromuscular junction, peripheral nerve injuries and disorders, swallowing disorders, extrapyramidal syndromes
  - b) Orthopaedic disability- arthritis and joint deformities, postural problems and amputations.
  - c) Cardiovascular disability
  - d) Pulmonary disability
  - e) Bladder and bowel dysfunction
  - f) Cancer

- g) Vestibular dysfunction
- h) Obesity
- i) Diabetes and dyslipidemia
- j) Visual, auditory and mental impairment and disability
- k) Multiple disability

#### 15. Prosthetics and Orthotics

- a) General definitions – evolution of the field with emphasis on the Indian scene.
- b) Indications for amputations – classical amputations- influence of prosthetic technology on amputation techniques – ideal stump – stump complications and their management.
- c) Recent advances in amputation surgery and prosthetic science – myoelectric control for prostheses.
- d) Clinical examination of the amputees, and prescription of prosthesis.
- e) Types of lower extremity prostheses – biomechanical considerations – knee and foot mechanics, alignment and fit, check-out.
- f) Immediate post-operative fitting of prostheses.
- g) Type of upper extremity prostheses - functional considerations, cosmetic considerations.
- h) Bracing – Indications and preliminary considerations on pre-orthotic preparation and post-orthotic training.
- i) Types of common braces and corrective shoes – prescription criteria and checkout procedures in fitting – lower extremity, upper extremity and spinal orthoses.
- j) Common materials used in prosthetics and orthotic manufacture.
- k) Equipment necessary for prosthetic and orthotic fabrication, organization of prosthetic & orthotic workshop.

#### 16. Psychosocial and psychiatric problems in rehabilitation and their Management

#### 17. Epidemiology of disability

#### 18. Principles of rehabilitation nursing

#### 19. Principles of management of communication impairments

#### 20. Special principles in the rehabilitation management of children

- 21. Management of the geriatric patient
- 22. Rehabilitation management of the injured “industry” worker
- 23. Orientation on the socio-economic and vocational aspects of rehabilitation
  - a) Principles of vocational guidance, training and placement
  - b) Social integration of the disabled
  - c) Elimination of architectural barriers for the differently abled in relation to housing, transportation and employment
  - d) Mobilizing community resources for rehabilitation
  - e) Role of voluntary agencies
- 24. Principles of the “Team approach” towards rehabilitation, members of the “Team” and the role of each.
- 25. Organization and administration of Rehabilitation facilities in
  - a) Teaching hospitals
  - b) Large general hospitals
  - c) Specialized treatment centers
  - d) Rural rehabilitation services
- 26. Issues of sexuality in Rehabilitation Medicine , rehabilitation of sexual problems
- 27. Community Based Rehabilitation
- 28. Pain Management
  - a. Anatomy and Physiology of Pain pathways
  - b. Pharmacotherapy of pain
  - c. Intra-articular injection techniques
  - d. Complex Regional Pain Syndromes
  - e. Phantom pain
  - f. Facial Pain
  - g. Fibromyalgia and myofascial pain syndromes
  - h. Interventions for pain including trigger point injections, nerve blocks, caudal epidural block
  - i. Management of cancer pain- overview
  - j. Pharmacotherapy of cancer pain
  - k. Interventions for cancer pain
  - l. Evaluation and interventional management of spinal pain
  - m. Pain after spinal cord injury- evaluation and management
  - n. Chronic pain

29. Rehabilitation of the patient with cancer related disability
30. Management of colostomy, tracheostomy, laryngectomy and mastectomy
31. Medical emergencies in Rehabilitation

### **Allied Disciplines**

#### **1. Medicine including Neurology and Rheumatology (35 hours)**

- a) General metabolic and endocrine disorders including diabetes and Dyslipidemia.
- b) Common infectious diseases prevalent in India
- c) Disorders of nutrition
- d) Degenerative diseases and special problems in the elderly
- e) Common cardiovascular diseases
- f) Common respiratory diseases
- g) Rheumatoid and allied diseases including classification, etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis and management.
- h) Genetics.
- i) Neurological disorders
  - Congenital disorders of the nervous system
  - Hereditary – familial, degenerative, demyelinating, neoplastic diseases
  - Progressive disorders
  - Language disorders
  - Epilepsy
  - Cerebrovascular accident
  - Spinal Cord Injury- Paraplegia and tetraplegia
  - Autonomic disturbances
  - Disorders of peripheral nerves
  - Assessment of intelligence – Mental retardation
  - Traumatic Brain Injury
  - Extrapyramidal disorders

- HIV and AIDS
- Cognitive dysfunction

## **2. Surgery including Orthopaedic Surgery (35 hours)**

- Shock and its management
- Management of burns
- Wound infections and their management
- Pressure sores - aetiology and management and prevention
- Principles of emergency resuscitation
- Common orthopaedic injuries and principles of their management
- Diseases of bones and joints (congenital, infective, inflammatory, metabolic, degenerative and neoplastic)
- Orthopaedic problems resulting from neuromuscular diseases – pathogenesis, clinical picture, diagnosis and principles of management including surgical techniques
- Amputation surgery
- Scoliosis and other spinal deformities
- Hip and knee contractures
- Foot deformities

## **3. Community Medicine (15 hours)**

Identification of community needs for health services, including rehabilitation services, utilization of the epidemiological approach and statistical methodology

- Principles of comprehensive health care, integrating rehabilitation practices with general health services (candidates are expected to acquire clinical practice through rural and urban health units)
- Preventive rehabilitation approach in medical care at the grass root and intermediate community levels
- Immunization practices
- Health education practices

## **4. Paediatrics (15 hours)**

- a) Normal growth and development.
  - i. Prenatal
  - ii. Neonatal to adolescence (gross motor, fine motor, reflex maturation, cognitive, social and personality).
- b) Developmental delay and mental subnormality.
- c) Behavioural disorders and their relationship to organic diseases.
- d) Planning education programs for disabled children.
- e) Common congenital and hereditary disorders of children.
- f) Common childhood diseases (including poliomyelitis, cerebral palsy, meningitis, rheumatic fever and neoplasms).
- h) Childhood disability.

#### **5. Psychiatry and Clinical Psychology (10 hours)**

- a) Mental status, intelligence and personality assessment.
- b) Behavioural disturbances due to organic brain damage.
- c) Overt psychopathologic reactions – neurotic, psychotic or sociopathic states (latter including addiction, alcoholism and sexual disturbances).
- d) Emotional disturbances – anxiety, depression.
- e) Psychological responses to illness and disability.

#### **6. Cardiology (10 hours)**

- a) Common disorders of the cardiovascular system with particular emphasis on the congenital, rheumatic, hypertensive and ischemic diseases.
- b) Assessment and classification of functional status of the heart and work capacity – application of data for rehabilitation – recent advances.
- c) Rehabilitation of patients with cardiac illnesses – post-myocardial infarction, CABG, cardiac transplantation, cardiomyopathy and valvular heart disease, protocols in exercise testing (Bruce, Naughton and others).

#### **7. Chest diseases (10 hours)**

- a) Allergic, infective, neoplastic, obstructive and restrictive disorders of the respiratory system

**b)** Respiratory assistance therapy, oxygen therapy, chest physiotherapy

**8. Radiology and Cancer (10 hours)**

- a) Interpretation of radiological findings on common diseases
- b) Common diagnostic radiological procedures
- c) Contrast studies and their significance
- d) Principles of nuclear medicine
- e) Principles of radiotherapy
- f) Principles of anti-cancer chemotherapy
- g)** Palliative care

**9. Neurosurgery (5 hours)**

- a) Management of trauma to the central nervous system.
- b) Congenital, infective, degenerative and neoplastic diseases of the brain or spinal cord including aetiology, pathogenesis, diagnosis and management.
- c) Peripheral nerve injuries.

**10. Plastic Surgery (5 hours)**

- a) Methods and techniques of skin grafting
- b) Principles of reconstructive surgery for correction of deformities
- c) Surgical treatment of decubitus ulcers
- d) Principles of hand surgery, tendon transfers in upper and lower limbs

**11. Urology (5 hours)**

- a) Evaluation and management of the neurogenic bladder
- b)** Upper and lower urinary tract infections – aetiology, diagnosis and treatment

**12. E.N.T (10 hours)**

Common E.N.T disorders, including speech and hearing impairments and their management

**13. Obstetrics and Gynecology (5 hours)**

- a) Pelvic infections
- b) Urogenital prolapse
- c) Role of exercise therapy in Obstetrics and Gynaecology practice

d) Women's issues in rehabilitation

**14. Ophthalmology (10 hours)**

Common ophthalmological disorders, causes of blindness, prevention and management, and disability evaluation

**15. Laws in relation to disability including PWD Act, 1995 and its amendments, RCI Act 1992 (6 hours)**

**16. Rehabilitation of patients with organ transplants (3 hours)**

**17. Recent advances including Evidence Based Medicine in PMR (10 hours)**

**Clinical work and practical training**

21 months shall be spent in Physical Medicine and Rehabilitation.

3 months may be spent in allied disciplines like Neuromedicine, Orthopaedics, Sports Medicine, Cardiology, Pulmonology, ICU, Dermatology, Diabetology and Rheumatology.

**2.11 No: of hours per subject**

Present in clause 2.10 of the curriculum.

**2.12 Practical training**

Present in clause 2.10 of the curriculum.

**2.13 Records**

Present in clause 2.21 of the curriculum.

**2.14 Dissertation: As per Dissertation Regulations of KUHS**

Not applicable.

**2.15 Speciality training if any**

This may include allied disciplines like Neuromedicine, Orthopaedics, Sports Medicine, Cardiology, Pulmonology, ICU, Dermatology, Diabetology and Rheumatology.

**2.16 Project work to be done if any :Not applicable.**

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/ Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/State/ Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

## 2.18 Prescribed/recommended textbooks for each subject

Current editions of:

1. Physical Medicine and Rehabilitation- Braddom R L
2. Textbook of Rehabilitation Medicine- Delisa
3. Text book of Rehabilitation Medicine by Rusk H A
4. Krusen's Hand Book of Physical Medicine and Rehabilitation
5. Muscles testing and function with posture and pain, Florence Peterson Kendall, Elizabeth Kendall McCreary
6. Hutchison's Clinical Methods- Swash M
7. Clinical Sports Medicine, Peter Brukner & Karim Khan
8. Sports Injury Assessment and Rehabilitation- Reid, David.C
9. Therapeutic Exercises - Basmajian
10. Kelly's Text book of Rheumatology- Ruddy, Harris and Sledge
11. Medical Ethics –Schwartz
12. Spinal Cord Medicine –Denise J C, Delisa J
13. Physiological Basis of Rehabilitation Medicine- (Downey and Darling), Erwin G Gonzalez
14. The Physiology of the Joints, Vol. I, II, III- Kapandji.I.A
15. Exercise and the Heart- Froelicher and Myers
16. The Internet and Health Communication- Rice and Katz
17. Amputations and Prostheses- May
18. Radiology and Imaging for Medical Students- Sutton
19. Geriatric Medicine- Schrier
20. Computers in Medicine- Javitt
21. Practice Manual of PMR- Tan
22. EMG Secrets- Tan
23. Ultrasound Scanning, Principles, Protocol- Tempkin
24. How to write health science papers, thessiss- Thomas et al
25. Principles of Hospital Administration- Sakharker
26. Ergonomics at Work- Osborne
27. Management in Rehabilitation- Schuch and Sekarak
28. Clinical Biomechanics- Valmassy
29. Psychology- Westen
30. Clinical Neuophysiology- Mishra U K, Kalita J
31. Handbook for Research Methods in Health Sciences- Sullivan M
32. A Manual on Clinical Surgery - Somen Das.
33. Pain Management in Rehabilitation- Monga & Grabois
34. Disability Evaluation- Demeter, Anderson & Smith
35. Introducing Palliative Care- Robert Twycross
36. Exercise management for persons with chronic disease and disability- ACSM

37. Solomon L. Apley's System of Orthopaedics and Fractures. Arnold London (latest edition)
38. Vernon W Lin. Spinal Cord Medicine- Principles and Practice. Demos
39. Introduction to Psychology, Clifford T. Morgan, Richard A. King, Tata McGraw Hill Edition
40. Behavioral Medicine- A guide for clinical Practice , Mitchell D.Feldman, John F. Christensen
41. Clinical evaluation and diagnostic tests for Neuromuscular disorders, Tulio E. Bertorini
42. Electrodiagnosis in diseases of nerve and muscle: Principles and practice, Jun Kimura
43. Essentials of Exercise Physiology, William D. Mc Ardle
44. Fundamentals of Pain Medicine, J.D. Hoppenfeld
45. Kinesiology: The mechanics and pathomechanics of human movement, Carol A. Oatis
46. Movement disorders: A Clinical and therapeutic approach, Shyamal K Das
47. Rheumatology Principles and practice, Ashit Syngle, SD Deodhar
48. Hutchison's Paediatrics, Krishna M Goel, Devendra K Gupta
49. Treatment of Cerebral Palsy and Motor Delay, Sophie Levitt
50. Atlas of Musculoskeletal Ultrasound, PK Srivastava
51. Atlas of nerve conduction studies and electromyography, A. Arturo Leis, Michael P. Schenk
52. Neurological rehabilitation, Richard Greenwood, Michael P.Barnes
53. Occupational therapy for physical dysfunction, Catherine A. Trombly
54. Clayton's Electrotherapy, Sheila Kitchen
55. ISCOS, The textbook on comprehensive management of Spinal Cord Injuries, Dr H S Chhabra
56. Joint structure and function: A Comprehensive analysis, Cynthia C. Norkin
57. Tidy's Physiotherapy, Stuart Porter
58. Brain's diseases of nervous system, Michael Donaghy
59. DeJong's : The neurological examination, William W. Campbell
60. Disabled Village Children, David Werner
61. Nothing about us without us: Developing innovative technologies For, By, and with disabled persons, David Werner
62. Helander E, Mendis P, Nelson G, Goerdt A, Training in the Community for People with Disabilities WHO, Geneva, 1989.
63. Atlas of Orthoses and Assistive Devices, John D. Hsu
64. Atlas of Amputations and Limb deficiencies, Douglas G. Smith

## 2.19 Reference books

1. Harrison's Principles of Internal Medicine- Fauci A.S, Braunwald E
2. Nelson Textbook of Paediatrics- Nelson W.E, Behrman R.E
3. Turek's Orthopaedics: Principles and Applications- Weinstein S L, Buckwalter J
4. Basic and Clinical Pharmacology - Katzung B.G
5. Treatment and rehabilitation of fractures-Hoppenfeld & Murthy

## **2.20 Journals**

- Archives of Rehabilitation Medicine
- Scandinavian Journal of Rehabilitation Medicine
- Spinal Cord
- Indian Journal of Orthopaedics
- Stroke
- Arthritis and Rheumatism
- Indian Pediatrics
- Neurology India
- Indian Journal of Disability and Rehabilitation
- Sports Training, Medicine & Rehabilitation
- Journal of Rehabilitation Research and Development
- National Medical Journal of India
- American Journal of Physical Medicine and Rehabilitation
- PM & R journal
- Disability and Rehabilitation
- Clinical Rehabilitation
- Neuro Rehabilitation
- Physical Medicine & Rehabilitation Clinics of North America
- Orthopaedics Clinics of North America
- Journal of Prosthetics Orthotics International
- Physical Therapy
- American Journal of Occupational Therapy
- Indian Journal of Orthopaedics (IJO)
- Indian Journal of Physical Medicine & Rehabilitation (IJPMR)

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log

book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

### **3. EXAMINATIONS**

#### **3.1 Eligibility to appear for exams [including Supplementary]**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least two State/National conferences during his/her training period. (This is considered as eligibility criteria for appearing for the examination)

The examinations shall be organized on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training.

The examination for Diploma at the end of 2<sup>nd</sup> academic year.

#### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

#### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40	300	150	200	100	300	150	600	300	600	300
2	Paper II	100	40										
3	Paper III	100	40										

#### **3.4 Papers in each year**

Not applicable.

#### **3.5 Details of theory exams**

Present in clause 3.3

Paper I – Basic Sciences as Applied to Physical Medicine & Rehabilitation

Paper II – Physical Medicine and Rehabilitation Including Physical Modalities,

Biomedical Instrumentation and Prosthetics & Orthotics

Paper III – Physical Medicine & Rehabilitation Medicine Including Recent Advances

### 3.6 Model question paper for each subject with question paper pattern

QP Code:

Reg.No.:.....

#### **P.G. Diploma Examinations in Physical Medicine & Rehabilitation (DPMR)** **(Model Question Paper)**

##### **Paper I – Basic Sciences as Applied to Physical Medicine & Rehabilitation** **(Anatomy, Physiology, Biochemistry, Pathology, Pharmacology, Biophysics & Kinsiology)**

Time: 3 hrs

Max marks:100

- Answer all questions
- Draw diagrams wherever necessary

##### **Essay: (20)**

1. Describe how the arches of the foot are maintained. Add a note on causes of flat foot in children.

##### **Short Essays: (8x10=80)**

2. Sternocleidomastoid muscle
3. Creatine phosphokinase
4. Muscle contraction
5. Psychological tests in rehabilitation
6. Congenital anomalies at LS junction
7. Calcific supraspinatus tendonitis
8. Radiological evaluation of CTEV
9. Pulmonary function tests

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**Diploma Examinations in Physical Medicine & Rehabilitation (DPMR)**  
**(Model Question Paper)**

**Paper II – Physical Medicine and Rehabilitation Including Physical Modalities,  
Biomedical Instrumentation and Prosthetics & Orthotics**

**Time: 3 hrs Max marks:100**

- Answer all questions
- Draw diagrams wherever necessary

**Essay: (20)**

1. Discuss the rehabilitation of a right hemiplegic, left transtibial amputee

Short Essays: (8x10=80)

2. Biomechanics of FRO

3. Magnetron valve

4. Myaesthenic syndrome.

5. Medical management of spasticity

6. Radiological assessment of adolescent idiopathic scoliosis

7. Fibromyalgia syndrome

8. UVR in physiatry

9. Postural drainage

\*\*\*\*\*

## **Diploma Examinations in Physical Medicine & Rehabilitation (DPMR)**

### **(Model Question Paper)**

#### **Paper III – Physical Medicine & Rehabilitation Medicine Including Recent Advances**

**Time: 3 hrs Max marks:100**

- Answer all questions
- Draw diagrams wherever necessary

**Essay: (20)**

1. Discuss geriatric rehabilitation.

Short Essays: (8x10=80)

2. Surgery in CTEV

3. Hip abduction orthosis

4. Cardiac rehabilitation

5. Surgery in claw hand

6. Recreation for the handicapped

7. Architectural barriers

8. Foot plate studies

9. Computer Related Injuries

### **3.7 Internal assessment component**

As per University Rules

### **3.8 Details of practical/clinical practicum exams**

- a) Clinical/Practical examination for the subjects shall be conducted to test the knowledge and competence of the candidates for undertaking independent work as a Specialist/Teacher, for which candidates shall examine a minimum of one long case and two short cases.
- b) The clinical / practical examinations shall also assess the candidate's knowledge of Basic Medical Sciences as are relevant to his subject. Case selection for examination should be comprehensive and include all the different systems.
- c) The Oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the specialty.

### **3.9 Number of examiners needed (Internal & External) and their qualifications**

#### ***Examiners***

1. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
2. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva:**

Viva Voce: 100 marks

Oral: 80 marks

Log Book: 20 marks

#### **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

#### **5. ANNEXURES**

##### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

###### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

###### **LOG BOOK OF**

**THE DEGREE OF .....**

**NAME.....**

##### **1. BIODATA OF THE CANDIDATE**

##### **2. EXPERIENCE BEFORE JOINING P.G. COURSE**

##### **3. DETAILS OF POSTING :**

- FIRST YEAR
- SECOND YEAR

##### **4. PARTICIPATION CONFERENCES – CME PROGRAMMES**

- 5. DETAILS OF LEAVE AVAILED**
- 6. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME**
- 7. SEMINARS /SYMPOSIA PRESENTED**
- 8. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS**
- 9. JOURNAL CLUBS**
- 10. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.**
- 11. SPECIAL DUTIES (IF ANY )**
- 12. INTERNAL ASSESSMENT**
- 13. MISCELLANEOUS**
- 14. Daily activities record (BLANK PAGES)**
  - One page for each month
- 15. SUMMARY**

# REGULATIONS 2016

## Syllabus

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN MEDICINE**

**PSYCHOLOGICAL MEDICINE**

**Course Code 510**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in Psychological Medicine

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.

- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

### **2.4 Course outline**

As given in clause 2.10.

## **2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

## **2.6 Syllabus**

As given in clause 2.10

The concept of healthcare counselling shall be incorporated in the relevant areas.

## **2.7 Total number of hours**

As mentioned in 2.10

## **2.8 Branches if any with definition**

Not applicable

## **2.9 Teaching learning methods**

### **Learning Activity**

Every student shall actively participate in all the clinical, academic & teaching activities in the department. The candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

### **The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions

- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed by the faculty members.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.

- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of

pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.

- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

#### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews.

#### **Maintenance of Record of Work done.**

1. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
2. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

#### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

#### **Skills- DPM**

- **History and examination.**

History taking including present history, past, family, personal, psychosocial history, physical and mental status examination and application of the relevant psychiatry rating scales, Psycho diagnostic & psychodynamic formulations

- **Bedside investigations.**

Hemoglobin, TLC, ESR, peripheral smear staining and examination, urine: routine and microscopic examination, urine for screening for substances of abuse.

- **Interpretation of ECG, EEG, MRI findings; CT scan.**
- **Understanding of common EEG patterns,**
- **Teaching Program**

### **General Principles**

Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training is skills oriented. Learning in postgraduate program is essentially self-directed and primarily emanating from clinical and academic work. The formal sessions are merely meant to supplement this core effort.

### **Teaching Sessions**

- Clinical case discussions
- Seminars/Journal club
- Interdepartmental Meetings
- Others – Guest lectures/vertical seminars/Central Stat meets.

### **2.10 Content of each subject in each year**

#### **Theory**

General Guidelines. During the training period efforts should be made to spend adequate time for discussing mental health problems of public health importance in the country

- The Patient – Doctor Relationship:
- Human development throughout the lifecycle

Normality, Embryo, Foetus, Infant, and Child, Adolescence, Adulthood, Late Adulthood (Old Age), Death, Dying and Bereavement.

- The Brain and Behaviour

Functional and Behavioral Neuroanatomy, Neurophysiology and Neurochemistry, Neuroimaging, Electrophysiology, Psychoneuroendocrinology, Psychoneuroimmunology, and Chronobiology, Neurogenetics.

- Contributions of the Psychosocial Sciences

Jean Piaget, Attachment Theory, Learning Theory, Aggression, Sociology and Ethology, Anthropology and Cross-Cultural Psychiatry, Epidemiology and Biostatistics.

- Clinical Neuropsychological Testing

Clinical Neuropsychological Testing of Intelligence in Adults & children  
Personality assessment in adults & children

- Theories of Personality and Psychopathology

Sigmund Freud: Founder of Classic Psychoanalysis, Erik Erikson, Schools derived from Psychoanalysis and Psychology.

- Clinical Examination of the Psychiatric patient

Psychiatric History and Mental Status Examination, Interviewing Techniques with Special Patient Populations, Physical Examination of the Psychiatric Patient, Laboratory tests in Psychiatry. Medical Record and Medical Error.

- Signs and Symptoms in Psychiatry

- Classification in Psychiatry

Psychiatric Classification, International Psychiatric Diagnosis

- Delirium, Dementia, and Amnestic and Other Cognitive Disorders and

Mental Disorders Due to a General Medical Condition

Cognitive Disorders Introduction and Overview, Delirium, Dementia, Amnestic Disorders Other Cognitive Disorders and Mental Disorders Due to a General Medical Condition

- Substance-Related Disorders

Substance-Related Disorders Introduction and Overview, Alcohol Related

Disorders, Amphetamine (or Amphetamine-like) related Disorders, Caffeine-Related Disorders, Cannabis-Related Disorders, Cocaine-Related Disorders, Hallucinogen-Related Disorders, Inhalant-Related Disorders, Nicotine-Related Disorders, Opioid-Related Disorders, Phencyclidine (or Phencyclidine-like) related Disorders, Sedative-, Hypnotic-, or Anxiolytic-Related Disorders, Anabolic-Androgenic steroid abuse

- Schizophrenia and Other Psychotic Disorders

Concept of Schizophrenia, Scope of the Problem, Genetics, Environmental Epidemiology, Developmental Model of Schizophrenia, Neuroimaging in Schizophrenia, Linking Neuropsychiatric Manifestations to Neurobiology Neuropathology, Clinical Features and Psychopathology Concepts Cognition, Sensory Gating Deficits and Translational Research Psychosocial Treatment Somatic Treatment Psychiatric Rehabilitation Integrative Treatment and Functional Outcomes, Spectrum Pathology and Treatment, Other Psychotic Disorders, Acute and Transient Psychotic Disorders and Brief Psychotic Disorder, Schizophreniform Disorder, Delusional Disorder and Shared Psychotic Disorder, Schizoaffective Disorder, Postpartum Psychosis, Culture-Bound Syndromes with Psychotic Features, Psychosis Not Otherwise Specified, Treatment of Other Psychotic Disorders, Schizophrenia and Other Psychotic Disorders Special Issues in Early Detection and Intervention

- Mood Disorders

Historical Introduction and Conceptual Overview, Epidemiology, Genetics, Neurobiology, Intrapsychic and Interpersonal Aspects, Clinical Features treatment of Depression, Treatment of Bipolar Disorders, Psychotherapy

- Anxiety Disorders

Introduction and Overview, Epidemiology, Psychophysiological Aspects,

Neurochemical Aspects, Neuroimaging, Psychodynamic Aspects, Clinical Features, Somatic Treatment, Cognitive-Behavioral Therapy

- Somatoform Disorders
- Factitious Disorders
- Dissociative Disorders
- Normal Human Sexuality and Sexual and Gender Identity Disorders

Normal Human Sexuality and Sexual Dysfunctions, Homosexuality, Gay And Lesbian Identities, and Homosexual Behaviour, Paraphilic, Gender Identity Disorders, Sexual Addiction

- Eating Disorders
- Sleep Disorders
- Impulse-Control Disorders Not Elsewhere Classified
- Adjustment Disorders
- Personality Disorders

- Psychological Factors Affecting Medical Conditions

History of Psychosomatic Medicine, Gastrointestinal Disorders, Obesity, Cardiovascular Disorders, Respiratory Disorders, Endocrine And Metabolic Disorders, Psychocutaneous Disorders, Musculoskeletal Disorders, Stress and Psychiatry, Psycho-Oncology, Consultation- Liaison Psychiatry

- Relational Problems

- Additional conditions that may be a focus of clinical attention

Malingering, Adult Antisocial behavior, Criminality, and Violence, Borderline Intellectual Functioning and Academic Problem, Other Additional Conditions That May Be a Focus of Clinical Attention

- Culture-Bound Syndromes

- Special Areas of Interest

Psychiatry and Reproductive Medicine, Premenstrual Dysphoric Disorder, Genetic Counselling, End-of-Life and Palliative Care, Death, Dying, and

Bereavement, Physical and Sexual Abuse of Adults, Survivors of Torture, Alternative and Complementary Health Practices, Military and Disaster Psychiatry, Famous Named Cases in Psychiatry

- Psychiatric Emergencies

- Suicide, Other Psychiatric Emergencies

- Psychotherapies

- Psychoanalysis and Psychoanalytic Psychotherapy, Behaviour Therapy, Hypnosis, Group Psychotherapy and Combined Individual and Group Psychotherapy, Family Therapy and Couple Therapy, Cognitive Therapy, Interpersonal Psychotherapy, Dialectical Behavior Therapy, Intensive Short-Term Dynamic Psychotherapy, Other Methods of Psychotherapy, Evaluation of Psychotherapy,

- Biological Therapies

- General Principles of Psychopharmacology, Pharmacokinetics and Drug Interactions, Drug Development and Approval Process in the United States, Medication-Induced Movement Disorders, Alpha-2-Adrenergic Receptor Agonists Conidine and Guanfacine, Alpha 2 Adrenergic Receptor Antagonists, Anticholinergics and Amantadine, Anticonvulsants, Antihistamines, Barbiturates and Similarly Acting Substances, Benzodiazepine Receptor Agonists and Antagonists, Bupropion, Buspirone, Calcium Channel Inhibitors, Cholinesterase Inhibitors and Similarly Acting Compounds, Dopamine Receptor Antagonists (Typical Antipsychotics), Lithium, Mirtazapine, Monoamine Oxidase Inhibitors, Nefazodone, Upload Receptor Agonists Methadone, Levomethadyl, and Buprenorphine, Opioid Receptor Antagonists Naltrexone and Nalmefene, Selective Serotonin Norepinephrine Reuptake Inhibitors, Selective Serotonin Reuptake Inhibitors, Serotonin-Dopamine Antagonists (Atypical or Second-Generation Antipsychotics),

Sympathomimetics and Dopamine Receptor Agonists, Thyroid Hormones, Trazodone, Tricyclics and Tetracyclics, Electroconvulsive Therapy, Neurosurgical Treatments and Deep Brain Stimulation, Other Pharmacological and Biological Therapies, Drug Augmentation, Reproductive Hormonal Therapy Theory and Practice

- Child Psychiatry

- Introduction and Overview, Normal Child Development, Normal Adolescence

- Psychiatric Examination of the Infant, Child, and Adolescent

- Mental Retardation

- Learning Disorders

- Reading Disorder, Mathematics Disorder, Disorder of Written Expression and Learning Disorder not otherwise specified

- Motor Skills Disorder Developmental Coordination Disorder

- Communication Disorders

- Expressive Language Disorder, Mixed Receptive-Expressive Disorder, Phonological Disorder, Stuttering, Communication Disorder Not Otherwise Specified

- Pervasive Developmental Disorders

- Attention-Deficit Disorders

- Attention-Deficit/Hyperactivity Disorder, Adult Manifestations of Attention-Deficit/Hyperactivity Disorder

- Disruptive Behavior Disorders

- Feeding and Eating Disorders of Infancy and Early Childhood

- Tic Disorders

- Elimination Disorders

- Other Disorders of Infancy, Childhood, and Adolescence

- Reactive Attachment Disorder of Infancy and Early Childhood, Stereotypic Movement Disorder of Infancy, Disorders of Infancy and

## Early Childhood Not Otherwise Specified

- Mood Disorders in Children and Adolescents

Depressive Disorders and Suicide in Children and Adolescents, Early-Onset Bipolar Disorders

- Anxiety Disorders in Children

Obsessive-Compulsive Disorder in Children, Posttraumatic Stress Disorder in Children and Adolescents, Separation Anxiety Disorder and Other Anxiety Disorders, Selective Mutism

- Early-Onset Schizophrenia

- Psychiatric Treatment of children

The Treatment of Child and Adolescent Disorders, Cognitive Behavioural Psychotherapy for Children and Adolescents, Group Psychotherapy, Family Therapy, Pediatric Psychopharmacology, Partial Hospital and Ambulatory Behavioural Health Services, Residential And Inpatient Treatment, Community- Based Treatment, Psychiatric Treatment of Adolescents

- Child Psychiatry Special Areas of Interest

Psychiatric Aspects of Day Care, Adoption and Foster Care, Child Maltreatment, Children's Reaction to Illness and Hospitalization, Psychiatric Sequelae of HIV and AIDS, Child or Adolescent Antisocial Behaviour, Dissociative Disorders in Children and Adolescents, Identity Problem and Borderline Disorders in Children and Adolescents, Adolescent Substance Abuse, Forensic Child and Adolescent Psychiatry Ethical Issues in Child and Adolescent Psychiatry, School Consultation, Prevention of Psychiatric Disorders in Children and Adolescents, Neuroimaging in Child and Adolescent Psychiatry, Child Mental Health Services Research, Impact of Terrorism on Children

- Adulthood

- Geriatric Psychiatry

Overview, Assessment, Psychiatric Disorders of Late Life, Treatment of

## Psychiatric Disorders, Health Care Delivery Systems, Special Areas of Interest

- Hospital and Community Psychiatry

Public and Community Psychiatry, Health Care Reform, Role of the Psychiatric Hospital in the Treatment of Mental Illness, Psychiatric Rehabilitation

- Ethics and Forensic Psychiatry

Clinical-Legal Issues in Psychiatry, Ethics in Psychiatry, Correctional Psychiatry

- Psychiatry Past and Future

History of Psychiatry, World Aspects of Psychiatry, Future of Psychiatry

## Practical

### Diagnostic Work up

- Detailed history, MSE & administration of rating scales to diagnose to patient along with management plan.
- Modified ECT
- Psychological Testing
- I.Q Test
- Memory Test
- Personality Test
- Neuropsychological tests
- Psychological Treatment
- Psychotherapy
- Behaviour Therapy
- Cognitive behaviour therapy
- Neurological assessment
- Detailed Neurological Examination
- Findings of CT, MRI
- E.E.G.

## **2.11 No: of hours per subject**

Residency programme

## **2.12 Practical training**

### **Postings**

The postgraduate student rotates through emergency, O.P.D. and Ward Postings & Consultation - Liaison Psychiatry. In addition, following special rotations are also undertaken:

Neurology:	1 month
Psychology:	2 months
Child & adolescent Psychiatry:	1month
Community & legal Psychiatry:	1month
De-addiction:	1month

During first year the resident will work under direct supervision of the 2/3 year

Resident /senior resident and consultant on call. He/She will be responsible for taking detailed history, examination of patients as per the file record and send appropriate investigations as advised by seniors. Initially all procedures are to be observed and then done under supervision of seniors and during 2/3 year can do procedures independently. In 2nd year, resident should be posted in special clinics also.

### **Job Responsibilities**

**OPD:** History and work up of all cases and presentation to the consultants

**Indoors:** Sending investigations and filling investigation forms and performing procedures as Narco- analysis, Aversion therapy and E.C.T.

**Ward:** History and work up of all cases

- Examination of all patients and documentation the files.
- Daily Mental Status Examination of the patients
- Applying relevant psychiatry rating scales
- Completion of files
- Preparation of discharge summary

## **2.13 Records**

Relevant records are to be maintained

## **2.14 Dissertation: As per Dissertation Regulations of KUHS : Not Applicable**

## **2.15 Speciality training if any : As given in clause 10**

## **2.16 Project work to be done if any: As stipulated by the HOD from time to time**

## **2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/ State/Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

## **2.18 Prescribed/recommended textbooks for each subject**

- Synopsis of clinical psychiatry Kaplan & Sadock
- Shorter Oxford Text Book of Psychiatry- Gelder
- Psychopharmacology by Stephen M. Stahl
- Fish's clinical psychology/ Symptoms in mind- Andrew Sim
- Psychology by Morgan and King.

## **2.19 Reference books**

Current editions of:

1. Comprehensive Text book of Psychiatry by Kaplan & Sadock
2. New Oxford Text Book of psychiatry- Gelder & Andreasen
3. Social Psychology by David G. Myers
4. Organic Psychiatry by Leishman
5. Technique of Psychotherapy by Wolberg
6. General Psychopathology- Jasper

## **2.20 Journals**

- Indian Journal of Psychiatry
- Indian Journal of Psychological Medicine

- British Journal of Psychiatry
- American Journal of Psychiatry
- JAMA Psychiatry
- Journal of Clinical Psychiatry
- Psychiatry Clinics of North America

#### **Internet resources**

- ermed gateway
- ovid
- science direct
- Website of W.H.O :[www.who.int/mental\\_health/](http://www.who.int/mental_health/)
- *Cochrane Library* : [www.cochranelibrary.com/](http://www.cochranelibrary.com/)

#### **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed by the Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

### **3 EXAMINATIONS**

### **3.1 Eligibility to appear for exams**

- A minimum of 80% attendance during each year of the course separately.
- Submission of Logbook.
- Should have presented at least one paper/poster International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. (This is considered as eligibility criteria for appearing for the examination)

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training.  
The examination for Diploma at the end of 2<sup>nd</sup> academic year.

### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the

candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### **Number of candidates**

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

#### **SCHEME OF EXAMINATION**

- **Theory - 300 marks( 3 papers of 100 mark each)**
- **Clinical / Practical - 200 marks**
- **Oral - 100 marks**

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40										
2	Paper II	100	40	300	150	200		100		300	150	600	300
3	Paper III	100	40										

#### **3.4 Papers in each year:**

Not applicable

#### **3.5 Details of theory exams**

As given in clause 3.3.

Theory Consists of three papers of three hour duration, each paper consisting of one structured long essay for 20 marks, and eight short essays carrying ten marks each.

Paper I – Basic Sciences Applied to Psychiatry

Paper II – Clinical Psychiatry

Paper III – Psychiatry Subspecialties and Neurology

#### **3.6 Model question paper for each subject with question paper pattern**

QP Code:

Reg.No.:.....

**P.G. Diploma Examinations in Psychological Medicine (DPM)**

**(Model Question Paper)**

**Paper I – Basic Sciences Applied to Psychiatry**

Time: 3 hrs

Max marks:100

- Answer all questions
- Draw diagrams wherever necessary

Essay: (20)

1. Describe the functional neuroanatomy of Frontal lobe. Discuss the clinical features of frontal lobe dysfunction.

Short Essays: (8x10=80)

2. Hypothalamo pituitary adrenal axis
3. Chi-square test
4. Blood Brain Barrier
5. Pharmacodynamics
6. Dopamine receptors
7. Serotonin transporter gene
8. Theories of Learning.
9. Uses of EEG in psychiatry

\*\*\*\*\*

QP Code:

Reg.No.:.....

**P.G. Diploma Examinations in Psychological Medicine (DPM)**

**(Model Question Paper)**

**Paper II – Clinical Psychiatry**

Time: 3 hrs

Max marks:100

- Answer all questions

- Draw diagrams wherever necessary

Essay: (20)

1. Discuss etiology, clinical features and management of Alzheimer's disease.

Short Essays:

(8x10=80)

2. Neuroleptic Malignant Syndrome
3. Systematic Desensitization
4. Second Generation Antipsychotics
5. Thought disorders in Schizophrenia
6. Treatment of Resistant depression
7. Disability Assessment
8. Suicide Survivor
9. Panic Disorder

\*\*\*\*\*

QP Code:

Reg. No.:.....

### **P.G. Diploma Examinations in Psychological Medicine (DPM)**

#### **(Model Question Paper)**

#### **Paper III –Psychiatry Subspecialties and Neurology**

Time: 3 hrs

Max marks:100

- Answer all questions
- Draw diagrams wherever necessary

Essay: (20)

1. Enumerate various causes of mental retardation. Discuss the management of Mental Retardation.

Short Essays:

(8x10=80)

2. Migraine
3. Psycho-oncology
4. Oppositional Defiant Disorder
5. Mental Health Act,1987

6. Relapse prevention in Alcohol dependence
7. Geriatric mood disorders
8. Management of Delirium
9. Pseudoseizures

\*\*\*\*\*

### **3.7 Internal assessment component**

Not applicable.

### **3.8 Details of Practical Exams**

- Three cases for each candidate
- One Long Case (Psychiatry) .Time 60 minutes (45 minutes for work up;15 minutes for writing).Marks 100
- Two Short Cases- Total marks 100 (50+50)
  1. Neurology Short Case: 30 minutes and 50 marks
  2. Psychiatry Short Case: 30 minutes and 50 marks

### **3.9 Number of examiners needed (Internal & External) and their qualifications**

#### ***Examiners***

- i. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.

ii. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor and Head of the Department or Head of the Department.

**3.10 Details of viva:**

100 marks for Viva: Evaluation of the Log book carries 20 marks and 80 marks for viva.

**4 INTERNSHIP**

Not applicable for diploma courses.

**5. ANNEXURES**

**5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

**FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

## LOG BOOK OF

DIPLOMA COURSE: .....

NAME.....

1. BIODATA OF THE CANDIDATE
2. EXPERIENCE BEFORE JOINING P.G. COURSE
3. DETAILS OF POSTING :
  - FIRST YEAR
  - SECOND YEAR
4. RESEARCH WORK:
5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. Daily activities record (BLANK PAGES)

ONE PAGE FOR EACH MONTH X 36 PAGES

## 16. SUMMARY



# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN**

**PUBLIC HEALTH**

**Course Code: 511**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in PUBLIC HEALTH

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.
- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

**2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

**2.4 Course outline**

<b>Semester I</b>	
Social and behavioural aspects of health	
Epidemiology	
Statistics	
Communicable and Non Communicable diseases	
Demography and population Science	
Health systems and policies	
Maternal and child health	
<b>Semester II</b>	
Health economics and financing	
Ethics in Public health	
Community Nutrition	
Health Promotion and Behavioural change and communication	
Environmental Health	
Health program management	
Global health	
Research methods and Research Project work	
<b>Semester III</b>	
Field , lab postings , Visit to places of public health importance , Postings at Urban Health Training Centre and Rural Health Training Centre	
<b>Semester IV</b>	
Research Project- Dissertation	

## **2.5 Duration – 2 yrs**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

## **2.6 Syllabus**

1.	Social and behavioural aspects of health
2.	Epidemiology
3.	Epidemiology and Management of Communicable and Non Communicable diseases
4.	Biostatistics
5.	Demography and Population Science
6.	Health systems and policies in Public health
7.	Occupational and Industrial Health
8.	Maternal and child health and Gender issues
9.	Health economics and Health Care financing
10.	Ethics in Public health
11.	Nutrition and food safety in Public Health
12.	Health Promotion and Behavioural change and communication
13.	Environmental Health
14.	Health program management
15.	Global health
16.	Research methodology
17.	Entomology and Parasitology

The concept of healthcare counselling shall be incorporated in the relevant areas.

## **2.7 Total number of hours –**

580 hours

## 2.8 Branches if any with definition

1.	Public health administration , Public health laws , social aspects of health and disease , occupational health , Biostatistics
2.	Epidemiology including Biostatistics , Epidemiology of Communicable diseases and non communicable diseases , Microbiology including entomology
3.	Maternal and child health and family welfare - Chemistry and Physiology of Human Nutrition , Public health Chemistry , Environmental Sanitation , Demography

## 2.9 Teaching learning methods

### Learning Activity

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months. Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

### **The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions

- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.

- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.
- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

#### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

#### **Maintenance of Record of Work done.**

1. A diary showing each day's work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

#### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

#### **2.10 Content of each subject in each year**

##### **Theory**

1. Historical background of public health concepts of health and disease.
2. Social services: - relevance of social sciences in Medicine, psychosocial and cultural determinants of health, social security, social science research methods – qualitative and quantitative.
3. Principles of epidemiological methods, uses with special reference to health care delivery, planning and conduct of epidemiological studies, epidemiologic surveillance and epidemic preparedness, investigation of epidemic, disease screening.
4. Biostatistics: Relevance and use of statistics in Medicine, analysis and presentation of data, measures of central tendency, measures of dispersion, normal distribution, tests of significance, correlation and regression. Analysis of qualitative data sources of vital statistics.

5. Hospital and health information systems: - Importance, components, recording and reporting in the health services system use of computers in health care system.
6. Demography: Basic principles, problems of population explosion, indices of fertility.
7. Health Administration: Health care system in India and developed countries, Five year plans, panchayat raj system, community development programme, decentralization, motivation leadership supervision, performance appraisal, Management of resources.
8. Health Planning management.
9. National Health Programmes: Details of implementation and evaluation.
10. Hospital Management: Hospital Pharmacy: Procurement and distribution of drugs, equipments and other consumables, hospital waste management including biomedical waste management, contingency planning.
11. Epidemiology of communicable and non communicable disease
12. Occupation health
13. Environmental health
14. Nutrition
15. MCH and family welfare
16. Mental Health
17. Genetics and heredity
18. International health and regulation
19. Public health laws
20. Health education, communication process and methods planning and organization of health education activities
21. Voluntary health agencies and NGOs.
22. Entomology and Parasitology – vectors and parasites of public health importance.
23. Microbiology: Important diagnostic and screening tests, methods of collection and transpiration of specimens and sample vaccines.
24. Disinfection procedures:
25. Public Health chemistry.
26. Public Health Laboratory service.

They should acquire adequate skill in the following.

1. Interpretation and utilization of surveillance data for effective prevention and management of epidemics.
2. Carrying out investigation of outbreaks
3. Organizing and conducting surveys as part of programme evaluation
4. Organizing and conducting health care service companions such as national immunization days.
5. Formulation of strategies and organization IEC activities at various levels from the district level to the periphery.
6. Acquiring clinical skills at the generalist level in relation to common health problems and MCH
7. Acquiring skills to use computer as an aid to their routine functions.
8. Entomology: Identification of common parasites and vector species interpretation and use of water quality analysis kits.

#### **PRACTICALS**

1. Microbiology applied to public health
2. Entomology and Parasitology
3. Epidemiology and biostatistics
4. Nutrition
5. Environmental sanitation
6. Visit to institute of public health importance and places prone to different occupational diseases. It can preferably be in the form of a one week study tour, towards the later part of the course.

**2.11 No: of hours per subject**

1.	Social and behavioural aspects of health	30
2.	Epidemiology	60
3.	Epidemiology and Management of Communicable and Non Communicable diseases	50
4.	Biostatistics	20
5.	Demography and Population Science	40
6.	Health systems and policies in Public health	40
7.	Occupational and Industrial Health	10
8.	Maternal and child health and Gender issues	20
9.	Health economics and Health Care financing	40
10.	Ethics in Public health	20
11.	Nutrition and food safety in Public Health	40
12.	Health Promotion and Behavioural change and communication	40
13.	Environmental Health	40
14.	Health program management	40
15.	Global health	10
16.	Research methodology	60
17.	Entomology and Parasitology	20

**2.12 Practical training**

Microbiology Lab posting

Public health lab

NIV

Urban health training centre

Rural health training centre

Epidemic investigations

Sewage treatment plant

Water treatment plant

Industrial visit

MILMA (Milk processing)

Meat products of India

Leprosy sanatoria

State TB Cell, DTC, IRL

#### **2.13 Records**

Record containing details of daily activity and teaching programmes, visits to places and institutions of public health importance should be maintained during the course.

#### **2.14 Dissertation: As per Dissertation Regulations of KUHS**

Not applicable

#### **2.15 Speciality training if any**

Should be posted in different departments for sufficient periods to gain knowledge and skill to manage common conditions that can be present in primary care settings

Medicine

Pediatrics (Immunization, OP.... etc.)

Gynaecology (PP unit, safe abortion, Antenatal clinic...etc.)

Dermatology - To identify, Diagnose and manage common dermatologic conditions

Ophthalmology – To identify, Diagnose and manage common Ophthalmic conditions

Geriatric clinic -

Palliative care clinic -

Psychiatry – Identifying and managing common psychiatric disorders

Casualty – Emergency management of cases

Preventive clinic - Anti rabies management

Surgery/Ortho - First Aid

#### **2.16 Project work to be done if any**

As stipulated by the Head of Department.

## **2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/ State/Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

## **2.18 Prescribed/recommended textbooks for each subject**

As stipulated by the **Head of Department.**

### **2.19 Reference books**

#### **I. Public Health**

- a) Principles of Public Health Administration- John I Hanlon
- b) Theory and Practice of Public Health – Hobson
- c) Oxford text book of public health
- d) Preventive medicine for the doctor in his community – Level and Clark
- e) Preventive medicine and Public Health Maxcy and Kenneth F Rosenau
- f) A treatise on Hygiene and Public health
- g) Mansions Tropical disease- Wilcocks & Mansion Bahr
- h) Public health & its promises in future. Smile
- i) Public Health in Medicine for Medical Professional - Burton & Smith

#### **II. Epidemiology**

- a) Epidemiology – clinical practice – Barker
- b) Epidemiology – Principles and methods- Brain Mac Mahan

#### **III. Nutrition**

- a) Human Nutrition and Dietetics – Garro James
- b) Human Nutrition and diet – Swaminathan. M

- c) Nutrition in Health and Disease – Lenna.F Cooper et al
- d) Introductory Nutrition – Helen Andrews and guthre

#### 1V. Infectious Disease

- a) Treatment and control of infectious diseases in Man – Pascal James Imperated
- b) Principles and practice of infectious disease - Mandell, Benett and Dolin
- c) Microbiology and microbial infections – Topley and Wilson

#### V. Occupational Health

- a) Hunters diseases of Occupations
- b) Health in industry – Donald Hunter
- c) Occupational Health practice – Schilling.

#### V1. Statistics

- a) Statistics in Medicine
- b) Biostatistics – A foundation for analysis in Health sciences.

#### V11. Sociology

- a) Social Epidemiology edited by – Lisa F Berkman
- b) Text book of Sociology in Medicine – Renisan
- c) Medico sociology – Susser and Watson
- d) Hand book of Medical Sociology – Graham S & L. Reeder
- f) Essentials in Qualitative research – a Note Book for the field – Willms D.G. & Johnson

N A

## **2.20 Journals**

In addition to the journals related to public health, the candidate should regularly gather updated information from WHO periodicals, monographs and serial publications.

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

## **3 EXAMINATIONS**

### **3.1 Eligibility to appear for exams [including Supplementary]**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. **(This is considered as eligibility criteria for appearing for the examination)**

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training. The examination for Diploma at the end of 2<sup>nd</sup> academic year.

### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40	300	150	200		100		300	150	600	300
2	Paper II	100	40										
3	Paper III	100	40										

### 3.4 Papers in each year

Not applicable

### 3.5 Details of theory exams

As per clause 3.3

No. of papers – 3		
Duration – 3hrs		
Type of question	No. of questions	Marks
Essay	1	20 marks
Short Essays	9	10

Paper I --Public health administration, Public Health Laws, Social Aspects of Health and

Disease Occupational Health, biostatistics

Paper II – Epidemiology Including Bio statistics, Epidemiology of Communicable and Non communicable Disease, Microbiology including Entomology.

Paper III --. Maternal And Child health and Family Welfare- Chemistry and Physiology of Human Nutrition, Public health Chemistry, Environmental Sanitation, Demography.

### 3.6 Model question paper for each subject with question paper pattern

#### Model Question paper

**Paper I --Public health administration, Public Health Laws,**

**Social Aspects of Health and Disease Occupational Health, biostatistics**

Time: 3 hours

Maximum: 100 marks

*All questions are compulsory*

(20 Marks)

I. Discuss the three health care delivery system in India. Suggest measures to improve its efficiency and effectiveness.

$8 \times 10 = 80$

II. Write briefly on:

- a. Social stratification and disease.
- b. Pneumoconiosis
- c. Health for all by 200AD.
- d. Community based rehabilitation.
- e. Indian Factories Act.
- f. Critical path method
- g. Ergonomics
- h. Pre natal sex determination.

\*\*\*\*\*

**Paper II – Epidemiology Including Bio statistics, Epidemiology of  
Communicable and Non communicable Disease, Microbiology including  
Entomology.**

Time: 3 hours

maximum: 100 marks

*All questions are compulsory*

I. Discuss the Revised National Tuberculosis Control Programme implemented in India and offer your comments.

(20 marks)

II. Write briefly on:

- a. Serological surveillance
- b. Ebola infections
- c. Zoonosis
- d. Incubation Period
- e. Obesity
- f. High risk approach
- g. Focus Group Discussion
- h. Alpha – error

(8 x 10 = 80 marks)

\*\*\*\*\*

**Paper III --. Maternal And Child health and Family Welfare- Chemistry and Physiology of Human Nutrition, Public health Chemistry, Environmental Sanitation, Demography.**

Time: 3 hours

maximum: 100 marks

*All questions are compulsory*

(20 marks)

I. What are the objectives and strategies of the Reproductive and Child Health Programme implemented in our country and offer your comments.

(8x10=80 marks)

II. Write briefly on:

- a. Child survival Index
- b. Demographic gap
- c. Growth charts.
- d. Radiation hazards
- e. Nutritional anaemia
- f. Sanitation barrier
- g. Botulism]
- h. Fluorosis

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**3.7 Internal assessment component**

Not applicable.

### 3.8 Details of practical/clinical practicum exams

	Public health administration	Public health Chemistry	Die t	Maternal and child health	Statistic s	Epidemiology	Spotter s	Total	Vi v a
Mark s	25	25	25	25	30	30	40	200	1 0 0

### 3.9 Number of examiners needed (Internal & External) and their qualifications

#### *Examiners*

- i. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
- ii. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

### 3.10 Details of viva:

Total 100 marks divided among 4 Examiners

Oral: 80 marks

Log Book: 20 marks

#### **4. INTERNSHIP**

Not applicable for P.G. Medical diploma courses.

#### **5. ANNEXURES**

##### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

###### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

**LOG BOOK OF**

**THE DEGREE OF .....**

**NAME.....**

**1. BIODATA OF THE CANDIDATE**

**2. EXPERIENCE BEFORE JOINING P.G. COURSE**

**3. DETAILS OF POSTING :**

- FIRST YEAR
- SECOND YEAR
- THIRD YEAR

**4. THESIS RESEARCH WORK**

5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
  
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. Daily activities record (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGE
16. SUMMARY

# REGULATIONS 2016

## Syllabus

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN**

**RADIO DIAGNOSIS (DMRD)**

**Course Code: 512**

**(2016-17 Academic year onwards)**

**2016**

## COURSE CONTENT

### 2.1 Title of course:

Diploma in Medical Radiodiagnosis

### 2.2 Objectives of course

#### GOAL

The goal shall be to produce competent specialists

- Who shall carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have to master most of the competencies, pertaining to the speciality of Radiodiagnosis that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advances and developments in Radiology.
- Who shall have acquired a spirit of scientific inquisitiveness and is oriented to the principles of research methodology.
- Who shall have acquired the basic skills in the teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline the student should be able to;

- Recognise the importance of speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case and consider them while planning therapeutic, rehabilitative and preventive measures/strategies.
- Diagnose and manage majority of the conditions in the speciality based on clinical assessment and appropriate investigations.
- Plan and advice for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.

- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organise and supervise the chosen/assigned health care services with adequate managerial skills in the clinic/hospital or the field situation.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyse relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care.

### **Specific Objectives**

1. The students shall be able to identify and correctly interpret the radiological findings in the various systems like Respiratory, Cardio vascular, Central and peripheral Nervous, Gastrointestinal, Genito-urinary, musculoskeletal system etc. and in Soft tissues.
2. The students shall learn about various imaging techniques like Plain Radiography, Conventional Contrast Radiography, Computed Tomography, Ultrasound Imaging including colour Doppler, Digital Vascular Imaging, MRI, Mammography, and other modalities.
3. The students should have basic knowledge in various interventional radiological procedures and be able to do invasive procedures in Radiology.
4. A working knowledge of the role of isotopes in medical diagnosis is also desirable.
5. They should have acquired knowledge in design, organisation, and management of the Department of Radiodiagnosis.
6. They should have the basic knowledge in Medical Audit, Health Economics, Health Information Systems,.

7. They should understand the basic physics of X-ray production, its interaction with living tissues, its use, and hazards.
8. They should understand the ways of protecting the humanity from possible harmful effect of radiation from various radiological procedures.
9. They shall be fully conscious of the cost effectiveness of various Radiological investigations.

**At the end of the course, the student shall have the following abilities.**

- a) To use the theoretical knowledge and carry out the various radiological investigations like, USG, CT, MRI, Barium Studies, Contrast Studies of Hepatobiliary Systems, Genito-urinary System, Vascular System, Lymphatic System etc.
- b) To carry out such investigation as ERCP, Angiography, image guided procedures etc. (if necessary, with the help of physician and surgeons).
- c) To carry out various invasive and interventional procedures including Radio Frequency Ablation (RFA).
- d) To choose the most appropriate investigation or suggest the correct investigative approach, in a given situation.
- e) To interpret the images with relevance to the clinical situation.
- f) To perform echocardiography (Cardiac Ultrasonography).
- g) To take utmost care regarding radiation protection and safety for the Radiation worker and the Public.

### **2.3 Medium of instruction:**

English.

### **2.4 Course outline**

After successful completion of the Post-graduate Diploma in Medical Radiodiagnosis (DMRD) the candidates should acquire sufficient knowledge and expertise to qualify them as a specialist in the field of Radiology (diagnostic) and Imaging. They should acquire the knowledge in the basic radiographic techniques, radiological investigations, invasive procedures and sufficient knowledge in ultrasound examination (including colour Doppler), CT scan, MR imaging, Vascular Imaging, and Digital Radiography. A

working knowledge of the role of isotopes in medical diagnosis and basic knowledge in various interventional radiological procedures etc. are expected. They should also acquire knowledge in design, organisation, and management of the Department of Radiodiagnosis. In addition, they should have the basic understanding of medical audit, health economics, Health Information Systems, and Radiation protection.

## **2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognised Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

## **2.6 Syllabus**

Present in clause 2.10

The concept of healthcare counselling shall be incorporated in the relevant areas.

## **2.7 Total number of hours**

Present in clause 2.11

## **2.8 Branches if any with definition**

Radiodiagnosis, Radiation Physics, and Nuclear Medicine

## **2.9 Teaching learning methods**

### **Learning Activity**

Every student shall actively participate in all the clinical, academic and teaching activities in the department. In addition, the candidate should have at least 80% attendance in the clinical and academic activities of each year for appearing the examination.

### **The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions

- Morbidity and mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- CME programmes and conferences (at least one participation and presentation by the candidate)
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.
- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed monthly by the faculty members imparting the training.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted.

- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

### **Seminars and Journal Review Meeting**

The students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a logbook shall be maintained. Seminars and Journal review meeting may be conducted alternately once in every 15 days.

### **Maintenance of Record of Work done.**

1. A log book showing each day's work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. This practical record of the work (log book) has to be maintained by the candidate and duly scrutinised and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinised by the head of the department.

### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognised P.G teachers of the department and the progress record should be maintained by the head of the department.

## **2.10 Content of each subject in each year**

### **Syllabus**

#### **BASIC SCIENCES**

*Lectures, by the faculty members.*

*Models and specimen demonstration, by the faculty members.*

***Seminars, by students, supervised by the faculty members.***

***Practicals, to be trained under the supervision of the faculty members.***

## **Physiology**

- CSF – production and circulation.
- Blood flow dynamics in various organs as applied in Doppler Study.
- Relevant Gastro Intestinal, Hepatobiliary and Renal Physiology.
- Physiology of endocrine systems and of Puberty.
- Relevant Physiology of other systems applicable to Radiological Imaging, including fracture healing.
- Physiology related to Gestation.
- Foetal circulation.
- Physiology relevant with Paediatric patients.
- Physiology of normal and abnormal growth.
- Physiology of Contrast Agents in Radiology.

## **Pathology**

- Basic general Pathology.
- Basics of the Pathology of tumours, infection, inflammation, vascular diseases etc. as applied to Radiological Imaging of various organs and systems.
- Basics of the Pathology of Congenital malformations.

## **Pharmacology**

- Pharmacology of intravenous contrast media – dose, uses, adverse reactions and management of adverse reactions.
- Ionic and non-ionic contrast media - advantages and disadvantages.
- CT, MR and Ultrasound contrast agents.

- Pharmacology and properties of Isotope pharmaceutical agents, tracers, dose, applications.
- Essential drugs in the management of adverse contrast reaction, dose application and route of administration.

## **Radiological Anatomy and Applied Embryology**

The candidate should be familiar with Radiological Anatomy and applied embryology of Gastro Intestinal Tract, Genito Urinary Tract, Central Nervous System, Cardio Vascular System, Skeletal System, Eye and Para Nasal Sinuses. They should have the knowledge of the basic anatomy relevant to all common radiological investigations and cross sectional anatomy in the axial, coronal and sagital planes and in oblique planes.

## **RADIATION PHYSICS**

***Lectures, by the faculty members.***

***Models and specimen demonstration, by the faculty members.***

***Seminars, by students, supervised by the faculty members.***

***Practicals, to be trained under the supervision of the faculty members.***

Basic physics of radioactivity, production of X-Ray, interaction of X-Ray with matter, effects of X-Ray, measurements of X-Ray quantity, principles and methods of radiation protection in Diagnostic Radiology.

## **Physics of Diagnostic Radiology**

1. Structure of X-Ray tube and electrical circuit of x ray unit.
2. Various types of X-Ray tubes, tube assembly and Tube rating.
3. Production, effects, and measurement of X-Rays.
4. Interaction of X-Rays with matter.
5. Image Intensification.

6. Conventional Fluoroscopy and IITV Systems.
7. Physics of DSA.
8. Xeroradiography.
9. X –Ray Radiography, Photofluorography. Angiography.
10. Physics of Radiographic Cassettes, Films and Intensifying Screens.
11. Mammography (including Digital Mammography).
12. Image quality and factors controlling the same in conventional and modern techniques.
13. Dark room techniques including Dark room Design.
14. Factors influencing the radiographic image and assurance of quality control in radiography.
15. Various artefacts in Radiology and Imaging.
16. Effects and control of scattered radiation.
17. Physics of Collimators, Filters and Grid.
18. Radioactivity-Basic principles.
19. Radioactive decay, production of radioisotope imaging, uptake studies, clinical applications.
20. Gamma camera, Radionuclide scanning.
21. Radiological aspects and nuclear medicine.
22. Physics of Bone Densitometry.
23. Image processing (Conventional-Manual and automatic).
24. Image processing (Digital).
25. Digital Radiography and Computed Radiography.
26. Physics of Ultrasonography.
27. MRI, MR Spectroscopy, MRA
28. Conventional and Computed Tomography.
29. Physics of PET and SPECT.
30. Picture Archival and Communication System (PACS).

## **Radiation protection**

- Radiations hazards in Diagnostic Radiology.
- Essential of radiobiology and biological effects of Radiation.
- Personal monitoring, Dosimeters, permissible dose, ICRP recommendation.
- Departmental protection - National and International regulations.
- Radiation Protection for Radiology workers and for the public.
- Planning and layout of Diagnostic Radiology Department.
- Basics of X-ray equipment installation, AERB regulations, radiation acceptance test.
- Radiation units and measurements.
- Exposure – dose, dose equivalent.
- Dosimetry instruments: Ionisation Chamber Systems, GM counters, Scintillation Detectors, TLD, and Photographic Dosimetry.
- QA and control systems.

### RADIOGRAPHY AND DARK ROOM PROCEDURES

*Lectures, by the faculty members.*

*Models and specimen demonstration, by the faculty members.*

*Seminars, by students, supervised by the faculty members.*

*Practicals, to be trained under the supervision of the faculty members.*

- Conventional Radiography including views of extremities, Spine, Skull, PNS Abdomen, Thorax and Pelvis.
- Special Radiographic Techniques like Stress Views, Trauma Radiography, Axial and Oblique views.
- Contrast techniques of Gastro Intestinal System, Respiratory, Hepatobiliary System, Urogenital System, Central Nervous System, Cardio Vascular System, Soft tissues and Salivary glands.
- Contrast techniques in other Systems.

- Conventional Tomography.
- OPG and Dental Radiography.
- Magnification techniques, Portable Radiography.
- MMR/Photofluorography.
- Chemistry of processing and dark room procedures.
- Dark room design.

## **RADIODIAGNOSIS**

***Lectures, by the faculty members.***

***Models and specimen demonstration, by the faculty members.***

***Seminars, by students, supervised by the faculty members.***

***Practicals, to be trained under the supervision of the faculty members.***

## **RESPIRATORY SYSTEM AND CHEST**

- Normal Chest, methods of examination.
- Digital Radiography in Chest.
- High KV techniques.
- Mediastinal and pleural disease.
- Inflammatory and interstitial disease of the Lung.
- Pneumothorax, Pneumomediastinum, Cystic disease of Lung.
- Infections of Lung, Mediastinum, Pleura, and Chest wall.
- Tumours of Lung, Pleura, and Chest wall.
- Pulmonary thrombo-embolism.
- Trauma and Postoperative chest.
- Paediatric chest including congenital conditions.
- Radiology of Respiratory distress (New born, Child and Adult).
- Miscellaneous Lung conditions including pneumoconiosis, emphysema, chronic bronchitis, foreign bodies, Post Radiation, Post Chemotherapy, Drowning and Poisoning.

## **CARDIO VASCULAR SYSTEM**

- Methods of examination.
- Normal Heart and Pulmonary circulation.
- Basic ECG, Cardiac Ultrasonography (Echocardiography).
- Congenital Heart Disease.
- Arteritis, Aneurysms, Dissections, and complications.
- Acquired Heart Diseases, Cardiac Scintigraphy.
- Ischemic Heart Diseases, Cardiomyopathy.
- Cardiac Tumours including Myxoma, Rhabdomyoma.
- Pericardium-Pericardial infection, Effusion, Constrictive Pericarditis, Cardiac Tamponade.
- Pericardial Calcification.
- Arteriography, Venography and Lymphangiography.
- Perfusion studies and MRI of CVS.
- Radiology of Post-operative Chest, Pace Maker, Electrode, and Prosthetic valve.

## **GASTRO INTESTINAL TRACT**

- Methods of examination and interpretation of normal and diseases of pharynx, oesophagus.
- Methods of examination and interpretation of normal and diseases of stomach, Small Bowel and Large Bowel.
- Methods of examinations and interpretation of normal appearance and disease of Hepato- Biliary System, Spleen, Pancreas, Mesentery, and Retro peritoneum.
- Acute abdomen - investigations and interpretations.
- Radiology of Post-operative Abdomen and organ transplantation (Liver, Pancreas, etc.).
- Paediatric Gastrointestinal Radiology.
- Abdominal Trauma.

- Tumour and predisposing conditions.
- Infections and inflammatory conditions.
- Ischaemic conditions of Bowel and Mesentery and role of arteriography and Doppler study.
- Endocrine Tumours related GIT. Upper and lower GI bleeding and GI radiological investigations including Scintigraphy.
- Radiological Interventions.

## **GENITO-URINARY SYSTEM**

- Methods of investigation and normal appearances.
- Congenital lesions.
- Calculus disease of Genito-urinary System.
- Infection and inflammations involving Genito Urinary System.
- Tumours of Genito Urinary System.
- Reno vascular disease and Radiological interventions.
- Renal failure and transplant kidney.
- Miscellaneous including cystic disease of kidney, nephrocalcinosis, lower urinary tract obstruction/infection and post-operative problems.
- Trauma of Genito-urinary tract.
- Male Infertility imaging and interventions.

## **ENDOCRINE SYSTEM**

- Anatomy and basic physiology of various endocrine organs.
- Various imaging modalities (including Scintigraphy, PET. SPECT) and their interpretations.
- Endocrine Tumours
- Imaging of Pituitary, Thyroid, Adrenal, Pancreas and other endocrine organs using various Radiological techniques.

## **SKELETAL SYSTEM**

- Radiographic and other imaging modalities  
(like Isotope study including PET and SPECT, MRI, CT etc.)
- Structure of Bone, Bone formation, remodelling and growth.
- Congenital; skeletal anomalies and dysplasia.
- Bone and joint inflammation and infection – different types of arthritis.
- Degenerative disorders.
- Neoplasm including lymphoid and haemopoietic disorders.
- Metabolic and endocrine disorders.
- Skeletal trauma.
- Bone and Marrow injury.
- Avascular necrosis.
- Miscellaneous conditions – joint prosthesis, instruments – application imaging, Complications.
- Radio Frequency Ablation.

## **CENTRAL NERVOUS SYSTEM AND SKULL**

- Methods of examination and normal appearance of Skull, Brain, Spine and the Spinal cord.
- Applied embryology related to CNS.
- Infections and Inflammatory conditions of CNS.
- Tumours and Tumour like conditions of CNS, Skull base and Calvarium.
- White matter diseases.
- Radiology of Dementia and epilepsy.
- Imaging in Hydrocephalus.
- Cranio-cerebral trauma.
- Congenital and degenerative lesions of Brain and Spinal cord.

- Disorders of Spine and Spinal cord.
- Cerebral Scintigraphy and its applications.
- Vascular lesions and interventions of CNS.
- Post-operative, Post Chemotherapy and Post Radiation changes.

## **OBSTETRICS AND GYNAECOLOGY**

- Obstetrics imaging (Normal/Abnormal).
- Gynaecological imaging (Normal/Abnormal).
- Infertility imaging and interventions, including ART.
- Gestational Trophoblastic Tumours.
- Radiology of ambiguous genitalia and Hermaphroditism.
- Doppler Study and IUGR.
- Radiological interventions in Gynaecology and Obstetrics.
- Miscellaneous conditions-Amniotic fluid embolism, Remnant Syndrome, Ovarian Hyper stimulation Syndrome etc.

## **ENT, EYE AND DENTAL IMAGING**

- Normal appearance and anatomy of Orbit, Eye Ball, PNS, and Temporal bone.
- Disease involving Larynx, PNS, Orbit and Eyeball, Ear and Mastoids.
- Imaging and interpretation of teeth and jaws.
- Dental Radiography.
- Pan tomography.
- Application of various imaging modalities like CT, MRI, Isotope studies, PET, SPECT etc. in head and neck region.

## **SOFT TISSUES AND SMALL PARTS**

- Various disease, imaging and interpretations related to soft tissues and small parts (including Thyroid, Testis and Breast).

- Mammography and Sonography - Techniques and interpretations.
- Soft Tissue Radiography, Ultrasonography, Computed Tomography and MRI.

## **SPECIAL TECHNIQUES**

- Ultrasonography: physical principles, techniques, and interpretation.
- Computed Tomography: physical principles, techniques, and interpretation.
- Magnetic Resonance Imaging: physical principles, techniques, and applications.
- Digital Subtraction Angiography: physical principles, techniques and applications
- PET, SPECT: physical principles, techniques, and interpretation.
- Nuclear medicine as applied to Diagnostic Radiology.
- Newer developments in Diagnostic Radiology and Imaging- like picture archival and communication System (PACS).
- Filmless Radiology environment.
- Special Techniques and newer developments in Conventional Radiology, US, CT, MRI, PET, SPECT.

## **INTERVENTIONAL RADIOLOGY**

- Interventional Hepatobiliary procedures.
- Interventional Cardio-vascular procedures.
- Interventional Genito-urinary procedures.
- Interventional Gynaecological and Obstetrics Procedures.
- Venous Sampling Techniques.
- Radio frequency Ablation Techniques.
- Interventions in GIT.
- Other Ultrasonography and Computed Tomography guided procedures.
- Newer developments in Interventional Radiology.

### **2.11 No: of hours per subject**

#### **THEORY LECTURES**

Will be on Basic Sciences, Radiation Physics, Radiological Anatomy, Diagnostic Radiology and Imaging and interventional techniques.

<b>Basic Sciences</b>	
Physiology	20 hrs.
Pathology	20 hrs.
Pharmacology	20 hrs.
<b>Radiological Anatomy and Applied Embryology</b>	40 hrs.
<b>Radiation Physics</b>	70 hrs
<b>Radiography and Dark Room Procedures</b>	70 hrs.
<b>Radiodiagnosis</b>	
Respiratory System and Chest	100 hrs
Cardio Vascular System	70 hrs
Gastro Intestinal Tract	100 hrs.
Genito-Urinary System	70 hrs.
Endocrine System	40 hrs.
Skeletal System	100 hrs.
Central Nervous System And Skull	70 hrs.
Obstetrics And Gynaecology	100 hrs.
ENT, Eye, and Dental Imaging	70 hrs.
Soft Tissues And Small Parts	50 hrs.
Special Techniques	70 hrs.
Interventional Radiology	120 hrs.

Practical Training Programme will be as follows,

<b>1<sup>st</sup> year</b>	<b>Duration</b>
Uro-radiology	1 months
Gastrointestinal Radiology	1 months

Conventional Radiology/ Plain Radiography	3 months
Ultrasonography including Doppler studies	2 months
CT and MRI-introduction	1 months
Special investigations (Barium studies, IVU etc.)	2 months
Elective posting in various other Departments	2 months
<b>2<sup>nd</sup> year</b>	
Ultrasonography	2 months
CT and MRI	2 months
Plain Radiography and reporting	3 months
Special Investigations	2 months
Cardiac Radiology	1 month
Nuclear medicine	1 month
Interventional procedures	1 month
<b>Both years</b>	
1. Journal club	once in a fortnight.
2. Topic presentation by PG student (Moderators– faculty members).	3 days in a week.
3. Inter Departmental discussions.	
1. General medicine	once in every fort night.
2. General Surgery	once in every fort night.
3. Obstetrics and gynaecology	once in every fort night.
4. Paediatrics	once in every fort night.
5. Neurology (Medical)	once in every fort night.
6. Neurology (Surgical)	once in every fort night.
7. Gastroenterology (Medical)	once in every fort night.
8. Gastroenterology (Surgical)	once in every fort night.
9. Nephrology	once in every fort night.
10. Urology (Surgical)	once in every fort night.
11. Respiratory Medicine	once in every fort night.
12. Thoracic Surgery	once in every month.

13. Orthopaedics	once in every month.
14. Cardiology	once in every month.
15. Ophthalmology	once in every month.
16. ENT	once in every month.
17. Oncology, Radiotherapy	once in every month.
18. Morbidity/ Mortality conference	once in every month.

**2.12 Practical training :Given in 2.11**

**2.13 Records**

Log book to be maintained by the student.

**2.14 Dissertation: Not applicable**

**2.15 Speciality training if any**

Present in clause 2.11 of the curriculum

**2.16 Project work to be done if any : Not applicable**

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/ State/Regional conferences of the same subject during the academic period. This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18 Prescribed/recommended textbooks for each subject**

Textbook of Radiology and imaging– by David Sutton.

Radiology: diagnosis, imaging, intervention – by Taveras and Ferrucci.

Alimentary Tract Radiology – by Alexander R. Margulis.

Textbook of Gastrointestinal Radiology– by Richard M. Gore MD, Marc S. Levine MD.

Grainger and Allison's Diagnostic Radiology– by Grainger and Allison.

Text book of diagnostic imaging– by Charles E. Putman, Carl E. Ravin.

Clarks positioning in Radiology.

Merrill's atlas of Radiographic positions and procedures.

Abram's Angiography: Vascular and Interventional Radiology – by Herbert L Abrams, M D Baum Stanley, Michael J Pentecost.

Caffey's Pediatric Diagnostic Imaging.

Interventional Radiology of the Abdomen – by Joseph T. M. D. Ferrucci, Jack Wittenberg.

Taveras And Ferrucci's Radiology – by Ferrucci, Charles B. Higgins, Joseph T. Ferrucci.

CT and MR Imaging of the whole body – by John. R, Haaga, Charles F. Lanzieri, Robert C. Gilkeson.

Diagnostic Neuroradiology: A text/Atlas – by Anne G. Osborn.

Clinical ultrasound – by Cosgrove.

Bone and Joint Imaging – by Donald Resnick.

Diagnosis of bone and joint disorders – 6 volumes – by Donald Resnick.

Paediatric orthopaedic Radiology – by Ozonoff.

The Radiology of Skeletal Disorders – by Murray and Jacobson.

Medical Radiation physics – by W J Meredith.

The fundamentals of X– Ray and Radium Physics – by Joseph Selman.

Diagnostic ultrasound – by Carol and Rumack. S.R Wilson and J.W. Charboneau.

Ultrasonography in Obstetrics and Gynaecology – by Peter W Callen

Imaging of new born, infant, and young adult – by Leonard E Swischuck.

Hand book of cardiovascular Magnetic Resonance Imaging – by Gerald M. Pohost, Krishna S. Nayak.

Neuroimaging – by William W Orrison.

Magnetic Resonance Imaging in orthopaedic and Sports Medicine – by David W Stoller.

Felson's Principles of Chest Roentgenology – by Lawrence R. Goodman MD.

Clinical Urography – by Howard M. Pollack MD, Bruce L. McClellan M.

Christensen's Physics of Diagnostic Radiology – by Thomas S Curry, James E Dowdley, Robert E Murry.

## **2.19 Reference books**

As stipulated by the Head of Department

## **2.20 Journals**

1. American journal of Roentgenology (AJR).
2. British Journal of Radiology.
3. Seminars in Roentgenology.
4. Radiological Clinics of North America.
5. American Journal of Neuroradiology.
6. Indian journal of Radiology and Imaging.
7. Clinical Radiology.
8. Radiographics.
9. Radiology.
10. Pediatric Radiology.
11. Pediatric Radiology Journal.
12. Acta Radiologica.
13. Journal of Clinical Ultrasound.
14. Ultrasound in Medicine and Biology.
15. Ultrasound International.
16. Ultrasound in Obstetrics and Gynecology.
17. Neuroradiology.
18. Skeletal Radiology (The Journal of Skeletal Radiology).
19. Clinical Imaging.
20. Seminars in ULTRA SOUND, CT and MR.

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of appearing at the Final examination. The logbook should record clinical cases seen and presented, and procedures and tests performed and seminars, journal club and other

presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination.

### **3 EXAMINATIONS**

#### **3.1 Eligibility to appear for exams [including Supplementary]**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conference.

Besides, he/she must have attended at least one State / National /International conference during his/her training period. (This is considered as eligibility criteria for appearing for the examination)

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training.

The examination for Diploma shall be held at the end of 2<sup>nd</sup> academic year.

#### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

#### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

##### ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system

of evaluation by all examiners (Internal/External), before Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

#### ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist. A candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six**.

#### **Scheme and Schedule of Examination- DMRD**

Examination will be conducted on satisfactory completion of two years of training. There will be a Theory and Practical examination followed by oral / viva voce.

#### **Theory**

Theory consists of three papers of three-hour duration, each paper consisting of one structured long essay for 20 marks and eight short essays carrying ten marks each.

#### **Clinical / Practical**

One long case (worked out/active current cases)

Two short cases (worked out/active current cases)

#### **Spotters**

Each external examiner will show at least 20 spot films to the candidate for the evaluation in Practical examination.

#### **Viva voce**

A Viva Voce shall be conducted by all the examiners appointed.

#### **Specimen for practical examination**

Related to basic sciences and applied clinical science, Radiology, special and interventional procedures and dark room Techniques

### **Log book –evaluation**

To be evaluated during final year examination

#### **Distribution of Marks**

1	Theory paper I to III	300
2	Practical	200
	One long case	100
	Two short cases	50 X2
3	Viva voce	100
	Spotters	40
	Specimen + film discussion+ Oral	40
	Log book	20
	<b>Marks in total</b>	<b>600</b>

Candidate has to secure 40% marks for individual papers and 50% for the group total to have a pass in the University examination

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva voce					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40	300	150	200	100	300	150	150	600	300	
2	Paper II	100	40										
3	Paper III	100	40										

#### **1. Question Paper Pattern**

All questions Papers are predominantly of short answer questions with one essay type question, covering all Topics and systems including journals.

## 2. Examiners

Two externals and two internals for the examination for Practicals and Viva-Voce.

### 3.4 Papers in each year

-Not applicable

### 3.5 Details of theory exams

Present in clause 3.3

<b>Paper I</b>	Basic Sciences as applied to Radiodiagnosis with Radiation Physics, Radiological Anatomy, Radiography, and Contrast Media.
<b>Paper II</b>	Respiratory System, Cardiovascular System, Gastro Intestinal Tract, Hepatobiliary System, Genito Urinary Tracts, and Endocrine System.
<b>Paper III</b>	Skeletal System, Skull and Central Nervous System, Obstetrics and Gynaecological imaging, ENT, Eyes, Dental, Jaw and Soft tissues. Nuclear Medicine, PET, SPECT

### 3.6 Model question paper for each subject with question paper pattern

QP Code:

Reg.No.:.....

#### P.G. Diploma Examinations in Medical Radiodiagnosis (DMRD)

#### (Model Question Paper)

**Paper I – Basic Sciences as Applied to Radiodiagnosis with,  
Radiation physics, Radiological anatomy, Radiography and contrast media)**

Time: 3 hrs

Max marks: 100

*Answer all questions*

Essay:

(20)

1. Describe the development of interatrial septum and gross anatomy of right atrium with a labelled diagram.

Short Answers:

(8x10=80)

2. X'rays and its properties.
3. Radiation protection devices.
4. MR artifacts.
5. MR contrast agents.
6. Endocavitory probe.
7. MDCT.
8. Radiological anatomy of shoulder joint.
9. Radiography of:
  - a) Patella
  - b) Scaphoid
  - c) PNS
  - d) Orbit

\*\*\*\*\*

QP Code:

Reg.No.:.....

**P.G. Diploma Examinations in Medical Radiodiagnosis (DMRD)**

**(Model Question Paper)**

**Paper II – Respiratory System, Cardiovascular System, Gastrointestinal Tract,  
Hepatobiliary System, Genitourinary Tract, and Endocrine Systems**

**Time: 3 hrs**

**Max marks: 100**

**•Answer all questions**

**Essay:**

**(20)**

1. Describe the differential diagnosis of reticular- nodular shadowing in Chest films images.  
Describe the findings and staging of Sarcoidosis in RCT findings.

**Short answers:**

**(8x10=80)**

2. TAPVC.
3. Pericardial effusion.
4. Polycystic kidneys.
5. Urinary bladder trauma.
6. GI tuberculosis.
7. Imaging in Cushing's Syndrome.
8. Radionuclide in GI bleed.
9. Anorectal malformation.

\*\*\*\*\*

QP Code:

Reg.No.:.....

**P.G. Diploma Examinations in Medical Radiodiagnosis (DMRD)**

**(Model Question Paper)**

**Paper III – Skeletal System, Skull and Central Nervous System, Obstetrics and Gynaecological Imaging, ENT, Eyes, Dental, Jaw and Soft Tissues Nuclear Medicine, PET and SPECT.**

**Time: 3 hrs**

**Max marks: 100**

***Answer all questions***

**Essay:**

**(20)**

1. Enumerate the causes of intracranial bleed. Discuss on CT and MR imaging in intracranial bleed and its interventions

**Short answers:**

**(8x10=80)**

2. Renal isotope study.
3. IUGR.
4. Breast elastography.
5. Extraconal lesion of eye.
6. Lytic lesions of skull.
7. Tuberous sclerosis.
8. Dysgerminoma.
9. Fibrous dysplasia.

\*\*\*\*\*

**3.7 Internal assessment component**

Not applicable.

**3.8 Details of practical exams**

Given in 3.3

**3.9 Number of examiners needed (Internal and External) and their qualifications**

***Examiners***

All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. norms i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years' experience as a postgraduate examiner in the concerned subject. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

**3.10 Details of viva voce**

Present in clause 3.3

**4. INTERNSHIP**

Not applicable for diploma courses.

**5. ANNEXURES**

**5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

## **FORMAT OF LOG BOOK**

**Medical college .....**

**Department of .....**

**Log book of**

**The Diploma of .....**

**Name.....**

1. Biodata of the candidate
2. Experience before joining the course
3. Details of posting :
  - First year
  - Second year
4. Research work if any
5. Participation in conferences – CME programmes
6. Details of leave availed
7. Details of participation in academic programme
8. Seminars /symposia presented
9. Statistical meetings / departmental mortality meetings
10. Journal clubs
11. Teaching assignments – undergraduates / nurses/paramedical.
12. Special duties (if any )
13. Miscellaneous
14. Daily activities record (blank pages)  
Two pages for each month x 48 pages
15. Summary

# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

**Thrissur 680596**



**POST GRADUATE DIPLOMA IN**

**MEDICAL RADIOTHERAPY**

**Course Code 513**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in MEDICAL RADIOTHERAPY

### 2.2 Objectives of course

#### GOAL

The goal of Post Graduate medical education shall be to produce competent specialists and / or Medical teachers.

**DIPLOMA IN MEDICAL RADIOTHERAPY (DMRT)** course is the two year postgraduate resident training course in **ONCOLOGY**. Curriculum aims in training the postgraduate students to be specialist in **CLINICAL ONCOLOGY** on successful completion of course, covering essential parts of Medical and Radiation Oncology. The overall aim of the curriculum is to ensure that the cancer patients will get the chance of specialized comprehensive treatment from qualified physicians.

At the end of the training program the candidate should have acquired sufficient expertise and in-depth knowledge in the field of oncology, basic and radiological physics, radiobiology, aetiology, pathology, epidemiology and statistics related to malignant diseases and the investigations commonly used like radiology and laboratory methods, practice of clinical oncology with special reference to radiation oncology and cancer chemotherapy, management of oncologic emergencies and side effects of cancer management. The candidate should have good knowledge of cancer prevention, early detection, rehabilitation and emotional problems.

- Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the National health policy.
- Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
- Who shall be aware of the contemporary advance and developments in the discipline concerned.

- Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology.
- Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

At the end of the Post Graduate training in the discipline concerned the student shall be able to;

- Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health sector.
- Practice the speciality concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of National health programme, effectively and responsibly.
- Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.

- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research and training.

### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

### **2.4 Course outline**

1. Basic Sciences
  1. Anatomy
  2. Tumour Pathology
  3. Radiobiology & Cancer Biology
  4. Radiation Physics
2. Clinical Oncology
  - a) Radiation Oncology
  - b) Medical Oncology
3. Cancer Chemotherapy and Pharmacology
4. Pain & Palliative care
5. Preventive & Community Oncology
6. Disciplines allied to Clinical Oncology– Haemato-oncology, Paediatric Oncology, Nuclear medicine, Imageology, Surgical Oncology
7. Communication Skills
8. Administration

### **2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the DIPLOMA IN MEDICAL RADIOTHERAPY (DMRT) conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two (2) years.

## 2.6 Syllabus

1. Basic Sciences – which includes Anatomy, Tumor Pathology, Radiobiology & Cancer Biology and Radiation Physics.
2. Clinical Oncology - which includes Radiation Oncology and Medical Oncology.
3. Cancer Chemotherapy and Pharmacology
4. Preventive & Community Oncology
5. Pain & Palliative care
6. Disciplines allied to Clinical Oncology– Haemato-oncology, Paediatric Oncology, Nuclear medicine, Imageology.

The concept of healthcare counselling shall be incorporated in the relevant areas.

## 2.7 Total number of hours

Present in clause 2.10

## 2.8 Branches if any with definition

Not applicable

## 2.9 Teaching learning methods

### Learning Activity

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months. Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

### **The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings

- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.

  

- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.

- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco – economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.
- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

#### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

#### **Maintenance of Record of Work done.**

1. A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

#### **2.10 Content of each subject in each year**

##### **1. BASIC SCIENCES**

###### **a) ANATOMY**

Knowledge of surface anatomy pertaining to Oncology

Detailed knowledge of the all organs

Detailed knowledge of the lymphatic system of all organs-regions

Practical familiarity with the radiographic appearance of important regions (living anatomy)

Cross sectional anatomy

###### **b) PATHOLOGY**

Definitions of & distinction between different types of growth disorders (i.e; distinction between hyperplasia, hypertrophy, regeneration, malformations and neoplasia.

Malignant transformation.

Initiation and promotion stages of carcinogenesis.

Mode of origin – monoclonal, polyclonal, unifocal, multifocal structural and functional changes in cellular components.

Aetiology of cancer including genetic predisposition & congenital syndromes, chromosomal abnormalities & hereditary tumors, proto-oncogenes, oncogenes, tumor suppressor genes & viruses in the causation of malignancy.

Multifactorial causation including Nutritional aspects in cancer causation and prevention, Environmental causes of cancer, Biological – protozoal, bacterial, viral, Chemical – classes of carcinogenic chemicals, smoking, Physical – trauma, irradiation (UV rays, other electromagnetic radiation including, X-rays and gamma rays and particulate radiation), Common occupational cancers & experimental tumors in animals relationship to human mutagenicity.

Aetiology, mechanisms of carcinogenesis, known types of carcinogens & their effects upon the cell.

The relative importance of different factors in the causation and spread of human cancer including rate of tumour growth, methods of measurement, factors affecting growth rate, mechanisms of spread, local effects of tumors, local & systemic reactions to tumors, effects of therapy on tumors & normal tissues.

Criteria for tumor diagnosis macroscopic, histological & cytological uses & value of biopsy material.

Classification of tumors – histogenic, histological, behavioural & immunological nomenclature – solid tumors, lymphoproliferative disorders.

Structure & organization of tumors- vascular supply, stroma etc. Systems of grading  
Endocrine aspects of malignancy:- Production of hormones by tumors, effect of hormones on tumors, paracrine effects of tumors Paraneoplastic syndromes.

Tumor Immunology including organization & development of the immune system and the role response in disease, cellular basis of immunity & measurement of immune function, graft versus host reaction, tumor immunity, tolerance, enhancement, Immune surveillance hypothesis, Immunological markers in diagnosis & monitoring, the T cell systems & molecular biology for diagnostic and therapeutic purposes.

### c) CANCER BIOLOGY

Cell Proliferation, Differentiation, and Apoptosis

Growth Factor Signal Transduction in Cancer

Oncogenes

Tumor Suppressor Gene Defects in Recurring Chromosome Rearrangements in Human Cancer

Biochemistry of Cancer

Invasion and Metastases

Tumor Angiogenesis

Tumor Immunology

### ***Molecular Biology***

Understanding the principals involved in the molecular diagnosis of haematological and Oncological disorders.

- i. PCR
- ii. FISH
- iii. RFLP and Southern Blotting.
- iv. Microarray technology

Flow Cytometry: - A working knowledge of the principle and practice of flow cytometry and interpretation of the clinical significance of common leukocyte immunophenotypes.

### ***Cancer Aetiology***

Genetic Predisposition to Cancer

Chemical Carcinogenesis

Hormones and the Aetiology of Cancer

Ionizing Radiation

Ultraviolet Radiation Carcinogenesis

Physical Carcinogens

Trauma and Inflammation Tumor Viruses Herpes viruses Papillomaviruses and Cervical

Neoplasia Hepatitis Viruses Parasites

Cancer Epidemiology

## **d) RADIOBIOLOGY**

Introduction to Radiation Biology

Radiation interaction with matter

Types of radiation, excitation and ionization.

Radiation chemistry: direct and indirect effects, free radicals, oxygen effect and free radical scavengers, LET and RBE theory, dual action theory, intracellular repair, general knowledge of repair models.

Introduction to factors influencing radiation response.

Physical factors: dose, dose quality, dose rate, temperature Chemical factors: Oxygen, radiosensitizers, radioprotectors

Biological factors: type of organism, cell type and stage, cell density and configuration, age, sex.

Host factors: Partial or whole body exposure.

Relevance of radiation biology to radiotherapy

Interaction of ionizing radiation on mammalian cells.

The cell: structure and function; relative radiosensitivity of nucleus and cytoplasm, mitosis, cell cycle, principles of DNA, RNA and protein synthesis, radiation effects on DNA, strand breakage and repair, common molecular biology techniques.

Cell injury by radiation: damage to cell organelle like chromatids, chromosomes; interphase death, apoptosis, mitotic death, micronucleus induction, SLD, PLD, Oxygen effect: mechanism, hypoxia, OER, reoxygenation in tumors, significance in radiotherapy.

Dose rate.

Brachytherapy sources including  $^{252}\text{f}$ . Radiobiology of low, high dose rate & pulsed brachytherapy, hyper fractionation, significance in radiotherapy. Effects of low LET and high LET radiation on cell. Cell survival curves. Effect of sensitizing and protective agent. Dose modifying factors and their determination. Variation of response with growth and the progression of cell through the phases of cell cycle. Physical factors influencing cell survival; relative biological effectiveness (RBE); its definition and determination, dependence upon linear energy transfer, dose, dose rate and fractionation.

Hyperthermic and photodynamic injury.

Biological hazards of irradiation. Hyperthermic and photodynamic injury.

Biological hazards of irradiation; dose protection and LET, effects on the embryo and the foetus, life shortening, leukemogenesis and carcinogenesis, genetic and somatic hazards

for exposed individuals and population. Biological basis of radiological protection. Organ radiosensitivity and radioresponsiveness, concept of therapeutic index. Acute effects on Radiation, Concept of mean lethal dose, Radiation Syndromes: BM, GI, CNS, Cutaneous Suppression of immune System: mechanism, Consequences

Total Body irradiation Biological dosimetry: Blood counts, BM mitotic index. Chromosome aberrations in peripheral blood lymphocytes

Radiation accidents: typical examples

Radiation effects on major organs/tissues

Acute & late effects on all normal organs & tissues including connective tissue, bone marrow, bones, gonads, eye, skin, lung, heart, central nervous system tissues, peripheral nerves, oesophagus, intestine, kidney, liver & thyroid with special reference to treatment – induced sequelae after doses employed in radiotherapy.

Normal tissue tolerances

Late effects of radiation (somatic)

Sterility, cataracts and cancer

Carcinogenesis: mechanism in vitro and in vivo, oncogenes and anti-oncogenes

Radiation induced cancer of occupational, medical or military origin.

Recent controversial results for low level exposure, risk estimates

Late effects of Radiation (Genetic)

Mutations: definition, types, potential hazards.

Low level radiation: sources, potential hazards, stochastic and deterministic nonstochastic effects, high background areas and cancer.

Effects of Radiation on Human Embryo & Fetus

Lethality, congenital abnormalities and late effects (Leukaemia and childhood cancer), severe mental retardation. Doses involved.

Biology and Radiation Response of Tumors

Tumors growth: Kinetics of tumor response. Growth fraction, cell loss factor.

Volume doubling times, potential volume doubling times, repopulation, and accelerated repopulation.

Radiocurability: definition, factors involved, tumor control probability curves

Factors determining tumor regression rates. Causes of failure to control tumors by radiation: tumor related, host related technical/mechanical errors.

Relationship between clonogen numbers and tumor control probability. Local tumor control and impact on survival.

Applied Radiobiology

Fractionation: rationale, factors involved (5 R's)

Time, Dose and fractionation relationship isoeffect curves, isoeffect relationships, e.g; NSD, CRE formalisms and their limitations, partial tolerance, means of summing partial tolerance, steepness of dose response curves. Multi-target, two component and linear quadratic model. A/b ratios for acute and late effects and means for deriving these values. Isoeffective formulae. Clinical applications of the L-Q model. Hyperfractionation, accelerated fractionation, hypofractionation, CHART, split dose treatments. Brachytherapy – low dose rate, high dose rate and pulsed treatments. Introduction to new techniques to optimize radio-curability; combination therapy (adjuvant surgery or chemotherapy), hyperthermia, hypoxic cell radio-sensitize, high LET radiation. Photodynamic therapy. The volume effect, general principles and current hypotheses.

Shrinking Field technique.

Combination Radiation-surgery

Pre, post and intra operative radiation.

Rationale, radiobiological factors, current clinical results.

Irradiation of sub-clinical disease, debulking surgery, importance of clonogen numbers.

Combination Radiation-Chemotherapy

Definitions of radiosensitizers, synergism, potentiation, antagonism, Radiosensitizers: types, mechanism.

Hyperthermia

Sources, rationale (historical examples), advantages and disadvantages, thermotolerance.

Cellular damage: comparison and contrast with radiation, thermal and non-thermal effects of ultrasound, microwaves, radiofrequency, etc. general host responses (immunology, metastases)

Use along with radiotherapy and chemotherapy: optimum sequencing of combined modalities.

Current limitations to the clinical use of hyperthermia.

High LET Radiation

Comparison and contrast with low LET radiation

Neutrons: Source (including  $^{252}\text{Cf}$ ) and boron neutron capture (outline only). Advantages and disadvantages of neutrons, RBE values, hazards of low dose and low energy neutron, use in radiotherapy, combination with low LET, current clinical results.

Other high LET particles: protons, mesons, high-energy heavy nuclei, application to radiotherapy, current clinical results.

#### e) RADIATION PHYSICS

The aim of this subject is to provide the future Clinical Oncologist with the knowledge of physics required in clinical practice.

An understanding of the principles of planning & carrying out treatment is a necessary prerequisite & will be enhanced by the study of this subject.

A familiarity with the physics of electromagnetic radiation and atomic structure will be required.

With respect to their implications for accurate dose delivery in clinical radiation therapy, applicability, limitations, advantages & disadvantages of the various devices & techniques should receive particular attention.

Candidates should be encouraged to observe & gain practical experience with the equipment & techniques used in radiotherapy in clinical oncology departments

Structure of Matter: Constituents of atoms, Atomic and mass numbers, Atomic and mass energy units, Electron shells, Atomic energy levels, Nuclear forces, Nuclear energy levels, Electromagnetic radiation, Electromagnetic spectrum, Energy quantization, Relationship between Wavelength, Frequency, Energy Nuclear Transformations: Natural

and artificial radioactivity, Decay constant, Activity, Physical, Biological and Effective half-lives, Mean life, Decay processes, Radioactive series, Radioactive equilibrium Production of X-rays : The X-ray tube, Physics of X-ray production, Continuous spectrum, Characteristic spectrum, Efficiency of X-ray production, Distribution of X-rays in space, Specifications of beam quality, Measurement of beam quality, Filters and filtration Interaction of radiation with matter: Attenuation, Scattering, Absorption, Transmission, Attenuation coefficient, Half Value Layer (HVL), Energy transfer, Absorption and their coefficients. Photoelectric effect, Compton Effect, Pair production. Relative importance of different attenuation processes at various photon energies. Electron interactions with matter: Energy loss mechanisms – Collisional losses, Radioactive losses, Ionization, Excitation, Heat production, Delta rays, Polarization effects, Scattering, Stopping power, Absorbed dose, secondary electrons.

Interactions of charged particles: Ionization vs. Energy, Stopping Power, Linear Energy Transfer (LET), Bragg curve, Definition of particle range. Measurement of radiation: Radiation Detectors: Gas, Solid – state, Scintillation, Thermo luminescence, Visual Imaging (Film, Fluorescent screens), and their examples. Exposure, Dose, Kerma: Definitions, Units (Old, New), Inter-relationships between units, Variation with energy and material. Measurements of exposure (Free air chamber, Thimble chamber), Calibration of therapy beams: Concepts, Phantoms, Protocols (TG 21, IAEA TRS- 398, TG 51) Dose determinants in practice (brief outline only, details not required)

Radiotherapy Equipment: Grenz rays, Contact, Superficial, Orthovoltage or Deep therapy, Supervoltage, Megavoltage therapy. Therapy and diagnostic X-ray units – comparison. Filters, factors affecting output. Co-60 units : Comprehensive description of the unit, Safety mechanisms, Source capsule Linear accelerators, Source capsule Linear accelerators : History, Development, Detailed description of modern, dual mode linear accelerator, Linac head and its constituents , Safety mechanisms, Computer controlled linacs, Record and Verify systems. Relative merits and demerits of Co-60 and linac units. Simulators: Need for them, detailed description of a typical unit, simulator CT. Dose distributions, Beam modifications and shaping in Teletherapy beams. Characteristics of

photon beams: Quality of beams, Difference between MV and MeV, Primary and scattered radiation. Percentage depth dose, Tissue-Air Ratio, Scatter Air Ratio, Tissue-Phantom Ratio, Tissue Maximum Ratio, Scatter Maximum Ratio, Back Scatter Factor, Peak Scatter Factor, Off-Axis Ratio, Variation of these parameters with depth, field size, source-skin distance, beam quality or energy, beam flattening filter, target material. Central axis depth dose profiles for various energies.

Equivalent square concept, Surface dose (entrance and exit), Skin sparing effect, Output factors. Practical applications: Co-60 calculations (SSD, and SAD technique), Accelerator calculations (SSD, and SAD technique) Beam profiles Isodose curves, Charts, Flatness, Symmetry, Penumbra (Geometric, Transmission, and Physical), Field size definition Body in homogeneities: Effects of patient contour, Bone, Lung cavities, Prostheses on dose distribution. Dose within bone / lung cavities, Interface effects, Electronic disequilibrium. Wedge filters and their use, Wedge angle, Wedge Factors, Wedge systems (External, In built Universal, Dynamic / Virtual), Wedge Isodose curves.

Other beams modifying and shaping devices: Methods of compensation for patient contour variation and / or tissue inhomogeneity – Bolus, Build-up material, Compensators, Merits, and Demerits. Shielding of dose limiting tissue: Non-divergent and divergent beam block, Independent jaws, multifocal collimators, Merits and Demerits.

### Principles of Treatment Planning

Treatment planning for photon beams: ICRU 50 and NCAP terminologies. Determination of body contour and localization: Plain film, Fluoroscopy, CT, MRI, Ultrasonography, Simulator based. Methods of correction for beam's oblique incidence, and body inhomogeneities. SSD technique and isocentric (SAD) technique: Descriptions and advantages of SAD technique

Combination of fields: Methods of field addition, Parallel opposed fields, Patient thickness vs. Dose uniformity for different energies in a parallel opposed setup, multiple fields (3 fields, 4 field box and other techniques). Examples of above arrangements of fields is SSD and SAD techniques, Integral Dose, Wedge field technique, Rotation

Therapy (Arc, and Skip), Tangential fields. Beam balancing by weighting. Total and hemi-body irradiation. Field junctions. Limitations of manual planning. Description of a treatment planning system (TPS): 2D and 3D TPS. Beam data input, Patient data input (simple contour, CT, MR data, Advantages of transfer through media). Input devices Digitizer, floppies, DAT devices, Magneto-optical disks, direct link with CT, MR). Beam selection and placement, Beam selection and placement, Beam's Eyes View (BEV), Dose calculation and display (Point dose, Isodose curves, Isodose surfaces, Colour wash). Plan optimization, Plan evaluation tools: Dose volume Histograms (Cumulative and Differential), Hard copy output, Storage and retrieval of plans.

Alignment and Immobilization: External and internal reference marks, Importance of Immobilization methods (Plaster of Paris casts, Perspex casts, bite block, shells, head rests, neck roll, Alpha-Cradles. Thermoplastic materials, polyurethane foams), Methods of beam marks, and front / back pointers). Treatment execution: Light field, Cross hair, ODIS, Scales in treatment machines. Treatment verification: Port films, Electronic portal imaging devices, Invivo patient dosimetry (TLD, diode detectors, MOSFET, Film, etc) Changes in patient position, target volume, and critical volume during course of treatment. Electron Beam Therapy Production of electron beams: Production using accelerators, Characteristics of electrons. Surface dose, percentage depth dose, beam profiles, Isodose curves and charts, Flatness and Symmetry. Beam collimation, variation of percentage depth dose and output with field size, and SSD, photon contamination. Energy spectrum, Energy specifications, variation of mean energy with depth. Suitability of measuring instruments for electron beam dosimetry Treatment planning: Energy and field size choice, air gaps, and obliquity, Tissue inhomogeneity – lung, bone, air filled cavities. Field junctions (with either electron or photon beam). External and internal shielding. Arc therapy, Use of bolus in electron beam. Total Skin Electron Irradiation, Intraoperative Radiation therapy. Physical Principles of Brachytherapy: Properties of an ideal brachytherapy source, Sources used in brachytherapy: Ra-226, Cs-137, Ir-192, Au-198, Co-60, I-125, Sr-90, Yt-90, Ru-106, Ta-182 and other new radionuclides, their complete physical properties, Radium hazards. Source construction including filtration,

comparative advantages of these radionuclides. Histological background. Radiation and Dose units: Activity used, Exposure, Absorbed dose, mg-hr, curie, milli-curie destroyed, milligram Radium equivalent, roentgen, rad, gray. Source strength specification, Brachytherapy Dose calibrator. Technique: Preloaded, After loading (manual and remote), Merits and Demerits. Surface, Interstitial, Intracavitary, Intraluminal, Intravascular brachytherapy, Low, Medium, High and Pulsed dose rates. Remote after loading machines.

Dosage Systems: Manchester System, Paris System Treatment Planning: Patient selection, Volume specification, Geometry of implant, Number, Strength and Distribution of radioactive sources, Source localization, Dose calculation, Dose rate specification, Record keeping ICRU 38. Radiation Safety: Planning of brachytherapy facility, Rooms and equipment, Storage and Movement control, Source inventory, Disposal, Regulatory requirements Beta-ray brachytherapy including methods of use, inspection, storage and transport of sources, dose distribution Unsealed radionuclides: Concepts of uptake, distribution and elimination, Activities used in clinical practice, Estimation of dose to target tissues, and critical organs, Procedures for administering radionuclides to patients. Quality Assurance in radiotherapy.(QART) Overview of QART: Need for quality system in Radiotherapy, Quality system: Definition and practical advantages, Construction, Development and implementation of a Quality system Quality Assurance of simulator,Tips,Co-60,Linear Accelerator Acceptance testing of Simulator, TPS, Co-60,Linear Accelerator Radiation Protection and Regulatory Aspects: Statutory Framework – Principles underlying International Commission on Radiation Protection (ICRP) recommendations, ICRP and National radiation protection i.e; Atomic Energy Regulatory Board (AERB) standards. Effective dose limits (ICRP and AERB) Protection mechanisms: Time, Distance and shielding. Concept of "As low as Reasonably Achievable" (ALARA) Personnel and Area Monitoring; Need for personnel monitoring, Principles of film badge, TLD badge used for personnel monitoring. Pocket dosimeter. Need for area monitoring, Gamma Zone monitors, Survey meters Regulatory aspects: Procedural steps for installation and commissioning of a new radiotherapy facility

(Teletherapy and Brachytherapy). Approval of Standing Committee on Radiotherapy Development Programme. Type approval of unit. Site plan, Layout of installation / Associated facility: Primary, Secondary barriers, leakage and scattered radiation. Regulatory requirement in procurement of teletherapy / brachytherapy source(s). Construction of building, Qualified staff, Procurement of instruments, and accessories, installation of unit and performance tests. Calibration of unit, RP & AD approval for clinical commissioning of the unit.

Other regulatory requirements:

Regulatory consent, NOCs, Periodical reports to AERB and Radiological Physics and Advisory Division (RP & AD), Bhaba Atomic Research Centre (BARC)

Advancements in Radiation Oncology: Virtual Simulation: Principle, CT Simulation, TPS based virtual simulation, Differences, Merits and Demerits, Practical considerations

Conformal radiotherapy (CRT): Principles, Advantages over conventional methods, Essential requirements for conformal radiotherapy.

Various methods of CRT:

With customized field shaping using conventional coplanar beams.

Multiple non-coplanar MLC beams conforming to target shape.

Stereotactic radiotherapy

Principle of inverse planning and Intensity Modulated Radiation Therapy (IMRT)

- -Using 3D compensator
- -Static IMRT (Step and Shoot technique)
- -Dynamic IMRT (sliding window technique)
- -Dynamic arc IMRT
- -Micro –MLC
- -Tomotherapy methods

Time gated (4D) radiotherapy

Merits and demerits of IMRT

Stereotactic irradiation methods: Physics Principles, Techniques, Description of units

(Gamma Knife and Linac based). Merits and demerits, Stereotactic Radiosurgery (SRS) and Stereotactic Radiotherapy (SRT), whole body stereotactic frame.

Networking in radiotherapy: Networking of planning and treatment units in radiotherapy department including Picture Archival Communication System (PACS), Advantages, Patient Data Management

## **2. CLINICAL ONCOLOGY - RADIATION ONCOLOGY & MEDICAL ONCOLOGY**

### **GENERAL ONCOLOGY**

Cancer prevention

Prevention of Tobacco-Related Cancers

Nutrition in the Aetiology and Prevention of Cancer

Chemo-prevention of Cancer

Radiotherapy techniques in management of different malignancies

Radiotherapy for non-malignant conditions

Treatment Response & Result

Guidelines for treatment response assessment.

Complete Response, Partial Response, No response, Stable disease.

End points of treatment results. Loco-regional control recurrence, metastasis, survival quality of life.

Treatment related morbidity assessment

Radiation morbidity (early & late)

Morbidities of combined treatment

Grading of morbidity

### **DIAGNOSIS, STAGING & MANAGEMENT OF CANCER**

A thorough knowledge and experience to be developed in diagnostic modalities, staging work up, treatment, complications, follow up. All the international and national standard treatment guidelines like NCCN, ESMO, ASCO, ESTRO, NICE, TMH etc must be readily and judiciously used. A specialized knowledge of comprehensive and multidisciplinary approach for cancer treatment is expected on completion of the course.

**1) NEOPLASMS OF THE CENTRAL NERVOUS SYSTEM**

Neoplasms of the Central Nervous System

**2) NEOPLASMS OF THE EYE**

Neoplasms of the Eye

**3) NEOPLASMS OF THE ENDOCRINE GLANDS**

Pituitary Neoplasms

Neoplasms of the Thyroid

Neoplasms of the Adrenal Cortex

Neoplasms of the Neuroendocrine System

Endocrine System

**4) NEOPLASMS OF THE HEAD AND NECK**

Head and Neck Cancer

Odontogenic Tumors

**5) NEOPLASMS OF THE THORAX**

Cancer of the Lung

Malignant Mesothelioma

Thymomas and Thymic Tumors

**6) NEOPLASMS OF THE FEMALE REPRODUCTIVE ORGANS**

Neoplasms of the Vulva and Vagina

Neoplasms of the Cervix

Endometrial Cancer

Neoplasms of the Fallopian Tube

Ovarian Cancer

Gestational Trophoblastic Disease

**7) NEOPLASMS OF THE BREAST**

Neoplasms of the Breast

**8) NEOPLASMS OF THE SKIN**

Neoplasms of the Skin

**9) MALIGNANT MELANOMA**

## Malignant Melanoma

### 10) NEOPLASMS OF THE BONE AND SOFT TISSUE

#### Bone Tumors & Sarcomas of Non-osseous Tissues

### 11) NEOPLASMS OF THE HEMATOPOIETIC SYSTEM

#### Myelo-dysplastic Syndrome

#### Acute Myeloid Leukemia in Adults

#### Chronic Myeloid Leukemia

#### Acute Lymphocytic Leukemia in Adults

#### Chronic Lymphocytic Leukemia

#### Tumors of the Heart and Great Vessels

#### Primary Germ Cell Tumors of the Thorax

#### Metastatic Tumors in the Thorax Hairy-Cell Leukemia

#### Hodgkin's disease

#### Non-Hodgkin's Lymphomas

#### Mycosis Fungoides and the Sezary Syndrome

#### Plasma Cell Tumors

#### Mast Cell Leukemia and Other Mast Cell Neoplasms

#### Polycythemia Vera and Essential Thrombocytophenia

### 12) NEOPLASMS OF THE ALIMENTARY CANAL

#### Neoplasms of the Oesophagus

#### Neoplasms of the Stomach

#### Primary Neoplasms of the Liver

#### Treatment of Liver Metastases

#### The Gallbladder

#### Diagnosis and Management of Biliary Tract Cancer

#### Neoplasms of the Ampulla of Vater

#### Neoplasms of the Exocrine Pancreas

#### Neoplasms of the Small Intestine, Vermiform

#### Appendix, and Peritoneum

Adenocarcinoma of the Colon and Rectum

Neoplasms of the Anus

**13) NEOPLASMS OF THE GENITOURINARY TRACT**

Renal Cell Carcinoma

Neoplasms of the Renal Pelvis and Ureter

Bladder Cancer

Neoplasms of the Prostate

Neoplasms of the Penis

Neoplasms of the Testis

**14) NEOPLASMS IN AIDS**

Neoplasms in Acquired Immunodeficiency Syndrome

**15) NEOPLASMS OF UNKNOWN PRIMARY SITE**

Neoplasms of Unknown Primary Site

**16) NEOPLASMS IN CHILDREN**

- a. Principles and Practice of Paediatric Oncology
- b. Incidence, Origins, Epidemiology
- c. Principles of Paediatric Radiation Oncology
- d. Late Effects of Treatment of Cancer in Children and Adolescents
- e. Childhood Acute Lymphoblastic Leukemia
- f. Paediatric Acute Myeloid Leukemia
- g. Hodgkin's Disease in Children and Adolescents
- h. Non-Hodgkin's Lymphoma in Children
- i. Langerhans' Cell Histiocytosis
- j. Hepatic Tumors
- k. Renal Tumors of Childhood
- l. Germ Cell Tumors
- m. Neuroblastoma
- n. Soft Tissue Sarcomas of Childhood

**17) COMPLICATIONS OF CANCER AND ITS TREATMENT**

Management of Cancer Pain  
Anorexia and Cachexia  
Antiemetic Therapy  
Neurologic Complications  
Dermatologic Complications of Cancer Chemotherapy  
Skeletal Complications  
Hematologic Complications and Blood Bank Support  
Coagulopathic Complications of Cancer  
Urologic Complications  
Cardiac Complications  
Respiratory Complications  
Liver Function and Hepatotoxicity in Cancer  
Gastrointestinal Complications  
Oral Complications  
Gonadal Complications  
Endocrine Complications  
Secondary Cancers: Incidence, Risk Factors, and Management.

#### 18) INFECTIONS IN PATIENTS WITH CANCER

Infections in Patients with Cancer

#### 19) ONCOLOGIC EMERGENCIES

Oncologic Emergencies

### 3. CANCER CHEMOTHERAPY AND PHARMACOLOGY

#### CHEMOTHERAPEUTIC AGENTS

Folate Antagonists

Pyrimidine and Purine Antimetabolites

Alkylating Agents and Platinum Antitumor Compounds

Anthracyclines and DNA Intercalators /Epipodophyllotoxins / DNA Topoisomerases

Microtubule-Targeting Anticancer Drugs Derived from Plants and Microbes: Vinca

Alkaloids, Taxanes, and Epothilones, Asparaginase

Cytokinetics,

Drug Resistance and its Clinical Circumvention,

Principles of Dose, Schedule, and Combination Chemotherapy

Basic for designing different chemotherapy schedules. Standard chemotherapy schedules.

The principles of cell kill by chemotherapeutic agents, drug resistance, phase specific and cycle specific action.

Chemotherapy practice in various malignancies

Chemotherapy practice & results/toxicities in sequential & concomitant chemo-radiotherapy.

Toxicology by Organ System

Supportive care for chemotherapy.

Regional Chemotherapy

Classification and mode of action of cytotoxic drugs.

Drug administration.

The general principles of pharmacokinetics; factors affecting drug concentration 'in vivo' including route and timing of administration, drug activation, plasma concentration, metabolism and clearance.

Principles of combinations of therapy, dose response curves, adjuvant and neo-adjuvant chemotherapy, sanctuary sites, high dose chemotherapy, and regional chemotherapy.

Toxicity of drugs. Early, intermediate and late genetic and somatic effects of common classes of anticancer drugs. Precautions in the safe handling of cytotoxic drugs.

Endocrine manipulation and biological response modifiers. An understanding of the mode of action and side effects of common hormonal preparations used in cancer therapy (including corticosteroids).

Use of the major biological response modifiers such as interferon, interleukins and growth factors and knowledge of their side effects.

Assessment of New Agents. Principles of phase I, II, and III studies.

Gene Therapy

**Principles of Endocrine Therapy**

Steroid Hormone Binding and Hormone Receptors

Hypothalamic and Other Peptide Hormones

Corticosteroids

Estrogens and Antiestrogens

Clinical Use of Aromatase Inhibitors in Breast Carcinoma

Progestin

Androgen Deprivation Strategies in the Treatment of Advanced Prostate Cancer

### **Principles of Biotherapeutics**

Immunostimulants

Active Specific Immunotherapy with Vaccines Interferons, Cytokines: Biology and Applications in Cancer Medicine

Hematopoietic Growth Factors.

Monoclonal Sclerotherapy

Cancer Gene Therapy

### **4. PREVENTIVE & COMMUNITY ONCOLOGY**

Cancer Epidemiology & Aetiology

Cancer Statistics- worldwide & India

Cancer Registries & National Cancer Control Programme

Analysis of data in cancer registries

Regional Cancer Centres

Cancer Screening & Prevention

### **5. PALLIATIVE CARE**

Guidelines for palliative care

Symptoms of advanced cancer

Management of terminally ill patients.

Different pharmacologic & non-pharmacology methods

Pain control, WHO guidelines for adults & children

Palliative radiotherapy

Palliative chemotherapy

Home care

Hospice care

Physical, social, spiritual & other aspects

## **6. OTHER DISCIPLINES ALLIED TO CLINICAL ONCOLOGY**

### **Surgical Oncology**

Basic principles of surgical oncology, biopsy, conservation surgery, radical surgery, palliative surgery.

Basics of surgical techniques – head & neck, breast, thorax, abdomen, gynaecological, genitourinary, musculoskeletal, CNS.

Combined treatments: with radiotherapy, chemotherapy, and hormone therapy.

### **Diagnostic Radiology and Nuclear Medicine**

Radiographic diagnosis of malignant and non-malignant conditions

Radiological Procedures with reference to Radiotherapy practices

Study of Ultrasound, CT Scans, MRI Scans, and PET scans, as applicable for management of cancer.

Other nuclear imaging and therapeutic modalities as applicable to management of cancer.

## **CLINICAL POSTINGS**

### **Rotations Postings**

#### **1st Year**

Clinical Oncology (In-patient ward and special clinics)

Medical Oncology

Radiation Oncology

Molecular & Cancer Biology

Radiobiology

Radiation Physics

Pathology

Cancer Chemotherapy and Pharmacology

Diagnostic Radiology

Simulators, Tele-therapy, Brachytherapy and other machine postings

Observation in Treatment planning and execution

Cancer Epidemiology and Medical Statistics

Cancer Research and Laboratory methods

### **2nd Year (In-patient ward and special clinics)**

Clinical Oncology & Critical Care including oncological emergencies (Inpatient ward and special clinics)

Radiation Physics

Radiotherapy treatment planning

Radiation Oncology

Medical Oncology

Prescription and administration of cytotoxic chemotherapy

Internal Medicine

Critical Care (ICU)

Specialty clinics (Nuclear medicine, Pain & Palliative, Paediatric Oncology, Surgical Oncology, ENT, Gynaecologic oncology)

#### **2.11 No: of hours per subject**

Present in clause 2.10

#### **2.12 Practical training**

Present in clause 2.10

#### **2.13 Records**

Present in clause 2.21

**2.14 Dissertation:** Not applicable.

**2.15 Speciality training if any :**Present in clause 2.10

**2.16 Project work to be done if any**

As stipulated by the Head of Department

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/ State/Regional conferences of the same subject during the academic period. This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18 Prescribed/recommended textbooks for each subject**

**BOOKS FOR READING (Latest Edition)**

- Molecular Diagnosis of Cancer, COTTER.F.E.
- Molecular Biology for Oncologist, YARNOLD.J.R. et al
- Cancer Chemotherapy Handbook, BAQUIRANJ DELIA
- The Lymphomas, CANELLOS, G.P. et al
- Chemotherapy source book, PERRY, M.C,
- Cancer Medicine, HOLLAND, J .F. et al.
- Text book of Malignant Haematology, Degos .L et al
- Clinical Oncology, ABELOFF et al
- Important Advances in Oncology, .DEVITA, V.T.
- Cancer Principles and Practice of Oncology, DEVITA, V. T. et al,
- Decision Making in Oncology Evidence Based Management, DJULBEGOVIC. B & SULLIVAN.
- AJCC Cancer Staging Manual

- Cancer Treatment, HASKEL
- Oncology for' Palliative Medicine, HOSKIN PETER & MAKING WENDY)
- Regional Therapy of Advanced Cancer, RUBIN, J.T
- MAGRATH, I. The Non-Hodgkin's Lymphoma,
- Comprehensive Text book of Oncology, Vol 1-2, MOSSA, A.R
- Oxford textbook of Oncology PECKHAM, M. et al I
- A Multi-disciplinary Approach for Physicians and Students, RUBIN Clinical Oncology.
- Atlas of diagnostic oncology, SKARIN, A.T
- Basic Science of Oncology, TANNOCK,E.I
- Pediatric oncology, Philip LANSZOWSKY
- Haematology – Basic Principles & Practice [Hoffman, Benz, Shattil, Furie, Cohen & Silberstein]
- Liebel and Philips text book of radiation oncology Richard T Hoppe, Theodore Locke Philips Mack Roach III
- Perez and Brady's Principles and Practice of Radiation Oncology Edward C Halperin, Carlos A Perez
- Clinical Radiation Oncology (2007) Leonard L Gunderson, Joel E Tepper.
- Bethesda Handbook of Clinical Oncology (2009) by Carmen J Allegra, Jame Abraham, James L Gulley
- Handbook of evidence based radiation Oncology 2<sup>nd</sup> Edition (2010) Dr. Eric K Hansen, Dr, Mack Roach III.
- Moss's Radiation Oncology: Rational, Technique, Results (1994) William Thomas Moss, and James Daniel Cox.
- Text Book of Radiotherapy, Gilbert H Fletcher.

- Treatment planning in Radiation Oncology 2<sup>nd</sup> Edition (2007) Faiz M Khan.
- Oxford Handbook of Oncology, Jim Cassidy, Donald Bissett, Roy A J Spence Obe.
- The Physics of Radiation Therapy: Mechanisms, Diagnosis and Management by Faiz M Khan.
- Radiobiology for the Radiologist 6<sup>th</sup> Edition, Eric J Hall.
- Text Book of Medical Oncology 4<sup>th</sup> edition, Franco Cavalli, Stan B Kaye, Heine H Hansen, James O Armitage, Martine J.
- Surgical Oncology: Contemporary principles and Practice, K. I. Bland, John M Daly, Constantine P Karakousis

## 2.19 Reference books

1. Liebel and Philips text book of radiation oncology edition (2010) Richard T Hope, MD, FACR, Fastro, theodore locke Philips, MD, FACR, Fastro, Mackroach III, MD, FACR.
2. Perez and Brandy's Principles and practice of radiation oncology 5<sup>th</sup> edition (2004) Edward C Halperin MD, MA, FACR, Carlos A Preze MD, Luther W Brady.
3. Cancer – Principles and Practice of oncology 8<sup>th</sup> edition, Vincent T De Vita, Jr. Theodore S Lawrence, Steven A.
4. Clinical Radiation Oncology (2007) Leonard L Gunderson.
5. Bethesda Handbook of clinical Oncology (2009) by Carmen J Allegra MD (Editor), Jame Abrahaham MD (Editor), James L Gulley MD(Editor).
6. Handbook of evidence based Radiation Oncology 2<sup>nd</sup> edition (2010) Dr. Eric K Hansen, Dr. Mark Roach III.
7. Moss's Radiation Oncology: Rationale, Technique, Results (1994) William Thomas Moss, James Daniel Cox.
8. Text book of Radiotherapy, Gilbert H Fletcher.
9. Oxford Handbook of Oncology, Jim Cassidy, Donald Bissett, Roy A J Spence Obe.

10. The Physics of Radiation therapy: Mechanisms, Diagnosis and Management, 3<sup>rd</sup> Edition, Faiz M Khan.
11. The Physics of Radiology 4<sup>th</sup> Edition (1983) Harold Elford Johns, John Robert Cunningham.
12. Radiobiology for the radiologist 6<sup>th</sup> Edition, Eric J Hall.
13. The Chemotherapy sourse book 4<sup>th</sup> Edition, Michel C Perry.
14. Text Book of Medical Oncology 4<sup>th</sup> Edition , Franco Cavalli, Stain B Kaye, Heine H, Hansen, James O Armitage, Martine J Piccart, Gebhart.
15. Surgical Oncology: Contemporary principles and practice, K. I. Bland, John M Daly, Constantine P Karakousis.

## 2.20 Journals

Current edition of:

1. Acta Oncologica
2. Haematology/Oncology
3. British Journal of Cancer
4. Cancer
5. CA.A Cancer Journal for Clinicians
6. Cancer Detection & Prevention
7. Cancer Genetics and Cytogenetics
8. Cancer Journal (Scientific American) (NP)
9. Cancer Survey (NP)
10. Cancer Treatment Review
11. Clinical Oncology
12. Current Problem in Cancer
13. Current Opinion in Oncology
14. European Journal of Cancer

15. European Journal of Surgical Oncology
16. Genes, Chromosomes and Cancer
17. Gynaecologic Oncology
18. Indian Journal of Cancer (Indian)
19. International Journal of Cancer (UICC)
20. International Journal of Gynaecological Cancer
21. International Journal of Radiation Oncology Biology/Physics
22. Journal of Cancer Education (NP)
23. Journal of Clinical Oncology
24. Journal of National Cancer Institute (Gift)
27. Journal of Psycho social Oncology
25. Journal of Surgical Oncology
26. Medical & Paediatric Oncology
27. Nutrition and Cancer
28. Oncology (NP)
29. Psycho-Oncology
30. Radiotherapy & Oncology
31. Seminars in Oncology
32. Seminars in Oncology Nursing
33. Seminars in Radiation Oncology
34. Seminars in Surgical Oncology
35. International Journal of Radiation Oncology, Biology, Physics.
36. Annals of Oncology
37. British Journal for Cancer
38. Journal of Cancer Research and therapeutics

39. Medscape Oncology
40. The Lancet
41. The new England Journal of Medicine
42. Surgical Oncology Clinics of North America
43. Blood
44. Haematology & Oncology Clinics

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

## **3 EXAMINATIONS**

There will be a continuous assessment and formal examination. Continuous assessment of the practical skills and theoretical knowledge will be carried out during various stages of the training and will be reinforced by maintenance of a log book. The candidate will be guided and judged as regards his/her abilities to provide competent care to his patients through various means like ward rounds, discussions held in OPD and weekly academic activities. Internal

examination in the form of written examination will be held every year monthly with an objective type of questionnaire.

### **3.1 Eligibility to appear for exams [including Supplementary]**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. (This is considered as eligibility criteria for appearing for the examination)

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training. The examination for Diploma at the end of 2<sup>nd</sup> academic year.

### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

### **Theory**

Three (3) papers, Three (3) hours and hundred (100) marks each, and each consisting of one (1) structured long essay carrying twenty (20) marks and eight (8) short essays carrying ten (10) marks each.

**Paper I** – Basic Sciences including Applied Anatomy, Pathology, Radiation Physics & Radiobiology.

**Paper II** – General Principles of Radiotherapy & Cancer Chemotherapy

**Paper III** – Clinical Oncology Practice of Radiotherapy & Cancer Chemotherapy

### **Practical including viva**

Practical examination consists of clinical case discussion, clinical skill assessment and viva voce for a total of four hundred (300) marks divided among each.

**A. Clinical Case Discussion** – two hundred (150) marks

One (1) long case – 45 minutes for case taking – hundred (100) marks

Two (2) short cases – 30 minutes each for case taking – total fifty (50) marks

**B. Clinical Skill Assessment** – fifty (50) marks

- a) **Objective Structured Clinical Examination (OSCE)** – three (3) stations – ten (10) marks each – three (3) to five (5) minutes each – which comprises of any of the followings:- pathological gross specimen, pathological microscopy, radiological films, contouring stations, dose volume histograms, radiotherapy equipment's, cancer chemotherapeutics agents, clinical examinations, charts, or any other areas relevant in clinical oncology.

b) **Clinical Case Scenarios** - two (2) stations – ten (10) marks each - five (5) to seven (7) minutes each – consisting of hypothetical or real clinical case scenarios given to the candidate to assess the comprehensive knowledge in cancer care, to test the in-depth knowledge in clinical oncology (medical and radiation oncology).

**C. Viva Voce** – total hundred (100) marks

Viva Voce – eighty (80) marks

Log Book – twenty (20) marks

**Total** – hundred (100) marks

**Number of candidates**

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40										
2	Paper II	100	40	300	150	200		100		300	150	600	300
3	Paper III	100	40										

**3.4 Papers in each year**

Not applicable

**3.5 Details of theory exams**

Present in clause 3.3

Paper I – Radiation Physics

Paper II –Pathology

Paper III – Radiotherapy

**3.6 Model question paper for each subject with question paper pattern**

**P.G. Diploma Examinations in Medical Radiotherapy (DMRT)**

**(Model Question Paper)**

**Paper I – Radiation Physics**

**Time: 3 hrs Max marks:100**

- Answer all questions

**Essay: (20)**

1. Discuss the properties of electromagnetic radiation. What is the deference between X –ray and gamma ray.

**Short essays: (8x10=80)**

2. Radioactivity
3. Compton process
4. Film Dosimetry
5. Half life of an isotope
6. Percentage depth dose
7. Isodose curves
8. Wedges
9. SSD and SAD techniques

\*\*\*\*\*

**Code:**

**Reg.No.:.....**

**P.G. Diploma Examinations in Medical Radiotherapy (DMRT)**

**(Model Question Paper)**

**Paper II –Pathology**

**Time: 3 hrs Max marks:100**

- Answer all questions

**Essay: (20)**

1. Discuss the pathology of Breast Cancer.

**Short essays: (8x10=80)**

2. Etiology of Ovarian cancer
3. Staging of tumors
4. Testicular Tumour
5. Preinvasive Cancer

6. Immunohistochemical studies
7. AIDS AND malignancy
8. Hodgkins Disease Classification
9. Pathology of soft tissue sarcoma.

\*\*\*\*\*

Code:

Reg.No.:.....

**P.G. Diploma Examinations in Medical Radiotherapy (DMRT)**

**(Model Question Paper)**

**Paper III – Radiotherapy**

**Time: 3 hrs Max marks:100**

**• Answer all questions**

**Essay: (20)**

1. Discuss the role of radiotherapy in the management of squamous cell carcinoma of the Nasopharynx.

**Short essays: (8x10=80)**

2. VMAT
3. Radiation proctitis
4. Radiotherapy of Ewing's sarcoma of the bone
5. Management of stage I carcinoma of endometrium
6. Technique of radiotherapy for stage I glottis carcinoma
7. Radioiodine therapy for carcinoma thyroid
8. Osteosarcoma
9. IMRT

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**3.7 Internal assessment component**

Not applicable.

### **3.8 Details of practical/clinical practicum exams**

Present in clause 3.3

### **3.9 Number of examiners needed (Internal & External) and their qualifications**

#### ***Examiners***

- i. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.
- ii. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva:**

-100 marks for Viva: Evaluation of the Log book carries 20 marks and 80 marks for viva.

## **4. INTERNSHIP**

Not applicable for diploma courses.

## **5. ANNEXURES**

### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

#### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

DEPARTMENT OF .....

**LOG BOOK OF**

THE DEGREE OF .....

NAME.....

5. BIODATA OF THE CANDIDATE
6. EXPERIENCE BEFORE JOINING P.G. COURSE
7. DETAILS OF POSTING :
  - FIRST YEAR
  - SECOND YEAR
  - THIRD YEAR
8. THESIS RESEARCH WORK
9. PARTICIPATION CONFERENCES – CME PROGRAMMES
10. DETAILS OF LEAVE AVAILED
11. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
12. SEMINARS /SYMPOSIA PRESENTED
13. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
14. JOURNAL CLUBS
15. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
16. SPECIAL DUTIES (IF ANY )
17. INTERNAL ASSESSMENT
18. MISCELLANEOUS
19. Daily activities record (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGES
20. SUMMARY

# REGULATIONS 2016

## SYLLABUS

for Courses affiliated to the

**Kerala University of Health Sciences**

Thrissur 680596



**POST GRADUATE DIPLOMA IN  
TUBERCULOSIS AND CHEST DISEASES**

**Course Code 514**

**(2016-17 Academic year onwards)**

**2016**

## 2. COURSE CONTENT

### 2.1 Title of course:

Diploma in Tuberculosis and Chest Diseases

### 2.2 Objectives of course

#### GOALS

The primary goal of the diploma course in Tuberculosis and Chest Diseases (DTCD) is to produce postgraduate clinicians able to provide health care in the field of respiratory medicine. It is expected that a physician qualified in respiratory diseases at the end of the course should be able to diagnose and treat respiratory diseases, take preventive and curative steps for these diseases in the community at all levels of health care. The person shall be abreast with the recent advances and developments in the speciality of respiratory medicine.

The syllabus to be covered during postgraduate diploma training in respiratory diseases given below is designed to develop a sound and scientific foundation. It is intended to serve as a guide to impart basic knowledge and develop skills and does not impose any limits to expansion beyond the areas listed.

#### Objectives

#### Knowledge

At the end of the course, the students shall be able to:

- (1) Acquire adequate knowledge and clinical skill in the field of respiratory medicine.
- (2) Comprehensive knowledge of various modes of treatments used in treatment of respiratory diseases pulmonary and extra pulmonary tuberculosis

- (3) Describe the mode of action of commonly used drugs, their doses, side-effects / toxicity, indications and contra-indications and interactions.
- (4) Describe commonly used modes of management including medical and surgical procedures available for treatment of various diseases and to offer a comprehensive plan of management.
- (5) Manage common respiratory emergencies and understand the basics of intensive care in patients with respiratory diseases
- (6) Practice the field of pulmonary medicine ethically and assiduously, show empathy and adopt a humane approach towards patients and their families

### **Skills**

The students shall be able to:

- (1) Interview the patient, elicit relevant and correct information and describe the history in chronological order
- (2) Conduct clinical examination, elicit and interpret clinical findings and diagnose common respiratory disorders and emergencies
- (3) Perform simple, routine investigative and office procedures required for making the bedside diagnosis, especially sputum collection and examination for etiologic organisms especially Acid Fast Bacilli (AFB), interpretation of the chest x-rays and lung function tests
- (4) Interpret and manage various blood gases abnormalities in various respiratory diseases
- (5) Develop management plans for various respiratory diseases
- (6) Performance of common procedures, like bronchoscopic examination, pleural aspiration and biopsy, respiratory physiotherapy, endotracheal intubation and tube thoracostomy
- (7) Recognize emergency situations in intensive care, respond to these appropriately and perform basic critical care monitoring and therapeutic procedures

### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

## **2.4 Course outline**

As given under clause 2.10

## **2.5 Duration**

Every candidate seeking admission to the training programme to qualify for the Post graduate diploma in the subjects conducted under the University shall pursue a regular course of study, in the concerned Department under the guidance of a recognized Post Graduate teacher for a period of two years. The course should be successfully completed within double the duration of the stipulated period of the course.

## **2.6 Syllabus**

As given under clause 2.10.

The concept of healthcare counselling shall be incorporated in the relevant areas.

## **2.7 Total number of hours**

Not applicable since the course is Residency programme.

## **2.8 Branches if any with definition**

Not applicable

## **2.9 Teaching learning methods**

### **Learning Activity**

Every student shall actively participate in all the clinical, academic & teaching activities in the department. Periodic appraisal of both theory & clinical skills are to be done every 6 months. Also the candidate should have at least 80% attendance in the clinical & academic activities of each year for appearing the examination.

**The following teaching activities are recommended:-**

- Topic presentations
- Subject seminars
- Multidisciplinary symposiums
- Journal clubs
- Case presentations
- Problem oriented case discussions
- Morbidity & mortality meetings
- Critical Evaluation of complications
- Inter departmental discussions
- Teaching skill development
- Research oriented training
- CME programmes & conferences (at least one participation / presentation by the candidate)
- The training given with due care to the Post Graduate students in the recognized Institutions for the award of various Post Graduate medical Degrees / Diplomas shall determine the expertise of the specialist and / or medical teachers produced as a result of the educational programme during the period of stay in the Institution.
- All candidates joining the Post Graduate training programme shall work as full time residents during the period of training, attending not less than 80 percent of the training, and given full time responsibility, assignments and participation in all facets of the educational process.
- Every Institution undertaking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty

member, which shall work out the details of the training programme in each speciality in consultation with other Department faculty staff and also coordinate and monitor the implementation of these training Programmes.

- The training programmes shall be updated as and when required. The structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the candidates and the Medical Council of India (M. C. I.) inspectors to assess the same at the time of inspection.
- Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently similar to the model prescribed by the University.
- The record books shall be checked and assessed by the faculty members imparting the training, monthly.
- During the training for Degree / Diploma to be awarded in clinical disciplines, there shall be proper training in basic medical sciences, in applied aspects of the subject and in allied subjects related to the disciplines concerned. In all Post Graduate training programmes, both clinical and basic medical sciences, emphasis is to be laid on preventive and social aspects and emergency care facilities.
- The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behaviour studies, knowledge of pharmaco –

economics and introduction to non- linear mathematics shall be imparted to the Post Graduate students.

- All Post Graduate students should take part in the teaching of Under Graduate medical students and paramedical students under supervision.

### **Seminars & Journal Review Meeting**

The postgraduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student in the form of a diary shall be maintained. Seminars & Journal review meeting may be conducted alternately once in every 15 days.

### **Maintenance of Record of Work done.**

1. A diary showing each days work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day of each month.
2. A practical record of the work has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
3. A list of the Seminars and Journal clubs attended and participated by the student has to be maintained. This should be scrutinized by the head of the department.

### **Periodical Assessment and Progress Report.**

The post graduate students have to be assessed periodically by conducting written, practical and viva voce examination at the end of every year. The assessment should also be based on the participation in seminars, journal review and the performance in the teaching and use of teaching aids. This is to improve the quality of training.

The assessment will be done by all the recognized P.G teachers of the department and the progress record should be maintained by the head of the department.

## **2.10 Content of each subject in each year**

### **Basic Sciences**

#### **A. Anatomy and Histology of Respiratory System**

1. Development and Anatomy of Respiratory System
2. Applied embryology of lungs, mediastinum and diaphragm
3. Developmental anomalies

#### **B. Physiology and Biochemistry**

1. Assessment of pulmonary functions
2. Control of ventilation; pulmonary mechanics
3. Ventilation, pulmonary blood flow, gas exchange and transport
4. Non-respiratory metabolic functions of lung
5. Principles of electrocardiography
6. Inhalation kinetics and its implication in aerosol therapy, and sputum induction etc.
7. Acid-base and electrolyte balance
8. Physiology of sleep and its disorders
9. Respiratory innervation and reflexes
10. Pulmonary defence mechanisms
11. Principles of exercise physiology and testing
12. Physiological changes in pregnancy, high altitude, aging
13. Physiological basis of pulmonary symptoms

#### **C. Microbiology**

1. Mycobacterium tuberculosis and other mycobacteria
2. Bacteria causing respiratory diseases

3. Atypical organisms and respiratory tract infections
4. Anaerobes in pleuropulmonary infections
5. Laboratory diagnosis of nontubercular infections of respiratory tract
6. Laboratory diagnosis of TB including staining, culture and drug sensitivity testing
7. Virulence and pathogenicity of mycobacteria
8. Respiratory viruses: Viral diseases of the respiratory system and diagnostic methods
9. Respiratory fungi: (i) Classification of fungal diseases of lung; candidiasis, Actinomycosis, Nocardiosis, Aspergillosis, Blastomycosis etc. (ii) Laboratory diagnostic procedures in respiratory mycosis
10. Opportunistic infections in the immunocompromised individuals
11. HIV and AIDS. Virological aspects, immunopathogenesis, diagnosis
12. Parasitic lung diseases

#### **D. Pathology**

1. Acute and chronic inflammation: Pathogenetic mechanisms in pulmonary diseases
2. Pathology aspects of Tuberculosis
3. Pathology aspects of Pneumonias and bronchopulmonary suppuration
4. Chronic bronchitis and emphysema, asthma, other airway diseases
5. Occupational lung diseases including Pneumoconiosis
6. Interstitial lung diseases including sarcoidosis, connective tissue diseases, pulmonary vasculitis syndromes, pulmonary eosinophilias
7. Tumours of the lung, mediastinum and pleura

#### **E. Epidemiology**

1. Epidemiological terms and their definitions
2. Epidemiological methods
3. Epidemiology of tuberculosis, pneumoconiosis, asthma, lung cancer, COPD and other

pulmonary diseases

4. National Tuberculosis Control Programme and RNTCP; Epidemiological aspects of BCG
5. Epidemiological aspects of pollution-related pulmonary diseases
6. Research methodology, statistics and study designs

#### **F. Allergy and Immunology**

1. Various mechanisms of hypersensitivity reactions seen in respiratory diseases
2. Diagnostic tests in allergic diseases of lung – in vitro and in vivo tests, bronchial provocation test
3. Immunology of tuberculosis, Sarcoidosis and other diseases with an immunological basis of pathogenesis

#### **G. Pharmacology**

1. Pharmacology of antimicrobial drugs
2. Pharmacology of antitubercular drugs
3. Pharmacology of antineoplastic and immunosuppressant drugs
4. Bronchodilator and anti-inflammatory drugs used in respiratory diseases
5. Drugs used in viral, fungal and parasitic infections
6. Other drugs pharmacokinetics and drugs interaction of commonly used drugs in respiratory diseases
7. Pharmacovigilance

#### **Clinical Pulmonary Medicine**

Clinical pulmonary medicine covers the entire range of respiratory diseases. All aspects of pulmonary diseases including epidemiology, aetiopathogenesis, pathology, clinical

features, investigations, differential diagnosis and management are to be covered.

## **A. Infections**

### **1. Tuberculosis**

1. Aetiopathogenesis
2. Diagnostic methods
3. Differential diagnosis
4. Management of pulmonary tuberculosis
5. Complications in tuberculosis
6. Tuberculosis in children
7. Geriatric tuberculosis
8. Pleural and pericardial effusion and empyema
9. Mycobacteria other than tuberculosis
10. Miliary tuberculosis, disseminated TB, Congenital TB
11. HIV and TB
12. Management of MDR and XDR tuberculosis
13. Tuberculosis affecting various systems-Pulmonary, Lymph node, GIT , Genito Urinary , Nuro, Skeltal, cutaneous,ocular tuberculosis
14. Principles of antituberculous treatment
15. Pharmacology of antituberculous drugs, drug adverse reaction and management

### **2. Non-tuberculous infections of the lungs**

Approach to a patient with pulmonary infection

Community- acquired pneumonias

Hospital-associated pneumonias

Unusual and atypical pneumonias including bacterial, viral, fungal and parasitic and rickettsial, anaerobic

Bronchiectasis, lung abscess and other pulmonary suppurations

Acquired immunodeficiency syndrome and opportunistic infections in immunocompromised host

Principles governing use of antibiotics in pulmonary infections

Other pneumonias and parasitic infections, Zoonosis

## **B. Non-infectious Lung Diseases**

### **3. Immunological disorders**

Immune defence mechanisms of the lung

Sarcoidosis

Hypersensitivity pneumonitis and lung involvement

Eosinophilic pneumonias and tropical eosinophilia

Pulmonary vasculitides

Connective tissue diseases involving the respiratory system

Interstitial lung disease of other etiologies

Reactions of the interstitial space to injury, drugs

Occupational and environmental pulmonary diseases

### **4. Other non-infectious disorders of the lungs and airways**

Aspiration and Inhalational (non-occupational) diseases of the lung

Drug induced pulmonary diseases

Bullous lung disease

Uncommon pulmonary diseases (metabolic, immunological, unknown etiology),  
pulmonary haemorrhagic syndromes

Other Pulmonary diseases of unknown etiology including PLCH, LAM, PAP,  
alveolar microlithiasis

Cystic fibrosis and disorders of ciliary motility

Obesity-related pulmonary disorders

Upper airways obstruction syndromes

Occupational lung diseases and pneumoconiosis

Air-pollution induced diseases, toxic lung and other inhalational injuries

Health hazards of smoking

## Drug-induced lung diseases

### 5. Pulmonary Circulatory disorders

Pulmonary hypertension and cor pulmonale

Pulmonary edema

Pulmonary thromboembolic diseases and infarction

Cardiac problems in a pulmonary patient and pulmonary complications produced by cardiac diseases

### 6. Obstructive diseases of the lungs

Asthma including Allergic bronchopulmonary aspergillosis, specific allergen immunotherapy and immunomodulation

Chronic obstructive lung disease and diseases of small airways

Special aspects of management including Long term oxygen therapy, Inhalation therapy and Pulmonary rehabilitation

### 7. Tumors of the lungs

Neoplastic and non-neoplastic diseases of lung

### 8. Diseases of the mediastinum

Non-neoplastic disorders

Benign and malignant (primary and secondary) neoplasms and cysts

### 9. Disorders of the pleura

Pleural dynamics and effusions

Non-neoplastic and neoplastic pleural diseases

Pneumothorax

Pyothorax and broncho-pleural fistula

## **10. Critical Care Pulmonary Medicine**

Management of emergency problems of different respiratory diseases

Adult respiratory distress syndrome

Respiratory failure in the patient with obstructive airway disease

Respiratory failure in other pulmonary diseases

Management of sepsis

Respiratory and haemodynamic monitoring in acute respiratory failure

Noninvasive and Mechanical ventilation

Principles of critical care, diagnosis and management of complications

Ethical issues in critical care

## **11. Extrapulmonary manifestations of pulmonary diseases**

## **12. Sleep-related pulmonary diseases**

Polysomnography

Sleep apneas

Other sleep-disordered breathing syndromes

## **13. Miscellaneous aspects**

Diseases of the diaphragm

Disorders of chest wall

Oxygen therapy

End-of-life care

Aerospace Medicine

Pulmonary problems related to special environments (high altitude, diving, miners)

## **14. Preventive Pulmonology**

Principles of smoking cessation

Cardiopulmonary rehabilitation

Preventive aspects of pulmonary diseases

Vaccination in respiratory diseases

### **Surgical aspects of Pulmonary Medicine**

Pre and post-operative evaluation and management of thoracic surgical patients

Chest trauma/trauma related lung dysfunction

Lung transplantation

### **Specific Clinical and Practical Skills in Pulmonary Medicine**

Students are to be exposed and trained in the following tests and procedures

#### **Diagnostic tests: Performance and interpretation**

Sputum and other body fluids examination with ZN stain for AFB, culture

methods for pathogenic bacteria, fungi and viruses

FNAC of lung masses

Arterial blood gas analysis and pulse oximetry

#### **2.11 No: of hours per subject**

Not applicable as the course is a Residency Programme

#### **2.12 Practical training**

##### **SPECIALITY POSTING**

**DTCD General Medicine Including MICU .1Month**

Cardiology .15 days

Cardio vascular &Thoracic surgery.15 days

Radio therapy 7 days

Radiodiagnosis 7days

Radio diagnosis 7 days

Anaesthesia 7 days

TRC/NTI / District TB Centre 1 week

Candidate shall work in Pulmonary Function test laboratory.

Log book; PG Diploma students should maintain Log book duly signed and has to be produced during final examination

Attend at least one National /state conference on Tuberculosis and Respiratory disease during the period of their study. It is preferable that they should present a paper/poster in the conference.

Shall participate in the research projects and academic activities undertaken by the Department

**2.13 Records:** Present in clause 2.21.

**2.14 Dissertation:** Not applicable

**2.15 Speciality training if any :** As given under clause 2. 12.

**2.16 Project work to be done if any :** Not applicable

**2.17 Any other requirements [CME, Paper Publishing etc.]**

The PG Diploma student should participate as a delegate in at least one National/State/Regional conference of the same subject during the academic period

It is desirable to present at least one poster/ read one paper in the National/ State/Regional conferences of the same subject during the academic period.

This information will be certified by the concerned HOD/Head of the Institution while the candidate applies for the University examination.

**2.18 Prescribed/recommended textbooks for each subject**

- Murray and Naidal's text book of respiratory medicine
- Tuberculosis William N Rome, Stuart M Garay
- Respiratory Diseases (I & II) - Crofton & Douglas
- Pulmonary Diseases & Disorders - A. Fishman

**2.19 Reference books**

- Principles of Critical Care - Farokh E. Udwadia
- Pulmonary Function Testing - Gregg L. Ruppel

- Bronchoscopy -Udaya B. S.Prakash
- Principles & Practices of Sleep Medicine - Kryger & Roth
- Clinical application of Blood Gases - Barry A.Shapiro
- Text Book of Pulmonary & critical care medicine-SK Jindal
- Diseases of Chest (I,II,III & IV) - Fraser & Pare
- Occupational Lung Disorders - Park & Park
- Paediatric Respiratory Illnesses- Ravindran Chetambath
- High Resolution CT of the Lung - W. Richard Webb
- Surgical Aspects of Tuberculosis - Gibbons
- Tuberculosis – Toman

## **2.20 Journals**

- Pulmon
- Thorax
- AJRCCM
- Chest
- European Journal of Respiratory Diseases.
- Recent Advances in Respiratory Medicine.
- Lung India

## **2.21 Logbook**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/ operations assisted / performed by him / her during the training period right from the point of entry and its authenticity shall be assessed monthly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, & procedures & tests performed & seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. The guidelines for preparing the

logbook will be available in the Kerala University Health Sciences website ([www.kuhs.ac.in](http://www.kuhs.ac.in)). Logbooks may be prepared by the Institutions and departments. Log book will be evaluated during PG examination and 20 marks will be allotted (out of 100 marks of viva).

### **3 EXAMINATIONS**

#### **3.1 Eligibility to appear for exams**

- A minimum of 80% attendance during each year of the course separately.
- Successful Submission of completed Logbook.
- Should have presented at least one paper/poster in International/National/State conferences.

Besides, he/she must have attended at least one State/National conferences during his/her training period. **(This is considered as eligibility criteria for appearing for the examination)**

The examinations shall be organised on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training.

The examination for Diploma at the end of 2nd academic year.

#### **3.2 Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

#### **3.3 Scheme of examination showing maximum marks and minimum marks**

Diploma examination in any subject shall consist of Theory, Clinical and Oral.

- ***Theory***

There shall be three theory papers. One paper out of these shall be on Basic Medical Sciences. The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated by a

system of evaluation by all examiners (Internal/External), before the start of the Clinical/Practical and Oral examination. Average of the marks for each paper will be taken after multiple valuation.

- ***Clinical/Practical/Oral***

Clinical/Practical examination for the subject shall be conducted to test /aimed at assessing the knowledge and competence of the candidate for undertaking independent work as a Specialist / Teacher for which a candidate shall examine one long case and two short cases. The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality.

#### ***Number of candidates***

The maximum number of candidates to be examined in Clinical / Practical and Viva voce on any day shall not exceed **six** for Diploma courses.

Sl. No.	Subject	Theory		Theory Group		Practical				Practical Group		Total	
		University				University		Viva					
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Paper I	100	40										
2	Paper II	100	40	300	150	200		100		300	150	600	300
3	Paper III	100	40										

#### **3.4 Papers in each year**

Not applicable.

#### **3.5 Details of theory exams**

Theory 300marks

Theory Three papers each 100marks three hours duration. One structured long Essay carrying 20 marks and eight short essays carrying 10 marks each.

- Paper I- Basic Sciences as Applied to TB & Chest Diseases

- Paper II – Pulmonary Tuberculosis & Extra pulmonary Tuberculosis and Non Tuberculosis Respiratory Diseases Including Epidemiology & Control
- Paper III – Recent Advances in Tuberculosis & Non Tuberculosis Respiratory Diseases including Clinical Immunology, Air Pollution, Sleep Medicine & Critical Care

### **3.6 Model question paper for each subject with question paper pattern**

As given in KUHS website.

### **3.7 Internal assessment component**

Not applicable.

### **3.8 Details of practical/clinical practicum exams**

Total Marks -300 marks (Practical 200 & Oral 100)

#### Case 1 - Long case 100marks

History taking, Case sheet -20marks

Clinical exam skills Diagnosis, Differential diagnosis-20 marks

Analytical ability clinical decision making-20 marks

Management 20 marks

Dealing with complications 10marks

Communication skills 10 marks

#### Case11- Short case 1 50marks

#### Case111- Short case 2 50 marks

Short case mark distribution. Clinical examination and diagnosis -25marks

Differential diagnosis, analytical ability and applied knowledge -25marks

### **3.9 Number of examiners needed (Internal & External) and their qualifications**

#### *Examiners*

- i. All the Post Graduate Examiners shall be Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned as per M. C. I. Rules i.e. he/she should hold recognised Post Graduate degree in the concerned speciality and have post graduate teaching experience of not less than 8 years as Lecturer/Assistant Professor, out of which he/she should have minimum 5 years teaching experience

after obtaining Post Graduate Degree. External examiners should have minimum 3 years experience as a postgraduate examiner in the concerned subject.

- ii. For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners from outside the State. One of the internal examiners shall be a Professor or Head of the Department.

### **3.10 Details of viva:**

VIVA -80 Marks

Log book - 20 marks

Total – 100 marks

## **4. INTERNSHIP**

Not applicable for PG Diploma courses.

## **5. ANNEXURES**

### **5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.**

#### **FORMAT OF LOG BOOK**

**DEPARTMENT OF MEDICAL EDUCATION**

**MEDICAL COLLEGE .....**

**DEPARTMENT OF .....**

**LOG BOOK OF**

**THE DEGREE OF .....**

**NAME.....**

1. BIODATA OF THE CANDIDATE
2. EXPERIENCE BEFORE JOINING P.G. COURSE
3. DETAILS OF POSTING :
  - FIRST YEAR
  - SECOND YEAR
  - THIRD YEAR
4. THESIS RESEARCH WORK
5. PARTICIPATION CONFERENCES – CME PROGRAMMES
6. DETAILS OF LEAVE AVAILED
7. DETAILS OF PARTICIPATION IN ACADEMIC PROGRAMME
8. SEMINARS /SYMPOSIA PRESENTED
9. STATISTICAL MEETINGS / DEPARTMENTAL MORTALITY MEETINGS
10. JOURNAL CLUBS
11. TEACHING ASSIGNMENTS – UNDERGRADUATES / NURSES/PARAMEDICAL.
12. SPECIAL DUTIES (IF ANY )
13. INTERNAL ASSESSMENT
14. MISCELLANEOUS
15. Daily activities record (BLANK PAGES)  
ONE PAGE FOR EACH MONTH X 36 PAGES
16. SUMMARY