

**THE TAMIL NADU Dr. M.G.R. MEDICAL
UNIVERSITY**

No. 69, ANNA SALAI, GUINDY, CHENNAI – 600 032.

POST GRADUATE DIPLOMA COURSES



SYLLABUS AND CURRICULUM 2021 - 2022

DIPLOMA IN DIABETOLOGY

THE TAMIL NADU Dr. M.G.R MEDICAL UNIVERSITY, CHENNAI

DIPLOMA IN DIABETOLOGY

India has the largest prevalence of diabetes in the world next only to China. According to latest WHO estimates, the prevalence of diabetes in India is about 77 million (i.e. 7.7 crores). More alarming is the figure that in addition about 75 million (7.5 crores) people also have pre-diabetes. The need for specialized training in the field of Diabetology has been realized in recent years. There is an initiative in developing Post Graduate Degree course in the field of Diabetology across the country in various medical institutions to cater the increasing demand for diabetology care across various levels.

1. GOAL

The aim of this curriculum is to create a cadre of medical professionals with excellence in diabetes care and empathy towards diabetes patients

- ❖ Provide comprehensive diabetes care, to create preventive strategies for prevention of both diabetes and its complications and rehabilitation of patients with diabetes complications in both hospital and domiciliary settings.
- ❖ To educate and train medical and paramedical personnels about diabetes
- ❖ To conduct future research activities in the field of Diabetology.
- ❖ To organize and implement various NCD programs

2. OBJECTIVES:

A) Knowledge

The post graduate students have to acquire the knowledge of normal physiology of metabolism and metabolic changes in diabetes, preventive aspects of diabetes care and comprehensive diabetes management strategies.

B) Attitude

Through the training program the student should develop a positive attitude, individualize the patient needs and empathy towards the treating patient.

C) Skills

The student should develop communication and interpersonal skills encompass the ability to gather information in order to facilitate accurate diagnosis, give therapeutic instructions and establish caring relationship with diabetes patients. The student also needs to acquire skills in carrying out various diagnostic and therapeutic procedures and use of comprehensive assessment tools.

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM

• THEORETICAL KNOWLEDGE

- Normal metabolism of human being in various stages of life cycle including pregnancy.
- Changes in metabolism during pre-diabetes and diabetes.

- Knowledge on etio-pathogenesis of diabetes and its complications, early diagnosis and preventive strategies.
- Future directions of diabetes management and research

- **PRACTICAL AND CLINICAL SKILLS**

- Assess and provide strategies for the management of diabetes with regard to pathogenesis, life style, affordability, availability and acceptability.
- Comprehensive diabetes management skills including the management of co-morbid conditions.
- Acquire knowledge to educate about diabetes prevention, management and rehabilitation to the patients, paramedical and medical professionals.
- Involvement and participation in teaching and training programs of undergraduate students and interns.
- Presentation of clinical materials and information to various training programs include Lectures, Seminars, Journal Clubs, Group Discussions and participation in Clinical and Clinico-Pathological Conferences.
- Able to conduct and implement various levels NCD programs including outreach camps.
- Able to setup a diabetes clinic and care centre in various levels include primary, secondary and tertiary care level.

- **WRITING THESIS/ RESEARCH ARTICLES**

The post graduate Diploma in Diabetology student should submit at least one publication in University Journal Medical Sciences as Research paper.

Students are encouraged to attend CME's, publish research papers and present posters, or platform presentations at state, national and international conferences.

- **ATTITUDES INCLUDING COMMUNICATION SKILLS**

Student should develop the art of eliciting the maximum information from patients in a given time considering the sensory deficits of the patient and caregivers. Communication skills can be learnt through observation and from formal communication skills training and workshops. Students have to develop patience and empathy in dealing with patients. They have to learn to show sensitivity to their special needs.

- **TRAINING IN RESEARCH METHODOLOGY / MEDICAL ETHICS / BIO ETHICS AND MEDICOLEGAL ASPECTS**

Students are encouraged to attend workshops/CME's on Bioethics conducted by the University and other reputed Institutions.

Medical ethics, Bioethics, moral and legal issues are part and parcel of the curriculum and syllabus in Diploma in Diabetology.

Training in Medical Audit, Management, Health Economics, Health Information System, basics of statistics, exposure to human behavior studies, introduction to non- linear mathematics, knowledge of pharmaco – economics and medico legal aspects shall be imparted to the Post Graduate students.

Bio-Medical ethics:

1. Respect human life and the dignity of every individual
2. Treat the sick and injured with competence and compassion and without prejudice and apply the knowledge and skills when needed.
3. Protect the privacy and confidentiality of those for whom we care and breach that confidence only when keeping it would seriously threaten their health and safety or that of others.
4. Work freely with colleagues to discover, develop, and promote advances in medicine and public health that ameliorate suffering and contribute to human well being.
5. Educate the public about present and future threats to the health of humanity.
6. Always consider the benefit risk ratio while treating patients and educate the patients about the risk.

4. THEORY SYLLABUS

Post Graduate Diploma in Diabetology

PART- I

PAPER – I BASIC MEDICAL SCIENCES

Anatomy : Applied Anatomy of Gastrointestinal tract with special reference to pancreas and developmental anatomy of Hepatobiliary system, Autonomic nervous system, other basic anatomical factors, Anatomy and applied anatomy of Foot, Eyes and Genitourinary system, Anatomy of Cardiovascular, Cerebrovascular, and Peripheral vascular system.

Physiology : Applied Physiology of gastrointestinal Hormones, Exocrine and endocrine functions of pancreas, Other hormones of clinical importance including Pituitary, thyroid, and Incretins, evaluation of insulin sensitivity – clamp studies, cloning, Physiology of Pregnancy, Physiology of Cardiovascular system, Physiology of Kidneys, Physiology of Nervous system including Autonomic nervous system

Biochemistry : Metabolism in general and carbohydrate, protein, fat and vitamins metabolism. Useful and practical pancreatic function tests, other endocrine function tests, hormonal assay and insulin assay in particular, inborn-errors of metabolism of clinical importance. Recombinant human DNA technology, instrumentation, chemistry of analyzers and glucose monitoring devices.

Microbiology : General revision of microbial agents and infections like viral infections and their relationship to diabetes, serological tests, Immunology and autoimmunity as a problem in disease, Urinary tract infections, foot infection in relation to diabetes, basics of Stem cell therapy.

Pathology : Tissue changes in diabetes, vasculopathies, tumours of pancreas islet cells, problem of pancreatitis and pancreolithiasis, secondary diabetes and its pathology, atherosclerosis and its application in disease, Micro vascular abnormalities, target organ changes, Endothelium – in Normal and Disease states, Pathology of diabetes related complications.

Pharmacology : General mode of action of drugs, pharmacology of drugs used in diabetes and their side effects, toxicity of vaccines and sera, animal experiments and problems of islet transplant. Antibiotics selection, combination and contraindication, Insulin analogues, Alternate modes of insulin delivery.

PART-II
PAPER – I GENERAL DIABETOLOGY

1. Aetiopathogenesis of Diabetes Mellitus (D.M)
2. Pathology of Diabetes and its complications
3. Obesity, Metabolic syndrome and diabetes associated syndromes
4. Diagnostic criteria, classification and evaluation of D.M
5. Clinical features – usual and unusual
6. Co-morbid conditions associated with diabetes
7. Diabetic emergencies and acute complications of diabetes
8. Management of diabetes and diabetes related complications
9. Pregnancy and diabetes
10. Nutrition and diabetes
11. Psychological aspects of diabetes care
12. Diabetes management with reference to different special situations – travel, employment, pregnancy, surgery, injury, sports, driving etc.,
13. Rehabilitation of patients with diabetes related complications
14. Diabetes education and life style modification

PART II
PAPER – II RECENT ADVANCES IN DIABETOLOGY

1. Guidelines, recommendations and algorithms of comprehensive diabetes diagnosis, evaluation & management
2. Clinical studies, trials and hypothesis in diabetes
3. Newer drugs in diabetes management
4. Gene therapy, Stem cell therapy
5. Preventive aspects of Diabetes Mellitus - Immunotherapy, Immuno modulators
6. Community and social aspects of diabetes prevention and management
7. Transplantation techniques in diabetes
8. Personalized / individualized diabetes management goals and strategies
9. Evolving concepts in diabetes care
10. Future directions in diabetes management and research

5. TEACHING LEARNING METHODS

- Lectures
- Case based discussion
- Bed side clinics
- Teaching on ward rounds

- Symposia
- Seminars
- Journal clubs
- Mortality audit meetings
- Problem based learning
- Telemedicine (where available)

6. STRUCTURED TRAINING PROGRAM

POST GRADUATE DIPLOMA IN DIABETOLOGY

Duration of Course – Two years

FIRST YEAR :

Focused on	1. Basic Medical Sciences 2. General Diabetology	
Department of Diabetology	-	12 Months.

SECOND YEAR :

Focused on	1. Diabetes Complications 2. Advances in Diabetology	
Department of Diabetology	-	10 Months

Other Departments :

a).	Neurology	One week
b).	Nephrology	One week
c).	Cardiology/ CCU	One week
d).	Endocrinology	One week
e).	Podiatry	One week
f).	Ophthalmology	One week
g).	Maternity & Family welfare	One week
h).	Bio-Chemistry & Epidemiology	One week

Total 8 weeks

7. Evaluation of the candidates in both theory and practicals will help the candidate in improvement of his/her knowledge, skills and attitude.

8. COMPETENCY ASSESSMENT:

- OVERALL:

a) Communication / commitment / Contribution / Compassion towards patients and Innovation	() ()	- 5 Marks
b) Implementation of newly learnt techniques/skills	()	
• Number of cases presented in Clinical Meetings/ Journal clubs/seminars		- 5 marks
• Number of Posters/Papers presented in Conferences/ Publications and Research Projects		- 5 marks
• No. of Medals / Certificates won in the conference / Quiz competitions and other academic meetings with details.		- 5 marks
Total		20 Marks

PG CLINICAL COURSES

VIVA including Competency Assessment	- 80 Marks (60 + 20)
Log Book	- 20 marks

ASSESSMENT SCHEDULE IS AS FOLLOWS

Year of study	Period				Total Max.20 marks
I year	Upto Dec	10 marks	Upto June	10 marks	20 Marks
II year	Upto Dec	10 marks	Upto June	10 marks	20 Marks
	AVERAGE				20 Marks

9.PUBLICATION IN UNIVERSITY JOURNAL OF MEDICAL SCIENCES:

Regarding submission of articles to the University Journal of Medical Sciences for all the PG Degree/Diploma courses, it is mandatory that the students have to submit at-least one research paper. Case Reports are not considered as Research Paper

10.THEORY EXAMINATION

Scheme of Examination Post Graduate Diploma in Diabetology

Theory	Title	Duration	Max.marks
Paper I	Applied Basic Medical sciences in Diabetology	3 hrs	100
Paper-II	Diabetology	3 hrs	100
Paper-III	Recent Advances in Diabetology	3 hrs	100

Question Paper Pattern :

I .Elaborate on: 2 X 15 = 30 marks

II. Write notes on: 10 X 7 = 70 marks

Total: 100marks

11. PRACTICAL EXAMINATION

Particulars	Maximum Marks
Clinicals Long case (1 case x 80 marks) – 80 marks Short cases (2 cases x 35 marks) – 70 marks	150
Ward rounds (5 cases x 5 marks)	25
OSCE (5 stations x 5 marks)	25
Viva-voce	80
Log book	20
Total	300
Minimum for pass (50%)	150

Marks break up for clinical:

Particulars	Marks
Long Case	80 Marks
History taking	15
Physical examination	15
Demonstration of clinical signs	15
Diagnosis	10
Differential diagnosis	10
Discussion & Management	15
Short Case	35 Marks
Clinical Examination	15
Diagnosis & DD	10
Discussion & Management	10

12. LOG BOOK

A detailed log book should be maintained for the entire duration of the course. It should contain the following details.

1. Procedures performed
2. Journal clubs/Clinical Meetings
3. Seminars/CME/Conferences
4. Important cases discussed/presented

The Post Graduates students shall maintain a record (Log) book of the work carried out by them and the training Programme undergone during the period of training.

Periodic review of Log book have to be done in the Department by guide/HOD once in every 6 months

13. VIVA including Competency Assessment

An unstructured viva will be carried out by the examiners mainly focused on problem based and evidence based science.

VIVA including Competency Assessment - 80 Marks (60 + 20)

14. OSCE (Objective Structural Clinical Examination)

The following are suggested stations for the OSCE. Any 5 can be chosen at the discretion of the examiners. All the 5 stations should be common to all candidates appearing on that day.

S.No.	Stations	Marks
1.	Images (ECG/X-ray/CT/MRI)	05
2.	Lab Data/Tests/Clinical case scenario interpretation	05
3.	Demonstration of clinical skills/Procedures	05
4.	MNT/Nutrition imparting skills	05
5.	Communication Skills	05
6.	Drugs/Devices	05
7.	Case studies/Spl. reports	05
8.	Diabetes Education & Counseling	05
9.	Speicmen/Slides	05
10.	Fundus photographs	05

15.TEXT BOOKS :

1. Joslin's Diabetes Mellitus
2. Oxford Text book of Medicine
3. Diseases of Metabolism by Funcan
4. Biochemistry of Diseases by Podalsky
5. Textbook of Physiology by Samson Wright
6. Monograms of Pancreatic Diabetes by Dr. Gee Verghese
7. Clinical Diabetes Mellitus by Tatersall & Gale
8. Diabetic coma by David Shade
9. Handbook of Diabetes Mellitus by Prof. V. Sessaiah
10. Manual on Diabetes Mellitus by Joslin
11. Text book of Diabetes Mellitus by John C.Pickup & Williams / Edited by Holt & Cockram
12. International Textbook of Diabetes Mellitus – Wiley Publications
13. Harpers Illustrated Biochemistry - Robert K .Murray
14. Textbook of Diabetes Mellitus by Ellenberg & Rifkin
15. Williams Textbook of Endocrinology
16. Harrison's Principles of Internal Medicine
17. Davidson's Principles and Practice of Medicine
18. Hutchinson's clinical Methods – Michael Swash
19. Neurological Differential Diagnosis-John Paten
20. Textbook of Cardiovascular Medicine- Braunwald
21. The Kidney- H.E.De Wardener
22. Signs and symptoms in Medicine- Chamberlain
23. Principles of Neurology by Raymond Adams

**** Note : The editions are as applicable and the latest editions shall be the part of the syllabi**

16.JOURNALS

1. Diabetes Care (International)
2. Diabetes (International)
3. New England Journal of Medicine (International)
4. The Lancet (International)
5. British Medical Journal (International)
6. Diabetologia (International)
7. Journal of Clinical Endocrinology & Metabolism (International)
8. Indian Journal of Clinical Endocrinology & Metabolism (National)
9. International Journal for Diabetes in Developing Countries (National)
10. Journal of Association of Physicians of India (National)
11. Indian Journal of Clinical Practice (National)
12. Postgraduate Medicine (National)
