SRI BALAJI VIDYAPEETH

ACCREDITED BY NAAC
WITH 'A' GRADE

DEEMED TO BE UNIVERSITY
DECLARED U/S 3 OF THE UGC ACT, 1956

NIRF - INDIA RANKINGS 2019 : 72 among Universities in India

FELLOWSHIP IN DIABETES

Department of General Medicine

SYLLABUS & REGULATIONS

2019-2020 ONWARDS

(As Approved in the Academic Council at the Meeting held on 22.05.2019)

SRI BALAJI VIDYAPEETH

(Deemed to be University)
U/S 3 of UGC Act 1956
Puducherry-607402

Mahatma Gandhi Medical College and Research Institute, Pondicherry

Department of General Medicine

Course Curriculum for Fellowship in Diabetes

2019-2020

Sri Balaji Vidyapeeth (Deemed University)

Fellowship in Diabetes

1. **Name of the Department, Institute responsible for running the Course** Department of General Medicine, Mahatma Gandhi Medical College & Research Institute.	**Course Coordinator** Name**: Dr.Lokesh. S** Phone number: 9791360480 e-mail: lokeshs@mgmcri.ac.in
2. **Course Title / Nomenclature** Fellowship in Diabetes	Is it stand alone course: **No** Department of General Medicine, General Surgery, Dermatology, Nephrology, Neurology, Psychiatry, Ophthalmology and CYTER **Course Fee Proposed Rs.*** ***Will be fixed by University**
3. Target participants/students who are likely to join this course	**Eligibility Criteria** **Doctors who have completed** **M.B,B.S from a MCI recognized** **institute.** **Doctors who have completed post** **graduate in Family Medicine**
4. Course Duration 1 year full time course	How many courses do you intend to have in one academic year? one course in a year
5.Mention where further details are available about this course Refer Syllabus (Page 6-11)	

6. Course Need

Towards excellence in training Health care professionals for a prospective career in the field of Diabetes Mellitus and its complications

7. **Course Goal(s)**

The candidates shall be able to systematize a preventing and promoting health care approach for Diabetes Mellitus

Describe in detail the diagnosis of Diabetes Mellitus and its complications

Start a Diabetic clinic on a regular basis with the aim of closely monitoring the patients and choose with sophistication the various modalities of treatment including oral anti-diabetic drugs and insulin.

Identify and manage the various complications of Diabetes including hypertension, cardiac, renal, neurological and feet related disorders.

Prescribe a comprehensive diet and life style interventions

8**. Explain the scheduling structure: Consider the following three options and give your plan**

Full time course for one year which will be split in to 2 semesters (6 months each) Posting Period:

General Medicine-09
months General Surgery-
15 days Paediatrics-15
days Ophthalmology-15
days
ICU-15 days
Nephrology-15
days
CYTER and CMTER-1 week each

9. List the teaching learning activities and methods used for instruction, monitoring and mentoring

- Lectures
- Seminars / symposium
- Daily clinical rounds, Grand rounds, case discussions, audit and Journal club.

10. Course scheduling and Credits

- Course to begin every year in the month of July 2019.
- Refer 6 and 7.

11. Course Evaluation

- Formative (once in 3 months)
  - End semester Theory test
  - Practical examination in the form of OSCE
- Summative
  - Theory test
  - Practical examination in the form of OSCE

12. Course Requirements

- It's a full time residential program
- Candidates must hold a M.B.B,S degree from a MCI recognized medical college in India.

13. Infrastructure and Physical Facilities available for the course including online resources .The course material must be made available at SBV website

The theory classes will be conducted at the seminar hall of the department of General Medicine The clinical exposure to diabetes cases will happen at the Diabetes Clinic, OP & IP of the Department of General Medicine and General Surgery.

14. Faculty and Staff in place for the Course

Faculty of General Medicine, General Surgery, Cardiology, Neurology, Nephrology, Psychiatry and ophthalmology from MGMCRI will serve as the internal faculty members. The faculty of CYTER, CMTER and Department of Nutrition and Dietetics will supplement the training program.

15. Any other information about the unique feature of this course. You may like to highlight the employment potential of the course and tangible benefits

Candidates shall find a placement in Hospitals offering care for Diabetes patients. They also will be able to start and run a "Diabetic Clinic". They will be able to further advance in the field of Diabetes Research.

Please use the following checklist to review your course information.

S.No	Contents	Item No.
1.	Name of the Department, Institute responsible for running the Course	01
2.	Course coordinator's information Name, email, phone number given	02
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Name and Signature of Course Coordinator

Endorsed by the Head of the Dept/Institute

Course Content for Fellowship in Diabetology (FID)

Faculty Code	Category	Course content	Hours				Credits			
			Theory	Practical	Clinical trainin	Total hours	Theory	Practical	Clinical trainin	Total credits
FID	FID-1	Basic Sciences in Diabetes	64				4			4
	FID-2	Clinical Diabetology-I	64	32			4	1		5
	FID-3	Clinical Diabetology-II	64	32			4	1		5
	FID-4	Clinical Diabetology III	64	32			4	1		5
	FID-5	Skills in Diabetes	64	32			4	1		5
	Clinical rotation-5 hours/day for 6 days a week x 46 weeks				1380				43	43
			320	128	1380	1828	20	4	43	67

FELLOWSHIP IN DIABETOLOGY

SCHEME OF UNIVERSITY EXAMINATION

Paper	Subject	Theory		Practical		Grand Total (200)
(One theory Paper)		UE	IA	UE	IA	
Section A	Basic sciences in Diabetology, Clinical Diabetology- I	40	20			100
Section B	Clinical Diabetology-II & III,	40				
	Skills in Diabetology			80	20	100

SBV-SYLLABUS FOR FELLOWSHIP IN DIABETOLOGY

FID-1: Basic Anatomy, Physiology, Biochemistry and Genetics in Diabetes Mellitus

1.1.1 : History of diabetes mellitus: History of DM, inventions in Diabetes, Epidemiology of DM, changing trends in DM and Diabetes in India.

1.1.2 : Basic Anatomy: Anatomy of GIT, Morphology of Pancreatic islet cells, Insulin receptors, Coronary circulation, Anatomy of Excretory system, Anatomy of Eye, Brain and its circulation.

1.1.3 : Basic Physiology: Physiology of Glucose absorption, insulin release and its action, Role of intrauterine and infantile malnutrition in the pathogenesis of Diabetes Mellitus.

1.1.4 : Basic Biochemistry: Metabolism of Carbohydrates, Proteins and fat. Intermediary Metabolism and hormonal regulation. Urea cycle and ketogenesis. Define and interpret the common laboratory parameters of Diabetes Mellitus. Concepts of Impaired Glucose Tolerance and Impaired Fasting Glucose. Hormone profile in Diabetes Mellitus.

1.1.5 : Basic Pathology: Pathophysiology of Diabetes Mellitus, Insulin Resistance, pathogenesis and metabolic alterations in various types of Diabetes Mellitus. Genesis of Type I Diabetes.

1.1.6 : Genetics in Diabetes Mellitus: Overview of Genetic abnormalities in Diabetes and Immunogenesis of Diabetes. Monogenic forms of Diabetes and Maturity Onset Diabetes in the Young (MODY)

1.1.7 Basics of research methodology: Need for research in diabetes, types of research, protocol writing, ethical aspects of research and knowledge on landmark trials of diabetes.

FID-2: Clinical Diabetology-Classification, Clinical features, Guidelines, Gestational Diabetes and Management of Diabetes Mellitus.

2.1.1: Classification: Definition, Diagnostic criteria and classification of Diabetes. Over view of Diabetes etiology. Clinical features of Type 1 Diabetes Mellitus and Type 2 Diabetes Mellitus. Type 2 Diabetes Mellitus in Lean. Fibrocalculous Diabetes and Secondary Diabetes Mellitus. Diabetes in the Young-Indian perspective.

2.1.3 : Overweight and Obesity: Anthropometry, anthropometric measures and measures of nutrition. Impact of Overweight and obesity on Diabetes. Malnutrition in Diabetes Mellitus.

2.1.4 : Guidelines: Differentiate between the criteria of WHO, ADA, ESD, IDF and Indian guidelines.

2.1.6 : Gestational Diabetes and its complications: Guidelines for diagnosis of GDM, Maternal and fetal complications and Management of Gestational Diabetes Mellitus.

2.1.7 : Management of Diabetes Mellitus (Non-pharmacologic): Approach to management of Diabetes Mellitus, Nutrition Management of Diabetes Mellitus, Implication of Diet and lifestyle modification, Physical activity and Yoga in Diabetes. Patient education in Diabetes

2.1.8 : Management of Diabetes Mellitus (Pharmacological): over view of Anti-diabetic drugs. Oral Anti-diabetic agents-insulin secretogogues, Insulin Sensitizers. Insulin Therapy, formulation of insulins and insulin analogues and insulin delivery system. Identification and Management of Hypoglycaemia and Hypoglycaemia Unawareness

2.1.9 : Monitoring Diabetes: Glycaemic monitoring, Home Blood Glucose Monitoring and Continuous Blood Sugar Monitoring system.

2.1.10 : Transplantation in Diabetes: Pancreatic Transplantation and stem cell therapy in Diabetes.

FID-3: Complications in Diabetes Mellitus and its management

3.1.1 : Hypertension-definition, pathophysiology, association of hypertension with diabetes and its effect on end organs.

3.1.2 : Lipid Abnormalities in Diabetes: pathophysiology of dyslipidaemia, dyslipidaemia in Indian Diabetics, Lipid management guidelines in Diabetes and Hypolipaedemic agents.

3.1.3 : Renal Abnormalities: Identification of Renal abnormalities in Diabetes, Monitoring of Renal function in diabetes, Microalbuminuria and its implication in diabetes management, staging of CKD in DM, concept of Diabetic Kidney Disease, Renal Replacement therapy in Diabetic Kidney Disease.

3.1.4 : Cardiovascular Abnormalities: Atherosclerosis, Coronary Artery Diseases, Hypertensive Heart Disease, Congestive Heart Failure, Acute Coronary Syndrome, Silent Myocardial Infarction, and Optimization of Cardiac drugs in Diabetes Mellitus.

3.1.5 : Infections: Acute and Chronic Infections in Diabetes. Pathophysiology of Immune abnormalities in Diabetes. Adult Immunization including seasonal vaccination in Diabetes.

3.1.6 : Disorders of Nervous System: Cerebrovascular disease, Degenerative diseases, Peripheral Neuropathy, causes of falls and giddiness in Diabetes, Sleep disorders, disorder of special senses, and Psychiatric illnesses in Diabetes.

3.1.7 : Vascular abnormalities: Peripheral vascular diseases, Atherosclerotic cerebrovascular and coronary artery disease.

3.1.8 : Microvascular complications: Diabetic retinopathy, Neuropathy and Nephropathy

3.1.9 : Acute Complications of Diabetes: DKA, HHS, Cranial nerve palsy, Vitreous Hemorrhage / Retinal Detachments

3.1.10 Psychiatric illness in Diabetes Mellitus: Burden of Diabetes on patient and family members, impact of associated co-morbidities in psycho-social behaviour of diabetics. Depression and Delirium in diabetes.

FID-4: Foot, Ocular and Miscellaneous Complications of Diabetes, Prevention of Diabetes Complications and Life style intervention including Yoga.

4.1.1: Foot abnormalities: Diabetic Foot infections, arterial diseases of foot, Gangrene, Diabetic foot syndrome, interventions to prevent diabetic foot complications. Surgical limb saving interventions.

4.1.2 Ocular Abnormalities: Ocular infections, Injuries, Retinopathy and blindness in Diabetes. Specific interventions to prevent blindness in Diabetes.

4.1.3 Sexual Dysfunction: Hypogonadism in Diabetes, Sexual disorders in diabetes mellitus. Hormone Replacement Therapy

4.1.4: Dermatological Abnormalities: Skin and nail infections in Diabetes. Auto immune skin disorders and its association with diabetes.

4.1.5: Gastrointestinal abnormalities: Diabetic gastroparesis, management of constipation, NASH and its impact on diabetes.

4.1.6: Bone abnormalities: Hypovitaminosis D, Osteoporosis, Osteomyelitis, Osteoarthritis and degenerative diseases.

4.1.7: Surgery in Diabetes: Pre-operative evaluation, peri-operative and post-operative complications and care in Diabetes.

4.1.8 Diabetes in special situations: Geriatric Diabetes, Management of Diabetes in patients on glucocorticoids and other endocrine disorders, Diabetes management during Ramzan fasting and Obesity management in diabetes.

4.1.8: Interventions to prevent Diabetic Complications: Impact of glycemic control on prevention of diabetic complications, regular monitoring of Diabetes by health education, technology based patient follow-up to overcome therapeutic inertia. Influence of Lifestyle modifications and yoga on Diabetes Management.

4.1.9: Organizing a Diabetic Clinic: Concept of Diabetic Clinic and Comprehensive Diabetic Clinic, requirements for establishing and Monitoring Diabetic patients for glycaemic control and its complications. Creating an environment for counselling, Yoga intervention, and dietetics. Understanding the use of electronic media for appropriate follow up.

FID 5: Skills in Diabetes Mellitus Management

5.1.1 History taking: Take a detailed clinical history with emphasis on duration, treatment and complications of Diabetes. Screen and know the risk factors for Diabetes. Identify Type 1 and Type 2 DM from the clinical features and classify them

5.1.2 Clinical Examination: Detailed clinical examination of target organ such as CVS, CNS, Ocular examination, Foot examination etc

5.1.3 Interpretation of Investigation reports: Acquire knowledge regarding the short term (FBS, PPBS, RBS and daily blood glucose profile) and long term (HbA1C, fructosamine), monitoring of Urine , albumin, glucose and ketone bodies.

5.1.4 Perform special investigations: Autonomic Function Test, ECG, Biothesiometry, Monofilament test, Carotid Doppler and Ankle brachial Pressure Index.

5.1.5 Foot Mechanics: Understand diabetic foot mechanics and study the diabetic foot pressure or the pressure points in diabetic foot as the forerunner of neuropathic ulceration. Interpret the results of diabetic foot pressure including pedobiography. Advice appropriate footwear

5.1.6 Ocular Examination: Examine patient for retinopathy, diagnose hypertensive retinopathy, distinguish between diabetic and hypertensive retinopathy, grade/stage and refer for appropriate treatment.

5.1.7 Prescription: Prescribe appropriate diet and lifestyle, Hypoglycemic drugs and drugs to optimize complications of Diabetes. Be well versed with all modalities of treatment of diabetes. Know various insulin delivery system.

5.1.8 Communication skills: Concepts of Communication, barriers for effective communication, key for successful communication.

Books and Journals

Books:

1. Joslin's Diabetes Mellitus
2. Oxford Textbook of Medicine
3. Staged Diabetes Management
4. Biochemistry of Diseases – by Pondalsky
5. Physiology – by Samson Wright
6. Clinical Diabetes Mellitus – by Tatersall & Gale
7. Diabetes Mellitus – by Prof. V. Seshaiah
8. Textbook of Diabetes – by John C. Pickup & Williams

Journals:

1. Diabetes care
2. Diabetes
3. New England Journal of Medicine
4. British Medical Journal
5. International Journal for Diabetes in Developing Countries
6. Journal of Association of Physicians of India
7. The Lance

FELLOWSHIP IN DIABETOLOGY SBV UNIVERSITY

MODEL QUESTION PAPER FOR THEORY EXAMINATION

Duration: 3 hours **Max Marks: 40**

SECTION A

A. Long Assay Question (1x10=10 marks)

1. Define Metabolic syndrome. Discuss its various facets. Outline the current preventive strategies.

B. Short Assay Question (4x5=20 marks)

1. Polycystic ovarian syndrome
2. Genetics of MODY
3. Pharmacovigilence with special reference to anti-diabetic drugs
4. Pathophysiology of Diabetic Kidney Disease

C. Very Short Assay Question (5x2=10 marks)

1. Define Gestational Diabetes Mellitus
2. Mention the investigations to assess short term glycemic control
3. List 4 complications of Diabetes
4. Mention 4 indications of Insulin in Diabetes
5. Mention 4 causes of blindness in Diabetes.

FELLOWSHIP IN
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MODEL QUESTION PAPER FOR THEORY
EXAMINATION

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SECTION B

A. Long Assay Question (1x10=10 marks)

1. Describe the current concepts and recent advances in aetio-pathogenesis of Type 2 Diabetes Mellitus

B. Short Assay Question (4x5=20)

1. Hypoglycemia unawareness
2. Charcot's arthropathy
3. Incretin Mimetic
4. Management of Diabetic Ketoacidosis

C. Very Short Assay Questions (5x2=10)

1. Mention 4 benefits of Yoga
2. What are the objectives of Diabetic Clinic
3. Classify CKD
4. Hormone replacement therapy indications in diabetes
5. Management of Diabetic Peripheral Neuropathy