DPU

Dr. D. Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)

Syllabus for Super Speciality

2014 - 15
(Amended / Revised upto July 2019)

DPU

Dr. D.Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)
(Re-accredited by NAAC with a CGPA of 3.62 on a four point scale at 'A' Grade)
(An ISO 9001 : 2015 Certified University)

Dr. A. N. Suryakar
Registrar

Ref. No. : DPU/875-VII/2019
Date : 11/09/2019

NOTIFICATION

Whereas in pursuance of the following decisions taken by the Board of Management, it is hereby notified to all concerned that the **"Syllabus for Super Speciality – 2014-15"** is **revised upto July 2019** and hereby published.

- Changes in Practical examination pattern of M. Ch. Urology **vide Resolution No. BM-35(viii)-18, dated 12th October, 2018.**
- Approval of Syllabus for D.M. (Cardiology), D.M. (Neurology) and M. Ch. (Cardio Vascular Thoracic Surgery) **vide Resolution No. BM-38(xiv)-17, dated 27th December, 2017.**
- Interdisciplinary subjects of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine **vide Resolution No. BM-10(viii) dated 12th April, 2019.**
- Interdisciplinary subjects of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine **vide Resolution No. BM-27(xi) dated 30th July, 2019.**

The **Syllabus of Super Speciality – 2014-15 Revised upto July 2019** will be useful to all the concerned. This will come into force with immediate effect.

Dr. D.Y. PATIL VIDYAPEETH * PIMPRI, PUNE-18. * Deemed to be University

(Dr. A. N. Suryakar)
Registrar

Copy to:

1. PS to Chancellor for kind information of Hon'ble Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
2. PS to Vice Chancellor for kind information of Hon'ble Vice Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
3. The Dean, Dr. D. Y. Patil Medical College Hospital & Research Centre, Pimpri, Pune
4. The Controller of Examinations, Dr. D. Y. Patil Vidyapeeth, Pune.
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MAPPING OF PROGRAMME OUTCOMES [POs] AND COURSE OUTCOMES [COs] OF SUPER SPECIALITY PROGRAMMES

PROGRAMME OUTCOMES

No.	By the end of the programme, the Postgraduate will have /be:
PO 1	Knowledge and Skills
PO 2	Planning and problem solving abilities
PO 3	Communication
PO 4	Research Aptitude
PO 5	Professionalism and Ethics
PO 6	Leadership
PO 7	Societal Responsibilities
PO 8	Environment and Sustainability
PO 9	Lifelong Learner

D.M. CARDIOLOGY PROGRAMME

Course Code	Course Title
SS04	DM Cardiology

Course 1 (Subject Code)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
SS04.1	Able to take detailed cardiology history	PO1,PO2,PO3,PO5.
SS04.2	Perform detailed cardiac exam	PO1,PO2,PO3,PO4, PO5, PO9.
SS04.3	Able to discuss differential diagnosis	PO1,PO2,PO4,PO9.
SS04.4	Cardiac anatomy, cardiac physiology	PO1,PO2,PO4,PO5, PO9.
SS04.5	Able to read ECG and perform 2D echocardiography	PO1,PO2,PO4,PO9.
SS04.6	Cardiac Embryology and congenital heart diseases	PO1,PO2,PO4,PO9.
SS04.7	Able to interpret Holter & TMT	PO1,PO2,PO4,PO5, PO9.
SS04.8	Able to perform coronary angio & cardiac cath & TPI	PO1,PO2,PO4,PO5, PO9.
SS04.9	Able to perform PTCA & PPI &BMV	PO1,PO2,PO4,PO9.
SS04.10	Present journal clubs, Case presentation and seminar.	PO1,PO2,PO3,PO4, PO9.

D.M. Cardiology

D.M. CARDIOLOGY

I) THE GOAL :

The goal of DM Cardiology teaching programmed is to provide specialized training in all aspects of cardiology to produce competent specialists in heart diseases. They will be competent enough to provide care of highest order to the cardiac patients. They will identify the health needs of the community and carry out their profession ethically in keeping with the objectives of the National health policy in roles of teachers, trainers and researchers.

ELIGIBILITY :

Post graduate degree in General Medicine (MD Medicine) / Pediatric (MD Pediatrics) / DNB
(Medicine) / DNB (Pediatric) with desired rank in NEET.

LEARNING OBJECTIVES :

The course is designed to impart knowledge and skill in clinical cardiology, diagnostic cardiology and management of heart disease.

After completing the course, student shall be able to perform the following :

A) COGNITIVE DOMAIN AND SKILLS :

1. To diagnose cardiovascular disease based on clinical methods.
2. To suggest, perform and interpret biochemical and invasive and noninvasive investigations.
3. Based on above, arrive at the most suitable plan of treatment in consultation with the patient and her/his family members.
4. To deliver preventive care.
5. To educate lay people about heart diseases.
6. To teach medical and paramedical students.
7. To carry out research.

B) AFFECTIVE DOMAIN :

1) To adopt ethical practices in dealing with patients, colleagues, superiors and subordinates.
2) To perform as a team member but also be a leader if need arises.
3) To demonstrate sympathy, empathy and humane approach towards patients and families.

II) COURSE CONTENT

Medicine is a very vast subject. A patient may have more than one disease and may have very complicated presentation. It is very difficult to include all these presentation in the syllabus. The course content aims to provide a solid base in the field of cardiology so that student will be able to manage day to day problems and also will be able to learn and assimilate newer developments in the field.

In general, the course of the study will include :

A) BASIC SCIENCE :

Applied basic sciences relevant to the heart disease. Anatomy, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, Immunology and Genetic.

B) CLINICAL CARDIOLOGY :

Etiology, Clinical evaluation, hemodynamics, investigations and treatment details of adult and Pediatric heart diseases.

C) INVESTIGATION AND TREATMENT MODALITIES :

Both theoretical and practical hands on knowledge of noninvasive and invasive diagnostic methods Will be imparted. Also all cathlab procedures will be taught. Students will be initially assisting the Teachers in these procedures and later on they will be performing selective procedures under Guidance of the teacher.

D) BASIC KNOWLEDGE OF CARDIA SURGERY (BOTH ADULT AND PEDIATRICS).

E) CARDIAC PATHOLOGY SESSION

SECTION III

TEACHING, LEARNING METHODS AND ACTIVITIES

Learning at postgraduate level is essentially autonomous and self-directed. The student is encouraged to think. He is stimulated to get knowledge from all possible sources. With this aim, following programme is devised with timetable drawn at every six months.

1) Case presentation – Student will present the cases daily to teachers on indoor ward rounds as well as in OPD.
2) Post Graduate Training- Lecture, Journal club and panel discussion will be held once a week. This will Cover most of the diagnostic and therapeutic topics. Student will present the journal articles.
3) Seminar and symposia will be held twice a month. This will be presented by the student.
4) Clinicopathological correlation meeting once a month
5) Medical audit will be presented by the student once a month.
6) Interdepartmental meeting with cardiac surgeon to discuss the cases- once a month
7) Dissertation - Every student will write a thesis under supervision of his teacher.
8) Conference – Each student will participate in atleast one conference every year.
9) Research – Each student is required to participate in atleast one project every year.
10) Inter and Intradepartmental posting – Each student will be posted by rotation in various sections like Wards, coronary care unit, outpatient departments, noninvasive diagnostics cardiac cath lab and Cardiac surgery. In cardiac sursery, he will be posted in operation theatre and post of recovery Room.
11) Teaching - Each student will be involved in teaching undergraduate medical and paramedical Student.

Throughout the course of training the emphasis shall be on acquiring knowledge. Skill and attitudes through first – hand experience as far as possible. The emphasis will be on slef – learning rather than on didactic lectures. The entire period shall be ‘in service’ training programme based on the concept of ‘learn as you work’ principle.

SECTION IV

ORGANIZATION OF COURSE

ADMISSION :
Admission to the course will be through All India Common Entrance Test conducted under the aegis of DGHS, Government of India and M.C.C. guidelines.

ELIGIBILITY
M.D. or D.N.B. (Medicine or Paediatrics)

DURATION
Duration of course shall be of 3 completed years including the period of examination.

ATTENDANCE
All the candidates joining the PG training programmed shall work as full Time Residents during the period of training. It is desirable that candidates should have 100% attendance to enable this objective to be achieved. However, a minimum at least 80% attendance and achievement of satisfactory standards in both theoretical and clinical Cardiology would be required before they are allowed to appear for the university examination. Leave rules as per Govt. of Maharashtra

POSTINGS/ ROTATIONS
There will be structured training program. The students are expected to learn in phasic manner starting with basic care progressing to advanced care management

1st Year –

Outpatient, Inpatient care-(which includes ward duty, ICCU duty and attending referral calls).
Training in Stress test/Holter monitoring.
Literature search and plan for dissertation.

2nd Year –

Outpatient and Inpatient Care
Training in echocardiography and catheterization laboratory
Allied postings-Cardiovascular and thoracic surgery, Vascular intervention Radiology, Nuclear medicine.

3rd Year –

Outpatient and Inpatient Care
Echocardiography and Cath lab postings
Research projects finalization and preparing dissertation.
Extramural rotation
Extramural rotations or elective rotations for a maximum period of 2 months will be possible during end of the 2nd year of training.
The candidates can undertake up to 2 months elective rotation at parent or other institutions in the country centers approved by the Department.

There will be a continues interaction between the Cardiology department and the allied departments to ensure that the students achieve these skills during their peripheral postings

RESEARCH

i. The candidates will be required to submit a thesis during the course of DAM programme. A subject for dissertation would be allotted to the P.G. within the first 6 months after joining. The emphasis on dissertation work would be on review of literature, maintaining a record of references, preparation of a plan of study, documentation of aims, planning the methodology, collection, documentation and analysis of data, comparison of data obtained with others in literature, drawing conclusions and writing a summary. The subject of dissertation should be preferably prospective. Analysis of less than 25 cases would not be permitted unless it is a rare disease. Progress on dissertation will be reviewed every semester and feedback given to the candidates. The candidates will make at least three formal presentations to the department i) protocol ii) midcourse progress and iii) final report. The thesis should be submitted to the university 6 months before the final examination. 4 copies of completed dissertation after appropriate certifications by the guide and co-guide should be submitted at the end of the 2 1/2 years (There will therefore by 2 complete years. After submission of protocol and the final dissertation). At least 24 moths should be spent in the research project undertaken.

ii. Two papers (pertaining to the thesis or otherwise) for publication in Indexed journal before appearing for the final DAM exam.

iii. The candidate must attend continuing education symposia, workshops, and conferences including meeting of the Cardiological Society of India, workshops on Echocardiography, Elecptrophysiology, Cardiac Catheterisation etc.

LOGBOOK

The post graduate students shall maintain a Record Book (Log Book) of the work carried out by them & training program undergone during the period of training including details of procedures carried out independently or assisted by the candidate. The log book will be checked by the faculty members imparting the training.

Development of attitude is an very important part of management of cardiac patients. It would be the constant endeavor of the faculty to develop desirable attitudes in the PG trainees during the course by personal examples, interaction and group discussion. Constant watch will be maintained during their work in the wards to ensure that this objective is being met. Although there will be no formal evaluation of attitude, some aspects of this domain would be covered during the formative evaluation as per the enclosed proforma for continued internal assessment.

SECTION V.
EVALUATION SHALL CONSIST OF FORMATIVE AND SUMMATIVE ASSESSMENT.

A. FORMATIVE

Ward work Case presentation
PG lecture
Journal Club
General assessment of attitude Internal assessment

B. SUMMATIVE

Thesis
Final examination

A. FORMATIVE ASSESSMENT

The purpose of continuous course assessment is mainly

1. To ensure the habits of regularity, punctuality and disciplined working amongst PG students.
2. To give periodic feedback regarding their performance during the medical course & to enable them to
3. Take corrective steps to enhance their learning in various areas mentioned. eg. Patient care, research, teaching, administration etc.
4. To monitor attainment of clinical and technical skills to ensure adequacy of training.

5. To make it available to the internal examiner at the time of final examination to discount the possibility of a single adverse performance influencing the pass or fail situation of the candidate. This would give and idea of the continued performance of the candidate during the three years of training to the external examiners, so that candidates who have otherwise been rated as satisfactory in their internal evaluation can be given more chances in the final examinations to more questions and overcome the adverse effects of doing badly in any one case.

Formative evaluation will be carried out over following activities of the P.G. resident. (See Annexure)

- Ward work.
- Case presentation
- P.G. Lecture
- Journal club
- General assessment of affective function attitude by medical & paramedical staff.
- Internal Assessment

Candidates can appear for theory examination only after being certified on the basis of internal assessment. However, internal evaluation marks cannot directly be used for influencing the outcome of the summative assessment. It can not be used to fail a candidate who has otherwise done well in the final examination or to pass a candidate who has done consistently bad in summative assessment. Continuous assessment will be done on an ongoing basis using a logbook covering day to day performance of the candidate.

SUMMATIVE ASSESSMENT

Summative assessment consists of two parts:

1. Evaluation of thesis/dissertation prepared by the candidates
2. Final examination

1. THESIS / DISSERTATION :

All candidates on admission will be allotted one of the department faculty who have fulfilled the requirement to be guides for purposes of guiding Dissertation/thesis. The topic for dissertation shall be finalized and discussed in the departmental faculty meeting and allotted to the individual candidates before the completion of 3 months after admission. The purpose of dissertation is to develop in the candidate the ability to perform an independent study keeping the principles and research methodology in mind. The candidate will therefore work on the prospective problem either within the department or in collaboration with other department. There will be continuous monitoring of the dissertation work by the guides and co-guides and by the other department staff throughout the course. Thecandidate will present the progress of the dissertation to the faculty on the completion of ½ year for monitoring and feed back. The completed dissertation should be submitted no later than 6 months before final examination. The dissertation shall be evaluated independently by the internal examiners and two external examiners under the following heading :

1) Approved
2) Not approved

In all cases the approval shall be given before 3 months of the date of appearing for the examination and this will be essential before the candidate is allowed to appear for the written examination.

2. FINAL EXAMINATION

ELIGIBILITY :

The candidate should have

1. Attendance of minimum 80% percentage
2. Satisfactory internal assessment
3. Approval of dissertation submitted

Candidates can appear for theory examination only after being certified on the basis of internal assessment.

SCHEME OF EXAMINATION

EXAMINATION SHALL CONSIST OF :

1) Written papers theory
2) Clinical examination
3) Viva – voce

A) WRITTEN EXAM (THEORY)

There shall be question each of three hours duration. Each paper will have ten questions carrying ten marks. Total marks for each paper would be 100.

Paper I - Basic science and general cardiology
Paper II - Coronary artery disease
Paper III - Hemodynamics, Therapeutics and intervention
Paper IV - Other C.V. disease and Recent advances
The distribution of topics is just a suggestion and not a binding.

B) CLINICAL EXAMINATION :

Each candidates should examine at least one long and two dhort cases. It should aim at examining the students approach, clinical skill and logical arriving at a clinical diagnosis. Total marks shall be 250. One long case – 100 marks and two short cases – 75 marks each

C) VIVA VOCE

Aim is to access depth of knowledge and confidence of the student. Total marks would be 150. Qualifying for passing would be 50% i.e. Theory 200/400. Practical's 200/400

EXAMINATION AND EVALUATION

(1) EXAMINERS

a) All the post graduate Examiners shall be recognized post Graduate Teachers holding recognized post Graduate qualifications in the subject concerned.

b) The minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners, who shall be invited from other recognized universities and other two will Be internal examiners. Out of internal examiners, one should be professor and Head of the Department.

C) Under exceptional circumstances, examinations may be held with 3 (three) examiners provided Two of them are external and Medical Council of India is intimated the justification of such action prior to publication of result for approval. Under no circumstances, result shall published in such cases without the approval of Medical Council of India.

d) The guidelines regarding appointment of examiners are as follows;

1. An external examiner may be orsinarily be appointed for not more than three years consecutively. Thereafter he/she may be reappointed after an interval of two years.

2. The internal examiner shall not accept external examinership for a college from which external Examiner is appointed in his / her subject.

3. The same set of examiners shall ordinarily be responsible for the written, practical or part of examination.

4. There shall be a Chairman of the Board of paper – setters who shall be an external examiner and Shall moderate the question papers.

5. The Head of the Department of the institution concerned shall ordinarily be one of the internal Examiners and second internal examiner shall rotate after every two years.

SECTION VI

SUGGESTED READING :

A. BOOKS

S.N	Name of book	Editor / author	Publication
1.	Heart Disease: A Textbook of Cardiovascular Medicine. Vol I &II	Eugene Braunwald	W.B. Saunders company
2.	Hurst's The Heart Vol I and II	Robert. c. Schlant R.Wayne Alexander	Mc Graw – Hill Inc.
3.	Feigenbaum's Echocardiography	Harvey Feigenbaum; William Armstrong	Lippincott Williams & Wilkins
4.	Clinical Recognition of congenital heart disease	Joseph.k.Perloff	W.B. Saunders company
5.	Interventional Cardiac Catheterization Handbook	Morton J.Kern	Mosby- Year Book INC
6.	Introduction to Electrocardiography	Leo Schamroth	Blackwell science
7.	Chou's Electrocardiography in clinical practice : Adult and Pediatric	Borys Surawicz; Timothy Knilans	W.B. Saunders company
8.	The ECG in Emergency Decision Making	Hein J.J Wellens; Mary Boudreau Conover	W.B. Saunders Company
9.	Moss and Adams Heart Disease in Infants, Children and Adolescents	George C. Emmanouilides Thomas A Rimonschneider Hugh D.Allen Howard P. Gutgesell	Williams and Wilkins
10.	Cardiac surgery Vol.I&II	Kirklin J.W.Barratt-Boyes	Churchill Livingstone
11.	Textbook Of Valvular Heart disease	Joseph S alpert James S Dalen	W.B.Saunders Company
12.	Heart Failure : A Companion to Braunwald's Heart Disease	Douglas L. Mann	W.B.Saunders Comapny
13.	Cardiac Pacemakers step by : An Illustrated Guide	S.Serge Barold ; Roland Stroobandt	Futura Publishing Co

S.N	Name of book	Editor / author	Publication
14.	Cardiac Electrophysiology from cell to cell to beside	Zipes and Jalife	W.B.Saunders Company
15.	Textbook of Cardiovascular Medicine	Eric . J. Topol	Lippincott Williams & Wilkins
16.	Clinical Pediatrics Arrhythmias	Gillete and Garson	W.B.Saunders Company
17.	Pathology of Congnital Heart Disease	Anton. E.Beeker Robert . H. Anderson	Butterworths
18.	Echocardiography Manual	Jae. K oh, Jamil Tajik	Lippincott Williams & Wilkins
19.	Stress Testing : Principles And Practice	Mervin . H. Ellestad	Oxford University press Co
20.	Textbook of interventional cardiology	Eric. J. Topol	W.B. Saunders Company

B. JOURNALS :

1. Indian Heart Journal
2. Journal of American College of Cardiology
3. Circulation
4. Heart
5. European Heart Journal
6. NEJM
7. BMJ
8. Journal of Thoracic and Cardiovascular Cardiology