



# BLDE UNIVERSITY

## PG CURRICULUM 2016-17 MD Pharmacology

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**BLDE UNIVERSITY**

[Declared as Deemed to be University u/s 3 of UGC act, 1956, vide notification No.F.9-37/2007-U.3(A)]

The Constituent College

**SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL & RESEARCH CENTRE**

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**SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTRE**

BLDEU/REG/PG/2016-17/ 505

June 18, 2016

## NOTIFICATION

**Subject: Revised Curriculum for the Post Graduate Degree and Diploma Course-2016**

Reference:

1. Medical Council of India Regulation on Graduate Medical Education, 1997 and subsequent amendments of the same from time-to-time.
2. Minutes of the meeting of the Academic Council of the University held on April 29, 2016.
3. Minutes of the meeting of the BOM of the University held on June 18, 2016.

The Board of Management of University is pleased to **approve the Curriculum for Post Graduate Degree and Diploma Course at its meeting held on June 18, 2016.**

The revised curriculum shall be effective, from the Academic Session 2016-17 onwards, for Post Graduate Degree and Diploma Course in the Constituent College of the University viz. Shri B. M. Patil Medical College, Hospital and Research Centre, Vijayapura.

REGISTRAR

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**BLDE University, Vijayapura.**

To,  
The Dean, Faculty of Medicine and Principal  
Shri B. M. Patil Medical College,  
Hospital and Research Centre,  
Vijayapura.

Copy to:-

- The Secretary, UGC, New Delhi
- The Controller of Examinations
- Prof. & HODs of Pre, Para and Clinical Departments.
- PS to Hon'ble President
- PS to Hon'ble Vice-Chancellor

Smt. Bangaramma Sajjan Campus, Sholapur Road, Vijayapura - 586103, Karnataka, India.

## **Vision & Mission**

- Excellence in all our endeavours.
- Committed to provide globally competitive quality medical education.
- Provide the best health care facilities in this backward region, in particular, to socially disadvantaged sections of the society.
- Constantly striving to become a Reputed research University with world-class infrastructure, latest tech-tools for teaching/research and adopting global best practices.

## **Section - I**

### **Goals and General Objectives of Postgraduate Medical Education Program**

#### **Goal**

The goal of postgraduate medical education shall be to produce a competent specialist and / or a medical teacher as stated in the Post Graduate Medical Education Regulations 2000 and its amendments thereof [May2013]

- (i) 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;
- (ii) Who shall have mastered most of the competencies, pertaining to the specialty, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system;
- (iii) Who shall be aware of the contemporary advances and developments in the discipline concerned;
- (iv) Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology; and
- (v) Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

#### **General Objectives**

At the end of the postgraduate training in the discipline concerned the student shall be able to:

- (i) Recognize the importance of the concerned specialty in the context of the health need of the community and the national priorities in the health sector.
- (ii) Practice the specialty concerned ethically and in step with the principles of primary health care.
- (iii) Demonstrate sufficient understanding of the basic sciences relevant to the concerned specialty.
- (iv) 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 promotive measures/strategies.
- (v) Diagnose and manage majority of the conditions in the specialty concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- (vi) Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the specialty.
- (vii) Demonstrate skills in documentation of individual case details as well as morbidity and mortality data relevant to the assigned situation.
- (viii) Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations.
- (ix) Play the assigned role in the implementation of national health programs, effectively and responsibly.

- (x) Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- (xi) Develop skills as a self-directed learner; recognize continuing educational needs; select and use appropriate learning resources.
- (xii) Demonstrate competence in basic concept of research methodology and epidemiology, and be able to critically analyse relevant published research literature.
- (xiii) Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- (xiv) Function as an effective leader of a team engaged in health care, research or training.

### **Statement of the Competencies**

Keeping in view the general objectives of postgraduate training, each discipline shall aim at development of specific competencies, which shall be defined and spelt out in clear terms. Each department shall produce a statement and bring it to the notice of the trainees in the beginning of the program so that he or she can direct the efforts towards the attainment of these competencies.

### **Components of the PG Curriculum**

The major components of the PG curriculum shall be:

- Theoretical knowledge
- Practical/clinical Skills
- Training in writing thesis/research articles
- Attitudes, including communication.
- Training in research methodology, medical ethics & medicolegal aspects
- Teaching skills to the undergraduates, juniors and support teams

Source: Medical Council of India, Regulations on Postgraduate Medical Education, 2000. [amended upto May2013]

### **Eligibility for Admission:**

Eligibility requirements for Post Graduate Diploma and Degree Courses are:

1. The candidates seeking admission to these courses should have passed MBBS from the college recognized by Medical Council of India.

Eligibility requirements for Post graduate degree in superspeciality courses, M.Ch./D.M are:

1. The candidate seeking admission to these courses should have passed MS/MD from the college recognized by Medical Council of India.

2. As per the requisitions of statutory bodies, as laid out in post graduate regulations 2000 of Medical Council of India and its amendments thereof, the minimum percentage of marks in the entrance test conducted by the University for eligibility for admission to Post Graduate courses in broad specialties and super specialties shall be 50 percent for candidates belonging to General category and 40 percent for the candidates belonging to Scheduled Caste, Scheduled Tribes and Other Backward Classes. Eligibility for persons with locomotor disability of lower limbs category ranging from 30-70% will be 45 percent.

Eligibility for Foreign / PIO / NRI students will be based on qualifying examination marks.

### **The MCI norms to qualify for Admissions**

Candidates seeking admission to these Post Graduate Degree courses should have passed M.B.B.S. recognised by Medical Council of India or equivalent qualification and should have obtained permanent Registration from the Medical Council of India or any of the State/ Medical council or candidate should register the same within one month from the date of admission, failing which the admission of the candidate shall be cancelled. Provided that in the case of a foreign national, the MCI may on the payment of prescribed fee for the registration, grant temporary registration for the duration of post graduate training restricted to the medical college/ institute to which the applicant is admitted for the time being exclusively for post graduate studies; provided further, that temporary registration to such foreign national shall be subjected to the condition that such person is duly registered with appropriate registering authority in his /her country wherefrom he has obtained his basic medical qualification ,and is duly recognized by the corresponding Medical Council or concerned authority.

If the candidate fails to fulfill the relevant eligibility requirements as mentioned above he/she will not be considered eligible for admission for Medical Postgraduate Degree and Diploma Courses even if he/she is placed in the merit list of BLDEU-PGET/BLDEU-SUPERSPECIALTY ET.

### **Obtaining Eligibility Certificate by the University before making Admission**

Candidate shall not be admitted for any postgraduate degree/diploma course unless he/she has obtained and produced the eligibility certificate used by the University. The candidate has to make an application to the University with the following documents along with the prescribed fee:

1. MBBS pass/degree certificate issued by the University.
2. Marks cards of all the university examinations passed MBBS course.

3. Attempt Certificate issued by the Principal
4. Certificate regarding the recognition of the Medical College by the Medical Council of India.
5. Completion of internship certificate.
6. In case internship was done in a non-teaching hospital, a certificate from the Medical Council of India that the hospital has been recognized for internship.
7. Registration by any State Medical council and
8. Proof of SC/ST or OBC or physically handicapped status, as the case may be.

In addition to the above mentioned documents, candidate applying for admission to superspeciality courses has to produce degree/pass certificate of MD/MS degree with prescribed fee.

### **Intake of Students**

The intake of students to each course shall be in accordance with the ordinance in this behalf.

### **Course Duration**

- a. M.D. / M.S. Degree Courses:  
The course of study shall be for a period of 3 years consisting of 6 terms including examinations. For Candidates possessing recognized two year Postgraduate Diploma in the same subject the duration of the course shall be two years including examinations. (MCI PG REG 2000 10:1)
- b. D.M/M Ch Degree Courses: (MCI PG REG 2000, 10:2)  
The duration of these courses shall be for a period of 3 years including examinations.
- c. Diploma Courses:  
The course of study shall be for a period of 2 years consisting of 4 terms including examinations (MCI PG REG 2000, 10.3).

### **Training Method**

The postgraduate training for degree/diploma shall be of residency pattern. The post graduate shall be trained with graded responsibilities in the management and treatment of patients entrusted to his/her care. The participation of the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions grand rounds, case demonstration, clinics, journal review meetings, CPC and clinical meetings.. Every candidate should be required to participate in the teaching and training program of undergraduate students. Training should include involvement in laboratory and experimental work, and research studies. Basic medical sciences students should be posted to allied and relevant clinical departments or institutions. Exposure to applied aspects of their learning should be addressed

Similarly, clinical subjects' students should be posted to basic medical sciences and allied specialty departments or institutions.

Training of superspecialty should follow similar pattern. In addition, they have to be trained in advanced techniques of diagnosis and treatment pertaining to their specialty, participate actively in surgical operations [M.Ch] as well.

### **Attendance, Progress and Conduct**

A candidate pursuing degree/diploma course should work in the concerned department of the institution for the full period as a full time student. No candidate is permitted to run a clinic/laboratory/nursing home while studying postgraduate course

Each year shall be taken as a unit for the purpose of calculating attendance. Every student shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons. Every Candidate is required to attend a minimum of 80% of the training during each academic year of the post graduate course. This shall include assignments, assessment of full time responsibilities and participation in all facets of educational process. Provided further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% attendance of training period every year. Leave benefits shall be as per university rules.

A post graduate student pursuing degree course in broad specialities, MD, MS and superspeciality courses DM, M.Ch would be required to present one poster presentation, read one paper in national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him/her to be eligible to appear at the university degree examinations. (MCI, PG 2000, 13.9)

Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examinations.

### **Monitoring Progress of Studies**

The learning process of students should be monitored through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring is done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment done by using checklists that assess various aspects.

The learning out comes to be assessed include:

- Personal Attitudes,
- Acquisition of Knowledge,



- Clinical and operative skills, skills of performing necessary tests/experiments
- Teaching skills.

### **Personal Attitudes:**

The essential items are:

- Caring attitude, empathy
- Initiative in work and accepting responsibilities
- Organizational ability
- Potential to cope with stressful situations and undertake graded responsibility
- Trust worthiness and reliability
- To understand and communicate intelligibly with patients and others
- To behave in a manner which establishes professional relationships with patients and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge

The Methods used mainly consist of observation. Any appropriate methods can be used to assess these. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers. However every attempt should be made to minimize subjectivity.

### **Acquisition of Knowledge:**

Lectures: Lectures/theory classes as necessary may be conducted. It is preferable to have one class per week if possible. They may, be employed for teaching certain topics. Lectures may be didactic or integrated.

a) Didactic Lectures: Recommended for selected common topics for post graduate students of all specialties. Few topics are suggested here.

- Bio-statistics
- Use of library,
- Journal review
- Use of computers,
- Appropriate use of AV aids
- Research Methods,
- Search of literature,
- Rational drug therapy
- Medical code of Conduct and Medical Ethics
- National Health and Disease Control Programmes
- Communication skills etc.
- Bio medical waste

These topics may preferably taken up in the first few weeks of the 1<sup>st</sup> year commonly for all new postgraduates. The specialty wise topics can be planned and conducted at departmental level.

- b) Integrated teaching: These are recommended to be taken by multidisciplinary teams for selected topics, eg. Jaundice, Diabetes mellitus, thyroid diseases etc. They should be planned well in advance and conducted.

### **Journal Review Meeting (Journal club):**

The ability to do literature search, in depth study, presentation skills, use of audio – visual aids, understanding and applying evidence based medicine are to be focused and assessed. The assessment is made by faculty members and peers attending the meeting using a checklist.

### **Seminars / symposia:**

The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio – visual aids are to be assessed using a checklist.

### **Clinico-Pathological conferences:**

This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

**Medical Audit:** Periodic morbidity and mortality meeting be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

**Clinical Skills:** Day to Day Work: Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills

### **Clinical Meetings:**

Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list.

**Group discussions:** Group discussions are one of the means to train and assess the student's ability to analyse the given problem or situation, apply the knowledge and make appropriate decisions. This method can be adopted to train and assess the competency of students in analyzing and applying knowledge.

**Death review meetings/Mortality meetings:** Death review meetings is important method for reflective learning. A well conducted morbidity and mortality meetings bring about significant reduction in complications, improve patient care and hospital services. They also address system related issues. Monthly meetings should be conducted with active participation of faculty and students. Combined death review meetings may be required wherever necessary.

**Clinical and Procedural Skills:**

The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book.

**Teaching Skills:**

Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students

**Work diary / Log Book:**

Every candidate shall maintain a Work Diary/Log Book and record his/her participation in the training programs conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, conducted by the candidate. A well written and validated Log Book reflects the competencies attained by the learner and points to the gaps which needs address. This Log Book shall be scrutinized by concerned teachers periodically and certified, by the Head of Department and Head of the Institution, and presented during University Practical / Clinical examination.

**Periodic Tests:**

In case of degree courses of three years duration ( MD/MS, DM, M.Ch), the concerned departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practical / clinical and viva voce. One of these practical/clinical tests should be conducted by OSPE (objective structured practical examination or OSCE (objective structured clinical examination) method.

.Records and marks obtained in such tests will be maintained by the Head of Department and sent to the University, when called for,

In case of diploma courses of two years duration, the concerned departments may conduct two tests, one of them be at the end of first year and the other in the second year three months before the final examination. The tests may include written papers, practical /clinical and viva voce.

One of these practical/clinical tests should be conducted by OSPE or OSCE method.

**Records:** Records and marks obtained in tests will be maintained by the Head of the Departments and will be made available to the University or MCI.

**Procedure for Defaulter:**

Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing

the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

**Dissertation:** Every candidate pursuing MD/MS degree course is required to carry out work on a selected research project under the guidance of a recognized post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.

The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis and comparison of results and drawing conclusions.

Every candidate shall submit to the Registrar (Academic) of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.

Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

The dissertation shall be written under the following headings:

1. Introduction
2. Aims or Objectives of study
3. Review of Literature
4. Material and Methods
5. Results
6. Discussion
7. Conclusion
8. Summary
9. References
10. Tables
11. Annexure

The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

Adequate number of copies as per norms and a soft copy of dissertation thus prepared shall be submitted to the Controller of Examinations six months before final examination on or before the dates notified by the University.

The dissertation shall be valued by examiners appointed by the university. Acceptance of dissertation work is an essential precondition for a candidate to appear in the University examination.

**Guide:**

The academic qualification and teaching experience required for recognition by this University as a guide for dissertation work is as per Medical Council of India Minimum Qualifications for Teachers in Medical Institutions Regulations, 1998 and its amendments thereof. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least five years teaching experience as Lecturer or Assistant Professor gained after obtaining post graduate degree shall be recognized as post graduate teachers.

A Co-guide may be included provided the work requires substantial contribution from a sister department or from another medical institution recognized for teaching/training by this University / Medical Council of India. The co-guide shall be a recognized post graduate teacher of BLDE University

**Change of Guide:**

In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university.

**Schedule of Examination:**

The examination for M.D. /M.S and DM/M.Ch courses shall be held at the end of three academic years (six academic terms). The examination for the diploma courses shall be held at the end of two academic years (four academic terms).

The university shall conduct two examinations in a year at an interval of four to six months between the two examinations. Not more than two examinations shall be conducted in an academic year.

## **Scheme of Examination**

**M.D. /M.S. Degree**

M.D. / M.S. Degree examinations in any subject shall consist of dissertation, written papers (Theory), Practical/Clinical and Viva Voce.

**Dissertation:**

Every candidate shall carryout work and submit a Dissertation as indicated above. Acceptance of dissertation shall be a precondition for the candidate to appear for the final examination.

### **Written Examination (Theory):**

Written examination shall consist of **four** question papers, each of **three** hours duration. Each paper shall carry 100 marks. Out of the **four** papers, the 1<sup>st</sup> paper in clinical subjects will be on applied aspects of basic medical sciences. Recent advances may be asked in any or all the papers. In basic medical subjects and para-clinical -subjects, questions on applied clinical aspects should also be asked.

### **Practical / Clinical Examination:**

In case of practical examination, it should be aimed at assessing competence and skills of techniques and procedures as well as testing students ability to make relevant and valid observations, interpretations and inference of laboratory or experimental work relating to his/her subject.

In case of clinical examination, it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases minimum. However additional assessment methods can be adopted which will test the necessary competencies reasonably well.

The total marks for Practical / clinical examination shall be 200.

### **Viva Voce:**

Examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills.

The total marks shall be 100:

- 80 Marks, for examination of all components of syllabus
- 20 Marks for Pedagogy

### **Examiners:**

There shall be at least four examiners in each subject. Out of them two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

Criteria for declaring as pass in University Examination: A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical/clinical and (3) viva voce examination. The candidate should pass independently in practical/clinical examination and Viva Voce vide MCI pg 2000 reg no 14(4) (Ciii)

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Controller of Examinations.

Declaration of distinction: A successful candidate passing the University examination in first attempt will be declared to have passed the examination with distinction, if the grand total aggregate of marks is 75 percent and above.

Distinction will not be awarded for candidates passing the examination in more than one attempt.

### **D.M/M.Ch Degree**

DM/M.Ch Degree examinations in any subject shall consist of written theory papers (theory), practical/clinical and Viva voce.

#### **Written Examination (Theory):**

Written examination shall consist of **four** question papers, each of **three** hours duration. Each paper shall carry 100 marks. Out of the **four** papers, the 1<sup>st</sup> paper in clinical subjects will be on applied aspects of basic medical sciences. Recent advances may be asked in any or all the papers. In basic medical subjects and para-clinical -subjects, questions on applied clinical aspects should also be asked.

#### **Practical / Clinical Examination:**

In case of practical examination, it should be aimed at assessing competence and skills of techniques and procedures as well as testing students ability to make relevant and valid observations, interpretations and inference of laboratory or experimental work relating to his/her subject.

In case of clinical examination, it should aim at examining clinical skills, competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.

The total marks for Practical / clinical examination shall be 200.

#### **Viva Voce:**

Examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills.

The total marks shall be 100:

- 80 Marks, for examination of all components of syllabus
- 20 Marks for Pedagogy

#### **Examiners:**

There shall be at least four examiners in each subject. Out of them two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

Criteria for declaring as pass in University Examination: A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical including clinical and (3) viva voce examination. The candidate should pass independently in practical/clinical examination vide MCI pg 2000 reg no 144-c (iii).

Declaration of distinction: A successful candidate passing the University examination in first attempt will be declared to have passed the examination with distinction, if the grand total aggregate of marks is 75 percent and above.

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Controller of Examinations.

Declaration of distinction: A successful candidate passing the University examination in first attempt will be declared to have passed the examination with distinction, if the grand total aggregate of marks is 75 percent and above.

Distinction will not be awarded for candidates passing the examination in more than one attempt.

### **Diploma Examination:**

Diploma examination in any subject shall consist of Theory (written papers), Practical / Clinical and Viva-Voce.

#### **Theory:**

There shall be **three** written question papers each carrying 100 marks. Each paper will be of **three** hours duration. In clinical subjects one paper out of this shall be on basic medical sciences. In basic medical subjects and Para clinical subjects, questions on applied clinical aspects should also be asked.

#### **Practical / Clinical Examination:**

In case of practical examination it should be aimed at assessing competence, skills related to laboratory procedures as well as testing students ability to make relevant and valid observations, interpretation of laboratory or experimental work relevant to his/her subject.

In case of clinical examination, it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.

The maximum marks for Practical/Clinical shall be 150.



Viva-Voce Examination: Viva Voce examination should aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The total marks shall be 50.

Criteria for declaring as pass in University Examination: A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical / clinical and viva voce examination.

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Controller of Examinations.

Declaration of distinction: A successful candidate passing the University examination in first attempt will be declared to have passed the examination with distinction, if the grand total aggregate of marks is 75% and above. Distinction will not be awarded for candidates passing the examination in more than one attempt.

**Examiners:**

There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

Number of Candidates per day:

The maximum number of candidates for practical / clinical and viva-voce examination shall be as under:

MD / MS Courses: Maximum of 8 per day

Diploma Course: Maximum of 8 per day

DM/M.Ch Maximum of 3 per day

## SECTION -II

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## **DEPARTMENT OF PHARMACOLOGY**

### **CURRICULUM FOR MD PHARMACOLOGY -2016**

#### **GOALS:**

After completing the postgraduate medical (MD) in pharmacology, the student should be able to:

1. Teach & train UG ,PG medical & students of allied subjects the basic principles of pharmacology & be up to date with recent advances,
2. Impart skills related to teaching, research methodology & pharmaceutical industry requirements.
3. Understand the importance of Pharmacovigilance and pharmaco economics.
4. Detect, treat & manage toxicological aspects of drugs and poisons.
5. Understand & apply the recent advances in pharmacological and its applied aspects in clinical practice.
6. Devise experimental models with minimal use of animals.
7. Plan and organize projects using managerial & leadership skills.
8. Design protocol for clinical trials
9. Incorporate knowledge of information technology in medical sciences
10. Function as a productive member of a team engaged in research, medical education and Pharmaceutical industry
11. Play the assigned role in the implementation of various national health programs effectively, including planning of drug procurement and distribution, designing Hospital & National Formulatory.

#### **General Objectives**

1. Demonstrate sound knowledge of general pharmacology principles like pharmacokinetics and pharmacodynamics of drugs, drug interactions and adverse effects.
2. Study the effects of drugs on various systems in the body and rational drug therapy.
3. Plan & conduct lecture, practical demonstration, and tutorial classes for students of medical & allied disciplines.
4. Carry out screening of drugs for their pharmacological and toxicological profile.
5. Carry out drug related literature search, formulate research projects and undertake the same.

6. Present research findings in conferences (Oral/Poster sessions), critically review & comment on research papers. Communicate research/ educational papers in peer reviewed journals.
7. Measure drug levels in blood and other biological fluids using suitable qualitative & quantitative methods and interpret the same in therapeutic/toxicological context.
8. Monitor adverse drug reactions. Carry out therapeutic audit & provide drug information service to doctors/public.
9. Use computer and IT tools for teaching, research & presentation/publication of data.
10. Preparation of protocols to conduct preclinical and clinical research independently.
11. Demonstrate knowledge of National Health Policy, National list of essential medicine (NLEM) p- drug –concept and supervise drug management in a hospital.
12. To function as an active member of Drugs and Therapeutics Committee (DTC).
13. Drug Utilization Review (DUR)
14. Assess emergency situations while carrying out drug trials and institute exigency management till appropriate assistance from clinical side is available.
15. Plan and carry out both laboratory and clinical research with adherence to ethical principles and ICH – GCP/ GLP guidelines.
16. Be aware of legal and ethical aspects of drug evaluation.
17. Be aware of regulatory procedures needed to be carried out prior to the marketing of a new drug in India.
18. Understand and apply ethical principles involved in animal and human research.
19. Handle animals to conduct experiments e.g. screening of various drugs
20. Perform qualitative and quantitative identification and estimation of drugs in different samples of body fluids.
21. Develop skills as a self-directed learner, recognize continuing educational needs, use appropriate learning resources and be able to critically analyze relevant published literature.
22. Function as a productive member of a team engaged in research, Medical education & industry

### **Specific Learning objectives**

#### **Psychomotor domain:**

1. Perform common experimental techniques required for evaluation of new drug with competence

2. Perform common clinical procedures required for evaluation of drug in normal volunteers and patients with competence
3. Organize and manage administrative responsibilities for routine day to day work as well as new situations
4. Carry out necessary resuscitative measures in emergency situations arising during drug evaluation
5. Use teaching-learning media effectively.

Affective domain:

1. Appreciate socio-psychological, cultural & environmental factors affecting health & drug usage.
2. Appreciate the importance and implementation of National health programmes in context to rational drug utilization
3. Be aware of the importance of cost-effectiveness in patient management
4. Be aware of service activities which a pharmacologist can undertake viz. Therapeutic Drug Monitoring(TDM), Adverse Drug Reactions(ADR) monitoring, drug information services, poison control centre, drug auditing etc.
5. Adopt ethical principles while conducting experimental and human research
6. Develop communication skills to interact with patients, peers and paramedical staff
7. Realize the importance of team work
8. Develop attitudes required for professional responsibilities.

## **DETAILED COURSE CONTENT**

Duration of course 36 months (6 semesters) including exams.

## **DETAILS OF TEACHING /LEARNING ACTIVITIES& SKILL DEVELOPMENT THEORY**

### Chapter 1

#### **General Pharmacological Principles and Applied Sciences**

Theories and mechanism of drug action, Pharmaco-kinetic principles and parameters, Factors modifying drug action, Pharmaco-genetics, Chrono-pharmacology, Adverse effects of drugs, Drug dependence, Toxicology, Dose-response relationships, structure-activity relationships, Physiological and biochemical basis of drug action, Etiopathogenesis of diseases relevant to

therapeutic use of drugs, Basic microbiology, immunology and molecular biology. History of pharmacology, sources of drug information and use of Information Technology.

### **Chapter II: Systemic Pharmacology, Chemotherapy and Therapeutics:**

Pharmacology of drugs acting on autonomic, peripheral and central nervous systems; cardiovascular, endocrine, respiratory, renal, gastrointestinal and haemopoietic systems and treatment of disease affecting these systems; Pharmacology of anti-microbial and anti-parasitic drugs and treatment of infective diseases; cancer chemotherapy, immunopharmacology, gene therapy and evidence based medicine.

### **Chapter III: Experimental Pharmacology, Bioassay and Statistics:**

Experimental methodologies involved in the discovery of drugs (in vivo, in vitro/ex vivo). Animal handling. Animal care. Methods of anaesthetizing animals and methods of euthanasia. Restraining and blood collection methods. Drug screening methods involved in the evaluation of anti-ulcer, antidepressant, anti-anginal, anti-hypertensive, anti-arrhythmic, anti-diabetic, anti-cataract, anti-platelet, anti-cancer, anti-inflammatory, anti-diarrheal, anti-epileptic, analgesic, anti-thyroid, antipyretic, anti-glaucoma, anti-hyperlipidemic anti-asthmatics drugs and cough suppressants, drugs for heart failure, & hormones. Methods involved in preclinical toxicity studies Acute & chronic (teratogenicity, carcinogenicity) as well as Local toxicities (Dermal toxicity, Ocular toxicity).

### **Chapter IV: Clinical Pharmacology and Recent advances:**

Development of new drugs, protocol designing, methodology and ethics of clinical trials, Clinical Pharmacokinetics and Pharmacodynamic studies in post marketing surveillance, Therapeutic drug monitoring Pharmacovigilance, drug utilization studies, essential drug concept and rational prescribing, GLP and GMP concepts.

Recent advances in understanding of mechanism of drug action and treatment of diseases; New drugs and new uses of old drugs.

### **PRACTICAL:**

Experimental Methods discussion:

A Screening & evaluation of drug activation including animal models for study of following actions:

1. Analgesic
2. Anti-inflammatory
3. Antipyretic; pyrogen testing
4. Anticonvulsant

- |                                    |  |
|------------------------------------|--|
| 5. Antianxiety                     | 16. Antisecretory & drugs for peptic ulcer |
| 6. Antipsychotic                   | 17. Antiemetic                             |
| 7. Antidepressant                  | 18. Hypoglycemic                           |
| 8. Antiparkinsonian                | 19. Antifertility                          |
| 9. Sedative, hypnotics             | 20. Anticancer                             |
| 10. Antihypertensive               | 21. Diuretic                               |
| 11. Antianginal                    | 22. Antimalarial                           |
| 12. Antiarrhythmic                 | 23. Antitubercular                         |
| 13. Skeletal muscle relaxant       | 24. Antidiabetic                           |
| 14. Local anaesthetic              | 25. Antiatherosclerotic                    |
| 15. Antihistaminics, antiallergics | 26. Bronchodilator & antiasthmatic drugs   |

B. Bioassay of:

- |                              |                    |
|------------------------------|--------------------|
| 1. Acetylcholine             | 5. Insulin         |
| 2. Adrenaline/nor-adrenaline | 6. Antibiotics     |
| 3. Histamine                 | 7. Digoxin         |
| 4. 5-Hydroxytryptamine       | 8. Glucocorticoids |

C. Limitations of animal experiments in drug evaluation

D. Quantitative study of agonists and antagonists on isolated tissues.

E. Interpretation of graphical demonstration of effect of various drugs on blood pressure in anaesthetized dogs.

F. Extraction, purification and characterization of active principles from plant sources/crude products.

### EXPERIMENTAL PHARMACOLOGY EXERCISES

1. Frog's rectus abdominis muscle: dose response curve(DRC) and cumulative DRC of acetylcholine; potentiation of Ach by physostigmine and antagonism by tubocurarine/pancuronium.(Interpretation of graph)
  2. Dose-response curve of histamine on isolated guinea pig ileum.
  3. Bioassay of histamine on guinea pig ileum by matching method, 3 point method and 4 point (latin square design) method.
  4. Bioassay of Ach on Rat's colon by matching method, 3 point method and 4 point (latin square design) method.
1. Study of local anaesthetics by rabbit cornea,

2. Interpretation of graph.
3. Study of anti-convulsant activity of drugs on maximal electroshock seizures and letrazole induced convulsions in rats.
4. Study of analgesic activity of drugs using rat tail-hotwire method, hot plate method, acetic acid induced writhing.
5. Study of anti-inflammatory activity of drugs against carraginin induced rat paw oedema.
6. Effect of psychopharmacological drugs on conditioned avoidance response (cook's pole climbing).
7. Effect of drugs on spontaneous motor activity of mice, photoactometer.
8. Study of miotics and mydriatics on rabbit eye.

#### Minor procedures:

- i. Mouse tail vein injection
- ii. Administration of drugs to rats by gastric canula
- iii. Collection of blood from rat tail.
- iv. Collection of blood by puncture in retro bulbar plexus in rat.
- v. Injection of drugs through marginal ear vein of rabbits.
- vi. Intraperitoneal and subcutaneous injection to rats and mice.

#### Chemical Pharmacology Exercises:

- i. Identification of steroids, salicylates using chemical tests.
- ii. Estimation of drug levels using colorimetry, spectrophotometry, high performance liquid chromatography (HPLC), enzyme linked immunoassay.(ELISA)

#### Clinical Pharmacology Exercises

1. Recording B.P. in human volunteers.
2. Recording of ECG and measurement of heart rate, PR interval, QT interval, ST segment depression etc. in human volunteers.
3. Psychomotor testing in volunteers by 6 letter cancellation test, digit-letter symbol substitution test finger tapping test.
4. Training at poison information center. Determination of plasma cholinesterases level in organo-phosphorus poisoned patients. Spot test for aluminum phosphide poisoning. Estimation of lead in drinking water and patients urine.



Computer Aided Learning (CAL) Program:

Proficiency in using CAL programs for demonstration of effects of drugs on animals.

Statistics

Use of calculators and electronic spread sheets for understanding of:

- \_ Elements of data collection and presentation of data
- \_ Measures of central tendency and dispersion
- \_ Non parametric tests
- \_ Parametric tests (including ANOVA)
- \_ Correlation and regression

### **SKILLS:**

1. Elementary principles of common chemical techniques such as colorimeter, spectrophotometer, flame photometer etc.
2. Handling of small animals including various anaesthetic techniques.
3. Recording of blood pressure (In vivo and computer assisted learning programme)
4. Screening of drugs using appropriate models
5. Administration of drugs /chemicals to animals (parenteral and enteral routes)
6. Isolated tissue preparations for dose response and bioassay
7. Use of various methods to evaluate drug effects in humans.
8. Use of appropriate statistical techniques to analyze the results
9. Training at poison information centre.
10. Determination of plasma cholinesterase levels in organophosphorus poisoned patients.
11. Spectrophoto & fluorimetric estimations of drugs in biological fluids.
12. Calculation of Pharmacokinetic estimates from given concentration vs time data
13. Draft an IND and NDD application for the approval of a numbered compound.
14. Draft a protocol to conduct phase II clinical trial for a newly discovered non-steroidal anti-inflammatory drug.

### **MONITORING PROGRESS OF STUDY:**

The learning process of students should be monitored through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring is done by the staff of the department based on

participation of students in various teaching/learning activities. It may be structured and assessment done by using checklists that assess various aspects.

The learning outcomes to be assessed include:

- Personal Attitudes,
  - Acquisition of Knowledge,
  - Teaching skills.
1. Personal Attitudes:

The essential items are:

- Caring attitudes
- Initiative
- Organizational ability
- Potential to cope with stressful situations and undertake responsibility
- Trustworthiness and reliability
- To understand and communicate intelligibly with patients and others.
- To behave in a manner which establishes professional relationship with patient and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. Acquisition of Knowledge:

The methods used comprise of 'Log Book' which records participation in various teaching/learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities & their frequency are listed.

Item	Frequency
1. Thesis work	Once a week
2. Journal club/Drug review	Once a week
3. Practical (Expt./Chemical/Human)	Once a week
4. Seminar/Symposium etc.	Once a week
5. Statistical exercise	Once a fortnight
6. Pharmacokinetic exercise	Once a fortnight
7. Theory test	Once in six months
8. Grand Viva	Once a year

## POSTING IN OTHER DEPARTMENTS

A candidate of the M.D. Degree Course in Pharmacology needs to be well versed in the applied aspects of pharmacology and therapeutics. Actual postings in the wards of the Clinical departments will help the candidate get acquainted with the patterns of drug use, rational drug therapy, adverse drug reactions and interactions etc., Such postings will also help him gain confidence in interacting with the clinicians, which will be needed if he chooses to be a clinical pharmacologist in his future career.

The following clinical postings are recommended:

Department	Period of Posting
General Medicine	1½ Months
Pediatrics	01 Month
Anaesthesiology & I.C.U.	15 days
Dermatology & Psychiatry	15 days
Instrumentation /Central Research Lab	15 days

Total duration of clinical postings- 4 months. These postings shall be during the initial phase of the course. Monitoring postings in clinical departments, would be through daily discussions with the faculty during the afternoon session & as part of maintenance of work diary.

### **Schedule of work time table**

#### First year

1. Introduction to pharmacology and its branches.
2. Selection of dissertation topic
3. Rotation in labs
4. Teaching & Learning activities

#### Second year

1. Teaching & Learning activities
2. Posting to clinical depts.
3. Dissertation work
4. Visit to CRO/ attend clinical pharmacology and teaching learning workshops

#### Third year

1. Dissertation completion

2. Teaching & Learning activities
3. Presentation of research papers in conference & publication

## **DISSERTATION**

- a. Every candidate is required to carry out work on a selected research project under the guidance of a recognized postgraduate teacher. The results of such work shall be submitted in the form of dissertation.
- b. The dissertation is aimed to train the candidate in pharmacological research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of relevant literature, getting acquainted with recent advances and drawing conclusions.
- c. Registration of dissertation topic as per University norms.
- d. Dissertation shall be valued by examiners. Prior acceptance of the dissertation shall be a precondition for a candidate to appear for the final examination.

## **PAPER PRESENTATION & RESEARCH PROJECTS**

Post graduate students are required to present one poster presentation, to read one paper at a national / state conference and to present one research paper which should be published/ accepted for publication / sent for publication during the period of his post graduate studies so as to make him eligible to appear for P G degree examination.

### **Assessment**

All the PG residents should be assessed daily also periodically for their academic activities by all teachers.

### **General Principles**

The assessment should be valid, objective, and reliable

It should cover cognitive, psychomotor and affective domains

Formative, continuing and summative (final) – FCS - assessment should also be conducted in theory as well as practicals. In addition, thesis should also be assessed separately

### **Formative Assessment**

The formative assessment should be continuous as well as end-of-term. The former is to be based on the feedback from the departmental faculty. End-of term assessment should be held at the end of each semester (upto the 5<sup>th</sup> semester). Formative assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.

## **Monitoring Progress of the students**

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.

<b>Sr. No. Items</b>	<b>Marks</b>
1. Personal Attributes	20
2. Practical 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 situation 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:** Gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

### **2. Practical Work:**

**Availability:** Punctual, available continuously on duty, responds promptly on assignments and take proper permission for leave.

**Diligence:** Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in practical work.

**Academic ability:** Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.

**Performance:** Proficient in presentations and discussion during academic sessions in the department.

**3. Academic Activity:** Performance during presentation at Journal club/Seminar/Case discussion and other academic sessions. Proficiency in skills as mentioned in job responsibilities.

**4. End of term theory examination:** Written test conducted at end of 1st, 2nd year and 9 months

**5. End of term practical/oral examination:** Practical exam and viva examination at end of 2 years and 9 months Marks for personal attributes and work done should be given annually by all the consultants under whom the resident was posted during the year. Average of the three years should be put as the final marks out of 20. Marks for academic activity should be given by the all consultants who have attended the session presented by the consultant.

### **Summative Assessment**

The pass percentage will be 50%

Candidate will have to pass theory and practical examination separately.

### **SCHEME OF EXAMINATION**

#### **A) Theory written Examination**

There shall be four question papers, each of three hours duration, carrying 100 marks. Each paper shall consist of two long essay questions each carrying 20 marks and six short essay type questions each carrying 10 marks. Questions on recent advance may be asked in any or all the papers. Details of distribution of topics for each paper will be as follows:

**Paper I:** General Pharmacological Principles, Evaluation / Screening of Drugs (Experimental & Clinical), Chronopharmacology. Ethno Pharmacology, Pharmacoeconomics, Pharmacovigilance, Pharmacoepidermiology, Statistics, Assays.

**Paper II:** Systemic Pharmacology & Therapeutics- ANS, CVS, CNS, RS, GIT, Autocoids& Blood.

**Paper III:** Systemic Pharmacology & Therapeutics- Endocrines, Chemotherapy, Anticancer Drugs including Monoclonal Antibodies (MABS), Immunopharmacology, Heavy Metal Intoxication and Chelators, Management of Poison Patients, Vitamins, Trace elements & Nutritional supplements.

**Paper IV:** Clinical Pharmacology, New drug development (NDD), Use of drugs in special situations, Extremes of age, Pregnancy & Lactation, Hepatic & Renal impairment, Ocular Pharmacology & Use of Drugs in Dermatology. Recent advances.

## **B. Practical Examination (Total 300 Marks)**

**Practical are to be held on 2 days, along with Viva voce in the end**

### **I Major Experiment:**

1. One expt. pharmacology exercise on isolated tissue. ( 100 Marks)
2. Interpretation of graph demonstrating effects of various drugs on anaesthetized dog (50 Marks)

### **II Minor Experiments**

1. Qualitative - Identification of unknown drug using chemical tests/ intact animals.- (30Marks)
2. Technique demonstration (20 Marks)
3. Protocol writing of clinical trial (30 Marks)

### **III Clinical Pharmacology any two: 35 Marks each X 2 (70 marks)**

1. Calculation of Kinetic parameters
2. Case discussion pertaining to drug usage
3. Drug related problem solving
4. Critical appraisal of drug promotional literature
5. Critical evaluation of an article.

### **C VIVA VOCE - (100 Marks)**

- 1) Viva voce Examination: (80 Marks)

Students will be examined by all the examiners together, about assessing depth of knowledge, comprehension, analytical approach, expression and interpretation of data. Student shall also be given case reports, charts for interpretation. It includes discussion on dissertation.

- 2) Pedagogy Exercise: (20 Marks)

A topic is given to each candidate along with the Practical Examination on the first day. Student is asked to make a presentation on the topic on the second day for 8-10 minutes.

<b>Maximum marks for</b>	<b>Theory</b>	<b>Practical</b>	<b>Viva</b>	<b>Grand Total</b>
<b>M.D.Pharmacology</b>	<b>400</b>	<b>300</b>	<b>100</b>	<b>800</b>

## RECOMMENDED BOOKS & JOURNALS

### Books:-

1. Lawrence Brunet, Goodman and Gilman's The Pharmacological Basis of Therapeutics, Twelfth Edition, The Tata McGraw-Hill Education [ISBN-13 9780071624428; ISBN-10 0071624422].
2. H. P. Rang, J. M. Ritter, R. J. Flower, G. Henderson. Rang & Dale's Pharmacology, 8th Edition, Elsevier Churchill Livingstone, 2015 (ISBN-13978-0-7020-5362-7).
3. P. N. Bennett, Morris J. Brown, Peter N. Bennett. Clinical Pharmacology 11<sup>th</sup> Edition. Churchill Livingstone (2012) [ISBN-139780702040849; ISBN-100702040843].
4. M. N. Ghosh. Fundamentals of Experimental Pharmacology 5<sup>th</sup> edition. Hilton & Company (2011).
5. Bertram G. Katzung, Bertram Katzung, Susan Masters. Basic and Clinical Pharmacology 13<sup>th</sup> Edition. McGraw-Hill Medical Publishing (2015).
6. F. S. K. Barar. Essentials of Pharmaco therapeutics. New Edition. Publisher: S. Chand Publishing (2009).
7. Maxine A. Papadakis, Stephen J. McPhee, Michael W. Rabow. Current Medical Diagnosis and Treatment 2016. 55<sup>th</sup> Edition. McGraw-Hill Medical Publishing (2016).
8. SK Gupta. Drug Screening Methods (Preclinical Evaluation of New Drugs) 2nd Edition. Jaypee Brothers Medical Publishers (p) Ltd. (2009).
9. Avery's Drug Treatment. T M. Speight & NHG Holford (Eds), Adis' International 4<sup>th</sup> Edn.
10. Critical Appraisal of Epidemiological studies and clinical trials- Mark Elwood. Oxford press.
11. Evaluation of drug activities: Pharmacometrics. D R Laurence and ALBacharach (Eds) Academic press London.
12. Introductory medical statistics. Mould RF (Ed), Adam Hilger, Bristol & Philadelphia.
13. Mahajan's Methods in Biostatistics for Medical students and Research workers 8<sup>th</sup> Edn. 2016.

### Journals:

1. Journal of Pharmacology and Experimental Therapeutics
2. Journal of Pharmacy and Pharmacology
3. Drugs (Monthly Journal published by Adis International)
4. Clinical Pharmacology and Therapeutics.



5. Indian Journal of Pharmacology.
6. Annual Review of Pharmacology (last 5 years)
7. Trends in Pharmaceutical Sciences.
8. British Journal of Pharmacology.

## SECTION - III

### MEDICAL ETHICS & MEDICAL EDUCATION

#### Sensitization and Practice

#### Introduction

There is now a shift from the traditional individual patient, doctor relationship, and medical care. With the advances in science and technology and the needs of patient, their families and the community, there is an increased concern with the health of society. There is a shift to greater accountability to the society. Doctors and health professionals are confronted with many ethical problems. It is, therefore necessary to be prepared to deal with these problems. To accomplish the Goal (i), General Objectives (ii) stated in Chapter II (pages 2.1 to 2.3), and develop human values it is urged that **ethical sensitization** be achieved by lectures or discussion on ethical issues, clinical case discussion of cases with an important ethical component and by including ethical aspects in discussion in all case presentations, bedside rounds and academic postgraduate programs.

#### Course Contents

1. Introduction to Medical Ethics

What is Ethics?

What are values and norms?

Relationship between being ethical and human fulfillment

How to form a value system in one's personal and professional life

Heteronomous Ethics and Autonomous Ethics

Freedom and personal Responsibility

2. Definition of Medical Ethics

Difference between medical ethics and bio-ethics

Major Principles of Medical Ethics 0

Beneficence = fraternity

Justice = equality

Self determination (autonomy) = liberty

3. Perspective of Medical Ethics

The Hippocratic Oath

The Declaration of Helsinki

The WHO Declaration of Geneva

International code of Medical Ethics (1993)

Medical Council of India Code of Ethics

4. Ethics of the Individual
  - The patient as a person
  - The Right to be respected
  - Truth and confidentiality
  - The autonomy of decision
  - The concept of disease, health and healing
  - The Right to health
  - Ethics of Behavior modification
  - The Physician – Patient relationship
  - Organ donation
  
5. The Ethics of Human life
  - What is human life?
  - Criteria for distinguishing the human and the non-human
  - Reasons for respecting human life
  - The beginning of human life
  - Conception, contraception
  - Abortion
  - Prenatal sex-determination
  - In vitro fertilization (IVF), Artificial Insemination by Husband (AIH)
  - Artificial Insemination by Donor (AID)
  - Surrogate motherhood, Semen Intra fallopian Transfer (SIFT),
  - Gamete Intra fallopian Transfer (GIFT), Zygote Intra fallopian Transfer (ZIFT),
  - Genetic Engineering
  
6. The family and society in Medical Ethics
  - The Ethics of human sexuality
  - Family Planning perspectives
  - Prolongation of life
  - Advanced life directives – The Living Will
  - Euthanasia
  - Cancer and Terminal Care
  
7. Profession Ethics
  - Code of conduct
  - Contract and confidentiality
  - Charging of fees, Fee-splitting
  - Prescription of drugs
  - Over-investigating the patient

Low – Cost drugs, vitamins and tonics  
Allocation of resources in health cares  
Malpractice and Negligence

8. Research Ethics  
Animal and experimental research / humanness  
Human experimentation  
Human volunteer research – Informed Consent  
Drug trials\  
ICMR Guidelines for Ethical Conduct of Research – Human and Animal  
ICH / GCP Guidelines  
Schedule Y of the Drugs and Cosmetics Act.
9. Ethical work -up of cases  
Gathering all scientific factors  
Gathering all human factors  
Gathering value factors  
Identifying areas of value – conflict, setting of priorities,  
Working our criteria towards decisions

### **Recommended Reading**

1. Francis C. M., **Medical Ethics**, 2<sup>nd</sup> Ed, 2004 Jaypee Brothers, Bangalore/-
2. Ethical guidelines for biomedical research on human participants, ICMR publication 2006
3. Santosh Kumar: the elements of research, writing and editing 1994, Dept of Urology, JIPMER, Pondicherry
4. Srinivas D.K et al, Medical Education Principles and Practice, 1995, National Teacher Training Centre, JIPMER, Pondicherry
5. Indian National Science Academy, Guidelines for care and use of animals in scientific Research, New Delhi, 1994
6. International committee of Medical Journal Editors, Uniform requirements for manuscripts submitted to biomedical journals, N Engl J Med 1991
7. Kirkwood B.R, Essentials of Medical Statistics, 1<sup>st</sup> Ed., Oxford: Blackwell Scientific Publications 1998
8. Mahajan B.K. Methods in bio statistics for medical students, 5<sup>th</sup> Ed, New Delhi, Jaypee, Brothers Medical Publishers, 1989
9. Raveendran, B. Gitanjali: A Practical approach to PG dissertation, New Delhi, Jaypee Publications, 1998.
10. John A Dent. Ronald M Harden, A Practical guide for medical teacher, 4<sup>th</sup> Edition, Churchill Livingstone, 2009.
11. Tejinder Singh Anshu, Principles of Assessment in Medical Education, Jaypee brothers

12. Dr. K.Lakshman, A Hand Book on Patient Safety, RGUHS & Association of Medical Consultants, 2012
13. Bernard Mogs, Communication skills in health & social care, 3rd Edition, (S) SAGE, 2015
14. Manoj Sharma , R. Lingyak Petosa, Measurement and Evaluation for Health Educators, Jones & Bartlett Learning.
15. David E. Kern, Patricia A, Thomas Mark T, Hughes, Curriculum Development for Medical Education. A six-step approach, The Johns Hopkins University press/Baltimore.
16. Tejinder Singh Piyush Gupta Daljit Singh, Principles of Medical Education (Indian Academy of Paediatrics), 4th Edition, Jaypee Brothers, 2013.
17. Robert Reid, Torri Ortiz Linenemann, Jessica L.Hagaman, Strategy Instruction for Students with learning disabilities, 2nd Edition, The Guilford Press London.
18. Lucinda Becker Pan Demicolo, Teaching in higher education, (S) SAGE, 2013.
19. C.N. Prabhakara, Essential Medical Education (Teachers Training), Mehta publishers.
20. Tejinder Singh Piyush Gupta, Principles of Evaluation & Research for health care programmes, 4th Edition, IAP National Publication House (Jaypee Brothers).
21. R.L.Bijlani, Medical Research, Jaypee Brothers, 2008
22. Stephen Polgar Shane A Thomas, Introduction to Research in the Health Sciences, Churchill Livingstone Elsevier, 2013.
23. Amar A,Sholapurkar. Publish & Flourish -A practical guide for effective scientific writing, Jaypee Brothers, 2011
24. Charles R.K.Hind, Communication Skills in Medicine, BMJ, 1997.

**Section IV**

**Check List – I**

**MODEL CHECK-LIST FOR EVALUATION OF JOURNAL  
REVIEW PRESENTATIONS**

**Name of the Student:**

**Date:**

**Name of the Faculty/Observer:**

**Title and author**

**Source**

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Article chosen was					
2.	Extent of understanding of scope & objectives of the paper by the candidate					
3.	whether cross references have been consulted					
4.	Whether other relevant publications consulted					
5.	Ability to respond to questions on the paper/subject					
6.	Audio-Visual aids used					
7.	Ability to defend the paper					
8.	Clarity of presentation					
9.	Any other observation					
	Total Score					

## Check List – II

### MODEL CHECK-LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the student:

Date:

Name of the Faculty/Observer:

Guide

Topic

Sl. No.	Items for observation during Presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Whether other relevant publications consulted					
2.	whether cross references have been consulted					
3.	Completeness of preparation					
4.	Clarity of Presentation					
5.	Understanding of subject					
6.	Ability to answer questions					
7.	Time scheduling					
8.	Appropriate use of Audio-Visual aids					
9.	Overall performance					
10.	Any other observation					
	Total Score					

**Check List – III**  
**MODEL CHECK-LIST FOR EVALUATION OF TEACHING SKILL**

**PRACTICE**

Sl. No.	Items for observation during Presentation	Strong Point	Weak Point
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples and/or illustrations		
6.	Speaking style (enjoyable, monotonous, etc., specify)		
7.	Attempts audience participation		
8.	Summary of the main points at the end		
9.	Asks questions		
10.	Answers questions asked by the audience		
11.	Rapport of speaker with his audience		
12.	Effectiveness of the talk		
13.	Uses AV aids appropriately		



### Check List-IV

#### MODEL CHECK LIST FOR DISSERTATION PRESENTATION

**Name of the Student:**

**Date:**

**Name of the Faculty:**

Sl. No.	Points to be considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Interest shown in selecting a topic					
2.	Appropriate review of literature					
3.	Discussion with guide & other faculty					
4.	Quality of Protocol					
5.	Preparation of Proforma					
6.	Title <ul style="list-style-type: none"> <li>• Appropriateness</li> <li>• Clarity and brevity</li> <li>• Focus on topic</li> </ul>					
7.	Introduction <ul style="list-style-type: none"> <li>• Purpose of study</li> <li>• Mention of lacuna</li> <li>• Hypothesis, if any</li> </ul>					
8.	Review of literature <ul style="list-style-type: none"> <li>• Relavance</li> <li>• Completeness</li> <li>• Is up to date?</li> </ul>					
9.	Methods <ul style="list-style-type: none"> <li>• Mention type of study</li> <li>• Details of subjects &amp; control</li> <li>• Details of material</li> <li>• Procedure for data collection</li> <li>• Statistical methods employed</li> <li>• Mention ethical issues</li> </ul>					
	Total Score					

**Check List-V**

**CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE/CO- GUIDE**

**Name of the Student:**

**Date:**

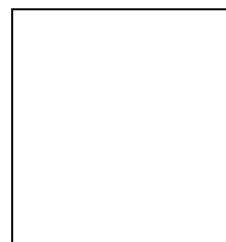
**Name of the Faculty:**

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Periodic consultation with guide/co-guide					
2.	Regular collection of case material					
3.	Depth of analysis / discussion					
4.	Departmental presentation of findings					
5.	Quality of final output					
6.	Others					
	Total Score					

**Proforma of Log book to be maintained by PG candidate in pharmacology**

LOG BOOK

PERSONAL BIODATA



NAME OF THE CANDIDATE-

Date of birth of the candidate

Father's name

Year and month of registration-

Permanent address of the candidate

NAME OF THE INSTITUTE-BLDE Univ. Shri.B.M.Patil Medical College, Bijapur

Name of the P.G. Teacher-

Education qualifications of the Candidate

Sr. No.	DEGREE	INSTITUTE/UNIVERSITY	YEAR OF PASSING
1			

Service record

Sr. No.	Position	Place	From	To	Remarks
1					

Dissertation details

Name of the topic-

Co-guide if any –

Date of clearance by ethics committee-

Posting schedules

First year

Sr. No.	From	To	Place of posting	Remarks Sign of I/C
1	June	Oct.	Dept .of Pharmacology	
2	Nov.	Dec.	Animal house	
3	Jan.	Feb.	Dept. of Medicine	
4	March	May	Dept. of Pharmacology	

Second year

Sr. No.	From	To	Place of posting	Remarks Sign of I/C
1	June	Sept.	Department of Pharmacology	
2	Oct.		Dept. of Paediatrics	
3	Nov.		Dept. of Anaesthesia& ICU	
4	Dec.	May	Dept. of Pharmacology	

Third year

Sr. No.	From	To	Place of posting	Remarks Sign of I/C
1	May	June	Dept. of Dermatology & Psychiatry	
2	July	May	Department of Pharmacology	

## LOG BOOK

**Table – 1: Academic presentations made by the P.G. student.**

Name:

Admission year:

College: BLDEU's SHRI B. M. PATIL MEDICAL COLLEGE, VIJAYAPURA – 586103

Date	Topic	Type of Presentation – Seminar, Journal Club, short talks, UG teaching, etc.

**Table – 2: Experiment conducted by the P.G. student**

Name:

Admission year:

College: BLDEU's SHRI B. M. PATIL MEDICAL COLLEGE, VIJAYAPURA - 586103

Date	Topic	Long expt./short expt.	Signature of staff

### CONFERENCES / WORKSHOPS ATTENDED

Sr. No.	Conference / Workshop	Date

Other activities/ Projects

Abstracts (Publications):

  
**REGISTRAR** 8  
BLDE (Deemed to be University)  
Vijayapura-586103, Karnataka