

Tuning

India

**Degree Programme
Bachelor of Medicine
and Bachelor of Surgery
(MBBS)**

**Manipal Academy of
Higher Education**



**Degree Programme Bachelor of Medicine and Bachelor of Surgery (MBBS).
Manipal Academy of Higher Education**

The degree programme deals with the length, level and definition of the programme in terms of competences and learning outcomes; it also analyses the methodologies for developing the appropriate strategy of teaching, learning and assessing those competences as well as setting up the internal systems for assuring programme quality.

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Name and level of the programme

Name of the program: Bachelor of Medicine and Bachelor of Surgery (MBBS).

The existing degree programme is being revised by the addition of a module on Research Methodology.

Purpose of the programme: Graduate medical curriculum is oriented towards training students to undertake the responsibilities of a physician of first contact who is capable of looking after the preventive, promotive, curative & rehabilitative aspect of medicine.

Level and Duration: It is Bachelor level programme, its total duration is 66 months

Eligibility: Students who have completed 17 years of age, passed higher secondary examination with physics, chemistry, biology and English and qualified National Eligibility-cum-Entrance Test are eligible to apply for the course. Selection process is through a transparent single window system.

Progression: The programme equips the graduate to function as a first contact physician. The graduates can become specialists by pursuing masters/ post graduate diploma courses in various medical and surgical specialties. Post-doctoral programs, DM (Doctorate in Medicine)/ Mch (Magister Chirurgiae) can be done after completing the Master's degree.

The social needs of the programme

The Indian undergraduate curriculum was revised in 2019 by Medical Council of India, the regulatory body with a goal to create physician of first contact in the Indian context while being globally relevant. The five roles of Indian Medical Graduate (IMG) described in this revised document are consultant, communicator, professional, leader and life-long learner. Consultation with the stakeholders revealed that the existing programme is dominated by biomedical sciences, to ensure acquisition of adequate theoretical knowledge and skills. Stakeholders had observed that in addition to excellence in academics, to be globally competent it is imperative that they be critical thinkers and possess skills to critically appraise research papers, since Evidence based medicine is propagated all over the globe. This skill of evidence gathering will be honed by initiating a student early into research. Training in research will further, a trainee's, critical thinking skills, problem solving capacity and enable them to make informed judgement for the best possible care of their patients. Moreover, stimulating the students early into research will help them inculcate the qualities to be a lifelong learner, a defined role of an Indian Medical Graduate.

The revised curriculum by the regulatory body has introduced some standalone concepts of research under different courses; however, research aspect as not been described in detail. Hence this complete module of Basic Medical Research.

Future fields, sectors of employment/ occupation of graduates

Undergraduates

Graduates can function as primary care physicians in the public sector, private sector or even be self Employed. They are eligible to serve as Medical Officers in the defense forces. The graduates could appear for various licentiate exams for practicing or joining higher studies in Foreign countries. They can also work as research assistants for clinical trials at hospitals/ research institutes/ pharma companies.

Further studies

The graduates could pursue higher studies in the country in medical and surgical specialties by qualifying various national level, regional level and institution level entrance examinations.

Administration

They are also eligible to appear for the civil service examinations, clearing which they could function as district collector. Graduates could pursue a career in Hospital administration.

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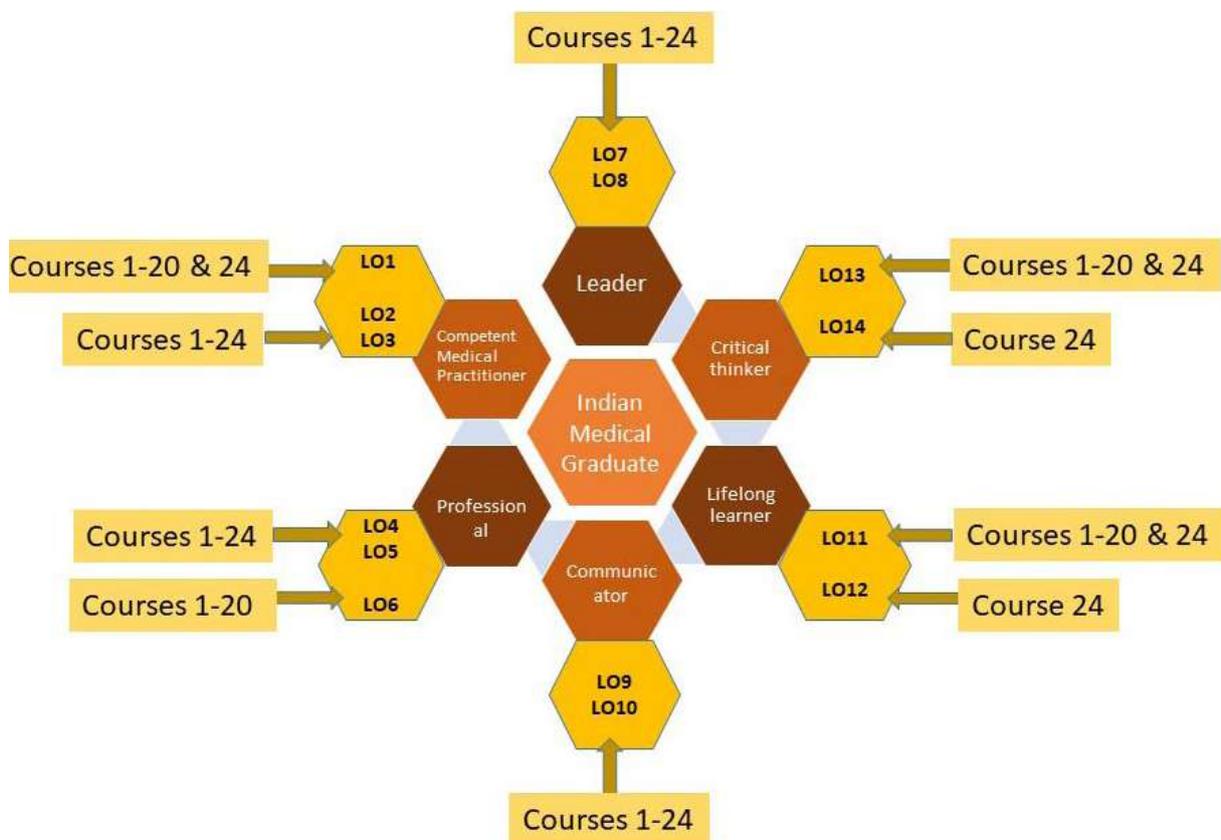
Description of the degree profile in terms of generic and subject-specific competences

4.1. Competences and their learning outcomes

Role	Definition of the competence	Generic/ Subject specific	Program level - Learning outcomes
Competent Medical Practitioner	Ability to apply knowledge in practical situations and make reasoned decisions	Generic	LO1: Demonstrate ability to apply knowledge in practical situations, make reasoned decisions and practice evidence based medicine
	Understands and provides preventive, promotive, curative, palliative and holistic care with compassion.	Subject specific	LO2: Elicit, evaluate and interpret patients history, medical records and examination/ diagnostic test findings to exclude differential diagnosis
			LO3: Perform relevant physical examination and perform basic clinical procedures independently and refer patients for specialized and/or advanced care
Professional	Practices professionalism and is socially responsible	Generic	LO4: Demonstrate ability to recognize and manage professional conflicts and practices integrity, responsibility, accountability and respect.
	Ethical, responsive and accountable to patients community and the profession	Subject Specific	LO5: Apply ethical and humanitarian principles that influence health care LO6: Integrate health care policies and guidelines into the routine clinical practice
Leader	Manages Stress, time and crisis effectively	Generic	LO7: Demonstrate knowledge of significance and appropriate ways of time, stress and crisis management
	Effective Leader of the health care team	Subject Specific	LO8: Works effectively and appropriately with colleagues in an inter-professional health care team and function effectively, responsibly and appropriately as a health care team leader

Communicator	Ability to communicate effectively	Generic	LO9: Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with colleagues in a manner that will improve interpersonal relationships.
	Ability to communicate compassionately with patients, families, colleagues and community	Subject Specific	LO10: Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality, privacy and shared decision-making.
Lifelong learner	Be motivated for self-learning and committed to continuous improvement of skills and knowledge	Generic	LO11: Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills and apply to the care of the patients.
	Contribute towards the growth of the medical profession	Subject Specific	LO12: Demonstrate a commitment to the growth of the medical profession as a whole.
Critical thinker	Acquire higher order thinking and problem solving skills	Generic	LO13: Demonstrate higher order thinking skill and problem solving capacity
	Ability to do research in medical field	Subject Specific	LO 14: Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

Link of competences (degree profile) to the agreed meta-profile



Consultation with stakeholders led to the identification of gaps in the critical thinker and life-long learner domain. The stakeholders observed that the specific competence listed under these roles was not formally taught and assessed. Introducing a course on basic medical research could bridge this gap. We plan to address the role of critical thinking; specific competency of ability to do research and the learning outcome of demonstrate familiarity with basic, clinical and translational research. Also in the role of life long learner there is a specific competence of Contribute towards the growth of the medical profession with learning outcome of demonstrate a commitment to the growth of the medical profession as a whole, which is not addressed. The course on Basic medical research helps

address this gap too. These would be done over a period of five years in 4 units during different phases. Teaching learning activities will include Lecture, Group discussion, projects, hands on workshop on scientific and reflective writing.

The MBBS programme offered by Manipal Academy of Higher Education will mold graduates into practitioners with critical thinking capabilities and equip them to practice evidence based medicine in private clinics. The course on Basic Medical Research (BMR) which is integral to the program offered, will equip the undergraduate with additional skills in research and give them the edge over others in the field of research oriented postgraduate programs. Moreover, this module will help a graduate during the post graduate program, in which research thesis is an integral component. This add-on course in the graduate program will appeal to students to take up programs in which research is a core subject. Moreover, the results of the project will contribute towards the growth of the medical profession and inculcate the qualities to be a lifelong learner, one of the defined role of an Indian Medical Graduate.

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Structure of the programme: units/courses/modules with their learning outcomes and learning, teaching and assessment strategies

The MBBS program runs for a total period of 4 ½ years and is divided into three phases as follows:

- a) Foundation course (1 month): consisting of orientation program, AETCOM (Attitude, ethics, communication module), language and computer skills, sports and extra-curricular activities. The basic medical research module will begin in phase 1 and continue till phase 3 and is described under course number 24.
- b) Phase-1 (13 months): consisting of Pre-clinical subjects (Human Anatomy, Physiology including Bio-Physics, Bio-chemistry). Besides introduction to Community Medicine and Early clinical exposure module.
- c) Phase-2 (12 months): consisting of para-clinical/ clinical subjects. During this phase teaching of para-clinical and clinical subjects shall be done concurrently along with basic medical research and AETCOM modules. The para-clinical subjects shall consist of Pathology, Pharmacology, Microbiology, and part of Community Medicine. The clinical subjects shall consist of all those detailed below in Phase III.
- d) Phase-3 part 1 and 2 (28 months): Continuation of study of clinical subjects and Forensic Medicine including Toxicology. The clinical subjects to be taught during Phase II & III are Medicine and its allied specialties, Surgery and its allied specialties, Obstetrics and Gynecology, Community Medicine. In addition, the Basic medical research and AETCOM modules will be addressed. In phase III between part 1 and part 2 there is 2 months electives.

Course/paper (name and code)

Course/paper (name and code)	Course/paper learning outcomes	Learning and teaching activities related to each course/paper learning outcome	Assessment activities (formative and summative) related to each course/paper learning outcome
1. Human Anatomy	AN1: Demonstrate understanding of the gross and microscopic structure and development of human body, AN2. Demonstrate comprehension of the normal regulation and integration of the functions of the organs and systems on basis of the structure and genetic pattern. AN3. Demonstrate understanding of the clinical correlation of the organs and structures involved and interpret the anatomical basis of the disease presentations.	Didactic lecture, dissection practical classes and small group teaching	Written exam Practical exam Viva voce
2. Physiology	PY1. Demonstrate understanding of the normal functioning of the organs and organ systems of the body, PY2. Demonstrate comprehension of the normal structure and organization of the organs and systems on basis of the functions. PY3. Understanding of age-related physiological changes in the organ functions that reflect normal growth and development, PY4. Understand the physiological basis of diseases.	Didactic lecture, practical classes and small group teaching	Written exam Practical exam Viva voce
3. Biochemistry	BI1. Demonstrate understanding of biochemical and molecular processes involved in health and disease BI2. Demonstrate knowledge of importance of nutrition in health and disease, BI3. Demonstrate understanding of biochemical basis and rationale of clinical laboratory tests, and demonstrate ability to interpret these in the clinical context.	Didactic lecture, practical classes and small group teaching	Written exam Practical exam Viva voce
4. Pathology	PA1. Comprehension of the causes, evolution and mechanisms of diseases, PA2. Knowledge of alterations in gross and cellular morphology of organs in disease states, PA3. Ability to correlate the natural history, structural and functional changes with the clinical manifestations of diseases, their diagnosis and therapy,	Didactic lecture, practical classes and small group teaching	Written exam Practical exam Viva voce

Course/paper (name and code)	Course/paper learning outcomes	Learning and teaching activities related to each course/ paper learning outcome	Assessment activities (formative and summative) related to each course/ paper learning outcome
5. Microbiology	<p>MI1. Demonstrate understanding of role of microbial agents in health and disease</p> <p>MI2. Demonstrate understanding of the immunological mechanisms in health and disease</p> <p>MI3. Demonstrate ability to correlate the natural history, mechanisms and clinical manifestations of infectious diseases as they relate to the properties of microbial agents,</p> <p>MI4. Demonstrate knowledge of the principles and application of infection control measures</p> <p>MI5. Demonstrate understanding of the basis of choice of laboratory diagnostic tests and their interpretation, antimicrobial therapy, control and prevention of infectious diseases.</p>	Didactic lecture, practical classes and small group teaching	Written exam Practical exam Viva voce
6. Pharmacology	<p>PH1: Demonstrate knowledge about essential and commonly used drugs and an understanding of the pharmacologic basis of therapeutics,</p> <p>PH2. Demonstrate ability to select and prescribe medicines based on clinical condition and the pharmacologic properties, efficacy, safety, suitability and cost of medicines for common clinical conditions of national importance.</p> <p>PH 3. Demonstrate knowledge of pharmacovigilance, essential medicine concept and sources of drug information and industry-doctor relationship,</p> <p>PH 4. Demonstrate ability to counsel patients regarding appropriate use of prescribed drug and drug delivery systems.</p>	Didactic lecture, practical classes and small group teaching	Written exam Practical exam Viva voce
7. Forensic Medicine	<p>FM1. Demonstrate understanding of medico-legal responsibilities of physicians in primary and secondary care settings.</p> <p>FM2. Demonstrate understanding of the rational approach to the investigation of crime, based on scientific and legal principles.</p> <p>FM3. Demonstrate ability to manage medical and legal issues in cases of poisoning / overdose,</p> <p>FM4. Demonstrate understanding the medico-legal framework of medical practice and medical negligence,</p> <p>FM5. Demonstrate understanding of codes of conduct and medical ethics.</p>	Didactic lecture, practical classes and small group teaching	Written exam Practical exam Viva voce

Course/paper (name and code)	Course/paper learning outcomes	Learning and teaching activities related to each course/paper learning outcome	Assessment activities (formative and summative) related to each course/paper learning outcome
8. Otorhinolaryngology	EN1. Demonstrate knowledge of the common Otorhinolaryngology (ENT) emergencies and problems EN2. Demonstrate ability to recognize, diagnose and manage common ENT emergencies and problems in primary care setting, EN3. Demonstrate ability to perform simple ENT procedures as applicable in a primary care setting, EN4. Demonstrate ability to recognize hearing impairment and refer to the appropriate hearing impairment rehabilitation programme.	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce
9. Ophthalmology	OP1. Demonstrate knowledge of common eye problems in the community OP2. Recognize, diagnose and manage common eye problems and identify indications for referral, OP3. Demonstrate ability to recognize visual impairment and blindness in the community and implement National programmes as applicable in the primary care setting.	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce
10. Community Medicine	CM1. Demonstrate understanding of physical, social, psychological, economic and environmental determinants of health and disease, CM2. Demonstrate ability to recognize and manage common health problems including physical, emotional and social aspects at individual family and community level in the context of National Health Programmes, CM3. Demonstrate ability to Implement and monitor National Health Programmes in the primary care setting, CM4. Demonstrate knowledge of maternal and child wellness as they apply to national health care priorities and programmes, CM5. Demonstrate ability to recognize, investigate, report, plan and manage community health problems including malnutrition and emergencies.	Didactic lecture, practical classes, community visits, clinical classes and small group teaching	Written exam Practical exam Viva voce

Course/paper (name and code)	Course/paper learning outcomes	Learning and teaching activities related to each course/ paper learning outcome	Assessment activities (formative and summative) related to each course/ paper learning outcome
11.General Medicine	<p>IM1. Demonstrate understanding of the patho-physiologic basis, epidemiological profile, signs and symptoms of disease and their investigation and management,</p> <p>IM2. Competently interview and examine an adult patient and make a clinical diagnosis,</p> <p>IM3. Appropriately order and interpret laboratory tests,</p> <p>IM4. Initiate appropriate cost-effective treatment based on an understanding of the rational drug prescriptions, medical interventions required and preventive measures,</p> <p>IM 5. Follow up of patients with medical problems and refer whenever required,</p> <p>IM 6. Communicate effectively, educate and counsel the patient and family,</p> <p>IM7. Manage common medical emergencies and refer when required,</p> <p>IM8. Independently perform common medical procedures safely and understand patient safety issues.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce
12.Gen. Surgery	<p>SU1. Demonstrate understanding of the structural and functional basis, principles of diagnosis and management of common surgical problems in adults and children,</p> <p>SU2. Demonstrate ability to choose, calculate and administer appropriately intravenous fluids, electrolytes, blood and blood products based on the clinical condition,</p> <p>SU3. Demonstrate ability to apply the principles of asepsis, sterilization, disinfection, rational use of prophylaxis, therapeutic utilities of antibiotics and universal precautions in surgical practice,</p> <p>SU4. Demonstrate knowledge of common malignancies in India and their prevention, early detection and therapy,</p> <p>SU5. Demonstrate ability to perform common diagnostic and surgical procedures at the primary care level,</p> <p>SU6. Demonstrate ability to recognize, resuscitate, stabilize and provide Basic & Advanced Life Support to patients following trauma,</p> <p>SU7. Demonstrate ability to administer informed consent and counsel patient prior to surgical procedures,</p> <p>SU8. Demonstrate commitment to advancement of quality and patient safety in surgical practice.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce

Course/paper (name and code)	Course/paper learning outcomes	Learning and teaching activities related to each course/ paper learning outcome	Assessment activities (formative and summative) related to each course/ paper learning outcome
13.Paediatrics	<p>PE1. Demonstrate ability to assess and promote optimal growth, development and nutrition of children and adolescents and identify deviations from normal,</p> <p>PE2. Demonstrate ability to recognize and provide emergency and routine ambulatory and First Level Referral Unit care for neonates, infants, children and adolescents and refer as may be appropriate,</p> <p>PE3. Demonstrate ability to perform procedures as indicated for children of all ages in the primary care setting,</p> <p>PE4. Demonstrate ability to recognize children with special needs and refer appropriately,</p> <p>PE5. Demonstrate ability to promote health and prevent diseases in children,</p> <p>PE6. Demonstrate ability to participate in National Programmes related to child health and in conformation with the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) Strategy,</p> <p>PE7. Demonstrate ability to communicate appropriately and effectively.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce
14.Obstetrics and Gynecology	<p>OG1. Demonstrate ability to Provide peri-conceptual counseling and antenatal care,</p> <p>OG2. Identify high-risk pregnancies and refer appropriately,</p> <p>OG3. Conduct normal deliveries, using safe delivery practices in the primary and secondary care settings,</p> <p>OG4. Prescribe drugs safely and appropriately in pregnancy and lactation,</p> <p>OG5. Diagnose complications of labor, institute primary care and refer in a timely manner,</p> <p>OG6. Perform early neonatal resuscitation,</p> <p>OG7. Provide postnatal care, including education in breast-feeding,</p> <p>OG8. Counsel and support couples in the correct choice of contraception,</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce

Course/paper (name and code)	Course/paper learning outcomes	Learning and teaching activities related to each course/paper learning outcome	Assessment activities (formative and summative) related to each course/paper learning outcome
15.Orthopedics	<p>OR1. Demonstrate ability to recognize and assess bone injuries, dislocation and poly-trauma and provide first contact care prior to appropriate referral,</p> <p>OR2. Demonstrate knowledge of the medico-legal aspects of trauma,</p> <p>OR3. Demonstrate ability to recognize and manage common infections of bone and joints in the primary care setting,</p> <p>OR4. Recognize common congenital, metabolic, neoplastic, degenerative and inflammatory bone diseases and refer appropriately,</p> <p>OR5. Demonstrate ability to perform simple orthopaedic techniques as applicable to a primary care setting,</p> <p>OR6. Demonstrate ability to recommend rehabilitative services for common orthopaedic problems across all ages.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce
16.T.B. and Chest	<p>CT1. Demonstrate knowledge of common chest diseases, their clinical manifestations, diagnosis and management,</p> <p>CT2. Demonstrate ability to recognize, diagnose and manage pulmonary tuberculosis as contemplated in National Tuberculosis Control programme,</p> <p>CT3. Demonstrate ability to manage common respiratory emergencies in primary care setting and refer appropriately.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce
17.Psychiatry	<p>PS1. Demonstrate ability to promote mental health and mental hygiene,</p> <p>PS2. Demonstrate knowledge of etiology (bio-psycho-social-environmental interactions), clinical features, diagnosis and management of common psychiatric disorders across all ages,</p> <p>PS3. Demonstrate ability to recognize and manage common psychological and psychiatric disorders in a primary care setting, institute preliminary treatment in disorders difficult to manage, and refer appropriately,</p> <p>PS4. Demonstrate ability to recognize alcohol/ substance abuse disorders and refer them to appropriate centers,</p> <p>PS5. Demonstrate ability to assess risk for suicide and refer appropriately,</p> <p>PS6. Demonstrate ability to recognize temperamental difficulties and personality disorders,</p> <p>PS7. Assess mental disability and rehabilitate appropriately,</p> <p>PS8. Demonstrate understanding of National and State programmes that address mental health and welfare of patients and community.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce

Course/paper (name and code)	Course/paper learning outcomes	Learning and teaching activities related to each course/ paper learning outcome	Assessment activities (formative and summative) related to each course/ paper learning outcome
18.Skin and STD	<p>DR1. Demonstrate understanding of the principles of diagnosis of diseases of the skin, hair, nail and mucosa,</p> <p>DR2. Demonstrate ability to recognize, diagnose, order appropriate investigations and treat common diseases of the skin including leprosy in the primary care setting and refer as appropriate,</p> <p>DR3. Demonstrate a syndromic approach to the recognition, diagnosis, prevention, counseling, testing and management of common sexually transmitted diseases including HIV based on national health priorities,</p> <p>DR4. Demonstrate ability to recognize and treat emergencies including drug reactions and refer as appropriate.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce
19.Anesthesia	<p>AS1. Describe and discuss the pre-operative evaluation, assessing fitness for surgery and the modifications in medications in relation to anaesthesia / surgery,</p> <p>AS2. Describe and discuss the roles of Anaesthesiologist as a peri-operative physician including pre-medication, endotracheal intubation, general anaesthesia and recovery (including variations in recovery from anaesthesia and anaesthetic complications),</p> <p>AS3. Describe and discuss the management of acute and chronic pain, including labour analgesia,</p> <p>AS4. Demonstrate awareness about the maintenance of airway in children and adults in various situations,</p> <p>AS5. Demonstrate the awareness about the indications, selection of cases and execution of cardiopulmonary resuscitation in emergencies and in the intensive care and high dependency units,</p> <p>AS6. Choose cases for local / regional anaesthesia and demonstrate the ability to administer the same,</p> <p>AS7. Discuss the implications and obtain informed consent for various procedures and to maintain the documents.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce
20.Radiodiagnosis & Radiotherapy	<p>RA1. Demonstrate understanding of indications for various radiological investigations in common clinical practice,</p> <p>RA2. Demonstrate awareness of the ill effects of radiation and various radiation protective measures to be employed,</p> <p>RA3. Demonstrate ability to identify abnormalities in common radiological investigations.</p> <p>RT1. Demonstrate understanding of clinical presentations of various cancers,</p> <p>RT2. Demonstrate understanding of appropriate treatment modalities for various types of malignancies,</p> <p>RT3. Demonstrate understanding of principles of radiotherapy and techniques.</p>	Didactic lecture, clinical classes and small group teaching	Written exam Clinical exam Viva voce

Course/paper (name and code)	Course/paper learning outcomes	Learning and teaching activities related to each course/paper learning outcome	Assessment activities (formative and summative) related to each course/paper learning outcome
21.Foundation course	FC1 Demonstrate familiarity with the program, profession, institution, health care system, ethics and professional conduct FC2 Demonstrate ability to provide first aid and Basic life support FC3 Demonstrate familiarity with organisational skills, IT skill, language and communication skills needed in the program	Lectures, small group discussions, workshops, field visits.	Reflective writing, log book, OSPE
22.AETCOM	AE1. Demonstrate the ability to apply principles of bioethics and law as they apply to medical practice and Research AE2 Demonstrate the ability to understand and apply the principles of system based care as they relate to the care of the patient, AE3 Demonstrate the ability to understand and apply empathy and other human values to the care of the patient, AE4 Demonstrate the ability to communicate effectively with patients, families, colleagues and other health care professionals, AE5 Demonstrate the ability to understand the strengths and limitations of alternative systems of medicine, AE6 Demonstrate the ability to respond to events and issues in a professional, considerate and humane fashion, AE7 Demonstrate the ability to translate learning from the humanities in order to further his / her professional and personal growth.	small group discussions, patient care scenarios, workshop, seminars, role plays, lectures	Written exam Clinical exam Viva voce reflective writing
23.Early Clinical exposure	ECE1 Demonstrate the ability to understand the relevance of basic sciences in diagnosis, patient care and treatment, ECE2 Demonstrate the ability to relate to experience of patients as a motivation to learn, ECE3 Demonstrate ability to recognize attitude, ethics and professionalism as integral to the doctor-patient relationship, ECE4 Demonstrate ability to understand the socio-cultural context of disease through the study of humanities.	Clinical charts, case discussions, hospital visits	Written exam Clinical exam Viva voce, reflective writing
24.Basic Medical Research	BMR 1 Demonstrate the understanding of basic concepts of medical research BMR 2 Demonstrate the ability to critically review the journal article by applying the basic concepts of research BMR 3 Demonstrate ability plan, execute and report a research project BMR 4 Demonstrate the qualities of an ethical researcher and life-long learner	Lectures, group discussions, group activities, Journal reading, Hands-on, Project, Reflective writing	Participation in group activities, Written exam, protocol writing, research project, Reflective writing

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Length of the programme and student workload

Phase	Subjects taught	Duration	Examination
First Professional MBBS	Foundation Course (1 month) with Basic medical research unit 1 Human Anatomy, Physiology & Biochemistry, Introduction to Community Medicine Early Clinical Exposure Attitude, Ethics, and Communication Module	14 months	University Phase I examination Human Anatomy, Physiology & Biochemistry,
Second Professional MBBS	Pathology, Microbiology, Pharmacology, Forensic Medicine and Toxicology, Introduction to clinical subjects including Community Medicine Basic medical research Unit 2 Basic Medical research Clinical postings Attitude, Ethics & Communication Module (AETCOM)	12 months	University Phase II examination Pathology, Microbiology, Pharmacology,
Third Professional MBBS Part I	General Medicine, General Surgery, Obstetrics & Gynecology, Pediatrics, Orthopedics, Dermatology, Psychiatry, Otorhinolaryngology, Ophthalmology, Community Medicine, Forensic Medicine and Toxicology, Respiratory medicine, Radiodiagnosis & Radiotherapy, Anesthesiology Basic Medical Research Unit 3 Clinical subjects /postings • Attitude, Ethics & Communication Module (AETCOM)	13 months	University Phase III Part 1 examination Otorhinolaryngology, Ophthalmology, Community Medicine, Forensic Medicine

Phase	Subjects taught	Duration	Examination
Electives	Electives, Skills and assessment	2 months	
Third Professional MBBS Part II	General Medicine, Pediatrics, General Surgery, Orthopedics, Obstetrics and Gynecology including Family welfare and allied specialties Basic Medical Research Unit 4 Clinical postings/subjects Attitude, Ethics & Communication Module (AETCOM)	13 months	University Phase III Part 2 examination General Medicine (Including Psychiatry), Pediatrics, General Surgery (Including Anesthesiology), Orthopedics, Obstetrics and Gynecology

	Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (I / 30)	Total ECTS/ Phase	Total hours spent in studying	Is Number of months in a phase x 30 x 24 = Total hours in the phase duration	%of time spent studying
					Contact hours (Guided Learning, face to face activities, lectures, labs, tutorials, etc)	Independent work (self-learning, non face-to-face activities, revision, homework, etc)	Others: Continuous Assessment (Test, Quiz, Final Exam)						
Founda- tion Course													
	1	1 month	FC	Foundation Course*	160	60	15	235	8	8	235	720	32,639
Phase 1													
	1	13 months	AN	Anatomy	635	550	25	1210	40	93	2779	9360	29,690
	1		PY	Physiology	495	400	25	920	31				
	1		BI	Biochemistry	250	200	25	475	16				
	1		CM	Community Medicine	47	50	5	102	3				
	1		BMR	Basic Medical Research Unit 2^	6	10	2	18	1				
	1		AET-COM	Attitude Ethics and Communi- cation	30	20	4	54	2				
Phase 2													
	2	12 months	PA	Pathology	230	350	25	605	20	96	2877	8640	33,299
	2		PH	Pharmacology	230	350	25	605	20				
	2		MI	Microbiology	190	300	25	515	17				
	2		CM	Community Medicine*	105	80	5	190	6				
	2		BMR	Basic Medical research Unit 3	8	20	2	30	1				

	Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (I / 30)	Total ECTS/ Phase	Total hours spent in studying	Is Number of months in a phase x 30 x 24 = Total hours in the phase duration	%of time spent studying
					Contact hours (Guided Learning, face to face activities, lectures, labs, tutorials, etc)	Independent work (self-learning, non face-to-face activities, revision, homework, etc)	Others: Continuous Assessment (Test, Quiz, Final Exam)						
	2		FM	Forensic Medicine	40	50	5	95	3				
	2		AET-COM	Attitude Ethics and Communication	25	18	4	47	2				
	2		IM	General Medicine	80	45	5	130	4				
	2		SU	General Surgery	80	45	5	130	4				
	2		OG	O&G	80	45	5	130	4				
	2		PE	Pediatrics	27	10	3	40	1				
	2		OR	Orthopedics	27	10	3	40	1				
	2		EN	ENT	57	20	3	80	3				
	2		OP	Ophthalmology	57	20	3	80	3				
	2		RM	Respiratory Medicine	27	10	3	40	1				
	2		PS	Psychiatry	27	10	3	40	1				
	2		RD	Radiology	27	10	3	40	1				
	2		DR	Dermatology	27	10	3	40	1				
Phase 3 Part 1													
	3	13 months	IM	General Medicine	127	90	5	222	7	81	2441	8640	28,252
	3		SU	General Surgery	127	90	5	222	7				
	3		OG	O&G	127	90	5	222	7				
	3		PE	Paediatrics	107	70	5	182	6				

	Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (I / 30)	Total ECTS/ Phase	Total hours spent in studying	Is Number of months in a phase x 30 x 24 = Total hours in the phase duration	%of time spent studying
					Contact hours (Guided Learning, face to face activities, lectures, labs, tutorials, etc)	Independent work (self-learning, non face-to-face activities, revision, homework, etc)	Others: Continuous Assessment (Test, Quiz, Final Exam)						
	3		OR	Orthopedics	102	60	5	167	6				
	3		FM	Forensic Medicine	60	60	10	130	4				
	3		CM	Community Medicine*	190	150	18	358	12				
	3		BMR	Basic Medical Research Unit 4	12	28	2	42	1				
	3		DR	Dermatology	53	30	4	87	3				
	3		PS	Psychiatry	63	40	4	107	4				
	3		RM	Respiratory Medicine	18	15	2	35	1				
	3		EN	ENT	120	90	6	216	7				
	3		OP	Ophthalmology	145	100	6	251	8				
	3		RD	Radiology	18	12	2	32	1				
	3		AS	Anesthesiology	33	20	5	58	2				
	3		AET-COM	Attitude Ethics and Communication	19	12	3	34	1				
	3		CA	Casualty	33	15	3	51	2				
	3		DE	Dentistry	15	7	3	25	1				
Electives													
	4	2 months	EL	Electives	180	100	20	300	10	10			
Phase 3 Part 2													
	4	13 months	IM	General Medicine	387	280	25	692	23	84	2527	8640	29,248

	Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (I / 30)	Total ECTS/ Phase	Total hours spent in studying	Is Number of months in a phase x 30 x 24 = Total hours in the phase duration	%of time spent studying
					Contact hours (Guided Learning, face to face activities, lectures, labs, tutorials, etc)	Independent work (self-learning, non face-to-face activities, revision, homework, etc)	Others: Continuous Assessment (Test, Quiz, Final Exam)						
	4		SU	General Surgery	387	280	25	692	23				
	4		OG	O&G	387	280	25	692	23				
	4		PE	Pediatrics	110	105	6	221	7				
	4		OR	Orthopedics	75	50	6	131	4				
	4		DR	Dermatology	33	15	3	51	2				
	4		AET-COM	Attitude Ethics and Communication	25	20	3	48	2				
										372 cred-its			

* The Unit 1 of the BRM module will be incorporated in the FOUNDATION COURSE on Phase 1 ^BMR Unit 1 and Unit 2 will be given 1 credit

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Overall consistency of the programme

		Competence													
		1		2		3		4		6		6			
		Programme level outcomes													
Unit LOs		LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12	LO13	LO14
		Course 1- 20 all units													
All LO's		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
		Course 21- 23 – all units													
All LO's					✓	✓		✓	✓	✓	✓				
		Course 24: U1: Basics of research-1													
BMR1												✓			
		Course 24: U2: Basics of research-2													
BMR 2												✓	✓		
		Course 24: U3: Plan a project													
BMR 3												✓	✓	✓	✓
		Course 24: U4: Project work													
BMR4		✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓

Internal Quality Control/Enhancement

Feedback will be collected from faculty involved in teaching the module and the students in online feedback system. The module coordinator will analyze and make necessary changes time to time and with approval of curriculum committee will implement the changes. The number of students expressing interest to take up research projects, completed student research projects in an academic year, the number of conference presentations and the number of scientific publications resulting from the student research projects, will help monitor the success of the module implementation. Half yearly reports will be submitted to the curriculum committee, research committee and Internal Quality Assurance Cell of the institution which will monitor and coordinate the quality control.

Other Relevant Aspects

Institutional Curriculum committee and University senate approval to implement the re-designed curriculum

Example of Students' Learning Guide

Bachelor of Medicine and Bachelor of Surgery (MBBS)

Students' Learning Guide

1. Introduction to the Subject

1.1. Lecturer's contact details (Coordinator)

KMC Manipal:

Dr Shankar Bakannavar
Associate Professor
Dept of Forensic Medicine
Kasturba Medical College, Manipal
0820-2922365

KMC Mangalore:

Dr. Animesh Jain
Professor
Department of Community Medicine
Kasturba Medical College, Mangalore
0824- 2244721

1.2. *Contribution to the degree profile*

The Indian undergraduate curriculum is revised in 2019 and the goal of the graduate to create physician of first contact in the Indian context while being globally relevant. To be globally competent, it is imperative that they possess skills to critically appraise research papers in addition to excellence in academics, since evidence based medicine is propagated all over the globe. This skill of evidence gathering will be honed by initiating a student early into research. The Training in research will further, a trainee's critical thinking skills, problem solving capacity and enable them to make informed judgement for the best possible care of their patients. Moreover, stimulating the students early into research will help them inculcate the qualities to be a lifelong learner, a defined role of an Indian Medical Graduate.

The revised curriculum has introduced some standalone concepts of research under different courses; however, this aspect has not been described in detail. Hence the need for this complete module of concepts of Basic medical research.

1.3. *Competences to be developed*

Competence 5

Ability to do research, be a reflective practitioner by acquiring problem solving capacity and higher order thinking skill

BMR 1 Demonstrate the understanding of basic concepts of medical research

BMR 2 Demonstrate the ability to critically review the journal article by applying the basic concepts of research

BMR 3 Demonstrate ability to plan a research project

Competence 6

Lifelong learner committed to continuous improvement of skills and knowledge

BMR 4 Demonstrate the qualities of an ethical researcher and lifelong learner

2. Student Work Plan

2.1. Distribution of activities and workload

Competence	Contents	Activities-Resources-Documentation	Estimated work time		Completion and/or submission deadlines
			Contact hours	Independent work	
Competence 5 Ability to do research, be a reflective practitioner by acquiring problem solving capacity and higher order thinking skill BMR 1 Demonstrate the understanding of basic concepts of medical research.	Unit 1: Basics of Research-1 (during foundation course) 1. Introduction to research 2. How to frame a research question 3. Research methodologies 4. Research supporting agencies	Lecture	1 hour	1.5 hours	
		Lecture and SGT, group work	1 hour 30 min	2.5 hours	
		Lecture	1 hour 30 min	2 hours	
		Small group discussions	2 hours	4 hours	
		Total	6 hours	10 hours	
BMR 2 Demonstrate the ability to critically review the journal article by applying the basic concepts of research	Unit 2: Basics of Research-2 (During MBBS Phase 1) 1. Basics of Protocol writing 2. Literature review 3. Informed consent & Participant information sheet 4. Research ethics – GCP, ICMR 5. Critical review of a journal article	Lecture	1 hour	1.5 hours	
		Lecture and hands on	1 hours	2 hours	
		Lecture and hands-on exercise	1.5 hour	2 hours	
		Lecture and group discussions	1 hour	1.5 hours	
		Group activity	1.5 hour	3 hours	
Total	6 hours	10 hours			
	Evaluation	Case based multiple choice questions			Within One week of last session of Unit 2

Competence	Contents	Activities-Resources-Documentation	Estimated work time		Completion and/or submission deadlines
			Contact hours	Independent work	
BMR 3 Demonstrate ability to plan a re-search project	Unit 3: Plan for a project (During MBBS phase 2) 1. Writing a project Protocol 2. literature search and reference writing 3. Sampling methods and sample size 4. Application to ethics committee	Lecture and group activities hands-on exercise for literature search, reference writing and sampling/sample size. Group activity	2 hours	4 hours	
			2 hours	6 hours	
			2 hours	6 hours	
			2 hours	4 hours	
	Total		8 hours	20 hours	
	Evaluation	Submission of protocol to ethics committee			Within 15 days of the last session of Unit 3
Competence 6 Lifelong learner committed to continuous improvement of skills and knowledge BMR 4 Demonstrate the qualities of an ethical researcher and lifelong learner	Unit 4: Project work (During MBBS phase 3) 1. Project implementation- data collection and data entry 2. Basics of statistics and statistical analysis of data 3. Interpretation of data 4. How to write a paper 5. Publication ethics 6. Plagiarism 4. Journal articles – critical appraisal	Group project (max 7 students in a group) Group activities	—	10 hours	
			2 hours	4 hours	
			2 hours	4 hours	
			4 hours	7 hours	
			2 hours	2 hours	
			12 hours	28 hours	
	Evaluation	Submission Final project and reflective writing			Within 45 days of last session of unit 4
	Total hours for the entire module		32 hours	68 hours	100 hours
Total			32%	68%	100%

2.2. Summary

Type of activities	Contact hours	Independent work	Total
Theoretical learning	10 hours	20 hours	30 hours
Practical activities and assessment	22 hours	48 hours	70 hours
Total	32 hours	68 hours	100 hours

3. Assessment System

3.1. Table of assessment

Competence	Assessment technique	Grade
<p>Competence 5 Ability to do research, be a reflective practitioner by acquiring problem solving capacity and higher order thinking skill</p> <p>BMR 1 Demonstrate the understanding of basic concepts of medical research</p> <p>BMR 2 Demonstrate the ability to critically review the journal article by applying the basic concepts of research</p> <p>BMR 3 Demonstrate ability execute a research project</p>	<p>Group participation</p> <p>Case based MCQs</p> <p>Protocol assessment</p>	<p>30 marks</p> <p>20 marks</p> <p>40 marks</p>
<p>Competence 6 Lifelong learner committed to continuous improvement of skills and knowledge</p> <p>BMR 4 Demonstrate the qualities of an ethical researcher and lifelong learner</p>	<p>Group participation</p> <p>Project Assessment</p> <p>Project guides assessment</p> <p>Reflective writing assessment by guide</p>	<p>20 marks</p> <p>60 marks</p> <p>10 marks</p> <p>20 marks</p>

3.2. Observations of assessment

Participation in any two group activity will be assessed by the facilitator. Each activity will fetch a max of 10 marks

Securing 35% for each Competence is mandatory

3.3. *Summary of assessment*

Competence	Continuous assessment	Final assessment	Total
Competence 5	15 (participation in group activities)	30 (MCQ test 10 and Protocol evaluation 20)	45
Competence 6	15 (Group participation 10 and project guide's assessment 5)	40 (Reflective writing assessment 10 and project evaluation 30)	55
Total	30	70	100
Total	30%	70%	100%

Grade A - 90% and above

Grade B - 75 % - 89%

Grade C - 60% - 74%

Grade D- 45% - 59%

Grade E- 35% - 44%

Grade F- 34% and below

Completion certificates with grades specified will be awarded to students securing Grade A- Grade E.

