

# Tuning

India

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

**Ramaiah Medical College**



**Degree Programme Bachelor of Medicine and Bachelor of Surgery (MBBS).  
Ramaiah Medical College**

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

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### **Bachelor of Medicine and Bachelor of Surgery (MBBS)**

The program is offered at the Bachelor's level.

This template describes an additional module added in this program (MBBS). This module is on concepts of Basic medical research. It will be a part of MBBS curriculum that runs longitudinally across the course.

The students are exposed to fundamentals of research methodology that would enable them to take up post graduate thesis / dissertation work along with other research activities for career advancement.

## The social needs of the programme

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The Indian undergraduate curriculum is revised in 2019 and the goal is 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. 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 this complete module of concepts of Basic Medical Research.

### 3

## **Future fields, sectors of employment/occupation of graduates**

This module will equip the undergraduate with additional skills in research and give them the edge over others in the field of research oriented postgraduate programs.

This module will also help a graduate during the post graduate program, in which research thesis is an integral component.

This add-on module in the existing MBBS program will appeal to students to take up programs in which research is a core subject.

They can also work as research assistants for clinical trials at hospitals/ research institutes/ pharma companies

It will mold them into practitioners with critical thinking capabilities and help practice evidence based medicine in private clinics.

## 4

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

### 4.1. & 4.2. Competencies (General & Specific) and their learning outcomes

Competencies	Learning outcomes
<p><b>1a. General</b> Ability to apply knowledge in practical situations, make reasoned decisions and practice evidence based medicine.</p> <p><b>1b. Specific</b> Practice evidence based Medicine</p>	<p><b>Be a Competent Medical Practitioner.</b> Assessed through: (OSPE and OSCE) Assessed through: Group Discussions with assignments Assessed through: Learning literature review</p>
<p><b>2a. General</b> Be a lifelong learner</p> <p><b>2b. Specific</b> Contribute towards the growth of the medical Profession.</p>	<p><b>Be a lifelong learner</b> Measures of lifelong learning to be used. Assessed through: Written assignments, reviews and scientific presentations</p>
<p><b>3a. General</b> Ability to do Research Acquire problem solving capacity Demonstrate higher order thinking skill Be a reflective practitioner</p>	<p><b>Be a Critical Thinker</b> Assessed through: Write a short research proposal Assessed through: Analyse case scenarios &amp; Discussions Assessed through: Write reflection report on learning</p>



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

Programme-Level Learning Outcomes (minimum 1 - maximum 3 per competence/ meta-profile element)

Competence / Meta-profile element and the competences it comprises	Generic or Subject-Specific?	Definition of the competence / the meta-profile element – how is it understood in your programme?	Programme-Level Learning Outcomes (minimum 1 - maximum 3 per competence/ meta-profile element)
1. Competent medical practitioner	Generic	Competent Medical Practitioner who understands and provides preventive, promotive curative, palliative and holistic care with compassion.	<b>LO1.</b> Ability to apply knowledge in practical situations, make reasoned decisions <b>LO2.</b> practice evidence based medicine
2. Critical thinker	Generic	Ability to do research, be a reflective practitioner by acquiring problem solving capacity and higher order thinking skill	<b>LO3.</b> Ability to do research and be a reflective practitioner <b>LO4.</b> Acquire problem solving capacity and higher order thinking skill
3. Lifelong learner	Generic	Lifelong learner committed to continuous improvement of skills and knowledge	<b>LO5.</b> Ability to be a self-motivated life-long learner <b>LO6.</b> Contribute towards the growth of the medical profession

## 6

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

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. Foundation course	<p><b>FC1</b> Demonstrate familiarity with the program, profession, institution, health care system, ethics and professional conduct</p> <p><b>FC2</b> Demonstrate ability to provide first aid and Basic life support</p> <p><b>FC3</b> Demonstrate familiarity with organisational skills, IT skill, language and communication skills needed in the program</p>	Lectures, small group discussions, workshops, field visits.	Reflective writing, log book, OSPE
AETCOM	<p><b>AE1</b> Demonstrate the ability to apply principles of bioethics and law as they apply to medical practice and Research</p> <p><b>AE2</b> Demonstrate the ability to understand and apply the principles of system based care as they relate to the care of the patient,</p> <p><b>AE3</b> Demonstrate the ability to understand and apply empathy and other human values to the care of the patient,</p> <p><b>AE4</b> Demonstrate the ability to communicate effectively with patients, families, colleagues and other health care professionals,</p> <p><b>AE5</b> Demonstrate the ability to understand the strengths and limitations of alternative systems of medicine,</p> <p><b>AE6</b> Demonstrate the ability to respond to events and issues in a professional, considerate and humane fashion,</p> <p><b>AE7</b> Demonstrate the ability to translate learning from the humanities in order to further his / her professional and personal growth.</p>	small group discussions, patient care scenarios, workshop, seminars, role plays, lectures	Written exam Clinical exam Viva voce reflective writing

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
Early Clinical exposure	<p><b>ECE1</b> Demonstrate the ability to understand the relevance of basic sciences in diagnosis, patient care and treatment,</p> <p><b>ECE2</b> Demonstrate the ability to relate to experience of patients as a motivation to learn,</p> <p><b>ECE3</b> Demonstrate ability to recognize attitude, ethics and professionalism as integral to the doctor-patient relationship,</p> <p><b>ECE4</b> Demonstrate ability to understand the socio-cultural context of disease through the study of humanities.</p>	Clinical charts, case discussions, hospital visits	Written exam Clinical exam Viva voce, reflective writing
Concepts of Basic Medical Research	<p><b>BMR 1</b> Demonstrate the understanding of basic concepts of medical research</p> <p><b>BMR 2</b> Demonstrate the ability to critically review the journal article by applying the basic concepts of research</p> <p><b>BMR 3</b> Demonstrate ability plan, execute and report a research project</p> <p><b>BMR 4</b> Demonstrate the qualities of an ethical researcher and lifelong learner</p>	Lectures, group discussions, group activities, Journal reading, Hands-on, Project, Reflective writing	Participation in group activities, Written exam, protocol writing, research project, Reflective writing

## 7

# Length of the programme and student workload

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The length of the module in the program will be of a total of 100 hours of which 32 hours are in- class and 68 hours outside classroom. The split up will be as follows, during

Foundation course: 6 hrs in- Class and 10 hrs outside classroom – Unit 1

**Phase 1 MBBS:** 6 hrs in- class and 10 hrs outside classroom – Unit 2

**Phase 2 MBBS:** 8 hrs in- class and 20 hrs outside classroom – Unit 3

**Phase 3 MBBS:** 12 hrs in- class and 28 hrs outside classroom – Unit4

On successful completion of the module, certificates will be awarded to the students.

Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (l/ 30)
				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)		
<b>Foundation Course</b>								
1	1 month	FC	Foundation Course	160	60	15	235	8
Unit 1	RM Module	BRM	Basic Research Methodology	6	10	10	20	1
<b>Phase 1</b>								
1	13 months	AN	Anatomy	635	550	25	1210	40
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		AETCOM	Attitude Ethics and Communication	30	20	4	54	2
Unit 2	RM Module	BRM	Basic Research Methodology	6	10	10	20	1
<b>Phase 2</b>								

Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (I/ 30)
				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	12 months	PA	Pathology	230	350	25	605	20
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		FM	Forensic Medicine	40	50	5	95	3
2		AETCOM	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
<b>Unit 3 RM Module</b>		<b>BRM</b>	<b>Basic Research Methodology</b>	<b>8</b>	<b>20</b>	<b>10</b>	<b>38</b>	<b>1</b>
<b>Phase 3 Part 1</b>								

**15**

Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (I/ 30)
				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	13 months	IM	General Medicine	127	90	5	222	7
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
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		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		AETCOM	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	
<b>Electives</b>								

Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (I/ 30)
				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	2 months	EL	Electives	180	100	20	300	10
<b>Phase 3 Part 2</b>								
4	13 months	IM	General Medicine	387	280	25	692	23
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		AETCOM	Attitude Ethics and Communication	25	20	3	48	2
Unit 4	RM Module	BRM	Basic Research Methodology	12	28	10	50	1,6



## 8

# Overall consistency of the programme

The Module of Basic research methodology covers the gaps in the existing curriculum. Introduction of this would enable the graduate to develop skills of being a critical thinker and a lifelong learner. This also helps problem solving ability and practice evidence-based medicine.

Towards addressing the following competencies:

- Competent medical practitioner
- Critical thinker
- Lifelong learner

Units	Unit LOs	Programme level LO1	Programme level LO2	Programme level LO3	Programme level LO4	Programme level LO5	Programme level LO6
Course 24: <b>Unit 1</b> Basics of research-1	<b>BMR1</b> Demonstrate the understanding of basic concepts of medical research			✓			
<b>Unit 2</b> Basics of research-2	<b>BMR 2</b> Demonstrate the ability to critically appraise a journal article by applying basic concepts of research			✓	✓		
<b>Unit 3</b> Plan a project	<b>BMR 3</b> Demonstrates the ability to plan a research project			✓	✓		✓
<b>Unit 4</b> Project work	<b>BMR 4</b> Demonstrate the qualities of an ethical researcher and lifelong learner	✓		✓	✓	✓	✓

## 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

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

### Students' Learning Guide Template

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Adapted from the document prepared by Manipal Academy  
of Higher Education and Research

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#### 1. Basics and Application of Research for Health

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##### 1.1. Lecturer's contact details (Coordinator)

###### **RMC: Bangalore**

Dr Akshay Rao  
Assistant Professor  
Dept of Medicine

Ramaiah Medical College  
Bangalore 560054

###### **RMC: Bangalore**

Dr. Keerthi Joshi  
Asst. Professor  
Dept of Physiotherapy  
Ramaiah Medical College  
Bangalore 560054.

### 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.

Currently, the revised medical curriculum emphasizes competency based learning. One of the critical components is development of research acumen

During the course of the undergraduate medical curriculum, Components of Research are part of several courses in parts. The emphasis for comprehensive research learning is currently not strong. Hence, the proposed modular program will bridge the gap is ensuring a dedicated research training module with definitive outcomes and build competencies required for research

Hence the need for this complete module of concepts of Basic medical research.

### 1.3. *Competences to be developed*

#### *Metaprofile- E-*

#### **Role –To be a lifelong learner**

#### **Generic Competency**

Be a life-long learner

#### **Specific**

Contribute towards the growth of the medical profession

#### *Metaprofile F*

#### **Role- To be a Critical Thinker**

#### **Generic**

Develop the Ability to do Research

Demonstrate higher Order thinking Skills

Acquire problem solving capacity

## 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	
<b>Develop Ability to do research, acquiring problem solving capacity and higher order thinking skill</b> BMR 1 Demonstrate the understanding of basic concepts of medical research.	<b>Unit 1: Basics of Research-1 (during foundation course)</b> 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	
		<b>Total</b>	<b>6 hours</b>	<b>10 hours</b>	
BMR 2 Demonstrate the ability to critically review the journal article by applying the basic concepts of research	<b>Unit 2: Basics of Research-2 (During MBBS Phase 1)</b> 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	
		<b>Total</b>	<b>6 hours</b>	<b>10 hours</b>	

Competence	Contents	Activities-Resources-Documentation	Estimated work time		Completion and/or submission deadlines
			Contact hours	Independent work	
	<b>Evaluation</b>	<b>Case based multiple choice questions</b>			<b>Within One week of last session of Unit 2</b>
BMR 3 Demonstrate ability to plan a research project	<b>Unit 3: Plan for a project (During MBBS phase 2)</b> 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 2 hours 2 hours 2 hours	4 hours 6 hours 6 hours 4 hours	
	<b>Total</b>		<b>8 hours</b>	<b>20 hours</b>	
	<b>Evaluation</b>	<b>Submission of protocol to ethics committee</b>			<b>Within 15 days of the last session of Unit 3</b>
<b>Competence 6 Lifelong learner committed to continuous improvement of skills and knowledge</b> BMR 4 Demonstrate the qualities of an ethical researcher and lifelong learner	<b>Unit 4: Project work (During MBBS phase 3)</b> 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	<b>Group project (max 7 students in a group)</b> <b>Group activities</b>	— 2 hours 2 hours 4 hours 2 hours 2 hours	10 hours 4 hours 4 hours 7 hours 2 hours 1 hours	
	<b>Total</b>		<b>12 hours</b>	<b>28 hours</b>	
	<b>Evaluation</b>	<b>Submission Final project and reflective writing</b>			<b>Within 45 days of last session of unit 4</b>
	Total hours for the entire module		32 hours	68 hours	100 hours
<b>Total</b>			<b>32%</b>	<b>68%</b>	<b>100%</b>

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

#### 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.**

