

Curriculum of

Bachelor of Medicine, Bachelor of Surgery (MBBS)

Field of Study : Bachelor of Medicine, Bachelor of Surgery (MBBS)

Definition of Field

Medicine is a branch of practical science aiming at health protection and promotion, diagnosis, treatment and prevention of diseases. In Hedayat Almotealemin as the oldest Persian medical book (11th century), Rabi Ibn Ahmad Akhaveini defines medicine as follow: "medicine is an occupation which views the human health, and returns what is lost, in science and practice".

Bachelor of Medicine, Bachelor of Surgery or in Latin: *Medicinae Baccalaureus*, (abbreviated in many ways, e.g. **MBBS**, **MBChB**, **MBBCh**, **MB BChir (Cantab)**, **BM BCh (Oxon)**, **BMBS**), is the first professional degree in medicine awarded upon graduation from medical school by universities in countries that follow the tradition of the United Kingdom., In practice, may also be awarded at graduate-level medical schools. MBBS is an undergraduate degree which stands for Bachelor of Medicine Bachelor of Surgery. After the completion of a MBBS, an individual becomes eligible to practice as a doctor or a physician. A MBBS is considered as a basic qualification which usually lasts for over four years during which the students go through many aspects of medicine and training in basically all branches of medicine. Therefore, a MBBS is considered as more of a general degree in medicine.

Philosophy (Values and Beliefs)

General practitioner is the first member for offering health services to the society. Therefore, they are always under judgment and evaluation of society, and will have the good professional specifications, and observe specialized skills and social formalities.

Human being is a multidimensional creature with various physical, mental and cultural challenges and needs, causing the human resources educational programs for providing the human health have multilayer and diverse values. General practitioner doesnot consider only body and its diseases, but is the only person who, as an occupation owner, can achieve the most private scope of humans needs of health services so that he may be sometimes more aware of patients' mysteries more than his accompanies. Thus, the most important value and key principle in general medical programs shall be education of committed physicians with

professional ethics and decorum. Medicine is a permanently-variable domain and physician requires to consider the lifetime learning and regular professional promotion for ensuring the authenticity of clinical decision making and offering services and compatibility of such proceedings with valid evidence. Therefore, growth of critical thinking and self-conducting learning skills is a requirement of general medicine program to be considered especially in program execution strategies.

Based on the principles of education, good educational design and content organization in learning fields feels necessary. Amplification of interaction of professor and student, early and purposeful contact of student with clinical environment, definition of opportunity of practice and learning the skills, and delegation of further responsibility to the students according to the educational step (basic sciences, clinical preliminaries, internship and clerkship) with the methods of ensuring safety and preserving rights of patients are all emphasized in the program.

Perspective:

Using the last findings of medical education, General Medicine program will keep the execution by less-equipped faculties in order to help meet the acceptable world standards of medical education program in Iran and present committed, capable and responsive graduates for needs of Iranian health system to the society.

Mission:

The mission of educational program of MBBS is to describe the goals, learning opportunities and the rules the completion and execution of which fulfills the expected capabilities from graduates of this program in faculties. Considering the challenges of all beneficiaries of the program, this program presents educational goals with a functional and flexible approach in a way that all universities can train general practitioners with maximum compatibility with national program with regard to all educational specifications and resources.

We believe that the graduates of this field shall use the effective knowledge and skills in medicine to be trained in a way that they can undertake the role of the first contact point of people with health care system. The graduates of this program shall be able to offer their professional role through direct good and presentation of services to patients or coordination of services with other services presenters and health needs and resources in the society, and meet the integrated delivery system in this case. Cares offered by the graduates were without consideration of the age, gender, species, or cultural and social level with regard to cultural, social, economic and psychological pre-fields of patients and shall promote the health of social generations to the regular, comprehensive and multidimensional extent. Also, these students shall be trained in a way that they can recognize the social problems beyond the problems of referring people applying for health services and, by correct awareness and understanding of health behaviors in the society, play the more effective role in protection of efforts and social movements performed by the society for health protection.

We believe that the graduates of this field are committed, sympathetic, humanist, and self-capable people who work in promoting the social health with upmost enthusiasm and commitment. Faculties of medicine undertake, as executives of this program, to observe the values and principles of Iranian system during the execution, and provide the fields of the human growth and sublimity for the students of this educational program based on the rich

Islamic culture with regard to the human dignity, and can train the physicians committed to Islam and scientific rules.

Providing a basis for evaluation of implementation and execution of program and also determining the accessibility to all educational goals and providing the good mechanism for evaluation of graduates' capability will be the most important mission of the program.

History of Field and Developments in World and Iran

History of Medicine in World

Academic education of medicine in world has had many developments along with the human civilizations, and scientific reference in medicine has been displaced according to the presence of different civilizations and communication and effect of the civilizations in world. Flaxner's report in the early 20th century may be a turning point of organized education of modern medicine in the world. Effect of this report and dynamics of medical education in the 20th century and contemporary age has obvious outcomes for faculties of medicine including the description of strategies and different methods of education and evaluation, organizing the educational processes, placing the medical education as a specialized fields of education following documentation of evidence of processes and medicine educating organizations. Along with the developments in academic education of medicine, some considerable changes have been made in content and structure of medical science and services, sometimes along with the paradigm changes, especially in the 3rd millennium, seriously influenced the general medical education.

History of Medicine in Iran

Record of academic education of medicine in Iran refers to the period before appearance of Islam. Great famous Jundi Shapur school and hospital in the 6th century was both school and educational center of medicine and philosophy, the hospital and clinic of patients who referred to. Jundi Shapur University was one of the most important educational and research centers of the time in which many scientists and physicians lectured, studied and practiced medicine, many compiled books of Iranian scientists, and many Greek and Indian books were translated to Pahlavi, and lectured there in. The history of official medical education in Iran can be found by the study of this university. Moreover, innovation of hospital treatment method shall be known for Iranians. Hospitals of Islamic period were mainly constructed based on the samples and principles of Jundi Shapur Hospital.

Famous Azedoldole Hospitals in Shiraz and Baghdad and the next hospitals in Damascus were constructed based on the sample of Jundi Shapur. The first Islamic pharmaceutical product was made by this great medical center in the world. It was the most important world medical center upon the Arabic conquers. It was the most important and famous university in the world.

After Islam and flourish of Islamic civilization in Iran, Iranian physicians were yet the leader of academic education of medicine and compilation of reference books. Teaching place of Avicenna remains yet up to now as the oldest academy of teaching medicine which published many famous educational books (law in medicine) as this book had been a valid educational reference for physicians in the world for many centuries.

Teaching modern medicine in Iran didn't have any special organization before the establishment of Darolfonun School, and Avicenna's Law Book and Nafisi's Sharh Asbab were the accredited classic books. There was not any definite place for teaching medicine, and the students learnt natural wisdom (medicine, etc) after passing the initial requirements (reading courses of grammar and syntax, and divine wisdom in medical office of old famous physicians), and could practice the patients treatment as a physician after passing the initial requirements and acquiring brief information in medicine. It continued up to the reign of Nasereddin Shah and Amirkabir in which Dr. Kalouleh, the court physician, trained some persons, as ordered by the king, for promotion of medical education so that in 1887 Amirkabir allocated a part of king's palace for establishment of Darolfonun School, a part of which got ready in 1888. In 1911 Nasereddin Shah ordered the construction of the first hospital in Iran (Sina Hospital). It was opened in 1919 under the head of late Nazem Alateba then some other faculties were separated from Darolfonun School.

In 1918, School of Medicine was separated from Darolfonun and the late Loghmanoldoleh Adham was elected as the head since 1928, teaching medicine found more discipline and order in School of Medicine and was divided into the training courses of basic and clinical sciences. In 1934, University of Tehran establishment law was passed by the assembly, and each school was called Faculty one of which was Faculty of Medicine. After passing 100 years from establishment of the first school of medicine in Iran, 63 faculties of medicine in Iran undertake to educate the students of general medicine.

The graduates of this program will acquire the knowledge, art and skill of diagnosis, treatment and prevention of diseases by obtaining necessary knowledge in medical basic sciences and different branches of clinical sciences, practice in using these sciences in confronting the patients. In addition, it is necessary to acquire knowledge and skill, and also necessary social and professional growth for ascertaining qualification of medicine by conducted, purposeful and rethinking cooperation in professional interactions during the academic period especially during internship and clerkship.

Difference between M.D. & MBBS

MD and MBBS are both medical degrees that are intended for professionals of the medical field and yet, they are very different from one another with regards to many aspects. A MBBS is considered as a basic undergraduate degree which needs to be completed in order for a student to be qualified as a practicing physician or a doctor whereas a MD is more of a specialized Masters or a Postgraduate level degree that is obtained by individuals who wish to further specialize in the field.

A MBBS usually takes the time of about four and half years to be achieved whereas a MD only takes up the time period of two years to be completed. Also, MBBS is more of a general degree where every aspect and branch of medicine will be touched during its course whereas MD is more of a specialized degree where a student reading for one is required to specialize in a specific branch of medicine of his or her choice. Another factor which differentiates the two is that while a MBBS is more focused upon theory, a MD is more concentrated upon

practical training. However, for the completion of both the degrees, many universities and institutions require the submission of a thesis or a dissertation as mandatory.

However, in order to achieve a MD, one needs to first complete a MBBS. In fact, in order to qualify for any postgraduate or a Masters degree, one needs to first be in possession of a MBBS degree. Therefore, a MBBS serves as the most basic qualification for a medical professional to engage in higher studies or to practice as a doctor or a physician.

History and nature

The degree is currently awarded in institutions in Australia, Bahrain, Bangladesh, Barbados, Botswana, China, Egypt, Fiji, Gambia, Ghana, Guyana, Hong Kong, India, Iraq, Ireland, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malawi, Malaysia, Mauritius, Myanmar, Nepal, New Zealand, Nigeria, Pakistan, Papua New Guinea, Samoa, Saint Kitts and Nevis, Saudi Arabia, Sierra Leone, Singapore, South Africa, Sri Lanka, Sudan, Tanzania, Trinidad and Tobago, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Vanatu, Zambia and Zimbabwe.

Historically, Bachelor of Medicine was also the primary medical degree conferred by institutions in the United States and Canada, such as University of Pennsylvania, Harvard, University of Toronto, University of Maryland, and Columbia. Several early North American medical schools were (for the most part) founded by physicians and surgeons who had trained in England and Scotland. University medical education in England culminated with the Bachelor of Medicine qualification and in Scotland the Doctor of Medicine. In the mid-19th century the public bodies that regulated medical practice required practitioners in Scotland and England to hold the dual Bachelor of Medicine and Bachelor of Surgery degrees. Throughout the 19th century, North American medical schools switched to the tradition of the ancient universities of Scotland and began conferring Doctor of Medicine rather than Bachelor of Medicine. The first institution to make such a switch was King's College (now Columbia University) in New York City.

In the countries that award bachelor's degrees in medicine, however, Doctor of Medicine denotes a holder of a higher doctorate and is reserved for medical practitioners who undertake research and submit a thesis in the field of medicine. Nevertheless, those holding Bachelor of Medicine, Bachelor of Surgery are usually referred to by the courtesy title of "Doctor" and use the prefix "Dr.", whether or not they also hold a PhD or DSc. In theory the right to the use of the title "Doctor" is conferred on the medical graduate when he or she is registered as a medical practitioner by the relevant professional body, not by the possession of the MBBS degrees. The reason is found in a parallel tradition for those who are post-graduate specialists in Surgery; on acceptance into a College of Surgeons, they stop styling themselves "Doctor" and revert to "Mister" (Mr), "Miss", "Muz" (Ms.) or "Missus" (Mrs). This curious situation, where an elevation in professional rank is signified by dropping the title of Doctor, came about because historically a "surgeon" was an ordinary worker, usually a barber, not trained in medicine but performing dissections and surgery under the direction of a gowned academic who was the actual "doctor".

Despite their styling as two degrees, Bachelor of Medicine and Bachelor of Surgery are usually conferred together. At some institutions, such as Oxford and Cambridge, it was possible to be awarded the degrees in different years

In many countries, the degrees are awarded after an undergraduate course lasting five or six years. For example, most Chinese universities offering medical degrees provide undergraduate courses lasting six years. In some cases, a graduate in another discipline may subsequently enter a special graduate-entry medical course, reduced in duration to account for relevant material covered or learning skills acquired during the first degree. In some cases the old first-year courses (for six-year degrees) in the basic sciences of physics, chemistry and biology have been abolished: that standard has to be reached by school examinations before entry. However, in most countries a newly graduated Bachelor of Medicine and Surgery must spend a specified period in internship before they can obtain full registration as a licensed medical practitioner.

Recently, courses have been established in the Commonwealth country Australia that award the title MD.

The names and abbreviations given to these degrees depend on the institution, awarding body or country, and vary widely. This is mostly for reasons of tradition rather than to indicate any difference between the relative levels of the degrees. They are considered equivalent.

Below are described the specific names used, arranged by country.

Australia

Historically, Australian medical schools have followed the British tradition by conferring the degrees of Bachelor of Medicine and Bachelor of Surgery (MBBS) to its graduates whilst reserving the title of Doctor of Medicine (MD) for their research training degree, analogous to the PhD, or for their honorary doctorates. Although the majority of Australian MBBS degrees have been graduate programs since the 1990s, under the previous Australian Qualifications Framework (AQF) they remained categorised as Level 7 Bachelor's degrees together with other undergraduate programs.

The latest version of the AQF includes the new category of Level 9 Master's (Extended) degrees which permits the use of the term 'Doctor' in the styling of the degree title of relevant professional programs. As a result, some Australian medical schools have replaced their MBBS degrees with the MD to resolve the previous anomalous nomenclature. With the introduction of the Master's level MD, universities have also renamed their previous medical research doctorates. The University of Melbourne was the first to introduce the MD in 2011 as a basic medical degree, and has renamed its research degree to Doctor of Medical Science (DMedSc).

Bahrain

The Medical University of Bahrain or RCSI-Bahrain is a constituent university of the Royal College of Surgeons in Ireland (RCSI) and awards its graduates the MB BCh BAO, the same degree awarded to graduates at RCSI.

Bangladesh

All medical schools in Bangladesh award *MBBS*.

University	Degree	Previous degree	Duration	Level
University of Dhaka	MBBS	A- Level	6 years (incl. 1 year intern)	Undergraduate
BSMMU	MD, MS	MBBS	5 years	Postgraduate

China

In China, medical graduates are traditionally awarded a Bachelor of Medicine (BMED) for a course of study lasting five or six years. However, as of 2011, 49 universities (including its frequently top-ranked medical schools) have been authorised by the government to award the MBBS degree as an equivalent to the BMed. The 2014–15 list is not published by Ministry of Education. The universities listed in 2011 were:

- Anhui Medical University
- Shanxi University of Traditional Chinese Medicine
- Beihua University
- Capital Medical University
- Central South University
- China Medical University
- Chongqing Medical University
- Dalian Medical University
- Fudan University
- Fujian Medical University
- Guangxi Medical University
- Guangzhou Medical University
- Harbin Medical University
- Hebei Medical University
- Huazhong University of Science and Technology

Egypt

All Egyptian medical schools, public and private, award an *MB BCh* as the basic medical degree after completion of 6 academic years followed by a full year of obligatory clinical rotations.

Ghana

All Ghanaian medical schools award an MBChB as the basic medical degree after 6 academic years. These medical schools are Kwame Nkrumah University of Science and Technology, University of Ghana, University for Development Studies and University of Cape Coast.

Guyana

The University of Guyana awards *MB BS*. Other "offshore" United-States-linked schools in the country award the North American MD, such as Texila American University.

Hong Kong

The awarding of qualifications in Hong Kong follows the British tradition. The dual degree is awarded as:

- *MBBS* at The University of Hong Kong; and
- *MBChB* at The Chinese University of Hong Kong.

India

Medical colleges in India, accredited by the Medical Council of India, all title the degrees as *MBBS*. A medical college offers graduate degree Bachelor of Medicine and Bachelor of Surgery (MBBS). Only institutions offering MBBS course in its curriculum are referred to as a Medical Colleges. The college may teach Post Graduate as well as Paramedical courses. The admission to government MBBS programs is highly competitive because of high subsidy and extensive hands-on experience.

The MBBS course starts with the basic pre and para-clinical subjects such as biochemistry, physiology, anatomy, microbiology, pathology and pharmacology. The students simultaneously obtain hands-on training in the wards and out-patient departments, where they interact with real patients for five years. The curriculum aims to inculcate standard protocols of history taking, examination, differential diagnosis and complete patient Management. The student is taught to determine what investigations will be useful for a patient and what are the best treatment options. The curriculum also contains a thorough practical knowledge and practice of performing standard clinical procedures. The course also contains a 12-month-long internship, in which an intern is rotated across various specialties. Besides standard clinical care, one also gets a thorough experience of ward management, staff management, and thorough counselling skills.

The degree awarded is "Bachelor of Medicine and Bachelor of Surgery". The minimum requirements for the MBBS course are 50% marks in physics, chemistry, biology and English in the '10+2' examinations. For reserved category students, the requirement is 40%. MBBS admissions are not centralised. The admission requirements differ across universities. Generally, students who attain higher marks in the qualifying examinations and in the Medical Entrance examinations conducted by various agencies are accepted onto the MBBS course. The government is planning to come up with new medical colleges in 58 districts of India. The new colleges will add 5,800 more MBBS seats in the country.

Indonesia

In Indonesia, graduating students are awarded the degree of *S.Ked* (*Sarjana Kedokteran* / Bachelor of Medicine). At this point, the graduate is not yet a doctor, but he or she may choose to work directly as a scientist or other non-clinician professions (usually health-related). However, most S.Ked graduates will pursue the conventional path, which is to enroll in the clerkship program for another 1.5 up to 2 years.

Ireland

The medical schools in both the Republic of Ireland and Northern Ireland – Queen's University Belfast, the University of Dublin (Trinity College), some constituent institutions of the National University of Ireland (University College Dublin, University College Cork and National University of Ireland, Galway), and the Royal College of Surgeons in Ireland— award the degrees of *MB BCh BAO*. The letters *BAO* stand for *Baccalaureus in Arte Obstetricia* (Bachelor of Obstetrics), a degree unique to Ireland which the Irish universities added in the 19th century as the legislation at the time insisted on a final examination in obstetrics. This third degree is an anachronism which is not registerable with the Irish Medical Council nor the British General Medical Council (GMC). The only exception is the newly established University of Limerick graduate entry school of medicine which awards *BM BS* for Bachelor of Medicine and Bachelor of Surgery.

At the University of Dublin the preclinical course leads to an additional Bachelor of Arts (BA) degree (upgradable after three or four years to Master of Arts); as originally after this most students used to go elsewhere to complete clinical training.

LRCPI LRCSI, or simply *LRCP&SI*, denotes a holder of the historical non-university qualifying licentiates awarded jointly by the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland to students of the RCSI's medical school under the *Irish Conjoint Scheme*. Unlike the corresponding licentiates awarded by the Royal Colleges in Scotland and England (which were external qualifications), these qualifications are still registerable with the Irish Medical Council, but not with the British GMC. Students at RCSI still receive these licences but now also receive the degrees *MB BCh BAO*, due to RCSI's status as a recognised college of the National University of Ireland. The RCSI students received a Licence in Midwifery (LM) from each college, in the same way that the Irish universities granted BAO degrees, so their qualifications were sometimes expressed as *L & LM*, *RCPI, L & LM*, *RCSI* or more misleadingly as *LLM*, *RCP&SI*.

LAH formerly denoted a licentiate of the now-defunct Apothecaries' Hall of Ireland, and is no longer awarded.

Jordan

The *Bachelor of Medicine and Surgery (MBBS)* degree is awarded in Jordan by:

- Jordan University of Science and Technology
- University of Jordan
- Mutah University

- Hashemite University
- Yarmouk University
- Al Balqa Applied University

Kenya

The national universities with medical faculties in Kenya, namely University of Nairobi, Moi University, Kenyatta University, Egerton University, Maseno University and Kenya Methodist University award *MB ChB*.

Mount Kenya University and Egerton University also award the four-year BSc. Clinical Medicine degree in addition to the five-year MBChB.

Libya

There are three major public medical universities in Libya, University of Tripoli (Tripoli), University of Benghazi (formerly Garyounis) (Benghazi), and University of Alzaweyah. The schools award the MBChB.

The Libyan International Medical University is an accredited private medical university that awards an MBChB to its graduates.

Malaysia

The *MBBS* is awarded by five public and 14 private universities:

Public

Universiti Malaya (UM) – October 1949

- International Islamic University Malaysia (UIAM/IIUM) – May 1995
- Universiti Teknologi MARA (UiTM) – June 2003
- Universiti Sains Islam Malaysia (USIM) – July 2005
- Universiti Sultan Zainal Abidin (UniSZA) – July 2009
- Universiti Kebangsaan Malaysia (UKM)

Private

International Medical University (IMU) – February 1999

- Asian Institute of Medicine, Science & Technology (AIMST) University – May 2001
- Monash University Malaysia Campus – February 2007
- Universiti Kuala Lumpur (UniKL-RCMP) – July 2008
- Melaka Manipal Medical College (MMMC)
- Cyberjaya University College of Medical Sciences (CUCMS)
- Management & Science University – International Medical School (MSU-IMS)
- MAHSA University College
- Taylor's University College
- Newcastle University – Medicine Malaysia
- Universiti Tunku Abdul Rahman (UTAR)
- Masterskill University College of Health Sciences (MUCH)

- SEGI University College
- Insaniah University College
- Quest International University Perak
-

Mexico

In Mexico, the National Autonomous University of Mexico, the National Polytechnic Institute, the Metropolitan Autonomous University, among others, grant the title of "*Médico cirujano*" (Physician-surgeon) after five years of post-high school education, plus one year of internship and one year of social service.

Myanmar

All five medical schools (UM1, UM 2, DSMA, UMM, UMMG) in Myanmar award *MB BS*.

Nepal

There are 18 medical schools in Nepal that award the MBBS degree. Nepal Medical Council (NMC) is the regulatory board that gives recognition to medical institutions for providing formal studies in medical science and training.

Kathmandu University (KU) and affiliated colleges

Kathmandu University, School of Medical Sciences (KUSMS), Dhulikhel, Kavre

- Manipal College of Medical Sciences (MCOMS), Pokhara, Kaski
- College of Medical Sciences (CMS), Bharatpur, Chitwan
- Kathmandu Medical College (KMC), Sinamangal, Kathmandu
- Nepal Medical College (NMC), Jorpati, Kathmandu
- Nepalgunj Medical College (NGMC), Chisapani, Nepalgunj
- Lumbini Medical College (LMC), Tansen, Palpa
- Nobel Medical College, Biratnagar
- Birat Medical college, Biratnagar
- Devdaha Medical college, Rupendehi

Tribhuvan University (TU) and affiliated colleges

Tribhuvan University, Institute of Medicine (IOM), Maharajgunj, Kathmandu

- Nepalese Army Institute of Health Sciences, College of Medicine, Kathmandu
- Universal College of Medical Sciences (UCMS), Bhairawaha
- National Medical College, Birgunj
- Janaki Medical College, Janakpur
- KIST Medical College, Imadol, Lalitpur
- Chitwan Medical College (CMC), Bharatpur, Chitwan
- Gandaki Medical College (GMCTHRC), Pokhara, Kaski
- Mahendranagar Medical College, Mahendranagar, Kanchanpur
-

Medical schools not affiliated to universities or having their own board

B.P. Koirala Institute of Health Sciences (BPKIHS), Ghopla, Dharan

- Patan Academy of Health Sciences (PAHS)-School of Medicine, Patan, Lalitpur

National Academy of Medical Sciences (NAMS), Kathmandu is an NMC-recognized medical college that has post-graduate residency (MD/MS) training programs but does not award MBBS degree.

New Zealand

The two New Zealand medical schools, Auckland and Otago, style their degrees as "MBChB" and "MB ChB" respectively.

Pakistan

In Pakistan, a medical school is more often referred to as a medical college. A medical college is affiliated with a university as a department which usually has a separate campus. Currently, there is a total of 94 medical colleges in Pakistan, 39 of which are public and 55 private. All but two colleges are listed in International Medical Education Directory.

All medical colleges and universities are regulated by the respective provincial department of health. They, however, have to be recognised after meeting criteria set by a central regulatory authority called Pakistan Medical and Dental Council (PMDC). Entrance into the medical colleges is based on merit under the guidelines of PMDC. Both the academic performance at the HSC (grades 11–12) and an entrance test like MCAT are taken into consideration for the eligibility to enter most of the medical colleges.

Saudi Arabia

Medical schools in Saudi Arabia award the *MBBS*.

Singapore

The Yong Loo Lin School of Medicine at the National University of Singapore and the Lee Kong Chian School of Medicine at Nanyang Technological University confer *MB BS*. The American Duke University has a medical programme based in Singapore (Duke-NUS Graduate Medical School), but it follows the North American model of styling its degree *Doctor of Medicine (MD)* at master's degree level.

Somalia

Amoud University, Benadir University and Hargeisa University award the MB ChB, East Africa University awards MMBS.

South Africa

The University of Pretoria, University of Cape Town, University of the Free State, University of Stellenbosch, University of KwaZulu-Natal, Walter Sisulu University and MEDUNSA all award MBChB, whereas the University of the Witwatersrand styles its degree as MBBCh.

South Sudan

The University of Juba, University of Bahr El-Ghazal and Upper Nile University in South Sudan awards the MBBS degree after the successful completion of six academic years.

Sri Lanka

In 1942, the University of Ceylon was established through legislation and the MBBS degree was recognised for registration of doctors in place of the Licentiate in Medicine and Surgery (LMS).

Sudan

All Sudanese medical schools award the MBBS.

Syria

The higher education in Syria provides training to a Diploma, Bachelor, Master, and Doctorate levels (see European Education, Audiovisual and Culture Executive Agency on Higher Education: Syria).

Uganda

The five universities in Uganda that have medical schools that teach undergraduate courses, namely Makerere University, Mbarara University, Gulu University, Kampala International University and Busitema University, all award the *MBChB* degree, after five years of study.

United Kingdom

England, Wales and Northern Ireland

While first degrees in medicine typically meet the expectations of the descriptor for higher education qualification at "level 7 (the UK master's degree)", these degrees usually retain, for historical reasons, "Bachelor of Medicine, Bachelor of Surgery" and are abbreviated to *MBChB* or *MBBS*.

Varied abbreviations are used for these degrees in these areas:

- *MB ChB* is used at the universities of Birmingham, Bristol, Buckingham, Lancaster, Leeds, Leicester, Liverpool, Keele, Manchester, Sheffield, and Warwick.
- *MB BCh* is used by the Welsh universities, Cardiff University and Swansea University.
- *MB, BCh, BAO* is used at the Queen's University, Belfast.
- *MB BS* is used at all medical schools currently or previously part of the University of London (aka The United Hospitals) (Imperial College School of Medicine, UCL Medical School, King's College London School of Medicine, Barts and The London School of Medicine and St George's, University of London), Norwich Medical School, Hull York Medical School, and Newcastle University.
- *BM BCh* is awarded by the University of Oxford.
- *BM BS* is used at the University of Nottingham, Peninsula College of Medicine and Dentistry (Exeter Medical School and Plymouth University Peninsula Schools of Medicine and Dentistry), University of Southampton, and Brighton and Sussex Medical School

- *BM* was previously awarded at the University of Southampton. However, students starting after 2012 will be awarded MBBS. Although no degree in surgery was formally awarded by Southampton, this degree was equivalent to the MB ChB; students may go on to a career in surgery the same as any other graduates in medicine and surgery.
- *MB BChir* is awarded by the University of Cambridge.

At the universities of Oxford and Cambridge, the preclinical course leads to an additional Bachelor of Arts (*BA*), degree (upgradable after three or four years to Master of Arts), after which most students used to go elsewhere (but usually to one of the London teaching hospitals) to complete clinical training. They could then take the degrees of their new university: They used to have the options of returning to their old university to take the clinical examinations or taking one of the old non-university qualifying examinations. Most students at Oxford and Cambridge now remain in place to take their clinical training.

The Conjoint diplomas *LRCP MRCS LMSSA* were non-university qualifying examinations in medicine and surgery awarded jointly by the Royal College of Physicians of London, Royal College of Surgeons of England and Society of Apothecaries through the United Examining Board from 1994 until 1999, when the General Medical Council withdrew permission. Before 1994, the English Conjoint diploma of *LRCP, MRCS* was awarded for 110 years, and the *LMSSA* was a distinct and sometimes less-esteemed qualification. These diplomas slowly became less popular among British medical students, but as recently as 1938 only a half of them qualified with university degrees. The diplomas came to be taken mostly by those who had already qualified in medicine overseas.

Scotland

All medical schools in Scotland (Aberdeen, Dundee, Edinburgh and Glasgow) award *MB ChB*.

The University of St Andrews School of Medicine awarded *MB ChB* until the early 1970s, but since the incorporation of its clinical medical school into the University of Dundee, St Andrews now only awards a pre-clinical *BSc* or *BSc (Hons)*, and students go to a Partner Medical School (Aberdeen, Dundee, Edinburgh, Glasgow, or Manchester where they are awarded an *MB ChB* after a further three years' study).

The Scottish Triple Conjoint Diploma of *LRCPE, LRCSE, LRCPSG* (earlier *LRCPE, LRCSE, LRFPSG*) is an old non-university qualifying examination in medicine and surgery awarded jointly by the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh and Royal College of Physicians and Surgeons of Glasgow, previously through a Conjoint Board and from 1994 through the United Examining Board. These qualifications are still registrable with the GMC but permission to award them was withdrawn by the Privy Council of the UK in 1999.

United States

Wisconsin

The Wisconsin Medical Society defends the use of the MD title by physicians who graduated with an MBBS and are licensed to practice medicine in Wisconsin.

Vietnam

There are many medical schools in Vietnam, such Hanoi Medical University, the Vietnam University of Traditional Medicine, and the University of Ortondo-Stomatology. Most of them require six years to receive a Doctor of Medicine degree.

West Indies

All constituent countries of the University of the West Indies (UWI) confer *MB BS*, due to the historical affiliation of UWI to the University of London. The three physical campuses are Mona in Jamaica, St. Augustine in Trinidad and Tobago, Cave Hill in Barbados with each campus having a Medical Faculty. The University of Guyana (UG) also confers "MB BS" to their medical school graduates. There are other medical schools in the West Indies, but these follow the North-American system leading to *MD*.

Zambia

All schools in Zambia that award the MBChB degree:

Government sponsored medical schools:

- University of Zambia (UNZA)
- Copperbelt University (CBU)

Private sponsored medical schools:

- Cavendish University Zambia (CUZ)
- Lusaka Apex Medical University (LAMU)

Zimbabwe

The University of Zimbabwe College of Health Sciences awards the MBChB degree, while the National University of Science and Technology awards the MBBS degree.

Bachelor of Medicine, is usually awarded as general/ordinary degrees, not as honours degrees, and as such the graduate is not classified as for honours degrees in other subjects. However, at many institutions (for example the University of Aberdeen, University of Birmingham, University of Sheffield, University of Liverpool, University of Leicester and University of Manchester in England and the University of Dundee in Scotland) it is possible for the degrees to be awarded with Honours (i.e. MB ChB (Hons.)) or with Commendation, if the board of examiners recognises exceptional performance throughout the degree course. Very few of these are awarded.

More often, it is possible to study one subject for an extra year for an intercalated honours degree. This is usually a Bachelor of Science (BSc), Bachelor of Medical Science (BMedSci), Bachelor of Medical Biology (BMedBiol) or similar: at Oxford and Cambridge in England and Dublin in Ireland Bachelor of Arts degrees are awarded. At a few universities most medical students obtain an ordinary degree in science as well: when the University of Edinburgh had a six-year course, the third year was followed by the award of

an ordinary BSc(MedSci). In Australia, The University of Melbourne in Australia offers an Arts Degree (BA) to a medical student on the completion of two extra years of undergraduate study, and Monash University offers a Law degree (LLB); if the optional Law degree is undertaken, on completion of their degree the student may choose to do a one-year internship at a hospital and become a doctor, or spend one year doing articles to practise thereafter as a lawyer. At the University of Nottingham and the University of Southampton, both in England, all medical students on the five-year course obtain a Bachelor of Medical Sciences (BMedSci) degree without an extra intercalated year. At Imperial College London and University College London, certain medical students are able to extend their intercalated year to an extra three years, thus temporarily exiting the MBBS course to complete a PhD. Upon completion of the PhD, the student is required to sit the remaining 2 years of the medicine course to receive his/her MBBS degree. The University of the West Indies, Mona in Kingston, Jamaica automatically awards a Bachelor of Medical Sciences (BMedSci) degree to all students who have successfully completed three years of their MBBS programme.

Difference between M.D. & MBBS

MD and MBBS are both medical degrees that are intended for professionals of the medical field and yet, they are very different from one another with regards to many aspects. A MBBS is considered as a basic undergraduate degree which needs to be completed in order for a student to be qualified as a practicing physician or a doctor whereas a MD is more of a specialized Masters or a Postgraduate level degree that is obtained by individuals who wish to further specialize in the field.

A MBBS usually takes the time of about four and half years to be achieved whereas a MD only takes up the time period of two years to be completed. Also, MBBS is more of a general degree where every aspect and branch of medicine will be touched during its course whereas MD is more of a specialized degree where a student reading for one is required to specialize in a specific branch of medicine of his or her choice. Another factor which differentiates the two is that while a MBBS is more focused upon theory, a MD is more concentrated upon practical training. However, for the completion of both the degrees, many universities and institutions require the submission of a thesis or a dissertation as mandatory.

However, in order to achieve a MD, one needs to first complete a MBBS. In fact, in order to qualify for any postgraduate or a Masters degree, one needs to first be in possession of a MBBS degree. Therefore, a MBBS serves as the most basic qualification for a medical professional to engage in higher studies or to practice as a doctor or a physician.

Admission Conditions and Method

Acceptance will be based on educational documents for international applicants.

Job Position of Graduates

The graduates of this program can work in the following positions:

- Health and medical centers, private medical offices and hospitals;

- Health services organizations and institutes;
- Medical sciences educational and research centers;
-

Program Goals

Final goal of educational program of General Medicine is that the graduates of the program will be able to, by obtaining the expected capabilities, observe the professional ethics, take care of health of people, obtain the capability of information management and lifetime learning, and perform duties well in offering services in health system as the leading parties.

Professional Responsibilities of Graduates in Society

Professional duties of graduates of this field are as follow:

- Technical manager of private medical offices and authorized health services centers;
- Offering health services according to the regulations passed in Ministry of Health and Medical Education
- Offering the counselling and educating the health services to the individuals, society and target groups (by observing the special regulations for each target group)
- Partnership in all educational and research activities approved by the relevant authorities (Ministry of Health and Medical Education, or other authorized organizations employing general practitioners)
- Offering the expertise services for health issues if required, in scope of professional qualification of general practitioners
- Partnership in management processes of health

Expected Capabilities and Main Skills

Main bases of expected capabilities from the graduates of MBBS are as follows:

- 1- Communication skills;
- 2- Patient care taking (diagnosis and rehabilitation);
- 3- Health and prevention promotion in health system
- 4- Personal progress and regular learning;
- 5- Professional obligation, medical ethics and rights;
- 6- Decision making skills, reasoning and problem solving;
- 7-

Educational Strategies

This program was designed using the systematic planning strategy with regard to the competency- oriented so that it is possible to execute its different parts using one or more items of the following educational strategies in the universities:

- Student- and professor-oriented education;
- Community-oriented education;
- Subject- based education;
- Outpatient- based education;
- Problem- based education;
- Task- based education;
-

Educational Methods and Techniques

This program will enjoy the different educational methods and techniques according to the learning goals of each course, the faculty facilities and conditions.

This programs focuses on the proportion of methods and techniques with learning goals and fields, and therefore, any special method of technique wasn't discussed in the whole of national program. Accordingly, it is advised to, in using educational method or techniques, consider the existence of educational outcomes of each method or technique, its educational outcomes and also preparation of students and professors for suitable execution, also economic and executive issues of application of such methods. The necessary advices are presented in some cases on special method for some courses in syllabus. Also, in program standards, educational methods are explained for presentation of further program.

Examples of Types of Methods and Techniques Used

- Discussion in small groups, training workshops, journal club and book reading, case presentation;
- Working and educational rounds;
- Personal and group practice in clinical skills learning center (Skill Lab.);
- Blended Learning, using simulation techniques according to the facilities;
- Working in laboratory according to the facilities;
- Self- study;
- Other educational methods and techniques based on the educational needs and goals;
-

Ethical Expectations of Learners

The students of MBBS are expected to:

- Observe the care taking of patient, legal charter of patient .
- Observe the regulations of patient safety and security (compiled by the related educational department and presented to the learners);
- Observe moral codes of mother, embryo and infants carefully (presented to the learners by educational department);
- Observe the regulations of drug safety and security including chemical and non-chemical compounds carefully (compiled by the related educational department and presented to the learners);
- Observe the professional dress code
- Observe the regulations of working with laboratory animals Be committed to their professional affidavit;
- Protect the resources and equipment working with them under any condition;
- Honor other professors, personnel, fellows and learners, and cooperate in providing an honorable honest atmosphere in workplace;
- Observe considerations of social and professional ethics in criticism of programs;
- Observe the research ethics items in performing the related researches;

Evaluation of Learners

The faculty educational program committee undertakes the selection of evaluation method of learners based on the learning goals and conditions of each faculty. It is expected to choose and execute the evaluation methods in a way to ensure the reliability and validity of the method and the means used so that its application finally encourages deeper and regular learning in students. The evaluation methods in this program may include:

For theoretical courses: written exams, offering exercises in written report or lecturing, oral exams and computer interactive exam.

Practical and clinical courses: observation of clinical performance of the students during the program, objective structured clinical examination (OSCE), objective structured lab. Examination (OSLE), objective structured field examination (OSFE), directly observed procedural skills (DOPS), 360-degree evaluations, portfolio evaluation including logbook evaluation and such alike;

According to the educational goals in the field of professional behavior and ethics, it is necessary to include the evaluation of students' professional behaviors in learners' evaluation program compiled by each faculty of medicine.

Passing the general examinations of basic sciences and pre-internship is necessary for entrance of students to the next educational program, and passing in practical examination of clinical qualifications of late program for the graduation.

Specifications of Program and Courses of Educational Program of MBBS

General Specifications of Program

Program: Bachelor of Medicine, Bachelor of Surgery (MBBS)

General Specifications of Program

Total Educational Credits: 293 credits presented as follows:

- General Courses	7 Credits
- Obligatory Basic Courses	69.5 Credits
- Obligatory Specialized Courses	121.5 Credits
- Specialized Elective Courses	16 Credits
- Total	214 Credits

Steps

This program includes 3 steps: Basic Sciences, Clinical Preliminaries and Clerkship.

Obligatory Courses

The obligatory courses include the core curriculum learning of which is necessary for all MBBS students for meeting expected capabilities of general practitioners. Faculty of Medicine shall provide the conditions for ensuring the presentation of such courses and fulfillment of goals mentioned therein.

Obligatory courses of program are presented in 3 steps as follows:

- 1- The 1st Step (Basic Sciences):
 - General Courses: at least 8 credits out of 24 obligatory credits before general examination of basic sciences;

- Basic Courses: at least 46.5 credits out of 69.5 obligatory basic credits before general examination of basic sciences;
- Entering Clinical Preliminaries is subject to passing general examination of basic sciences;
- 2- The 2nd Step (Clinical Preliminaries):
 - Total Specialized Credits of Clinical Preliminaries: 29 credits;
 - Total Floating Credits between Basic Sciences and Clinical Preliminaries: 15 credits of basic courses;
- 3- The 3rd Step (Clerkship): minimum duration of clerkship is 21 months which may be divided into, according to the faculty program, 2 sections of Clerkship I (or student) and Clerkship II (or externship):
 - Total Theoretical Credits of Clerkship (Obligatory): 31 credits;
 - Total Clinical Clerkship Credits (Obligatory): 63 credits equal to 21 months;
 - Total Floating Theoretical Credits between Clinical Preliminaries and Clerkship (Obligatory): 7 credits of specialized courses;

At the end of 3rd step, students shall pass the general examination of pre-internship .

For participation in general pre-internship examination, students shall pass all general courses and all basic and specialized courses related to clinical preliminaries and clerkship.

Elective Courses

Elective courses include the non-core subjects of program providing this possibility for universities and students to present the content and opportunities of various learning as complement for helping meet the capabilities expected from the general practitioners according to the academic conditions, special needs of region and also interests of educational departments and students. Total specialized elective credits during this program are 16 credits:

Total Specialized Elective Credits to be Passed by Students before Pre-Internship Examination: 4 credits;

- A. Floating Courses between Basic Sciences and Clinical Preliminaries: equal to 15 credits of basic courses (specified in the table) may be presented in basic sciences or clinical preliminaries. They are not included in general examination of basic sciences. Therefore, passing them is not necessary for participation in general examination of basic sciences, and passing them is not subject to, unlike the clinical preliminaries, passing general examination of basic sciences;
- B. Floating Courses between Clinical Preliminaries or Clerkship: equal to 7 credits of specialized courses (specified in the table) may be presented in clinical preliminaries or clerkship;

Note: the content of educational programs may change during the program according to the regional health needs passed in the 62nd session of Higher Council of Medical Sciences Planning on Jan. 10, 2016 (notice No. D/500/415 dated May 1, 2016).

Table A: General Courses of Doctor of Medicine

No.	Course	Credit	Hours		
			Theo.	Prac.	Total
16	Persian Literature	3	51	-	51
18	Physical Education I	1	-	34	34
19	Physical Education II	1	-	34	34
20	History of Religions	2	34	-	34
		7	85	68	153

Table B: Specialized Courses of Educational Program of MBBS

Code	Course	Hours					Course Presentation	Type of Course
		Total (Credit)	Theo.	Prac.	Clerkship	Internship		
Anatomy Courses:		(15)314	196	118				
101	Introduction to Anatomy	46	38	8			Basic	Basic
102	Musculoskeletal Anatomy	50	30	20			Basic	Basic
103	Head and Neck Anatomy	37	20	17			Basic	Basic
104	Cardiovascular System Anatomy	33	17	16			Basic	Basic
105	Respiratory System Anatomy	16	8	8			Basic	Basic
106	Gastrointestinal System Anatomy	43	26	17			Basic	Basic
107	Endocrine Glands Anatomy	10	4	6			Basic	Basic
108	Nervous System Anatomy	39	25	14			Basic	Basic
109	Special Senses System Anatomy	18	14	4			Basic	Basic
110	Genitourinary System Anatomy	22	14	8			Basic	Basic
Physiology Courses:		(8)150	122	28				
111	Cell Physiology	14	14				Basic	Basic
112	Heart Physiology	10	8	2			Basic	Basic
113	Respiratory Physiology	14	10	4			Basic	Basic
114	Nerves & Special Senses Physiology	28	24	4			Basic	Basic
115	Blood Circulation Physiology	23	19	4			Basic	Basic
116	Gastrointestinal System Physiology	14	10	4			Basic	Basic
117	Hematology Physiology	7	5	2			Basic	Basic
118	Glands & Reproduction Physiology	24	20	4			Basic	Basic
119	Kidney Physiology	16	12	4			Basic	Basic
Medical Biochemistry Courses:		(5)100	70	30				
120	Molecular- Cellular Biochemistry	47	32	15			Basic	Basic
121	Discipline Biochemistry	37	22	15			Basic	Basic
122	Hormones Biochemistry	12	12				Basic	Basic
123	Kidney Biochemistry	4	4				Basic	Basic
124	Medical Genetics	(2)34	34				Basic/Clinical	Basic
125	General Principles of Nutrition	(2)34	34				Basic/Clinical	Basic
126	Biophysics	(2)38	30	8			Basic/Clinical	Basic
Microbiology and Parasitology Courses:		137 (7 credits)	101	36				
127	Medical Microbiology	61	41	20			Basic	Basic
128	Parasitology	40	28	12			Basic	Basic
129	Medical Mycology	19	15	4			Basic	Basic
130	Medical Virology	17	17				Basic	Basic
Immunology Courses:		(3) 55	47	8				

131	Medical Immunology	38	30	8			Basic/Clinical	Basic
132	Clinical Immunology	17	17				Clinical	Basic
Community Medicine and Health Sciences:		171 (9.5)	152	19				
133	Principles of Health Services	26	26				Basic	Basic
134	Principles of Epidemiology	34	34				Basic	Basic
135	Biostatistics	17	17				Clinical	Basic
136	Research Methodology and Evidence-Based Medicine	26	7	19			Clinical/ Clerkship	Basic
137	Common Contagious Diseases Epidemiology in Country	17	17				Clinical/ Clerkship	Basic
138	Common Non-Contagious Diseases Epidemiology in Country	17	17				Clinical/ Clerkship	Basic
139	Principles of Demography and Family Health	34	34				Clerkship	Specialized
140	Health Psychology	(2) 34	34				Basic/Clinical	Basic
Medical Ethics Courses:		(2) 68		68				
141	Medical Ethics I	17		17			Basic	Basic
142	Medical Ethics II	17		17			Basic	Basic
143	Medical Ethics III	17		17			Basic	Basic
144	Medical Ethics IV	17		17			Basic	Basic
Specialized English Language Courses:		(6) 102	102					
145	Specialized English Language I	51	51				Basic	Basic
146	Specialized English Language II	51	51				Basic	Basic
General Pathology Courses:		(3) 51	51					
147	Generalities of Pathology and Cell Injury	9	9				Basic/Clinical	Basic
148	Edema, Tissue Repair and Hemodynamic Disorders Pathology	10	10				Basic/Clinical	Basic
149	Human Body Immunity System Disorders Pathology	8	8				Basic/Clinical	Basic
150	Neoplasia Pathology	10	10				Basic/Clinical	Basic
151	Childhood Diseases & Genetic Disorders Pathology	8	8				Basic/Clinical	Basic
152	Environmental, nutritional and Infectious Diseases Pathology	6	6				Basic/Clinical	Basic
153	Practical Pathology	(1)34					Basic/Clinical	Basic
154	Clinical Pathology	(1)18	16				Clinical/ Clerkship	Specialized
Specialized Pathology Courses:		(4.7)92	68					
155	Cardiovascular System Pathology	8	6				Clinical	Specialized
156	Respiratory System Pathology	8	6				Clinical	Specialized
157	Kidney and Upper Urinary Tracts Pathology	8	6				Clinical	Specialized
158	Gastrointestinal System Pathology	12	8				Clinical	Specialized
159	Liver and Bile Tracts Pathology	8	6				Clinical	Specialized
160	Genital System, Lower Urinary Tract, and Breast Pathology	14	10				Clinical	Specialized
161	Hematology and Endocrinology Pathology	12	10				Clinical	Specialized
162	Skin, Bones, Soft Tissues and Joints Pathology	12	8				Clinical	Specialized
163	Central and Peripheral Nervous System Pathology	10	8				Clinical	Specialized

Medical Pharmacology Courses:		(4)68	68					
164	Basic Principles of Medical Pharmacology	17	17				Basic/Clinical	Basic
165	Cardiovascular & Pulmonary Drugs Pharmacology	10	10				Clinical/ Clerkship	Basic
166	Antimicrobial Drugs Pharmacology	10	10				Clinical/ Clerkship	Basic
167	Gastrointestinal System, Hematology and Rheumatology Drugs Pharmacology	10	10				Clinical/ Clerkship	Basic
168	Endocrine Drugs Pharmacology	9	9				Clinical/ Clerkship	Basic
169	Neurology Drugs Pharmacology	12	12				Clinical/ Clerkship	Basic
Medical History and Physical Examination:		(4)136	34		102			
170	Medical History and Physical Examination I	(1)17	17				Clinical	Specialized
171	Medical History and Physical Examination Clerkship I	(1)51			51		Clinical	Specialized
172	Medical History and Physical Examination II	(1)17	17				Clinical	Specialized
173	Medical History and Physical Examination Clerkship II	(1)51			51		Clinical	Specialized
Clinical Introduction to Diseases		(18)322	290	32				
174	Clinical Reasoning of Common Signs and Symptoms Approach	(0.5)8	8				Clinical	Specialized
175	Introduction to Cardiovascular Diseases	(2)36	32	4			Clinical	Specialized
176	Introduction to Respiratory System	(2)36	32	4			Clinical	Specialized
177	Introduction to Hematology	(2)36	32	4			Clinical	Specialized
178	Introduction to Gastrointestinal System and Hepatology	(2.1)40	36	4			Clinical	Specialized
179	Introduction to Endocrinology and Metabolic Diseases	(2)36	32	4			Clinical	Specialized
180	Introduction to Nephrology	(1.6)30	26	4			Clinical	Specialized
181	Introduction to Rheumatology	(1.6)30	26	4			Clinical	Specialized
182	Introduction to Pediatrics	(1)17	17				Clinical	Specialized
183	Introduction to Surgical Diseases	(1)19	15	4			Clinical	Specialized
184	Introduction to Nervous System	(0.5)9	9				Clinical	Specialized
185	Introduction to Psychiatrics	(0.5)8	8				Clinical	Specialized
186	Introduction to Infectious Diseases	(1)17	17				Clinical	Specialized
187	Traditional Medicine	(2)34	34				Clerkship	Specialized
188	Internal Medicine Clerkship	9			3 months (12weeks)		Clerkship	Specialized
189	Cardiovascular Diseases Clerkship	3			1 month (4 weeks)		Clerkship	Specialized
190	Pediatrics Clerkship	9			3 months (12weeks)		Clerkship	Specialized
191	Pediatrics I	(4)68	68				Clerkship	Specialized
192	Pediatrics II	(1)17	17				Clerkship	Specialized
193	General Surgery Clerkship	6			2 months (8 weeks)		Clerkship	Specialized
194	Surgical Diseases	(5)85	85				Clerkship	Specialized
195	Orthopedics Clerkship	3			1 month (4 weeks)		Clerkship	Specialized
196	Orthopedics (Theoretical)	(3)51	51				Clerkship	Specialized

197	Urology Clerkship	(1.5)			2 weeks		Clerkship	Specialized
198	Genitourinary Tract Diseases (Urology)	(1)17	17				Clerkship	Specialized
199	Anesthesiology Clerkship	(1.5)			2 months (8 weeks)		Clerkship	Specialized
200	Gynecology and Obstetrics Clerkship	(6)					Clerkship	Specialized
201								
202	Gynecology and Obstetrics	(4)68	68				Clerkship	Specialized
203	Community and Family Medicine Clerkship	(3)			1 month (4 weeks)		Clerkship	Specialized
204	Psychiatrics Clerkship	(3)			1 month (4 weeks)		Clerkship	Specialized
205	Psychiatrics	(1.5)26	26				Clerkship	Specialized
206	Emergency Medicine Clerkship	(1.5)			2 weeks		Clerkship	Specialized
207	Radiology Clerkship	(3)			1 month (4 weeks)		Clerkship	Specialized
208	Infectious Diseases Clerkship	(3)			1 month (4 weeks)		Clerkship	Specialized
209	Infectious Diseases	(2)34	34				Clerkship	Specialized
210	Neurology Clerkship	(3)			1 month (4 weeks)		Clerkship	Specialized
211	Neurology	(1.5)	25				Clerkship	Specialized
212	Dermatology Clerkship	(3)			1 month (4 weeks)		Clerkship	Specialized
213	Ophthalmology Clerkship	(1.5)			2 weeks		Clerkship	Specialized
214	ENT Clerkship	(3)			1 month (4 weeks)		Clerkship	Specialized
215	Medical Ethics	(2)34	34				Clerkship	Specialized
216	Forensic Medicine and Poisonings	(2)34	34				Clerkship	Specialized

Specialized courses are the specialized courses of MBBS with clinical nature, and specialized word doesn't mean learning the typical specialized field.

Table C: Some Elective Non-Core Specialized Courses in Educational Program of General Doctor of Medicine
(S= Specialized)

No.	Main Group	Course	Hours (Credit)				
			Total	Theo.	Prac./ Workshop	Clerkship	Type
1	Anatomy	Surgery Anatomy	(1)17	17			S
2	Physiology	Sport Physiology	(1)17	17			S
3	Biochemistry	Clinical Biochemistry	(1)17	17			S
4	Community Medicine	Health Management in Accidents	(2)34	34			S
5	Genetics	Clinical Genetics	(1)32	7	10	15	S
6	Nutrition	Nutrition in Diseases	(2)40	28	12		S
7	Immunology	Applied Immunology	(2)34	34			S
8	Pharmacology	Pharmacotherapy of Common Diseases (Therapeutics)	(2)34	34			S
9	Pharmacology	Prescription and Drugs Reasonable Prescription	(1)34		34		S
10	Clinical Groups	Principles of Physical Medicine and Rehabilitation	(1.5)	14	10	20	S
11	Clinical Groups	Patient Immunity	(2)34				S

Maximum of total credits of elective courses for each student from the beginning of program to the end of clerkship is 4 credits.

Educational departments of faculties can design and present the elective courses in basic sciences, clinical period or clerkship based on the university conditions and students' needs. Educational planning committee of school of medicine is responsible for determining the composition and hours of theoretical, practical- workshop and clerkship education depending on the subject, goals and content of course.

Elective courses suggested in table C are some examples of elective courses, and universities can add to this list some other courses according to the needs and discretion of educational planning committee of school of medicine, confirmed by secretariat of general medical education council.