

**PROGRAMME SPECIFICATION FOR THE FIVE-YEAR JOINT IMPERIAL/NTU
(LKC MEDICINE) MBBS DEGREE PROGRAMME – AY2022-23**

Programme Information	
Award(s)	MBBS
Programme Title	Medicine
Programme code	NA
Awarding Institution	Imperial College London (Imperial)/ Nanyang Technological University (NTU)
Teaching Institution	NTU
Faculty	Lee Kong Chain School of Medicine
Department	Medicine
Associateship	NA
Mode and Period of Study	5 academic years full-time
Cohort Entry Points	Annually in August
Relevant QAA Benchmark Statement(s) and/or other external reference points	- Degrees in Medicine - GMC Undergraduate Standards & Guidance (including “Tomorrow’s Doctors”) - Ministries of Education and Health, Singapore - Singapore Medical Council
Total Credits	Students who complete this programme will not be awarded credits.
FHEQ Level	Level 7
EHEA Level	1st cycle
External Accreditor(s)	Singapore Medical Council

Specification Details			
Student cohorts covered by specification	2022-23		
Person responsible for the specification	Prof Jennifer Cleland, Vice-Dean (Education)		
Date of introduction of programme	August 2013		
Date of programme specification/revision	June 2022		
Description of Programme Contents			
The programme content is designed around 3 primary domains that run throughout the programme: the scientific basis of medicine, clinical management and patient-centred care, and healthcare delivery and professional standards: <u>Primary Domain 1: Scientific Basis of Medicine (PD1)</u> This theme includes the basic sciences underpinning human structure and function in health and disease, scientific enquiry (the principles underlying research and evidence-based medicine) population health, social and behavioural science, pharmacology and technology in Medicine. <u>Primary Domain 2: Clinical Management and Patient-Centred Care (PD2)</u> An overarching theme throughout the course will be that of enhancing patient care through acquisition of clinical assessment skills, interpretation of clinical findings and clinical management. It includes shared decision-making and effective communication, including medical language/dialect skills (Malay, Mandarin and Hokkien, as appropriate). <u>Primary Domain 3: Healthcare Delivery and Professional Standards (PD3)</u> This theme will include ethics, law and professionalism, organisation of care, health service policy and organisation and professional development. The LKCMedicine curriculum themes and the Accreditation Council for Graduate Medical Education (ACGME) outcomes as well as the UK General Medical Council (GMC) outcomes are shown as follows:			
LKCMedicine Curriculum Themes	Scientific Basis of Medicine	Clinical Management and Patient-Centred Care	Healthcare Delivery and Professional Standards
GMC Outcomes	Doctor as Scientist and Scholar	Doctor as Practitioner	Doctor as Professional
ACGME Outcomes	Medical Knowledge	• Patient care • Interpersonal skills and communication	• Professionalism • Systems-based practice • Practice-based learning
Assessment Tools	SBA	OSCE	WBA

A curriculum overview documenting progression through the 5-year programme is shown in the Programme Structure section of this document.

MBBS Courses

Years 1 and 2 longitudinal courses:

Anatomy and Physiology
Pathology
Digital Health: Digital technologies in health and healthcare
Foundations of Clinical Practice (FCP)
Early Patient Contact (EPC)
Professionalism, Ethics, Law, Leadership & Safety (PELLS)
Public Health and Epidemiology (PH&E)
Pharmacology*
Scientific Enquiry and Evidence-based Medicine (SEEM)
Science Practical
Medical Humanities
Innovations in Medicine

**Year 2 only*

Year 1 students will also enrol in two NTU Interdisciplinary Collaborative Core courses, selecting from the list below:

Key Transferable Skills – 2-AU courses:*

- Communication in an Interdisciplinary World: A Journey of Inquiry through Writing and Speech
- Navigating the Digital World
- Ethics & Civics in a Multi-Cultural World
- Career and Entrepreneurial Development for the Future World

Grand Challenges – 3-AU courses:

- Science and Technology for Humanity
- Sustainability: Society, Economy and Environment
- Healthy Living and Wellbeing

Years 3 and 4:

During Years 3 and 4, students will undertake clinical postings in hospitals and polyclinics in a range of specialties. In between postings students will undertake one-week periods of structured learning known as campus teaching weeks.

In Year 3, both generic themes such as clinical skills topics and SEEM, and stream-specific themes would be taught. Additionally, the Student-Researcher Immersion Programme (SRIP) will be incorporated into the SEEM curriculum and SRIP prepares the students for the Scholarly project in Year 4. SRIP consists of 4 hours preparation, 2 sessions of 2 hours mentoring with the researcher and 8 hours for poster preparation and presentation, which will be spread over 8 weeks. Prior to clinical postings, the students will have 2 weeks of Integration and Front-Loading learning on campus, followed by 10 weeks of clinical training at the healthcare institutions.

The Year 3 postings consist of Medicine, Surgery (General Surgery, Urology and Orthopaedics), and short postings (Infectious Diseases, Anaesthetics, Dermatology and Venereology, ENT and Ophthalmology).

Year 4 students will begin the year with 6 weeks of Scholarly Project, followed by clinical postings in Paediatrics, Family Medicine, Rehabilitation Medicine, Palliative Medicine, Psychiatry, Obstetrics and Gynaecology, Geriatric Medicine, Emergency Medicine and Critical Care. These postings range from the minimum of 1 week to a maximum of 8 weeks.

Year 5:

To start off Year 5, students will undertake an overseas elective, a structured attachment/internship, or a research based scholarly project over a six week-block. Students will undertake a four-week student-selected specialty attachment (Selective) and there will also be postings in Integrated Care – Medicine and Integrated Care – Surgery. Following the final examinations, there will be a period of structured supervised internship, known as ‘Student Assistantship Programme’, which includes rotations in Medicine, Surgery and Family Medicine. During these rotations there will be robust in-course assessment of clinical competencies.

Learning Outcomes

A student graduating from the programme will be able to:

- Deliver high quality patient-centred care through competency in history taking and physical examination.
- Deliver high quality patient-centred care through interpretation of clinical findings and diagnosis of common and serious clinical presentations.
- Deliver high quality patient-centred care through implementation of effective management plans, including emergency management, procedural skills (diagnostic and therapeutic procedures) and safe drug prescribing.
- Demonstrate knowledge of the biomedical sciences, including the basic sciences, social, behavioural and population sciences, and apply this knowledge to medical practice.
- Demonstrate self-directed learning, the ability to apply findings from scientific literature to patient care, and the ability to educate others, both healthcare professionals and patients.
- Communicate effectively with patients, families, medical staff and other health professionals by spoken, written and electronic means and appreciate the importance of teamwork and shared decision making.
- Demonstrate appropriate professional behaviour, behave according to ethical and legal principles, and demonstrate sensitivity to the needs of a diverse patient population.
- Demonstrate an awareness of the wider responsibilities of doctors as leaders, managers and educators in all healthcare settings.

Programme Structure

The MBBS programme curriculum maps are given in the diagrams below.

MBBS Curriculum Overview

Primary Domain 1: Scientific Basis of Medicine

Primary Domain 2: Clinical Management and Patient-Centred Care

Primary Domain 3: Healthcare Delivery and Professional Standards

Year 1

Integrated science in a medical context 1

Year 2

Integrated science in a medical context 2

Year 3

Core clinical medicine in practice

Year 4

Medicine for all stages of life & in diverse settings

Year 5

Preparing for practice as a doctor

Years 1 and 2: Integrated Science in a Medical Context

Y1

Foundations of Medicine

Cardiorespiratory

Endocrine System

Renal & Urinary System

Musculoskeletal System

Skin

Exams

Y2

Gastrointestinal System

Blood & Lymphatic System

Infection

Nervous System

ENT

Visual System

Exams

Female Reproductive System

Child Development & Health

Mental Health

Ageing

Family Medicine & Community Health

Year 3: Core Clinical Medicine in Practice



Year 4: Medicine for All Stages of Life and in Diverse Settings



Year 5: Preparing for Practice as a Doctor



Entry Requirements	
Academic Requirement	Students with the following qualifications will be considered: 'A' levels, International Baccalaureate, NUS High School Diploma and Polytechnic Diploma, or international equivalent. Applicants should possess as a minimum: <i>Singapore-Cambridge GCE A-level Certificate</i> • H2 Pass in Chemistry and H2 Pass in either Biology or Physics • All H2 subjects and attempted General Paper (GP) or Knowledge & Inquiry (KI) must be taken at one sitting • Meet Mother Tongue Language (MTL) requirement. <i>International Baccalaureate Diploma</i> • Pass in HL Chemistry and Pass in either HL Biology or Physics • Fulfills MTL requirement. <i>National University of Singapore High School Diploma</i> • Major CAP of 2.0 in Chemistry and either Biology or Physics • CAP of 1.0 in one other major and in English Programme <i>Polytechnic Diploma</i> A good GPA in a relevant Health Science-related diploma
English Language Requirement	Applicants must meet NTU's standard English Language requirements .
Admissions Test	• BioMedical Admissions Test (BMAT)
Non-academic Requirements	• A Personal Statement • Screening and vaccination requirements as stipulated by the Ministry of Health, Singapore • Criminal record disclosure (NB. Possession of a criminal record does not automatically prevent a student from successfully entering medical studies, rather, as part of the application process, such information will be considered in the light of its relevance to the MBBS programme and the medical training students will undertake). • Applicants must be at least 18 years of age on or before the programme start date.

If a candidate fulfils the minimum entry requirements, his or her application will be passed to a selection panel, who will decide whether to offer an interview. Assessment is based on consideration of:

- Academic results
- BMAT scores

Applicants assessed as suitable will be invited for interview. The format of the interviews will involve multiple mini interviews (MMI).

The programme's competency standards document can be found in Annex A of this document.

Learning & Teaching Strategy

Scheduled Learning & Teaching Methods	• Team-based learning (TBL) • Anatomy and Science Practical sessions • Simulation • Communication skills training • Small group tutorials • Clinical learning
E-learning & Blended Learning Methods	• Voice Over PowerPoint (VOPPT) lectures • iBook materials • Videos
Placement Learning Methods	• Ward rounds • Supervised patient clerkings in teaching clinics, outpatient clinics and hospital wards • Small group tutorials • Theatre sessions

Assessment Strategy

Assessment Methods

- TBL quizzes and application exercises
- Written assignments
- Project reports
- Quizzes
- Work-place based assessments (on iFolio)
- Written Exams
- Multiple Choice Questionnaires
- Objective Structured Clinical Examinations (OSCEs)
- Anatomy Practical Tests (Year 1 and Year 2)

Academic Feedback Policy

Students will receive regular performance feedback through their house tutors, faculty and peer evaluations. Additional sources of feedback will include course leads and peers, with peer evaluation being a component of TBL in-course assessment. All students receive detailed feedback on exam performance via a diagnostic report.

The diagnostic report spells out a student's performance in the various sections of the test/examination relative to the cohort. Borderline students and those that do not achieve a satisfactory grade will be required to meet the Assistant Dean of the relevant year to review their performance and discuss strategies to improve their academic standing.

Workplace Based Assessments (WBAs) have an in-built feedback mechanism to ensure that students benefit maximally from the clinical educators' observation and comments. The WBAs are completed on iFolio.

During Years 3 to 5 there will also be the support of Core Tutors, allocated to supervise and mentor students in each posting. Core Tutors will take responsibility for discussing personal learning plans with students during each posting.

Timelines

Feedback on in-course assessments are normally provided within two to three weeks of submission.

Students receive the diagnostic reports for the Year 1 Formative Test, Years 2 to 5 Formative OSCEs and all summative examinations on the same day as their results, which is normally two weeks after the final paper.

Re-sit Policy

Students will be required to re-sit any failed examinations. Students who fail this re-sit will normally be permitted to repeat the year, provided they have not repeated a year earlier in the programme. A student who fails an examination after repeating the year will be required to withdraw from the programme. The student required to withdraw has the right to appeal to the LKCMedicine against the withdrawal decision but not against the results of any examination or academic assessment on which the decision may be based.

A candidate who enters or re-sits for any part of an examination shall be examined in accordance with the Regulations in force at the time of his/her sitting for the examination.

At the discretion of the LKCMedicine, special arrangements may be made for a candidate who is ill or otherwise disabled to take his/her examination. Applications under this regulation should be made to the LKCMedicine as early as possible after registration and supported by independent verification and/or documentary evidence. A student who informs the respective Assistant Dean of Year in writing of the withdrawal of his/her entry before the date for the commencement of the examinations as prescribed by the School on the grounds of illness or other adequate cause for which evidence must be provided may at the discretion of the Board of Examiners not be regarded as having made an entry or re-entry.

Years 3, 4 and 5 students who do not meet the learning outcomes or satisfactorily complete a posting to the standard outlined in the relevant course guide, will be expected to undergo a remediation programme offered by the School such that the necessary learning can be fulfilled. Once satisfactorily completed, remediation has no influence on the student's full participation in summative assessments, nor the marks awarded therewithin.

Mitigating Circumstances Policy

Candidates with mitigating circumstances will be considered according to the LKCMedicine Mitigating Circumstances Policy and Procedures. Students wishing to apply for consideration of mitigating circumstances must submit a formal request, with documentary evidence. Where mitigating circumstances are judged to be of sufficient severity to have substantially affected performance/attendance, the Board of Examiners may allow students who were absent from examination or attended but failed an examination to undertake a further examination attempt at the next opportunity as though it were a first uncapped attempt; provide students who did not complete the summative in-course assessment(s) or submitted but failed the summative in-course assessment(s) an extended assessment submission deadline; or allow them to re-submit the affected assessment(s).

Students may be barred from entry to the examinations if they have missed a substantial number of lessons, even with valid reasons for absence, as they are highly unlikely to be able to pass the examinations. Students who do not qualify for entry to the examinations may be requested to repeat or defer the year or withdraw from the programme.

Marking Scheme

The MBBS course is Pass/Fail.

Pass marks for each assessment are set using established standard setting methods appropriate to the assessment, including Borderline Regression, Ebel and Cohen's methods.

Candidates who have achieved a sufficient academic standard in all requirements of a particular year may be awarded a distinction or merit for that year. Distinctions will normally be awarded to the top 5% of students. Merits will normally be awarded to the subsequent 10% of students (based on their end of year final mark).

All Distinctions and Merits are awarded at the discretion of the Board of Examiners.

Rules of Progression

Year 1:

Year 1 students must pass the Year 1 Integrated Written Examination.

Year 2:

Year 2 students must pass the Year 2 Integrated Written Examination and Year 2 Objective Structured Clinical Examination

Year 3:

Year 3 students must pass the Year 3 Integrated Written Examination and Year 3 Objective Structured Clinical Examination.

Year 4:

Year 4 students must pass the Year 4 Integrated Written Examination, Year 4 Objective Structured Clinical Examination, and achieve satisfactory performance in the Scholarly Project.

Year 5:

Year 5 students must pass the Year 5 Written Examination, Year 5 Objective Structured Clinical Examination, and achieve satisfactory performance in the Student Assistantship Programme.

For the purpose of awarding Merits and Distinction summative assessments will be weighted as follows:

Year	Examination	Weight
Year 1 ¹	Integrated Written Examination	100%
Year 2	Integrated Written Examination	65%
	OSCE	35%
Year 3	Integrated Written Examination	50%
	OSCE	50%
Year 4	Scholarly Project	10%
	Integrated Written Examination	40%
	OSCE	50%
Year 5 ²	Integrated Written Examination	50%
	OSCE	50%

Supporting Information

Nanyang Technological University (NTU) was inaugurated on 1 July 1991, when its predecessor institution, the Nanyang Technological Institute (NTI) merged with the National Institute of Education (NIE). NTU has since grown to become a full-fledged, comprehensive and research-intensive global university, with over 32,500 undergraduate and postgraduate students in the various colleges of engineering, business, science, humanities, arts and social sciences.

Imperial College London is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a [Supplemental Charter and Statutes](#) was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of the College's Centenary, 8th July 2007, established the College as a University with the name and style of "The Imperial College of Science, Technology and Medicine". Imperial College London is regulated by the Higher Education Funding Council for England ([HEFCE](#)).

The Lee Kong Chian School of Medicine is a joint initiative between the Imperial College of Science, Technology and Medicine of the United Kingdom and Nanyang Technological University of Singapore. The School was established in 2010 to meet the expected rise in the healthcare demands of a growing and ageing Singapore population. It will augment Singapore's healthcare manpower by producing top-quality doctors and medical leaders who are attuned to the needs of patients and of the Singapore community. It will also introduce innovations to medical education here and provide more opportunities for Singaporeans to pursue a high-quality medical degree locally.

¹ Year 1 students must satisfactorily complete two NTU Interdisciplinary Collaborative Core courses.

² Year 5 students must achieve satisfactory performance in the Elective/structured attachment/internship/ Year 5 Project, Selective and the Student Assistantship Programme to meet graduation requirements.

LKCMedicine MBBS Competence Standards

Learning Outcome	Competence Standard
Deliver high quality patient-centred care through competency in history taking and physical examination	Ability to communicate clearly, sensitively, empathically, and effectively. Ability to perceive and comprehend verbal and written communication. Ability to obtain and synthesise information, by asking questions and reading notes and through observation of physical signs. Ability to observe, undertake the measurement of and accurately record data using appropriate equipment. Physical and manual dexterity to precisely perform fine practical procedures. Ability to safely perform physical activity. Able and willing to learn and subsequently perform the list of procedures in Annex A of the <i>Outcomes and Standards for Undergraduate Medical Education in Singapore, Recommendations of the National Medical Undergraduate Curriculum Committee 2014</i>, on male and female patients, as necessary. Emotional resilience and ability to respond appropriately in distressing clinical situations.
Deliver high quality patient-centred care through interpretation of clinical findings and diagnosis of common and serious clinical presentations	Ability to perceive, synthesise and apply information. Ability to prepare, process, and interpret data using appropriate techniques. Ability to form logical, reasonable conclusions and make sound recommendations based on available data.
Deliver high quality patient-centred care through implementation of effective management plans, including emergency management, procedural skills (diagnostic and therapeutic procedures) and safe drug prescribing	Ability to document proposals, seek out alternative procedures, devise practical and effective solutions and to evaluate their use. Ability to communicate, verbally and in writing, clearly, sensitively, empathically, and effectively. The basic arithmetical ability to recognise errors of magnitude.

Learning Outcome	Competence Standard
Demonstrate knowledge of the biomedical sciences, including the basic sciences, social, behavioural and population sciences, and apply this knowledge to medical practice	Ability to perceive and comprehend verbal and written communication. Ability to perceive, synthesise and apply information presented orally and in writing from a range of contexts including large- and small-group teaching. Ability to obtain necessary data from scientific and technical documents, reports, and other reference materials to document proposals or theories, seek out alternative procedures, devise practical and effective solutions and to evaluate their use. Ability to form logical, reasonable conclusions and make sound recommendations based on available data. Physical and psychological ability to cope with full-time study.
Demonstrate self-directed learning, the ability to apply findings from scientific literature to patient care, and the ability to educate others, both healthcare professionals and patients	Ability to study independently, in addition to attending lectures, seminars and workshops. Ability to obtain necessary data from scientific and technical documents, reports, and other reference materials to document proposals or theories, seek out alternative procedures, devise practical and effective solutions and to evaluate their use. Ability to undertake work with high level of initiative and commitment to the task in hand. Ability to recognise the limits of one's own competency and the confidence to ask for assistance when necessary. Ability to communicate, verbally and in writing, clearly, sensitively, empathically, and effectively. Ability to express ideas effectively, both orally and written, in a variety of settings including group work. Ability to present written technical reports to others, and to make oral presentations that are reasoned, logical and time-limited, to a variety of groups. Ability to write group or individual technical reports to a professional standard.

Learning Outcome	Competence Standard
Communicate effectively with patients, families, medical staff and other health professionals by spoken, written and electronic means and appreciate the importance of teamwork and shared decision making	Ability to communicate, verbally and in writing, clearly, sensitively, empathically, and effectively. Ability to perceive and comprehend verbal and written communication. Emotional resilience and ability to respond appropriately in distressing clinical situations. Ability to present written technical reports to others, and to make oral presentations that are reasoned, logical and time-limited, to a variety of groups. Ability to write group or individual technical reports to a professional standard. Ability to contribute fully in a range of roles both individually and as part of a team, recognise and respect the contributions of other team members to promote successful team work. Ability to recognise the limits of one's own competency and the confidence to ask for assistance when necessary.
Demonstrate appropriate professional behaviour, behave according to ethical and legal principles, and demonstrate sensitivity to the needs of a diverse patient population	Ability to understand and adhere to local and national ethical and legal guidelines and regulations. Ability to recognise the limits of one's own competency and the confidence to ask for assistance when necessary. Emotional resilience and ability to respond appropriately in distressing clinical situations.
Demonstrate an awareness of the wider responsibilities of doctors as leaders, managers and educators in all healthcare settings	Ability to undertake work with high level of initiative and commitment to the task in hand.