AMRITA

Health Sciences Prospectus

Keep Choosing to be Great,
Choose AMRITA!

"We all know that the real goal of education is not to create people who understand only the language of technology; the main purpose of education should be to impart a culture of the heart, a culture based on spiritual values."

SRI MATA AMRITANANDAMAYI DEVI
Chancellor
Amrita University

SRI MATA AMRITANANDAMAYI - The Guiding Light of Amrita University

A renowned humanitarian

leader and spiritual teacher, Sri Mata Amritanandamayi is the guiding light of Amrita University. Amma's concept of education, stress on research and commitment to instilling universal values have come together to shape Amrita University into an institution where the latest advancements and discoveries combine with compassion and service-mindedness. As Mata Amritanandamayi said in 2010 when the State University of New York honored her with an honorary Doctorate in Humane Letters: "It is Amma's prayer that we develop the expansive-mindedness to embrace both scientific knowledge and spiritual wisdom. We can no longer afford to see these two streams of knowledge as flowing in opposite directions. In truth, they complement one another. If we merge these streams, we will find that we are able to create a mighty river—a river whose waters can remove suffering and spread life to all of humanity."

Aside from serving as the Chancellor of Amrita University, Mata Amritanandamayi also runs the vast humanitarian mission known as the Mata Amritanandamayi Math, the headquarters of which is home to one of Amrita University's five campuses. A world-renowned institution, the Mata Amritanandamayi Math has built more than 45,000 homes for the homeless poor throughout India, is currently providing scholarships for more than 46,000 impoverished children, and has helped more than one lakh poverty-stricken women form self-help groups, and much more.

Mata Amritanandamayi is also a spiritual guide and teacher to millions throughout the world, giving people through her teachings and emotional support the strength to face the challenges of life with peace and mental equanimity. Her days are spent receiving thousands, placing men, women and children on her shoulder, addressing their concerns and instilling in them the confidence and inner strength to move forward in life. In this manner, more than 34 million people have come to Amma for her darshan.

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OUR MISSION

To provide value-based education and mould the character of the younger generation through a synthesis of science and spirituality, so that their earnest endeavour to achieve progress and prosperity in life is matched by an ardent desire to extend selfless service to the society, one complementing the other.

Welcome to

AMRITA UNIVERSITY

We are delighted that you are exploring the opportunities available at Amrita University (Amrita Vishwa Vidyapeetham), the river of knowledge with Her Holiness Sri Mata Amritanandamayi Devi as its fount. This river finds its course across five campuses, with 15 schools of excellence, offering more than 120 degree programs (Undergraduate, Postgraduate and Doctoral) with a strong contingent of 1750 faculty and 18,000 students. It is today a multi-disciplinary university in the real sense with path-breaking research in the areas of Engineering, Medicine, Management and Communication.

With the mission of offering value-based education in letter and spirit, the University designs the courses of study that are continuously reviewed and updated, keeping abreast with the advancements in the field. The Management is committed to creating and sustaining an ambience that is most conducive to learning and nurturing youth who are intellectually competent and socially committed.

Know Your University

Established	13 January, 2003
Number of Campuses	5 (Amritapuri, Bangalore, Coimbatore, Kochi and Mysore)
Number of Schools	15 in disciplines like medicine, biotechnology, engineering, business, arts & sciences, ayurveda, social work, communication
Accreditation	Amrita Vishwa Vidyapeetham was placed in the top category by the Ministry of Human Resource Development's Deemed University Review Committee. As such, it is considered as one among the ivy-league Indian Universities such as IISc, TIFR, NIMHANS and BITS. Amrita Vishwa Vidyapeetham has been accredited with an 'A' grade by NAAC, the statutory quality assurance agency of the Government of India. This is the best possible grade and all campuses and programmes were evaluated. The Amrita Health Sciences campus was given ISO 9002-2000, NABH and NABL accreditation. The Amrita Institute of Medical Sciences is the only university teaching hospital in India with NABH accreditation.
Total Land Area	900 Acres
Total Built-Up Space	8 million square feet (Largest among Private Universities in India)
STATISTICS	
Student Population	18,000
Number of Faculty	1,750
Number of Non-Teaching Staff	2,500
Number of Faculty Members with PhD/DM	600 (The largest number among private universities)
Faculty-Student Ratio	1 : 8 (Greater than prescribed national norms)
Number of Programs Offered	150
Number of Centres of Excellence	20 (2 TIFAC Centres in Biotechnology & Cyber Security)
Research Output by Faculty	200 books and 3500 publications in reputed international and national journals
Research Funding Rs.	250 crores

HIGHLIGHTS	
Amrita Institute of Medical Sciences, Kochi	1200 bed Super-Speciality hospital with 25 operating theatres, 210 intensive care beds, 60 departments and specialities, digitized radiology department, reference diagnostic clinical laboratory including advanced molecular biology and cytogenetics labs, state-of-the-art diagnostic imaging centre Annual patient turnover is approximately 800,000 outpatients, nearly 50,000 inpatients and 3000 daily patients Fully computerized and networked Hospital Information System which is being used by Government of Maharashtra for all government hospitals and medical colleges Telemedicine services to various remote locations in India and Africa
Indo-US Collaborations	Extensive tie-ups with over 20 US universities for research, centres of excellence, crosscontinental projects, distinguished lectures, collaborative programmes, faculty, student and research scholar exchange, internships etc Some of the US Universities involved are among the best in the world like Berkeley, Maryland, Princeton, Purdue, Harvard etc Over 500 distinguished lectures telecast through EDUSAT to 40 Indian Universities Twinning programme with State University of New York (SUNY) at Buffalo
Indo-European Collaborations	Erasmus Mundus exchange programme for Faculty, Research Scholar & Student exchange.100 faculty, researchers and students deputed to various universities in England, Ireland, Italy, Sweden, Finland, Bulgaria etc. Developed India's first wireless sensor shield for landslide and natural disaster detection as part of EU collaboration Twinning programmes with various universities like Vrije University, Amsterdam

A Student's Experience at AMRITA

"My life at AMRITA has etched such subtle memories that it has been difficult realize the impact during my actual process as a student during a four year course. I know, however, that years later I will reflect and cherish the opportunities I gained. At one of the most crucial and formative stages of my life, I consider myself most fortunate to be exposed to such a richly, multifaceted and educative influence. I know that I am evolving in a way that determines my future positively; our campus offers a diverse, dynamic platform for personality development.

AMRITA's world-class infrastructure furnishes us with highly equipped laboratories, very stable and well connected campus networks, a rich intranet digital library, a marvelous library with a large collection of books and journals, recreational facilities, a modern gymnasium, and tennis, badminton and basketball courts. As students, we take pride in the fact that we can effectively utilize these advantages for our optimum development.

As AMRITA residents, we have the good fortune to share life with a refined and diverse student population. It is common knowledge that the company we keep bears a great influence. A very crucial aspect of campus life is the ability to connect with other students and develop lasting friendships. This need is fulfilled because AMRITA's student population maintains a very positive energy and exerts a healthy influence on anyone who's a part of it. And our college boasts of a rich, multicultural and diverse intra-campus society, with students from many parts of the country in attendance.

In some cases, extracurricular activities have given me the opportunity to meet eminent personalities who visit the campus as honoured guests.

Life in our well-maintained hostels provides recreational facilities such as table tennis and chess, reading rooms and TV rooms which are part of every hostel on the campus. Hostel buildings are well constructed to ensure good ventilation and light in each room. I will fondly remember and value time spent with friends in the hostels, a unique experience that life at home could not extend.

AMRITA is an educational experience to look forward to for those joining, and a place to remember dearly, for those leaving. This unparalled experience leaves an indelible mark of joy and growth on any person who treads the AMRITA path."

What Others Say...

When all our sages, saints, Vedas and Puranas have discussed about "happiness and welfare everywhere", then the question comes "what can be the way towards that all-encompassing happiness?" Amma has showed us that way today.

—Sri Narendra Modi, Prime Minister of India

AMRITA UNIVERSITY has a major role to play in transforming our society into a knowledge society through its unique value-added education system.

—Dr. A.P.J. Abdul Kalam, Former President of India

As a young institution that is unburdened by history and full of bold ideas for the future, AMRITA has much to teach its older counterparts. Truly you are building a world-class university for the 21st century, and my UB colleagues and I are deeply impressed by the success you clearly already achieving.

— Dr. John B. Simpson, President, State University of New York, Buffalo

AMRITA UNIVERSITY has a vision that Amma created. It has various disciplines including a top medical college. Amrita wants to broaden the interactions between India and the United States, and I hope, in fact, that we can work with them in that capacity.

— Dr. Venkatesh Narayanamurthi , Dean of Engineering and Applied Sciences, Dean of Physical Sciences, Harvard University

When I look at what Amrita is, its mission, the hospitals, the various campuses, there is a close synergy between what Princeton wants to do and what AMRITA is doing. Our faculty will be interested in collaborative research with AMRITA for the possibility of working on a real life problem.
— Dr Maria Klawe, Dean of Engineering and Applied Sciences, Princeton University

It is extraordinary what AMRITA has been able to accomplish in its short history. To have developed in the space of only 15 years a first-class research institution with the highest accreditation rating from the national accrediting agency is remarkable. I know of no other institution in India with a comparable record of achievement.

— Dr Satish K. Tripathi, Provost, Academic Affairs
University at Buffalo, State University of New York (SUNNY)

This is not just another university, but a very high-quality, world-class university, focusing on technology and research, dealing with very concrete issues which have immediate applications.

— Sri Muhammad Yunus, Nobel Laureate

Board & Faculty

SWAMI AMRITASWARUPANANDA PURI
President, Amrita Vishwa Vidyapeetham
Vice Chairman, Mata Amritanandamayi Math

BRAHMACHARI ABHAYAMRITA CHAITANYA
Pro Chancellor , Amrita Vishwa Vidyapeetham

DR. P. VENKAT RANGAN
Vice Chancellor
Amrita Vishwa Vidyapeetham

In 2003, Amma appointed Dr. P. Venkat Rangan as the Vice Chancellor of Amrita Vishwa Vidyapeetham. Previously, Dr. Rangan founded and directed the Multimedia Laboratory and Internet & Wireless Networks (WiFi) Research at the University of California, San Diego, (UCSD) where he served as a Professor of Computer Science and Engineering for 16 years. He is an internationally recognized pioneer of research in Multimedia Systems and Internet E Commerce. In 1996, Dr. Rangan became one of the youngest faculty members to be awarded the Full Professor position at the University of California - just 7 years after his Ph.D. from U.C. Berkeley in 1989. Dr. Rangan has85 publications in International (mainly IEEE and ACM) Journals and Conferences, and also holds 24 US Patents.

Dr. Rangan has been awarded:

- Fellow of ACM (1998): youngest to achieve this international distinction
- NSF National Young Investigator Award (1993)
- The NCR Research Innovation Award (1991)
- The President of India Gold Medal (1984)

In addition to serving on numerous program committees and editorial boards, Dr. Rangan has been Program Chairman of ACM Multimedia '93: First International Conference on Multimedia, and also Editor-in-Chief of the ACM/Springer-Verlag journal: Multimedia Systems.

Dr. Rangan has also served as a member of multimedia expert panel of the US National Academy of Sciences/ROC Scientific Committee, a visiting scientist at Xerox Parc, Multimedia Technology Advisor to the Electronics Secretary of the Government of India; and Program Chairman, 1997 Indo-US Bilateral Conference on Multimedia.

In 1993, Dr. Rangan founded the first International Conference on Multimedia: ACM Multimedia 93, for which he was the Program Chairman. This is now the premier world-wide conference on multimedia. Dr. Rangan also founded the first International Journal on Multimedia: ACM/Springer-Verlag Multimedia Systems, which is now the premier journal on Multimedia. Several startup companies have emerged from Dr. Rangan's Multimedia Lab: these include: San Diego based Intervu (1995) and InnovaTV (1997), successful pioneers in Internet video streaming.

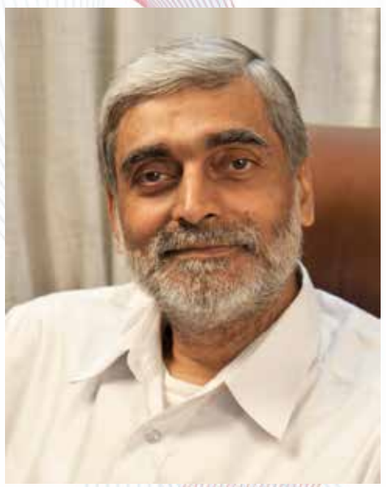
In 1999, Dr. Rangan took a two and a half year leave of absence from UCSD to found Yodlee, Inc.. He raised about $40 million for Yodlee from Sequoia Capital, Accel Partners, AOL, Bank of America, etc., invented online account aggregation, built Yodlee's business with major portals and banks, served as its President and CEO during the first two years, after which he hired a full management team to run Yodlee. Dr. Rangan continued to serve as Founder and Chairman of the Board of Yodlee till August 2002. Yodlee is now a multinational company with a 98% market share in online account aggregation with over 100 customers that include almost all of the top 10 portals and top 50 financial institutions of the world.

In July 2000, Internet World featured Dr. Rangan on its cover page and named him as one of the top 25 Stars of Internet Technologies.

Welcome to

Amrita Institute of Medical Sciences and Research Centre

Message From the Director



We have witnessed phenomenal growth in a short period of 16 years and today we are known the world over as a centre of excellence in healthcare, education and research.

Our 125 acre healthcare campus boasts of a vibrant mix of medicine, science and technology. By learning and applying the AIMS Model of Care, which integrates clinical practice, biomedical research and lifelong education, you will be well prepared to succeed in any medical practice setting, from private practice, to academic medicine, to global outreach healthcare. Our 670 strong faculty members, drawn from the best institutes across the world, continue to inspire young minds in developing a compassionate and holistic approach to healthcare delivery, not to mention the excellent support of our administrators, support staff and volunteers, all of whom lend their skills to the educational experience of our students.

Our goal is to give students an educational environment that is second to none. The colleges are the heart of the academic community where students can know and be known by faculty and staff where individual attention fosters intellectual, emotional and spiritual growth.

The most significant element in the establishment of AIMS is the compassion of Amma whose vision and constant encouragement were the inspiration to create this facility with the objective of relieving the suffering of individuals and their families who suffer with them. Amma's life of selfless service has helped so many, not only through curing physical illness, but also by bringing hope, clarity and peace of mind.

May Amma's Grace be continuously with us to help us sustain this growth and for attaining greater accomplishments.

Sincerely,

Dr. Prem Nair, Medical Director, Amrita Institute of Medical Sciences;
Operating Officer, Health Sciences Campus,
Amrita Vishwa Vidyapeetham

Introducing AIMS

India is the second most populous nation on earth. This means that India's health problems are the world's health problems. And by the numbers, these problems are staggering–41 million cases of diabetes, nearly half the world's blind population, and 60% of the world's incidences of heart disease. But behind the numbers are human beings, and we believe that every human being has a right to high-quality healthcare.

Since opening its doors in 1998, AIMS, our 1,300-bed tertiary care hospital in Kochi, Kerala, has provided more than 4 billion rupees worth of charitable medical care; more than 3 million patients received completely free treatment. AIMS offers sophisticated and compassionate care in a serene and beautiful atmosphere, and is recognized as one of the premier hospitals in South Asia. Our commitment to serving the poor has attracted a dedicated team of highly qualified medical professionals from around the world.

The Amrita Institute of Medical Sciences is the adjunct to the term "New Universalism" coined by the World Health Organization. This massive healthcare infrastructure with over 3,330,000 sq. ft. of built-up area spread over 125 acres of land, supports a daily patient volume of about 3000 outpatients with 95 percent inpatient occupancy. Annual patient turnover touches an incredible figure of almost 800,000 outpatients and nearly 50,000 inpatients. There are 12 superspecialty departments, 45 other departments, 4500 support staff and 670 faculty members.

With extensive facilities comprising 25 modern operating theatres, 210 equipped intensive-care beds, a fully computerized and networked Hospital Information System (HIS), a fully digital radiology department, 17 NABL accredited clinical laboratories and a 24/7 telemedicine service, AIMS offers a total and comprehensive healthcare solution comparable to the best hospitals in the world. The AIMS team comprises physicians, surgeons and other healthcare professionals of the highest caliber and experience.

AIMS features one of the most advanced hospital computer networks in India. The network supports more than 2000 computers and has computerised nearly every aspect of patient care including all patient information, lab testing and radiological imaging. A PET (Positron Emitting Tomography) CT scanner, the first of its kind in the state of Kerala and which is extremely useful for early detection of cancer, has been installed in AIMS and was inaugurated in July 2009 by Dr. A. P. J. Abdul Kalam, former President of India. The most recent addition is a 3 Tesla Silent MRI.

The educational institutions of Amrita Vishwa Vidya Peetham, a University established under section 3 of UGC Act 1956, has at its Health Sciences Campus in Kochi, the Amrita School of Medicine, the Amrita Centre for Nanosciences, the Amrita School of Dentistry, the Amrita College of Nursing, and the Amrita School of Pharmacy, committed to being centres of excellence providing value-based medical education, where the highest human qualities of compassion, dedication, purity and service are instilled in the youth. Amrita School of Ayurveda is located at Amritapuri, in the district of Kollam. Amrita University strives to help all students attain the competence and character to humbly serve humanity in accordance with the highest principles and standards of the healthcare profession.

Awards and Accreditations

- NABL Accredited Laboratories
- NABH Accredited Hospital Services
- ISO 9001:2008 Certified Services
- NAAC with "A Grade"
- National Excellence Healthcare Award for Best Hospital in the Country by FICCI (2013)
- British Medical Journal (BMJ) - India 2014 Health Care Award.
- National Surveys - India Today, Outlook, The Week etc: Always among **Top 25** out of around 400 Medical Colleges in the country & **10th** in India's most respected 30 medical colleges by Education World in June 2013

Departments (Broad Specialties)

PRE & PARA MEDICAL	MEDICAL
Anatomy	Anaesthesiology
Biochemistry	Dermatology
Community Medicine	Emergency Medicine
Forensic Medicine	General Medicine
Microbiology	Genetics
Pathology	Geriatrics
Pharmacology	Nuclear Medicine
Physiology	Paediatrics
SURGICAL	Psychiatry
ENT	Radiodiagnosis
General Surgery	Radiotherapy
Obstetrics & Gynecology	Respiratory Medicine
Ophthalmology	
Orthopaedics	

Departments (Super Specialties)

MEDICAL	SURGICAL
Cardiac Anaesthesia	CVTS
Cardiology	Gastrointestinal Surgery
Endocrinology	Gynaecological Oncology
Gastroenterology	Head & Neck Surgery
Medical Oncology	Neurosurgery
Nephrology	Paediatric Surgery
Neurology	Plastic Surgery
Paediatric Cardiology	Urology
Pulmonary Medicine	

Degrees & Programs in a Nutshell

ALLIED HEALTH SCIENCES

- BSc Medical Radiologic Technology (MRT)
- BSc Optometry (Lateral Entry)
- BSc Physician Assistant
- BSc Respiratory Therapy (RT)
- BSc Anaesthesia Technology
- BSc Cardiac Perfusion Technology (CPT)
- BSc Cardio Vascular Technology (CVT)
- BSc Diabetes Sciences
- BSc Dialysis Therapy
- BSc Echocardiography Technology
- BSc Emergency Medical Technology
- BSc Medical Laboratory Technology (MLT)
- BASLP Bachelor of Audiology & Speech Language Pathology
- BSc Neuro Electro Physiology
- BSc Optometry
- MSc Medical Laboratory Technology
  - a. Biochemistry
  - b. Pathology
  - c. Microbiology
- MSc Biostatistics
- MSc Neuro Electro Physiology
- MSc Respiratory Therapy (RT)
- MSc Swallowing Disorders & Therapy
- MPhil (Hospital Administration)
- PG Diploma in Medical Radiological Sciences
- MHA Master of Hospital Administration

MEDICINE

- MBBS
- MD Anaesthesiolgy
- MD Anatomy
- MD Biochemistry
- MD Community Medicine
- MD Dermatology
- MD Emergency Medicine
- MD Forensic Medicine
- MD General Medicine
- MD Geriatrics
- MD Microbiology
- MD Nuclear Medicine
- MD Paediatrics
- MD Pathology
- MD Physical Medicine & Rehabilitation
- MD Physiology
- MD Psychiatry
- MD Radio Diagnosis
- MD Radiotherapy
- MS General Surgery
- MS Obstetrics & Gynaecology
- MS Ophthalmology
- MS Orthopaedics
- MS Otorhinolaryngology
- DM Cardiac Anaesthesiology
- DM Cardiology
- DM Endocrinology
- DM Gastroenterology
- DM Medical Oncology
- DM Nephrology
- DM Neurology
- DM Paediatric Cardiology
- DM Pulmonary Medicine
- MCh Cardio Vascular Thoracic Surgery
- MCh Gastrointestinal Surgery
- MCh Head & Neck Surgery
- MCh Neurosurgery
- MCh Paediatric Surgery
- MCh Plastic Surgery
- MCh Urology
- PhD
- Diploma in Anaesthesia (DA)
- Diploma in Child Health (DCH)
- Diploma in Dermatology, Venerology & Leprosy (DDVL)
- Diploma in Obstetrics & Gynaecology (DGO)
- Diploma in Ophthalmology (DO)
- Diploma in Orthopaedics (DOrtho)
- Diploma in Otorhinolaryngology (DLO)
- Diploma in Physical Medicine & Rehabilitation
- Diploma in Psychiatry (DPM)
- Diploma in Radio Diagnosis (DMRD)
- Diploma in Radiotherapy (DMRT)
- Fellowship in Cardiac Anaesthesia
- Fellowship in Gynaec Oncology
- Fellowship in Neonatology
- Fellowship in Neuro Oncology & Cranial Base Surgery
- Fellowship in Surgical Oncology
- PDCC in Cardiac Anaesthesiology
- PDCC in Haematology
- PDCC in Hepatobiliary/Pancreatic & Sold Organ Transplant Anaesthesiology
- PDCC in Neuro & Ortho Anaesthesiology
- PDCC in Neuro Electro Physiology
- PDCC in Neuro Oncology
- PDCC in Neuro Spine
- PDCC in Uro Oncology
- PDCC in Vascular Surgery

DENTISTRY

- BDS
- Diploma in Dental Mechanics
- MDS Conservative Dentistry & Endodontics
- MDS Oral & Maxillofacial Surgery
- MDS Oral Medicine & Radiology
- MDS Oral Pathology & Microbiology
- MDS Orthodontics & Dentofacial Orthopaedics
- MDS Pedodontics & Preventive Dentistry
- MDS Periodontology
- MDS Prostodontics & Crown & Bridge
- MDS Public Health Dentistry
- PhD

NURSING

- BSc Nursing
- Post Basic BSc Nursing
- MSc Nursing (Medical, Surgical, Paediatric, Psychiatric, Obstetric & Gynaecology
- PhD

PHARMACY

- BPharm
- MPharm
- PharmD
- PharmD PB
- PhD

NANOSCIENCES

- MTech in Molecular Medicine
- MTech in Nanoscience & Technology
- MTech in Nanotechnology
- PhD

Student Facilities

The Health Sciences Campus of Amrita Vishwa Vidyapeetham is located at Kochi in Kerala. The campus, spread over 125 acres, is compact and yet not confined. Students will appreciate the convenience of havinag teaching rooms, lecture theatres and clinical skills laboratories so close to their accommodation. All important support and leisure facilities too, such as the library, communication suites, student clubs, and cafeterias are all located in and around the Medical School buildings.

Student life at AMRITA is more than just study. The Amrita Schools are an integral part of a vibrant University community that offers an array of intellectual, cultural and recreational opportunities. A tropical climate enhances a campus lifestyle that is comparatively informal.

All undergraduate programs of the Health Sciences Campus are 100% residential courses providing comfortable accommodation to all students. Accommodation is as per the respective council's requirements and each student is provided with a cot, a table, a chair, and a cupboard. Hot and cold water and laundry facilities are available in every hostel for use by the residents. Every student is provided with a personal code enabling him/her to maintain a credit account for telephone calls. However, the possession and use of mobile phones are strongly discouraged inside the campus. Each hostel has a common room with cable TV and newspapers where students can meet and keep abreast of the news. There is a full-time warden based at every hostel and a security guard is on duty 24 hours a day. AMRITA attaches great importance to the nature of lifestyle in the campus. Tobacco, in any form, and any other intoxicants are strictly prohibited.

Shops within the campus include a mini-supermart that sells confectioneries, fruits, stationery, toiletries etc. Tailoring facilities, hairdressers, photocopying and photo studio shops are within walking distances of the campus. The campus has a full fledged post office counter with Speed-Post facilities, round the clock STD/ISD telecom facilities, a bank with 24-hour ATM facilities, 24-hour taxi service, a 24-hour pharmacy, an ice-cream parlor, three cafeterias, a bookstall and optical shop.

Recreational facilities at AMRITA include basketball courts, football fields and an athletic track. All the hostels have their own gymnasiums and an outdoor volleyball court as well as indoor games like table tennis, chess and caroms.

Girl's Hostel

Boy's Hostel

LIBRARY

The library is a focal point of study in any educational institution. Should students feel the desire to burn the midnight oil, they can do so in the libraries of AIMS that remain open until 12 midnight. The library currently has a collection of around 12,681 books, 980 CD-ROMs and multi-media materials. They also subscribe to or receive approximately 258 print journals.

Apart from access to certain important electronic journals like the "The New England Journal of Medicine", "Heart" by BMJ etc. the hospital is now subscribing to the following databases:

UpToDate - an excellent tool for patient care which is based on Evidence based Medicine.

The Clinicalkey - A database of more than 500 electronic journals and more than 800 electronic books in various specialties. It also gives complete drug information, practice guidelines, multimedia and CME.

Access to these databases are IP authenticated which means they can be accessed from any computer in the campus that has an internet connection.

A digital library has been established recently with collections of e-books, dissertations, presentations and images. The datas are stored digitally and are made available to users through our intranet. There are 212 e-books in various specialities, 24 dissertations and 30 articles published by the faculty in various national and international journals. Internet access is available in the library and the hostels.

DINING

Pure vegetarian food prepared under hygienic conditions is served in the student dining halls and the canteens from a central kitchen. The food menus include Indian, Chinese and Continental fare.

PRAYER HALLS

AMRITA prides itself on being a welcoming place for students of all religious faiths and denominations. There are ample opportunities for spiritual growth through organized Satsangs, Yoga, Meditation, Seminars, Retreats and Service Projects. For the convenience of students belonging to different faiths, multi religious prayer halls have been inaugurated in the campus by Prof. K. V. Thomas, Union Minister of State for Agriculture.

Life as a student has its own stresses and strains, and sometimes the need may arise to confide in, open up to, or even seek guidance from someone. At AMRITA, a Gurukula system is operational wherein each student is designated a mentor/acharya to whom students can turn for help. Students are free to discuss their problems, whether they are of an academic or personal nature.

CULTURAL

Students at AMRITA are encouraged to join one of the many clubs functioning in the campus. The arts forms are well represented by music and drama societies that conduct regular intra-faculty competitions and inter-collegiate programs. There is a movie club that shows the latest in English, Hindi and Malayalam movies every Sunday in the air–conditioned Amriteshwari Hall. Those wanting to commune with nature can look forward to joining Green Friends, an initiative at AMRITA to promote the environment. Students who are interested in voluntary work within the local and wider community will be able to do so in various ways through societies and programs coordinated by monastics from the Math.

HEALTH SCIENCES

- UNDERGRADUATE
- POSTGRADUATE
- DOCTORAL STUDIES

Amrita School Of Medicine

Amrita School Of Dentistry

Amrita College Of Nursing

Amrita School Of Pharmacy

Amrita Centre For Allied Health Sciences

Amrita Centre For Nanosciences

Amrita School of MEDICINE

A commitment to the practice of medicine in its highest form is a lifelong commitment to humanity. Our resolve to be a Centre of Excellence both in medical training and in the practice of medicine will well prepare eager and talented young men and women to play a key role at the forefront of their chosen profession.

Amrita School of Medicine is founded on the highest principles, with an emphasis on service, compassion, charity and excellence through education. The blending of the vital ingredients of competence and compassion is an extension of the vision and inspiration of our founder, Sri Mata Amritanandamayi Devi, from whom we draw our strength and dedication and whose life exemplifies these high principles in every action. The nurturing of these values at the Amrita Health Sciences Campus complements a fine technical education by enhancing skills with a unique understanding and compassion for the patient. The faculty is dedicated to these sustaining values and has diligently worked on the curricula, techniques and methods that will be of the greatest help to the students.

Established in September 2002, the Amrita School of Medicine has already achieved great academic recognition from the students, community, and educational fraternity as an institution providing not only world-class training but also the right perspective on life. The present School tower comprises 12 storeys with a total floor area of 120,000 sq. ft. The hospital has an additional floor area of 1,100,000 sq.ft.

Incorporating state-of-the-art educational facilities that meet international standards, the Amrita School of Medicine is a fusion of the latest technology with core human values. The School of Medicine building houses laboratories, lecture halls and a well-furnished central library complete with an outstanding collection of the latest editions of international and Indian medical books and journals. It also provides for electronic access to many scientific and medical databases in India and abroad. An Anatomy Museum has been established with all the latest teaching devices and with elaborate models detailing the different parts of the human body.

The School offers various undergraduate and postgraduate programs like BSc, MSc, MD/MS/ PG Diploma, DM/MCh, etc., as well as a five-and-a-half year program in Medicine, including a year of internship, culminating in the award of an MBBS degree. The curriculum is based on the directives of the Medical Council of India.

The course involves both theory classes and practical sessions. Clinical exposure begins in the second year with classes conducted by clinical specialists emphasizing the relevance of the basic sciences to clinical practices. Hospital postings and field visits to public health centres aim at exposing the candidate to different scenarios in which doctors in India might find themselves, and how to go about providing the best care in all the circumstances.

PRECLINICAL SCIENCES

Anatomy

Anatomy is a dynamic science, which is fundamental to clinical practice. It is of paramount importance to have clear knowledge of the structure of the normal human body and the possible variations from the developmental point of view. At the undergraduate level, the department is occupied in teaching Medical, Dental, Nursing and Pharmacy students in addition to postgraduate students of pre-clinical, para-clinical and clinical subjects. The department facilitates cadaveric dissection exercises for surgical skills development of various clinical procedures for departments like E.N.T, Orthopaedics, Neurosurgery, Plastic Surgery, etc.

PROGRAM

- **MD Anatomy**

Biochemistry

Biochemistry is the language of life, the science concerned with the chemical constituents of living cells. Biochemistry encompasses the study of cell biology, molecular biology, and molecular genetics. The aim of biochemistry is to explain, in molecular terms, all the chemical processes of living cells. Biochemistry has become an essential subject in medical science for understanding the concept of mechanisms for the maintenance of normal health. The Department conducts a MSc MLT course and PhD programs. The faculty members are involved in many research projects funded by external agencies.

The tools for research in all branches of medical science are mainly biochemical in nature. The study of biochemistry is essential to understand the basic functions of the body. This study will give information regarding the functioning of cells at the molecular level.

PROGRAM

- **MD Biochemistry**

Community Medicine

The Department of Community Medicine provides an innovative, rural based, primary health care oriented medical education. Value based medical education, using a student friendly, need oriented and evidence based curriculum has been formulated. This field trains doctors to be competent to function as care providers, decision makers, communicators, community leaders, and managers. These doctors will function in the community to uplift the health of the people. The department provides cost effective primary health care and health promotion and delivery strategies characterized by equity, intersectoral coordination and community participation.

PROGRAM

- **MD Community Medicine**

Forensic Medicine

Forensic Medicine deals with the application of medical knowledge for the purpose of law. The students will learn how to handle cases of injury, poisoning, sexual assault, medico-legal autopsies and so on, document the findings, issue certificates and tender evidence in courts of law. The department has a Poison Control Centre functioning under Analytical Toxicology.

PROGRAM

- **MD Forensic Medicine**

Microbiology

Medical Microbiology is the study of micro-organisms that cause infectious disease in humans. A thorough understanding of this subject is essential for the student to understand the natural history of infectious diseases through etiopathogenesis and laboratory diagnosis, thus complementing the treatment and control of infections in the community as well as in the hospital.

Modern teaching aids and methods are used to make learning easier and more interesting for the students.

PROGRAMS

- **MD Microbiology**
- **MSc in Medical Laboratory Technology**

Pathology

Pathology deals with abnormal changes caused by disease. The Department of Pathology supports the clinical services of the physicians at AIMS. The Department offers full diagnostic services in all areas of pathology. There is a focus on oncology, pulmonary, soft tissue, orthopaedic, endocrine, and cytologic pathology.

The Department`s partnership with the transplantation surgery program translates pathology research into intellectual advances in transplantation. The department operates an advanced immunohisto chemistry laboratory for diagnostic application of research techniques. The haematology laboratory is equipped with the latest instruments that combine optical light scatter and impedance technologies. The Molecular Biology Laboratory undertakes specialised investigations such as PCR based analysis and HLA typing.

PROGRAMS

- **BSc in Medical Laboratory Technology**
- **MSc in Medical Laboratory Technology**

In the first year the students rotate through the Biochemistry, Pathology and Microbiology laboratories. There are didactic lectures, regular practical and demonstration classes; but emphasis is on hands-on training in the respective fields. The second year is devoted to specialisation in any one of the laboratories (Biochemistry, Pathology or Microbiology). There are group discussions and seminars with an introduction to bio-statistics and research methodology. Most of the time is devoted to hands-on training in advanced laboratory techniques, including automated versions. Further there is a six month internship, where students

do dissertation work in a field of interest. Throughout the whole course, students are in the clinical laboratories which also includes night duty.

PROGRAMS

- **MD Pathology**
- **Diploma in Clinical Pathology**

Pharmacology

Pharmacology is the detailed scientific study of drugs, particularly their actions (beneficial and harmful) on living animals and man at the organs' cellular and molecular levels. The main objective is to optimise drug therapy. The department has set the following goals for the medical students:

- Assimilate the concept of "Rational Drug Therapy"
- Practice "Rational Use of Drugs"
- Develop good prescribing skills
- Understand the essence of "Essential Drug Concept" and be competent to make/modify the essential drug list.
- Imbibe "Medical Ethics" and uphold the principles in patient care, drug development and research.

Physiology

Physiology is a basic medical science which deals with functions of the human body. The Department of Physiology includes four well-equipped laboratories for undergraduate teaching and for PG students. The haematology laboratory consists of modern binocular and monocular compound microscopes. The large extension Kymograph and its accessories are a special feature of the mammalian lab. It also has a Dales bath for recording intestinal movements. The clinical laboratory possesses a number of excellent static and working models of human systems including a unique seven feet tall wooden model of the human nervous system. The Research Laboratory is also provided with four single channel physiographs and two multi-channel polygraphs to record biological activities. Moreover, the departmental library has an excellent collection of the latest textbooks in physiology and allied subjects. The regular journal club and review article presentations for faculty help to update recent advances on the subject.

PROGRAM

- **MD Physiology**
-

CLINICAL SCIENCES

Department Of Medicine

Cardiology–Adult & Paediatric

The Department comprises the adult and paediatric divisions for medical and surgical services. The Cardiology Department has set the benchmark for cardiovascular care in South India. Approximately 10,000 new patients are treated annually.

The paediatric cardiac program is now among the largest in India in terms of number of patients undergoing surgical and non–surgical treatment of congenital heart disease. The program caters to patient referrals from all over India in increasing numbers. Children from Uganda, Tanzania, Ethiopia, Middle East, and from neighbouring countries such as Maldives, Bangladesh and Mauritius have also benefited from the program. Over 3000 new children with heart disease visit the Paediatric Cardiology clinic annually.

PROGRAMS

- **DM In Cardiology**
- **DM In Paediatric Cardiology**

Centre For Digital Health

In an effort to impart state of the art healthcare education to learners at all levels, AIMS has established a Centre for Digital Health (CDH), which is a centre of excellence for the provision of multidisciplinary medical education of an international standard. It focuses on improving patient care at the bedside by a judicious combination of enhancing basic and advanced clinical skills, procedural aptitude, development of electronic medical records and the use of point-of-care decision support modalities. These facilities will be made available not only to the students and faculty at AIMS but also to trainees and physicians from elsewhere in India and abroad. The two primary components of CDH are the Institute of Medical Informatics and Multimedia Education (IMIME) and the Department of Telemedicine.

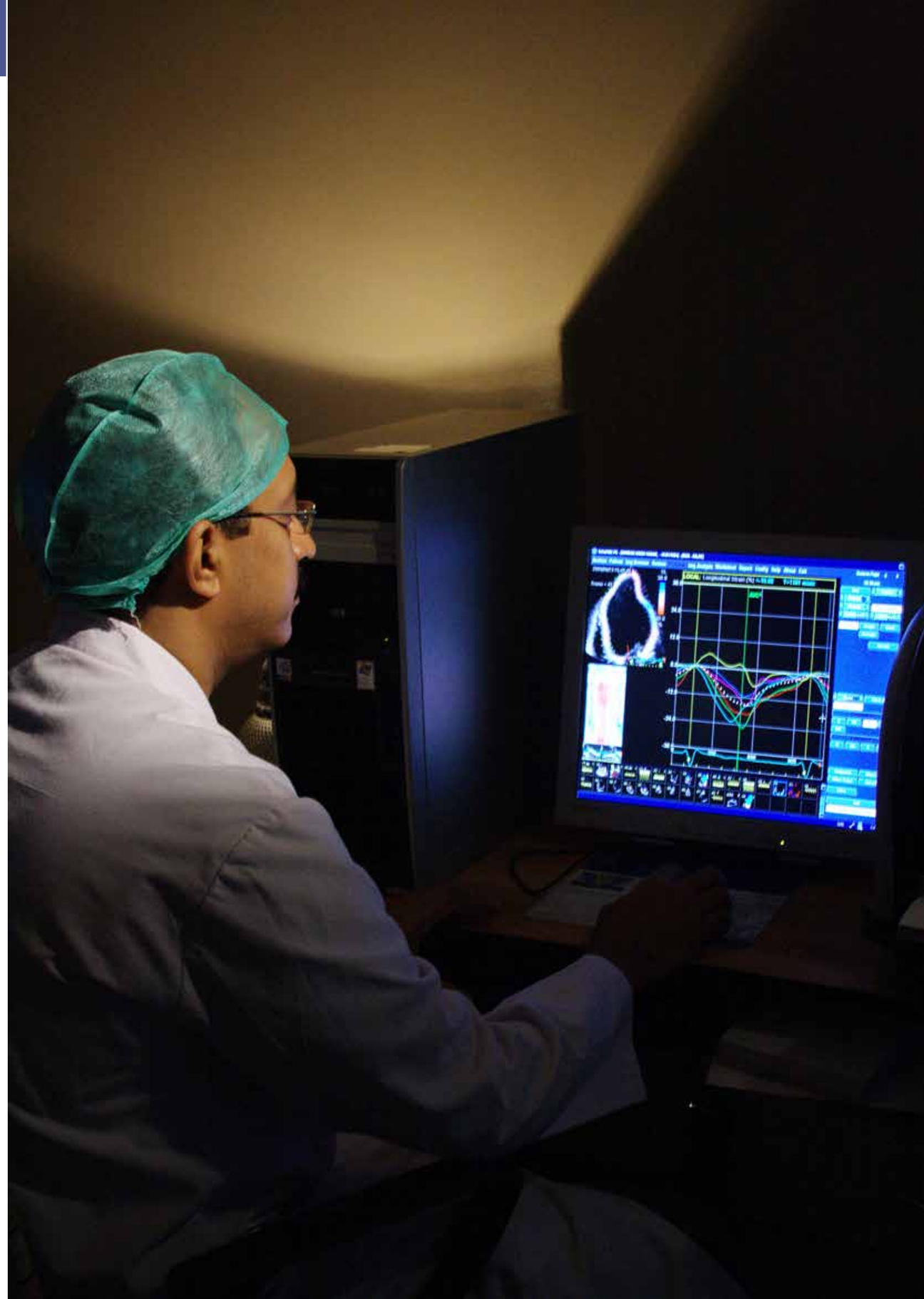
Centre for Digital Health (CDH) includes:

- Division of Informatics
- Division of Medical Multimedia
- Center for Advanced Surgical Education (CASE)
- Learning Resource Center (LRC)
- Research and Technology Assessment Unit
- Division of Continuing Medical Education and International Programs
- e-Learning Centre
- Clinical Practice Unit
- Virtual Reality Lab

The Department of Telemedicine at AIMS is one of the most active amongst such departments in the country, providing clinical consultations and facilitating educational interactions between AIMS and other Indian as well as international centres.

Endocrinology & Diabetology

The Endocrinology Department



at AIMS is the only one of its kind in the state of Kerala. The department provides full facilities for investigation and treatment of endocrine problems in adult, paediatric, and adolescent patients (including in–house hormone assays) and all complications of diabetes.

The Endocrinology Department consists of a dedicated and well–qualified team of healthcare professionals comprised of consultant endocrinologists, an endocrinology specialist, a diabetic foot surgeon, diabetic educators, a physiotherapist, a psychologist, podiatry assistants, a medical social worker, a dietician, and other support nursing, administrative and research staff.

PROGRAM

- **DM Endocrinology**

Gastroenterology

This Department has facilities for the early detection, diagnosis, and treatment of complex gastrointestinal, liver, gallbladder, and pancreatic diseases. The core units of the Institute are the Department of Gastroenterology and Hepatology and the Gastrointestinal Surgery Department. The departments of Imaging, Interventional Radiology, Nuclear Medicine, Oncology and Lab Services also work closely with the Digestive Diseases group.

The Department of Gastroenterology is comprised of the following services and areas of speciality:

- Gastroenterology/Hepatology
- Liver Centre
- Centre for biliary and pancreatic disorders
- Centre for luminal disorders
- Diagnostic and therapeutic endoscopy and ERCP
- Centre for swallowing and oesophageal disorders
- Gastrointestinal haemostasis
- Cancer detection and palliation unit
- Paediatric gastroenterology
- Intensive care services
- Tele-medicine and tele-education services

PROGRAM

- **DM Gastroenterology**

General Medicine

The Department of Internal Medicine at the Amrita School of Medicine is one of the premier departments of the Institution, bringing together an elite cadre of clinicians, investigators and educators in one of the world's top medical schools. The Department has 35 full-time faculty members and is embedded in a remarkable basic science environment at the Health Science Campus at AMRITA, Kochi with a collaborative culture that affords numerous opportunities for interdisciplinary and translational research.

PROGRAM

- **MD General Medicine**

Geriatric Medicine

The expectancy of life has increased significantly in the last few decades. The trend is likely to persist in the coming years, and expectancy of life at birth may well surpass 80 years in most countries of the world, including India. Our society is rapidly undergoing change. Increasingly, women, who are the traditional caregivers for the elderly, are taking to work. Many in the working generation leave the state in search of jobs. So we are faced with a situation where in the elderly are increasing in numbers and living longer while the number of care givers are rapidly decreasing. This is reflected by a rapid increase in old age homes.

The old age homes for the most part do not offer anything by the way of healthcare maintenance. The problem is compounded by the lack of adequate insurance coverage for the elderly. To meet this acute need of comprehensive geriatric assessment, AIMS hosts a separate Geriatric Department with a team of healthcare personnel—geriatrician, geriatric nurses, medical social workers, geriatric physiotherapists, occupational therapist, speech therapist, nutritionist etc. This is the first of its kind in India which started functioning in January 2001. The benefit for the comprehensive geriatric consultation is that the patient can meet all the team members at the same time during their visit. Geriatric medical care differs from usual medical practice because the focus is on preservation of function and improving the quality of life rather than on investigating, diagnosing, treating and curing specific diseases. This means that the Geriatrician must deal with the patient's social and psychological problems as well as his/ her medical problems and also frequently work with the family or caregivers who are assisting the older person.

PROGRAM

- **MD Geriatrics**

Medical Oncology

Medical Oncology provides medical expertise for multidisciplinary programs for the treatment and prevention of solid tumours and haematological neoplasms in adults and children. Both solid tumours and haematological malignancies are managed in the Centre. Facilities are available to undertake outpatient chemotherapies in a specialized day care unit. Specialized methods of administering chemotherapy include the use of catheters and chemo ports. In addition to routine chemotherapies, autologous and allogeneic bone marrow transplantation services will be available in the near future. Management of all haematological problems are also provided.

PROGRAMS

- **Fellowship in Paediatric Oncology**
- **Fellowship in Clinical Haematology**
- **Fellowship in Transfusion Medicine**
- **DM Medical Oncology**

Nephrology

The Nephrology Department provides comprehensive health care for patients with different types of renal (kidney) diseases. Acute and chronic renal diseases and renal problems due to diabetes mellitus, hypertension, stone disease, infections, hereditary illnesses and poisons are diagnosed and managed. The Nephrology Department also works closely with the AIMS Solid Organ Transplant Program.

PROGRAM

- **BSc in Dialysis Therapy**

The course is run by the Department of Nephrology, along with assistance from various other departments and specialities.

During the course, the candidates are taught:

- The relevant medical aspects of patients with kidney failure
- The technique of dialysis
- Functioning and maintenance of dialysis machines
- Patient care during dialysis

Candidates undergo practical training in the hospital and would have to stay in the hospital premises. The working hours would be decided by the department. The degree certificate would be issued only after successful completion of internship.

PROGRAM

- **DM Nephrology**

Neurology

The Department of Neurology provides care to patients with diseases of the brain, spinal cord, peripheral nervous system, and muscle–related diseases and conditions utilising state–of–the–art technology and a world–class medical team. It includes the following disciplines:

- Clinical Psychology
- Cerebrovascular Diseases (Stroke) Centre
- Epilepsy Centre
- Headache Service
- Movement Disorders and Gait Service
- Neuromuscular Service
- Comprehensive Neuro Rehabilitation
- Clinical Neurophysiology Laboratory
- Speech Therapy
- Sleep Medicine
- Paediatric Neurology

Formally trained and experienced specialists are available for consultation and management of neuro behavioural and memory disorders, neuromuscular diseases, cerebrovascular disease, movement disorders, seizure disorders, headache, paediatric neurology and sleep disorders.

The Neurology Department provides:

- Compassionate, tertiary level, state–of–the–art medical care to patients with neurological diseases
- Comprehensive investigations of neurological disorders
- An environment conducive for basic and clinical research
- Training for neurological and rehabilitation doctors
- State–of–the–art diagnostic facilities
- Diagnostic services include:
- Non–invasive vascular testing
- Magnetic resonance spectroscopy
- Functional magnetic resonance imaging
- Cerebral angiograph
- Nerve conduction study
- Electromyography (EMG)
- Electroencephalography (EEG)
- Poly sonnography (sleep study)

These imaging services offer capability for digital storage and facilities for remote site access.

PROGRAM

- **MSc in Neuro Electro Physiology**

The course in Neuro Electro Physiology enables the students to assess the patient and plan various electro-diagnostic procedures and implement them. The candidate, thus trained is called a Neuro Technologist and is an integral part of the neurology team.

PROGRAM

- **DM Neurology**

Pain and Palliative Medicine

Pain and Palliative Medicine is one of the youngest branches of modern medicine. It is the active total care of persons suffering from advanced and non-responsive diseases as well as their families. It is concerned with quality of life, not only quantity, and addresses physical, psychological, social and spiritual aspects of suffering. It seeks to provide total care for people suffering from cancer or chronic non-cancerous ailments.

Departments of Surgery

Cardio Vascular Thoracic Surgery

The Adult Cardiac and Vascular Surgery Program at AIMS is one of the busiest programs in the country. Over 3000 cardiac surgical operations are performed annually. The operations performed include coronary artery bypass grafting, heart valve repair and replacement

and operations for congenital heart defects in adults.

PROGRAM

- **BSc in Cardiac Perfusion Technology**

The MSc course in cardiac perfusion technology enables a student to undertake cardiovascular perfusion for a patient undergoing cardiac surgery. The candidate thus trained is called a perfusionist who is an integral part of the cardiac surgical team.

PROGRAM

- **MCh CVTS**

Gastrointestinal Surgery

The AIMS Department of Gastrointestinal Surgery has a comprehensive surgical program focusing on:

- Oncological surgery of the GI tract
- Pancreatico–biliary surgery
- Gastric and oesophageal surgery
- Liver transplant
- Advanced laparoscopic surgical procedures
- Specialised colorectal surgery including sphincter saving, stapled and pouch procedures
- Intra–abdominal vascular reconstructions
- Retroperitoneal tumour excisions
- Intra–abdominal trauma

The operating rooms are one of the best equipped in the country with advanced facilities such as a dedicated C–arm image intensifier, harmonic scalpel, argon beam coagulator, CUSA, and intra–operative ultrasound and endoscopy.

PROGRAMS

- **MCh Gastrointestinal Surgery**
- **Post Doctoral Certificate Course in Vascular Surgery**
- **Post Doctoral Certificate Course in Hepatobiliary/Pancreatic Surgery**

General Surgery

The Department of General Surgery is geared to offer teaching programs for both undergraduates as well as postgraduate students. Computer assisted teaching aids on clinical examination and operative procedures are being generated. Research activities in several areas are already on. Video conferencing facilities will enable students sitting in the auditorium to see live transmission of surgical procedures and interact with the faculty at the same time.

PROGRAM

- **MS General Surgery**

Head & Neck Surgery

The Department of Head and Neck Surgery is organized as a multidisciplinary team, supported by the most modern diagnostic and treatment infrastructure to deal with all major problems arising in the head and neck region. This is the first of its kind clinical service, which brings under one umbrella a multidisciplinary team of specialists in the fields of Head and Neck Surgery, Plastic Surgery, Maxillofacial Surgery, Neurosurgery and Otorhinolaryngology for the management of complex ailments of the head and neck region.

AIMS offers a three year advanced Fellowship in Head and Neck Surgical Oncology in conjunction with Roswell Park Cancer Institute, Buffalo, New York and Memorial Sloan Kettering Cancer Institute, New York, leading to Fellowship from Amrita Vishwa Vidyapeetham. The first and last year will be spent at AIMS in India and the second year will be spent in New York. The fellow will be involved in all aspects of multidisciplinary management of head and neck cancer, skull base surgery, and reconstructive microsurgery.

PROGRAMS

- **MCh Head & Neck Surgery**
- **MSc Swallowing Disorders & Therapy**
- **Fellowship in Head & Neck Oncosurgery**

Neurosurgery

Neurosurgery is the speciality concerned with the surgical treatment of diseases of the nervous system composed of the brain, spinal cord and spinal column, as well as the nerves that travel through all parts of the body.

The Department of Neurosurgery at AIMS is fully equipped to perform all types of surgeries for a wide range of illnesses. These include:

- Congenital diseases of the brain and spine and other illnesses affecting children
- Tumours of the brain, spine and spinal cord
- Vascular diseases such as aneurysms and vascular malformations
- Degenerative disc and other spinal diseases
- Instrumentation of the spine and the cranio–vertebral junction
- Diseases of the pituitary gland
- Stereotactic surgery
- Surgery for epilepsy and movement disorders
- Stroke and haemorrhage in the brain and spinal cord

The department is supported by state–of–the–art dedicated neurosurgical operation theatres, equipped with a Carl Zeiss OPMI NC4 Operating Microscope, a Karl Storz Neuroendoscope, a Midas Rex drill system, a ValleyLab Ultrasonic Surgical aspirator, a Siemens C–arm with facility for DSA, Codman and Aesculap operating instruments, and a Leksell Stereotactic frame. A dedicated Neurosurgical Intensive Care Unit provides comprehensive care for postoperative and acutely ill

patients. The Department also now offers steriotactic radiosurgery in connection with Radiation Oncology and Medical Physics.

PROGRAMS

- **MCh Neurosurgery**
- **Fellowship/PDCC in Paediatric Neurosurgery**
- **Fellowship/PDCC in Neuro-Oncology**
- **Fellowship/PDCC in Neurovascular Surgery**

Paediatric Surgery

Department of Paediatric Surgery takes care of children from day one to seventeen years of age. All the facilities to take care of surgical babies are available under one roof. A well-experienced team of doctors is available to take round the clock care of children. All types of open and endoscopic procedures are performed in the department. Excellent supportive care in the form of a tertiary care NICU is also available for sick and critical neonates.

PROGRAM

- **MCh Paediatric Surgery**

Plastic & Reconstructive Surgery

(see Head and Neck Surgery, page 30)

PROGRAM

- **MCh Plastic Surgery**

Vascular Surgery

(see Gastrointestinal Surgery, page 30)

Anaesthesiology

The Department of Anaesthesiology and Critical Care Medicine offers consultations to referring patients in all areas of anaesthesia and critical care as well as chronic and acute pain management.

The department is equipped to provide anaesthesia during a full range of surgeries and is also a primary component of the Trauma Center Team, performing airway management, pulmonary and cardiovascular assessment, patient resuscitation, and follow-up care of patients in the intensive care units.

Active Undergraduate/Postgraduate teaching and research opportunities are available.

PROGRAMS

- **DM Cardiac Anaesthesia**
- **MD Anaesthesiology**
- **Diploma in Anesthesiology**
- **PDCC in Cardiac Anaesthesia**
- **One year post doctoral certificate course after MD/DNB Anaesthesiology**
- **Fellowship in Cardiac Anaesthesia**
- **Two year fellowship program after MD/DNB Anaesthesiology**
- **MSc in Respiratory Therapy**
- **BSc in Respiratory Therapy**

The Amrita Institute of Medical Sciences has 28 operation theatres and 270 intensive care beds, with state-of-the-art equipment giving students exposure to the most modern techniques in critical care.

Departments of Medicine

Centre For Allied Health

Physician Assistant specialists are formally trained to provide diagnostic, therapeutic and preventive health care services in virtually all medical specialties, as delegated by a physician. Working as members of a health care team, they take medical histories, examine and treat patients, order and interpret laboratory tests and X-rays and make diagnosis. They also treat minor injuries by suturing, splinting and casting. PAs record progress notes, instruct and counsel patients, and order to carryout therapy. Additional nonclinical positions are developing for physician assistants. Only those who are willing to dedicate themselves for patient care, which calls for hard and strenuous work, should opt for this course. The course is entirely hospital based.

The program involves the following departments:

- Cardiology
- Cardio Vascular and Thoracic Surgery
- Endocrinology
- ENT
- Gastroenterology
- General Medicine
- Geriatrics
- G.I. Surgery
- Head and Neck Surgery
- Nephrology
- Neurology
- Neurosurgery
- Oncology
- Urology

PROGRAM

- **BSc Physician Assistant Program**

Clinical Research

This is a specially designed program to provide theoretical and practical training in coordinating clinical trials and clinical research efforts. The one year diploma course will involve lecture components on key aspects on clinical research, namely, statistical design and analysis, ICH/GCP guidelines, study design, data management, pre-clinical drug development strategies and methodologies, ethical aspects, legal and regulatory aspects of clinical trials, and some exposure to allied health sciences such as pharmacology, biochemistry and physiology. In addition to the lecture component, the unique aspect of this course is the direct involvement of the students with the ongoing clinical research programs and an opportunity to manage and coordinate an existing clinical trail research project(s) under the direct guidance of the Principal Investigator. Many clinical trials are going on at the Institute, most of which are sponsored by International Pharmaceutical concerns and agencies. All the students will therefore have ample opportunity to get directly trained in conducting and managing clinical trials. Each student will have to write a project report based on the knowledge, exposure and experience on the on-going clinical trials. They also have to make presentations in Seminars and Journal clubs on the topics which have been discussed in the classes. The course also offers practical training in data entry and management and in the statistical analysis of data using the statistical softwares SAS and SPSS. In short, each student, soon after the successful completion of the course, will be ready to be absorbed as a clinical research coordinator/ associate or project assistant in pharmaceutical companies/research institutions.

PROGRAM

- **MSc in Clinical Research**

Dermatology

The Dermatology Department offers procedures and services, both investigative and curative, pertaining to general dermatology, cosmetic dermatology and venereology. Comprehensive consultation and treatment is provided for both outpatients and inpatients covering all dermatological conditions including:

- General Dermatology
- Cosmetology
- Sexually transmissible diseases
- Leprosy

PROGRAMS

- **Diploma in Dermatology, Venerology and Leprosy**
- **MD Dermatology**

Laboratory Medicine

Laboratory services at AIMS are dedicated to clinical service, research and teaching.

The Clinical Laboratories perform a large range of diagnostic laboratory analysis in hematology, immunology, microbiology, transfusion medicine, genetics, metabolism, toxicology and chemistry.

Biochemistry

The Biochemistry Unit conducts automated assays on Olympus automated analyser (2700) and Hitachi 912 and two Hitachi 911s. These systems perform fully automated, computerized, random access chemistry analyses that utilize a variety of technologies. There are two types of photometric assays (end point and rate) on these instruments for assaying parameters such as glucose and parameters for kidney and liver function and risk factors for coronary artery disease. Proteins such as immunoglobulins, complement fractions, glycated hemoglobin and microalbumin are assayed by immunoturbidimetric methods.

Cytology

Cytology, more commonly known as cell biology, studies cell structure, cell composition, and the interaction of cells with other cells as well as the larger environment in which they exist. Cytology can also refer to cytopathology, which analyzes cell structure to diagnose disease. Microscopic and molecular studies of cells can focus on either multi-celled or single-celled organisms.

Haematology

The Laboratory manages patients with a whole variety of haematological conditions and diseases. The majority of these individuals are cared for as outpatients in one of our clinics; however, some patients who require complex or intensive treatment, or who are unwell, are managed as inpatients as well. The ward nursing staff are all highly trained and experienced in the management of haematological diseases and work closely with the medical staff and other health care professionals to provide a high quality service to patients and their families in our effort to improve the treatment of, and knowledge about, haematological cancers by participating in ethically approved clinical trials and other studies.

Histopathology

Pathology being the study of disease and disease processes, the Department of Pathology helps in identifying the exact disease, its nature and possible cause through study of tissues and cells removed from the diseased part of the body. The correct and effective treatment is decided on the basis of this identification or The Final Diagnosis. The department has two units, Histopathology which examines structural changes due to disease in tissues, organs or their parts, and Cytopathology which tests for changes in cells constituting the tissues.

Human Cytogenetics

The Cytogenetics Laboratory was established in January 2006 and is involved in research and academic activities and provides state-of-the-art genetic diagnostic services to the patients attending AIMS and other hospitals. The Department of Human Cytogenetics offers comprehensive diagnostic services including high-resolution chromosome analysis and Fluorescence In Situ

Hybridization (FISH). The laboratory performs FISH analysis for many genetic disorders and is active in the area of cancer cytogenetics. The laboratory is equipped with a colour imaging system and computerized karyotyping system. This not only enables a broader spectrum of our services and a substantial shortening of turn around time of the results, but also provides the referring physician with higher quality of results.

Metabolic Laboratory

Our Metabolic Diagnostic Laboratory is a full-service laboratory specializing in the diagnosis of inborn errors of metabolism. The Lab uses cutting-edge techniques of gas chromatography-mass spectrometry and nuclear magnetic resonance imaging for metabolite analysis and clinical diagnoses. Enzymatic analyses in red and white blood cells as well as cultured skin fibroblasts for diagnosis of enzyme-deficient disorders are available. All reports include an interpretation and suggestions for further testing and treatment. Consultations can be done with our staff on the results.

Microbiology

Microbiology provides services for the diagnosis of infectious diseases of a bacterial, viral, parasitic, fungal or tubercular nature. In addition to routine diagnostic methods (cultural and microscopy), automated systems aid in the rapid detection of infectious agents in blood or body fluids. Automated systems for identification of micro organisms and their susceptibility to antimicrobials further expedite reporting which may be life-saving for patients. Special microscopy (fluorescent and dark-field) helps in rapid diagnosis of tuberculosis and viral infections. Serological investigations are also performed for a variety of infectious agents

(including viral agents such as HIV and Hepatitis viruses).

Molecular Diagnostics

The Department of Molecular Biology was established during January 2002. The department started functioning with molecular diagnosis of infectious diseases and HLA tissue typing for transplant program. This is the only lab in the state meeting the International standards for a molecular diagnostics facility. Cross matching and tissue typing was started for the first time in the entire state of Kerala. The method is more accurate and provides more information on the HLA antigens. Gene testing was started with thrombophelia genetics wherein Factor V Leiden and Prothrombin genes are analyzed for their mutations.

Serology

Serology is the science dealing with the serum component of blood in regards to its reactions and properties. Our Serology Laboratory is a high volume laboratory dedicated to performing diagnostic tests for our patients as well as for other hospitals.

It provides a full range of assays, which can be grouped in seven major areas:

- Serological markers of autoimmune disease
- Analysis of the complement system
- Serodiagnosis of infectious disease
- CSF markers of multiple sclerosis
- Special protein studies for monoclonal protein detection
- Diagnosis of immunodeficiencies
- Allergen testing

Toxicology and Poison Centre

Analytical toxicology is the detection, identification, and measurement of foreign compounds (xenobiotics) in biological and related specimens. Analytical methods are available for a very wide range of compounds. These may be chemicals, pesticides, pharmaceuticals, drugs of abuse and natural toxins.

Analytical toxicology can assist in the diagnosis, management, prognosis, and prevention of poisoning. Additionally, analytical toxicology laboratories may be involved in a range of other activities such as the assessment of exposure following chemical incidents, therapeutic drug monitoring, forensic analysis and monitoring for drug abuse.

The Toxicology Department offers unique facilities in the area of toxicology (poisons and poisoning) to all hospitals, government doctors, and private practitioners of Kerala state and neighbouring regions. This is the first time that such a department has been started in a hospital in the entire state of Kerala, and has been recognized by the World Health Organization as one of four functioning Poison Centres in India.

Medical Physics

The Department of Medical Physics provides scientific and technical services mainly to the following departments:

- Department of Radiation Oncology
- Department of Radiology
- Department of Nuclear Medicine
- Amrita School of Dentistry
- All other Radiation users in the Amrita Institutions

The unit comprises eight Medical Physics faculty, and has responsibilities for the areas of Radiation Dosimetry, Quality Control of all radiation producing equipment, Treatment Planning systems, Software Control, Acceptance Testing and Commissioning of Radiation Producing Equipment, Maintenance of all radiation producing and radiation measuring equipment in proper calibration, and Radiation Safety.

Medical Physics provides Clinical Radiotherapy Physics Services to approximately 2,100 new cancer patients a year and also monitors accurate delivery of all treatments in Radiation Oncology.

PROGRAM

- **PG Diploma in Medical Radiological Physics**

Medical Statistics

The discipline of Biostatistics has contributed substantially to the development of health, medical and biological sciences, and has emerged as an important tool for research. By applying various statistical methodologies, a variety of easily applicable diagnosis, treatment and prognosis methods have been developed with scientific validity, and many diseases and health conditions have been understood and dealt with appropriately. Statistical methodologies form the

strength of any research study so as to make valid judgements and conclusions. Statistical design and analysis methods are very widely used in Clinical Trials, Pharmacology, Genetics, Biotechnology, Basic Sciences, Epidemiological studies, Demography, Quality Control of Medical and Biological equipment, Medical Diagnosis and Prognosis and Health Economics. Any research work is incomplete without treating the data statistically and interpreting the results with scientific and statistical reasoning and evidence. Its importance in Public Health administration in identifying causative factors of various diseases and identifying health priorities and proper allocation and utilisation of the available budget appropriately and judiciously has also been well recognized now. There is an ever growing demand for this subject due to all these reasons.

Statistician plays a major role in research studies right from the planning stage till the report is prepared. In the past, as well as in the present, postgraduate education in Statistics in most of the universities in our country is mostly on the theoretical aspects. Topics on practical aspects covering examples on the application of statistical methods on different fields, especially on medical problems, are very limited. Hence, it is natural that students who are not exposed to the applications of statistical methods to medical and health problems find it difficult when they join medical colleges or medical research institutes for employment.

For that reason, it becomes essential to provide appropriate professional education in Biostatistics to the candidates interested in pursuing a career in medical education and research. Such courses are essential for improving the quality of teaching Biostatistics to the medical students and also the quality of research work being carried out in medical and health research institutions. Such courses will be highly beneficial to the young statisticians in advising the medical and health researchers in designing their research projects scientifically, in maintaining the quality of data and its management and in analysing the data applying appropriate statistical methods and also in the interpretation of the results obtained, meaningfully and validly.

With this background a postgraduate course of two years duration was started at Amrita Institute of Medical Sciences for the benefit of those students who would like to specialize in Biostatistics after their graduate/postgraduate courses in Statistics or Mathematics with Statistics.

PROGRAM

- **MSc In Biostatistics**

Molecular Medicine

AIMS has established a world class, clinical and scientific research centre for Molecular Medicine. The Centre is pursuing basic and translational research of the highest quality building on the current research activities at AIMS together with existing infrastructure facilities, and is developing biomedical research as applicable to medical problems.

Nuclear Medicine

The Department of Nuclear Medicine at AIMS is an established branch of medicine that uses radioisotopes for diagnostic imaging and therapy. Nuclear medicine imaging, or scintigraphy performed with a Gamma camera, provides physiological information as an adjunct to conventional imaging technology and is of tremendous diagnostic value to many specialities. The radioisotope tagging needed for these investigations is performed in the nuclear medicine pharmacy (Hot Lab). The following tests are performed using our state-of-the-art, dual head Gamma camera: MIBI stress/rest myocardial perfusion SPECT scan, MUGA scan, renal cortical scintigraphy, captopril renal scintigraphy, cerebral perfusion scintigraphy, RBC scintigraphy, liver spleen colloid scintigraphy, milk scan, oesophageal and gastric motility studies, hepatobiliary scintigraphy, whole body skeletal scintigraphy, gallium and iodine 131 scintigraphies. Radio iodine therapy is an important therapy modality in management of hyperthyroidism and thyroid carcinoma. Intra operative parathyroid and sentinel node detection is also performed, using a cordless Gamma probe.

PROGRAM

- **MD Nuclear Medicine**

PET CT Scanner

Early stage cancer detection is the main aim of most of the existing diagnostic procedures in the field of modern medicine. Although anatomical (structural) investigations like CT, MRI, etc. are more commonly and widely performed, physiological (functional) nuclear medicine gamma camera investigations are more sensitive to detect early cancer.

The ultimate investigation to detect early cancer is PET–Positron Emitting Tomography. Simultaneously performing a CT scan and fusing these two scans–PET CT scan, further enhance PET scan's cancer detection capability.

This sophisticated and technologically advanced scan is performed on a PET CT scanner. A state-of-the-art PET 8 slice CT scanner has been installed in the Department of Nuclear Medicine, the first of its kind in the state of Kerala.

A PET scan is performed by injecting minute amounts of a radioactive substance i.e. 18 Fluoro Deoxy Glucose (18 FDG) which has a structural and functional similarity to glucose, the substrate of any living cell. It is a phenomenon that cancerous cells concentrate, utilize more glucose thereby they show increased concentration of 18 FDG. While even the smallest cancer focus is detected by a PET study, the simultaneously acquired CT scan helps to localize precisely to a particular organ (like lung tissue, lymph nodes, bones, etc.).

PET CT is a whole-body imaging procedure, clinically proven, cost-effective and safe method used in the staging, follow-up for most cancers, including lymphomas, lung, colorectal, gynaecological, head, neck and breast cancers, etc. It is also used to evaluate treatment response to various chemotherapy regimes and radiotherapy in cancer patients. PET CT scan also has immense potential in the Radiotherapy planning of a patient.

Hailed as the "Investigation of this century," PET CT has revolutionized the cancer care and the availability of this PET CT scanner in AIMS will help the cancer specialists of our state to provide the best cancer cure care.

Apart from being primarily used to detect cancer, PET CT is also very helpful in the detection of surgically curable seizure ("fits") focus in the temporal lobe of the brain. PET CT has immense value in evaluation of fever of unknown origin (detection of unknown infection focus) and also in the accurate assessment of viable heart muscle after a myocardial infarction (heart attack) before proceeding for a high-risk coronary bypass surgery (CABG).

Neonatology

The Division of Newborn Services commenced functioning in April 2002. Our Neonatology Department has been reputed to be the most technologically advanced unit in the country. The Neonatal Intensive Care Unit is state-of-the-art with 24 beds, 9 ventilators and all types of warmers. The ventilators have all high frequency options. Babylog 8000 HFO, SLE 2000 HFO+ and Bubble CPAP are the other equipments in the Neonatal ICU. Volume ventilation is done in larger babies with Siemens 300C, Nitric Oxide delivery systems are incorporated with Siemens 300C and also with separate stand alone units. Complex monitoring of all ventilated babies includes invasive blood pressure monitoring and spirometry. Capnography is used in selected cases and an in house blood gas analyzer adds to the ergonomics of the unit.

Obstetrics and Gynaecology

The Department offers all the routine obstetrics and gynaecology services. In addition, the Department manages high-risk pregnancy by prenatal diagnostic testing like chorion villus sampling, amniocentesis, foetal colour doppler, and velocimetry studies. Cancer screening for perimenopausal women using colposcopy and colour doppler studies are also conducted. We routinely perform all endoscopic surgeries including hysteroscopy and laparoscopy.

PROGRAMS

- **MD Obstetrics & Gynaecology**
- **Diploma in Obstetrics & Gynecology**

Ophthalmology

AIMS Ophthalmology Service offers state-of-the-art facilities for complete examination, diagnosis and treatment of all ocular diseases in adult and paediatric patients. It has the finest equipment available in ophthalmic care including Humphrey field analyzer, ultrasound A and B scan, YAG laser and Visupac 450 digitised fundus camera for retinal imaging and fluorescent angiography and optical coherence tomography (Syscan Version IV), 532mm laser for retinal diseases.

PROGRAMS

- **MS Ophthalmology**
- **BSc Optometry**
- **Diploma in Ophthalmology**

Orthopaedics

The Orthopaedics department is an acclaimed resource for treating muscle, bone, and joint disorders. Areas of special emphasis include arthritis, joint replacement, spine surgery, sports medicine, hand, foot and ankle, orthopaedic oncology, trauma, and paediatric orthopaedics. Our orthopaedic surgeons have diverse expertise and are committed to provide effective solutions for people with a wide range of orthopaedic problems from broken bones to spinal disorders, from crippling arthritis to sports medicine. These services include:

- Spine Surgery
- Arthritis Care
- Joint Replacement Services
- Sports Medicine and Arthroscopy
- Musculoskeletal Tumour Surgery and Reconstruction
- Physical Medicine and Rehabilitation
- Orthopaedic Trauma
- Children's Orthopaedics

PROGRAMS

- **MS Orthopaedics**
- **Diploma in Orthopaedics**

Otorhinolaryngology (E.N.T.)

The Department of Otorhinolaryngology, Speech Pathology and Audiology is one of

the most well equipped departments with experienced faculty and instruments. Otorhinolaryngology, as it stands now, is not merely dependent on routine outdoor evaluation and conservative management as it used to be in the past. The department has adjusted well with the advancement of medical technology. With the advent of modern day telescopes, operating microscopes and lasers, the department now handles various ear-nose-throat and neck disorders efficiently and precisely.

The department has state-of-the-art microscopes to perform micro ear and micro laryngeal surgeries including cochlear implant.

Speech Pathology and Audiology is associated with the Department of Otorhinolaryngology. There are nasal and nasopharyngeal endoscopes for diagnostics and video endoscopy facilities for all types of endoscopic sinus surgeries including transnasal pituitary and surgery for CSF Rhinorrhoea.

PROGRAMS

- **MS Otorhinolaryngology**
- **Diploma in Otorhinolaryngology**

Paediatrics

The Department of General Paediatrics offers comprehensive primary well-child and ill-child care as well as consultation.

The division provides medical care for children in both inpatient and outpatient settings, including:

- Paediatric Primary Care Centre
- Diagnostic Clinic
- General Paediatric inpatient services
- Vaccination
- Certified baby friendly hospital

A multidisciplinary team of general paediatricians, subspeciality consultants, paediatric nurses, nutritionists and social workers also provides general paediatric care and coordination of subspeciality services to children with special needs due to chronic illnesses and multiple handicaps.

PROGRAMS

- **MD Paediatrics**
- **Diploma in Child Health**

Physical Medicine & Rehabilitation

Rehabilitation is the tertiary phase in the treatment of all human sufferings. The Department of PMR caters to rehabilitation services for patients. The Physiatrists determine treatment plans for the rehabilitation of patients after acute problems are settled. Physiotherapists and Occupational therapists carryout the work of rehabilitation as directed by the Physiatrist. The major work of this department is in association with Departments of Orthopedics, Neuro Medicine, Neuro Surgery, Pediatrics including Neonatology, and other medical and surgical departments. The proposal to expand Neuro Rehabilitation and establish an artificial limb centre to serve the needs of patients are under active consideration. Twenty-one Physiotherapists and Occupational Therapists are available in the department.

PROGRAMS

- **MD Physical Medicine & Rehabilitation**
- **Diploma in Physical Medicine & Rehabilitation**

Podiatric Surgery

The Podiatry Centre provides comprehensive treatment approach to all foot problems in diabetic patients. The service is run by a doctor trained in the treatment of chronic, diabetic foot ulcers, a chiropodist, and vascular surgeons who provide services like angioplasty and by-pass surgery for patients with blocked arteries in their feet. Regular preventive care classes are also held.

PROGRAM

- **Fellowship in Podiatric Surgery**

Psychiatry

There has been a growing need for mental health and psychological services both from within the hospital and outside. These services were available in the Departments of Psychiatry for the last few years.

In order to increase the range and provide more specialized services, an independent department of Clinical Psychology was also created.

PROGRAMS

- **MD Psychiatry**
- **PG Diploma in Psychiatry**

Pulmonary Medicine

The Centre for Pulmonary Medicine undertakes the prevention, early detection, diagnosis, and treatment of pulmonary diseases in children, adolescents, and adults. Comprehensive pulmonary medicine programs include specialised treatment of specific diseases such as asthma, chronic obstructive pulmonary diseases, sleep-disordered breathing, interstitial lung diseases, cystic fibrosis, occupational lung diseases, pulmonary rehabilitation, tuberculosis, lung cancers and dedicated smoking cessation program. Diagnostic facilities include pulmonary function testing, exercise testing, allergy testing, diffusion studies, flexible video bronchoscopic investigation, BAL and endobronchial stenting, spiral and higher resolution CT imaging guided biopsies, ventilation perfusion scans for pulmonary embolism and thoracoscopic procedures.

PROGRAMS

- **DM Pulmonary Medicine**
- **MD Respiratory Medicine**
- **Diploma in Tuberculosis & Chest Diseases**

Radiation Oncology

Radiation Oncology specializes in the medical use of ionizing radiation for the treatment of cancer and other medical conditions. The Department of Radiation Oncology at AIMS is of international standard and has the most technologically advanced clinical radiation therapy programs in the country. The department is equipped with linear accelerators with three photon energies with multi-leaf collimation and a full set of electron beams. The department also has a CT simulator, a conventional simulator and a computerized treatment planning system with CT/MRI/PET fusion capability. The services offered by the department are Stereotactic Radiosurgery, Intensity Modulated Radiotherapy (IMRT), 3-D Conformal Radiotherapy (3-DCRT), Total Skin Electron Therapy (TSET), Total Body Irradiation (TBI), Conventional Radiotherapy, High Dose Rate Brachytherapy, Strontium Ocular Brachytherapy etc. for the treatment of cancers and many non-malignant conditions. The accuracy of radiation treatment delivery is ensured by the electronic portal imaging for real time verification of the treated area and a range of sophisticated quality assurance equipment.

PROGRAM

- **MD Radiotheraphy**
- **Diploma in Medical Radiotherapy**

Radiodiagnosis

The Medical Imaging Centre is one of the finest international centres of its kind. New high performance equipment together with a hospital-wide, all digital imaging, archival and retrieval system establishes AIMS as an important referral site.

Procedures using imaging equipment for guidance (Interventional Radiology) reduce hospital stays and costs, reduce the need for major surgery, and can save lives. Hundreds of patients have benefited from interventional procedures like guided biopsy, abscess drainage, nephrostomy, angioplasty, and embolizations.

PROGRAM

- **BSc In Medical Radiologic Technology (BSc MRT)**

BSc in Medical Radiologic Technology is a four-year degree program. It provides knowledge and skill development in understanding and applying the principles of science and medicine as they relate to medical radiological and other imaging, as well as radiotherapy.

The student will become technically competent in the techniques of diagnostic imaging and the therapeutic use of radiation. The student will be well versed in the handling of highly sophisticated medical imaging and therapeutic equipment related to these specialties. The course content includes:

- Anatomy, pathology and physiology
- Medical imaging and radiation oncology equipment
- Professionalism and patient care
- Radiobiology and radiation protection
- General radiology and radiotherapy techniques
- Specialized radiologic and imaging procedures in MRI, CT, DSA, Mammography, Cardiology, Orthopaedics, etc.
- Specialized radiotherapy procedures like 3D CRT, IMRT, SRT and SRS.

PROGRAMS

- **MD Radiodiagnosis**
- **Diploma in Medical Radiodiagnosis**

Surgical Oncology

The Surgical Oncology Department includes surgeons trained in oncology surgery from all surgical subspecialties. The department offers a two-year fellowship in surgical oncology and gynaeconcology for Post Graduate students of surgery and gynaecology interested in pursuing a career in Oncology.

PROGRAM

- **Fellowship in Surgical Oncology & Gynaecologic Oncology**

Urology

The Centre for Urology and Renal Transplantation offers comprehensive facilities for the diagnosis and treatment of genitourinary problems in adults and children. A highly qualified and experienced team of dedicated urologists and resident surgeons who are available 24 hours a day mans it. The latest “state of the art” technology and equipments are available. The faculty subspecializes in the fields of paediatric urology, urological oncology, laparoscopic urology, endourology, andrology, female urology, neuro – urology and reconstructive urology. Along with the support of the nephrology services more than 240 renal transplantation operations have been successfully performed. The department has established itself as one of the best of it’s kind not only in the country but comparable to the best in the world.

PROGRAM

- **MCh Urology**

Amrita Clinical Skills Simulation Centre

Innovative, Noninvasive Medical/ Surgical Technology and Education

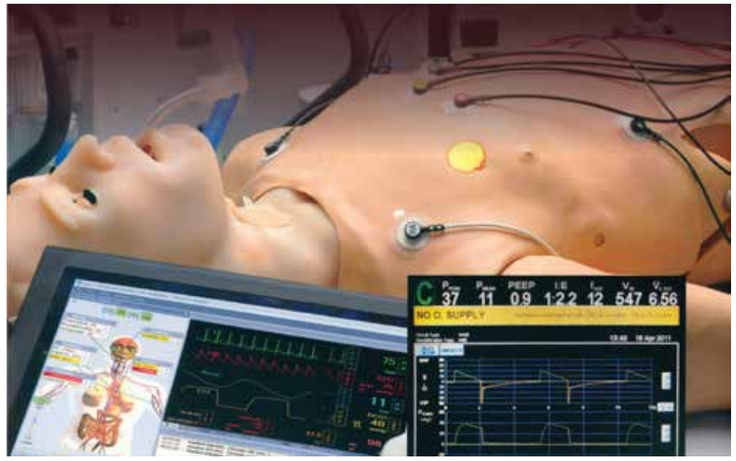
Physicians and surgeons at Amrita Institute of Medical Sciences (AIMS) are nationally and internationally recognized for their expertise in developing leading-edge medical and surgical techniques as well as educating the medical community about them. The new era of medicine revolutionizes all medical and surgical procedures through our ability to perform and develop a full range of sophisticated, minimally invasive techniques. These state-of-the-art techniques result in less post-surgery pain, fewer complications, less scarring, faster recovery time and early discharging of the patients from the hospital. These procedures are used across all clinical disciplines. By the introduction of the unique Simulation Centre in AIMS, we are one step ahead in developing new teaching methodology in the field of medical education.

Simulation-Based Medical Education (SBME)

During the past decades, Simulation-Based Medical Education (SBME) has been a rapidly growing field, as evidenced by the increased development of simulation centres worldwide. SBME is becoming a powerful force in addressing the need to increase patient safety through quality care training. Changes in healthcare delivery and academic environments that limit patient availability for teaching purposes have spurred widespread reports on medical errors since the spread of modern medical practices worldwide. Both the public and health professionals are alarmed by these reports. The Medical Council of India has suggested clinical skill labs should be mandatory for all Medical Colleges in India. These are mainly dedicated to enhancing hands-on Medical education, performance assessment and evaluation, as well as improving clinical and communication skills.

What is Simulation and Simulaids (Mannequins)?

Simulation is a technique to replace or amplify real experiences with guided experiences on mannequins. A mannequin is an artificial human body made of silicon rubber and PVC. It mimics accurate anatomical structures, with electronic devices to auscultate normal/abnormal heart, lung and abdominal sounds and give realistic tactile impressions for abdominal palpation of normal/ abnormal liver, spleen, intestines and all pelvic organs. Obstetric and gynaecologic mannequins mimic antenatal palpation of foetus with foetal heart sounds. CPR mannequins are optimal tools for basic and advanced life support skills training. Various clinical conditions and scenarios can be programmed on these simulaids, and they will prove instrumental for evaluating the performance of skills, especially for Emergency Medicine PG students. Simulaids are for basic, advanced surgical skills and various non-invasive procedures. We can use these to conduct UG examinations with programmed clinical conditions instead of using live patients. Students can engage in repetitive practice with increasing levels of difficulty.



We have the following Simulation Stations with mannequins for:

1. General Medicine

- Complete Cardiovascular auscultation- normal and abnormal heart sounds, provision for pericardiocentesis.
- Respiratory system auscultation, provision for demo of pneumothorax, ICD, aspiration of pleural effusion, etc

2. Surgery for all basic surgical skills:

- Abdomen for normal palpation of the viscera
- Incision and suture training, IV, IM injections, trocar-cannula for puncturing, vascular catching and ligation
- Laparoscopic examination and surgery
- Male and female catheterization
- Breast examination

3. Obstetrics and Gynaecology

- Complete antenatal palpation of abdomen with different presentations and positions of the foetus
- Automated delivery mannequin with provision to conduct normal delivery, and breach as well, with abnormal presentations and obstructed labour, with provision for episiotomy. Foetal heart can be monitored, provision for maternal CPR available
- All Gynaecological conditions of the uterus, tubes and ovaries assessed by PV and speculum examination

4. Paediatrics

- Baby mannequins for Paediatric IM, IV injections and neonatal baby care

5. Orthopedic procedures

- Intra articular injections for shoulder and knee.
- Trauma mannequin for handling and different types of bandage training.

6. Emergency Medicine/ Anaesthesia

- ICU set up with Adult CPR mannequins with monitors, provision for creating various cardiac conditions. For BCLS & ACLS training (with ventricular defibrillation facilities).
- Adult CPR - Recording mannequins for conducting examination and evaluation, for trainees.
- Mannequins for intubation, tracheostomy / cricothyrotomytrainings.
- Adult SMART- STAT- Interactive mannequin for creating different life-threatening scenarios, responding to the various treatment modalities for ACLS training; can be used as patient programmed for different critical conditions for conducting PG exam and evaluation.
- INFANT- PEDI- STAT- Mannequins for endotracheal intubation, CPR- different critical conditions can be simulated and can be recovered to normal conditions.
- Mannequin for spinal injection & LP- procedures.
- Mannequin for Central venous Catheterization.

Didactic Sessions and Training Offered

- BCLS, ACLS- training in Adult and Newborn Simulaids.
- Basic Surgical skill training for UG/ PG students.
- Amrita basic clinical skills training certificate course.
- Laparoscopy training.
- Orthopaedic procedures: Intra articular injections and trauma care training.
- Video/Teleconferences.
- Video library of minimally invasive, Medical/Surgical-laparoscopic/ endoscopic/ procedures
- Real time transmission of live procedures from centres around the world.

MBBS
(Bachelor of Medicine and Bachelor of Surgery)

Eligibility for MBBS

1. Candidate should have completed 17 years but should not have completed 23 years of age by 31st December in the year of admission.
2. Pass in 12th standard in the first attempt.
3. Must have passed in the subjects of Physics, Chemistry, Biology / Biotechnology & English individually and have obtained a minimum of 60% marks in English and 60% marks in Physics, Chemistry and Biology / Biotechnology taken together, from any State Higher Secondary Board or equivalent. NRI's and Persons of Indian Origin (PIO) who qualify from foreign universities will have to produce an equivalence certificate from the Association of Indian Universities, New Delhi.
4. Those who appear for the qualifying examination in March / April can also apply.

Admission Procedure*

Selection is based on the rank obtained in the common entrance test held at national level.

Degree Details

Degree	Duration (in years)	Seats
MBBS	4½ plus 1 year internship	100

*Admission process will however be subject to the final verdict of the Honourable Supreme Court of India.

Undergraduate Programs (Allied Health Sciences)

Course	Duration of the course	Eligibility Conditions
BSc Anaesthesia Technology	3 years +1 year internship	Pass in +2 with 50% marks in Physics, Chemistry, Biology
Bachelor of Audiology & Speech Language Pathology (BASLP)		
BSc Cardiac Perfusion Technology (CPT)		
BSc Cardio Vascular Technology (CVT)		
BSc Diabetes Sciences		
BSc Dialysis Therapy		
BSc Echocardiography Technology		
BSc Optometry		
BSc Physician Assistant		
BSc Respiratory Therapy (RT)		
BSc Optometry (Lateral Entry	2 years +1 year internship	Pass in 2 years Diploma course in Optometry/ Ophthalmic Assistant
BSc Medical Laboratory Technology (MLT)	4 years	Pass in +2 with 50% marks in Physics, Chemistry, Biology
BSc Medical Radiologic Technology (MRT)	4 years	Pass in +2 with 50% marks in Mathmatics, Physics, Chemistry, Biology
BSc Emergency Medical Technology	3 years	Pass in +2 with 50% marks in Physics, Chemistry, Biology

Postgraduate Diploma Programs

Eligibility

Candidates must possess MBBS degree from a recognized medical college and should have obtained full registration from Medical Council of India or any of the State Medical Councils.

Admission Procedure*

Selection is based on the rank obtained in the common entrance test held at national level.

Degree Details

Degree	Duration (in years)
Postgraduate Diploma	**2 years**

*Admission process will however be subject to the final verdict of the Honourable Supreme Court of India.

MD (Doctor of Medicine) / MS (Master of Surgery)

Eligibility

a. Candidates must possess MBBS degree from a recognized medical college and should have obtained full registration from Medical Council of India or any of the State Medical Councils.

b. For MD/MS Clinical subjects, only those candidates who have not crossed the age of 30 years as on 31st December in the year of admission are eligible to apply. For MD/MS Non–clinical subjects, age limit not applicable.

Admission Procedure*

Selection is based on the rank obtained in the common entrance test held at national level.

Degree Details

Degree	Duration (in years)
MD/MS	3 years**

*Admission process will however be subject to the final verdict of the Honourable Supreme Court of India.
**Two years for MBBS with Diploma in the concerned speciality

DM (Doctor of Medicine) / MCh (Master of Chirugiae)

Eligibility

a. Candidates who will not cross the age of 35 years as on 31st December in the year of admission are eligible to apply.
b. A candidate, who holds MD / MS degree from a recognized Medical College included in the Schedules to the Indian Medical Council Act, 1956 and has obtained full registration for MD / MS either from the Medical Council of India or any of the state Medical Councils.

Admission Procedure*

Selection is based on the rank obtained in the common entrance test held at national level.

Degree Details

Degree	Duration (in years)
DM/MCh	3 years

*Admission process will however be subject to the final verdict of the Honourable Supreme Court of India.

MSc Courses - GROUP I (Basic Science)

Course	No. of seats	Duration of the course	Eligibility Conditions
MSc in Respiratory Therapy	2	2 years	BSc in Respiratory Therapy
MSc in Neuro Electro Physiology	2	3 years plus 6 months internship	BSc Physics
MSc in Medical Laboratory Technology (MSc MLT - Pathology/ Biochemistry/Microbiology	5	2 years plus 1 year internship	First Class in BSc MLT (4 years regular course)
MSc in Swallowing Disorders & Therapy	4	2 years	BASLP
MSc in Clinical Research	10	2 years	MBBS, BDS, BAMS, BHMS, BPharm, BSc Biotechnology/Allied Health Sciences/ Life Sciences/Nursing

MSc Course - GROUP IV

MSc in Biostatistics	5	2 years	Graduates in Statistics/Mathematics with papers in Statistics

PG Diploma Course - GROUP V

PG Diploma in Medical Radiological Physics	8	2 years	MSc (Physics)/MSc Engineering with First Class or High Second Class

DOCTORAL PROGRAMS

Doctoral programs have been initiated in different specialities both in pre-clinical, para-clinical and clinical departments as given below:

- Biochemistry
- Clinical Psychology
- Community Dentistry
- Cytogenetics
- Endocrinology
- Head and Neck
- Medical Administration
- Molecular Biology
- Neuro and Behavioral Sciences
- Oncology
- Pharmaceutical Sciences
- Physiology

It is envisaged that the PhD course will be for 3-5 years and selection of candidates will be done after rigorous interview and examination. Funding for candidates should be obtained through National fellowships which are given through the DBT, DST, ICMR. Students are encouraged to apply for this.

Progress in medical science has come through painstaking and systematic research. Major breakthroughs are achieved by years of focused research efforts primarily from academic medical institutions with vision and commitment in bio-medical research and development.

Amrita School of DENTISTRY

The Dental School seeks to provide top quality, affordable, comprehensive education in oral and craniofacial care. The School ensures that students undergo an integrated educational experience that combines extensive clinical practice with rigorous course work.

We are a full-fledged establishment with all the mandatory requirements as per DCI norms and are indeed proud to say that our first batch of MDS students graduated from our school with 100% success result.

Our broad education programme and our success have shown that our students are better educated and wiser today. The investment we make in our students is certainly an investment for our future, allowing our graduates to continue to be leaders in dental care, not just in our country but also on a global platform.

The BDS course offered by Amrita School of Dentistry commenced in September 2003. It is housed in a self-contained four-storey building, having a built-up area of 154,000 sq. ft., and is one of the biggest dental colleges in Asia. The building includes pre-clinical dental laboratories, lecture halls, a conference centre, faculty offices, administrative offices, clinical treatment areas, small group discussion areas, a faculty practice, and a library. Sixty (60) students are enrolled for the BDS course in the School of Dentistry every year. The duration of the course is 4 years with 1 year compulsory rotating internship. The curriculum is in accordance with the regulations of the Dental Council of India. Student:Mentor ratio is 20:1.

An integrated approach combining extensive clinical practice with rigorous course work promotes better understanding of dentistry and its relationship to overall health. High quality training facilities are available in Head and Neck Surgery and Plastic and Reconstructive Surgery apart from regular classes in all specialties in dentistry such as Orthodontics and Dentofacial Orthopaedics, Prosthodontics and Crown and Bridge, Conservative Dentistry and Endodontics, Paediatric and Preventive Dentistry, Oral Medicine and Radiology, Periodontics, Oral and Maxillofacial Surgery, Oral Pathology and Microbiology, and Public Health Dentistry. The students are exposed to maxillofacial prosthetic rehabilitation carried out in the Department of Prosthodontics. A great deal of emphasis is placed on community oriented dental outreach programs. ASD extends the knowledge of oral health by encouraging and assisting faculty in the pursuit of innovative research. In ASD, we give equal importance to cultural education. The School also stimulates and encourages the qualities of ethics, human values, and character that marks the true oral health professional.

A diverse patient population

The Amrita School of Dentistry attracts a diverse patient population. Students have the opportunity to acquire a full range of clinical experiences, both within the dental school and the community, including treatment of emergency cases, medically compromised cases, and physically and mentally challenged patients. Students become adept at attending to the special needs of patients who have complex medical histories and may already be receiving treatment for a number of diseases.

Patient care

Students treat patients primarily in the departmental clinics. They also work at the adjacent AIMS

Hospital where they learn the role of dentistry within the hospital and within the framework of total health care while becoming knowledgeable in hospital protocols and procedures in the emergency room, operating room, recovery room, and laboratories. The students of Amrita School of Dentistry gain high-level clinical experience and exposure in a number of areas including diagnosis of oral diseases, preventive programs, oral and maxillofacial surgery, mandible reconstruction, and cancer patient care. This integrated learning experience prepares students for postgraduate study, research, and private practice. At every stage of the training process, a sense of professionalism is instilled in the student.

Post Graduate Program

Post Graduate Program (MDS) has been functioning in nine specialities (Oral and Maxillofacial Surgery, Prosthodontics and Crown and Bridge, Conservative Dentistry and Endodontics, Perio-dontics, Orthodontics & Dentofacial Orthopedics, Oral Medicine & Radiology, Oral Pathology & Microbiology, Pedodontics & Preventive Dentistry, Public Health Dentistry). This is a three year course. The students admitted in Prosthodontics are given special training in Maxillofacial prosthesis and the Oral and Maxillofacial Surgery post graduates are provided training in the Head and Neck Surgery department also. Head and Neck Surgery is a multidisciplinary initiative to provide comprehensive treatment for the patient suffering from all major problems arising in the head and neck region such as congenital or acquired craniomaxillofacial deformity, otolaryngological disorders and cancer involving the head and neck region. The Department of Head and Neck Surgery is organized as a team, supported by the most modern diagnostic and treatment infrastructure.

This is the first of its kind clinical service, which brings under one umbrella a multidisciplinary team of specialists in the fields of head and neck surgery, plastic surgery, maxillofacial surgery, neurosurgery and otorhinolaryngology for the management of complex ailments of the head and neck region. This distinguishes AIMS from other post graduate dental institutions. Department of Orthodontics and Dentofacial Orthopaedics is an integral part of Sleep Medicine at Amrita Hospital.

Dental Mechanics Course

A two year diploma course in Dental Mechanics commenced during the academic year 2010-11 with 10 admissions. Amrita School of Dentistry is the first institution in the private sector in Kerala to commence such a course with the approval of the Dental Council of India.

Outreach - Dental Health Camps

As a part of Societal and Community Development program, Amrita School of Dentistry conducts free Dental Health Camps for the rural society and school children. In the Dental Health Camp conducted from June 2010 to May 2011, more than 10,250 people attended the dental check-up camp. The patients were examined and screened. Nearly 530 patients were treated at the camp and 17 patients were detected for Oral cancer. The camps were conducted in various schools like, Bharatiya Vidya Bhavan's Public School (Tripunithara), Amrita Vidyalayam (Elamakkara), Amrita College of Engineering (Amritapuri). The camps extended to areas in and around Ernakulum District (like, Aluva, Angamaly, Fort Kochi, Panampally Nagar, Edapally, Tripunithara, etc).

BDS (Bachelor of Dental Surgery)

Eligibility

1. Candidate should have completed 17 years but should not have completed 23 years of age by 31st December in the year of admission.
2. Pass in 12th standard in the first attempt
3. Must have obtained a minimum of 60% marks in English and 60% marks in Physics, Chemistry and Biology taken together, from any State Higher Secondary Board or equivalent. NRI's and Persons of Indian Origin (PIO) who qualify from foreign universities will have to produce an equivalence certificate from the Association of Indian Universities, New Delhi.
4. Those who appear for the qualifying examination in March / April 2011 can also apply.

Admission Procedure*

Selection is based on the rank obtained in the common entrance test held at national level.

Degree Details

Degree	Duration (in years)	Seats
BDS	4 years plus 1 year internship	60

*Admission process will however be subject to the final verdict of the Honourable Supreme Court of India.

MDS (Post Graduate)

Eligibility

Candidate, who holds BDS degree from a recognized Dental College and has obtained full registration from the Dental Council of India or any of the state Dental Councils.

Admission Procedure*

Selection is based on the rank obtained in the common entrance test held at national level.

Degree Details

Degree	Duration (in years)
MDS	3 years

*Admission process will however be subject to the final verdict of the Honourable Supreme Court of India.

Diploma in Dental Mechanics

Eligibility

Must have passed 12th standard with a minimum of marks 50% in English and 50% in Physics, Chemistry and Biology taken together, from any State Higher Secondary Board or equivalent. Candidate should have completed 17 years but should not have completed 23 years of age by 31st December in the year of admission.

Admission Procedure*

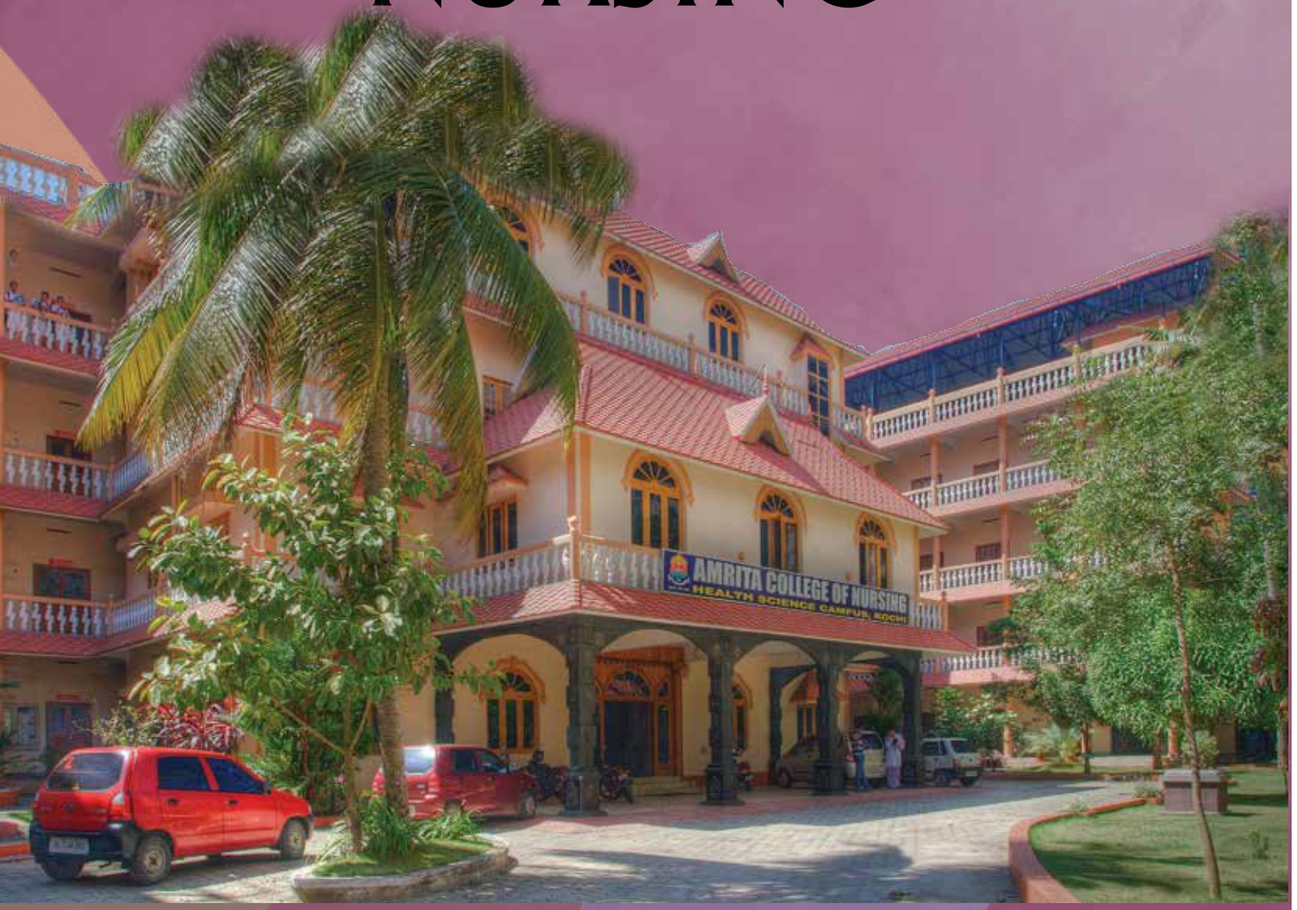
Selection is based on the marks obtained in the qualifying examination and a personal interview.

Course Details

Course	Duration (in years)
Diploma in Dental Mechanics	2 years

*Subject to change, to comply with the guidelines from UGC/DCI other competent authorities.

Amrita College of NURSING



The Amrita College of Nursing is committed to excellence in nursing education, research and development of leadership skills and human values. Situated within the Health Science campus in an exclusive building, the Institute provides an ambience, comprising state-of-the-art infrastructure, unparalleled technical expertise, diligent faculty, and above all, the instilling of values based on the rich Indian tradition and ancient culture.

The Amrita College of Nursing (recognized by Kerala Nurses' & Midwives' Council and Indian Nursing Council) is a centre for observation visit by students & faculty in and outside the state. It is the first college to start M.Sc. Nursing in the self-financing sector in Kerala in 2009.

Courses Offered

BSc Nursing

A four-year degree program with with an annual intake of 75 students. An all-round academic and clinical experience is offered through classroom teaching, varied clinical experiences, conferences, health exhibitions, talks by eminent personalities and visits to various places. The experienced and stable faculty (including 30 Postgraduates in various specialties) are a valuable asset to this Institution.

Post Basic BSc in Nursing

A two year course to upgrade the Diploma/GNM Nurses to Degree Nurses to assume professional responsibilities and make independent decisions in nursing situations in various settings. They are also expected to assume the role of teacher, supervisor, manager in a clinical/public health setting.

MSc Nursing

The program is offered in four broad specialties with an annual intake of 36 students. Clinical experiences for the M.Sc. Nursing Program in all the specialties are provided in the parent hospital, Amrita Institute of Medical Sciences. In addition to this, affiliation is taken from the National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore for Mental Health Nursing.

Facilities

The College of Nursing provides excellent library facilities, e-learning and all the required laboratory facilities.

Pre-clinical Laboratory

The college has a well-equipped pre-clinical lab. In this laboratory, students practice the nursing arts procedures before they start their actual practice in the clinical field. The laboratory is equipped with a chase doll, patient simulator, cardiopulmonary resuscitation mannequin and hand simulator in addition to the facilities in an ideal ward situation.

Community Health Nursing Laboratory

In this laboratory, the students practice the skills and techniques for family health care and public health activities. The laboratory is fully equipped with adequate sets of all the required items for the practice of home care in the community. Moreover, it has all the facilities for organizing various community health projects, camps, exhibitions and mass campaigns. The laboratory is unique as it provides for in-house preparation of various audio visual aids for information, education and communication (IEC) activities on health topics. It provides hands on experience to the students by simulating the family situations and helps students to develop competency for providing community health services.

Maternity Nursing Laboratory

This state-of-the-art laboratory facilitates the students to practice antenatal, intranatal and post- natal care before they go to the clinical setting. A mannequin to practice abdominal examination and delivery, episiotomy suture simulator, new born doll, instruments for different obstetric and gynaecologic procedures make it an apt setting to learn Maternity Nursing and Child Health Nursing.

Child Health Nursing Laboratory

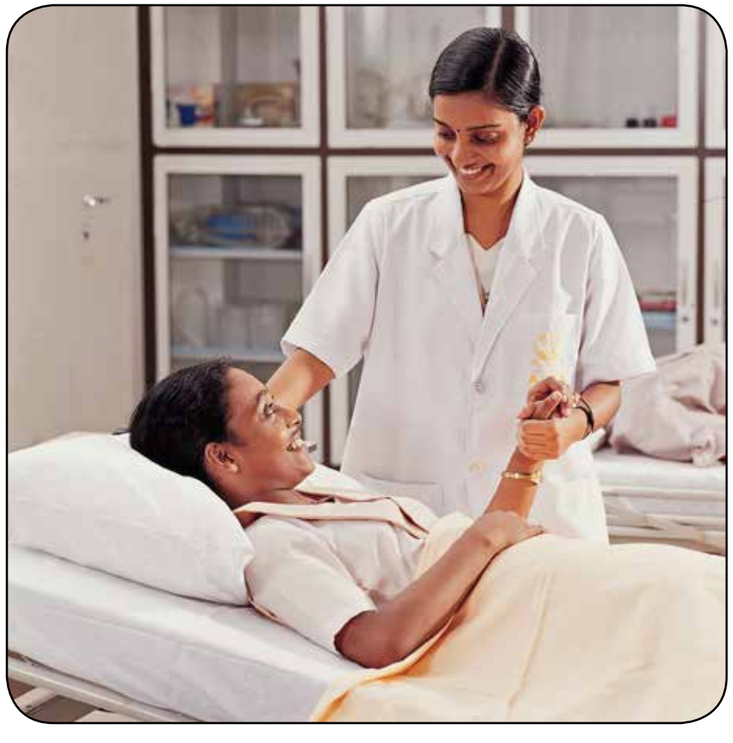
This newly set up laboratory has a baby mannequin to practice various paediatric procedures. The models depicting the milestones of growth and development, the play materials for various age groups and the charts on the key aspects of paediatric nursing are the unique features of this laboratory.

Nutrition Laboratory

In the nutrition laboratory the students are taught to prepare diets for normal individuals, pregnant ladies and also for those affected with various disorders. They practice under the guidance of a qualified dietician. The laboratory is equipped with facilities for cooling, storage, preservation of food and demonstration of diet preparation based on the nutritional needs of the people. Different types of exhibits required to conduct various health education programs are also prepared by the students in this lab.

Computer Laboratory

The computer lab is equipped with an adequate number of computers with Internet facility to train the students in basic computer applications. The students are trained by expert computer professionals.



Audio Visual Laboratory

The Audio Visual Laboratory is equipped with high-tech educational media to support the teaching-learning activities of the nursing students. The collection in this regard includes television, overhead projectors, slide projectors, audio/ video players, CD players, tape recorders, public address system, digital cameras, etc. In addition, this laboratory has excellent collections, models, charts, respiratory devices, positioning devices and other exhibits related to nursing arts. The audiovisual aids prepared by our nursing students in various academic subjects also decorate this laboratory. In short, the audiovisual laboratory makes the teaching-learning process simple and interesting.

All the classrooms are provided with LCD and intranet facility to facilitate the teaching learning process. Through intranet access all the students can access the power points and other ICT enabled learning materials prepared by different lecturers.

Language Lab

The practice of professional nursing within the country and abroad necessitates a good command over the English language for effective communication. Hence, we are in the process of setting up a language lab in the college.

Library

The Nursing College library has a wide range of textbooks and nursing journals, both Indian and foreign. At present, there are more than 5000 textbooks in our library. The library timing extends from 8.30 am till 12 midnight.

There is also a central library located in the Medical College. This central library has around 10,000 text books, 250 journals including foreign

Factors That Differentiate Our Nursing Academics
Clinical Orientation - 50 hrs.
BLS Training
Clinical Exposure to special areas like Head and Neck ICU , Nuclear Medicine, Cytogentics Lab etc.
Incorporating latest trends
Exposure to Tribal community.
Participation in Medical Camps
Interaction with experts from different fields
Organizing academic exhibitions
Participating in Workshops and Conferences.
Cultural education classes

medical journals, which the nursing students also utilize for reference. The library offers Internet facilities and an excellent intranet "AMRITA UNIVERSITY MANAGEMENT SYSTEM (AUMS)" program for information on the latest advancements and accomplishments of the various disciplines in the hospital. There are the following online databases: Clinical Key, PROQUEST, Delnet, Ovid, Pubmed, and OPAC. In addition, 341 online Nursing Journals can be accessed.

Departments

Medical Surgical Nursing

Medical Surgical Nursing is the mainstay of the BSc Nursing Degree Program. In the second year, the students have an extensive exposure to patients with various medical and surgical disorders of various body systems. Beside the main subjects of medical and surgical nursing, subjects such as pharmacology, pathology and genetics, enhance the scientific knowledge of the students. As part of Surgical Nursing, the students will have the clinical experience in the preoperative unit, operation theatre and post-operative care settings. Specialists in General Medicine, General Surgery and other specialties take classes for the students along with the nursing specialists in Medical Surgical Nursing.

In the third year, the students learn critical care nursing concepts and advanced nursing care in various specialties like Cardiology and Cardiac Surgery, Neurology and Neurosurgery, Nephrology, Oncology, Eye and ENT and Plastic and Reconstructive Surgery. The students are provided with unique ICU experience in our multi-specialty ICUs (including Medical ICU, CVTS ICU, Neuro ICU, Ortho ICU, Plastic Surgery ICU, Dialysis Unit, Oncology and Eye and ENT Units). This experience equips the students with various skills required in critical care nursing based on a sound knowledge of the pathophysiology of various disorders. The students conduct seminars, symposiums, and group discussions, care studies, care analysis, case presentations and procedure demonstrations to enhance their knowledge and skills. The faculty imparts in depth knowledge to the students by various innovative teaching methods. The nursing process approach is used to provide nursing care to patients with which the students assess the client's problems, formulate the nursing diagnoses and objectives, plan and implement nursing care, and evaluate the effectiveness of care.

Community Health Nursing

Community Health Nursing is the specialty preparing the students to meet the ever-changing challenges of society. It helps to develop competencies in the students for community oriented nursing practice through teamwork and intersectoral collaboration. The course orients the students to the concept of positive health and successful living and focuses on the families in the community and population groups with health risks.

Experimental learning prepares the students to identify and solve health problems in the community through innovative and cost effective strategies of primary health care. The practical experience is

provided in settings like the Amrita Community Health Training Centre (Njarakkal), Amrita Urban Health Center (Kaloor), and in the adopted villages of Njarakkal Panchayat in collaboration with the Department of Community Medicine. This includes opportunities for participation in various National Health programs and an array of guided observation visits to various locations of public health importance.

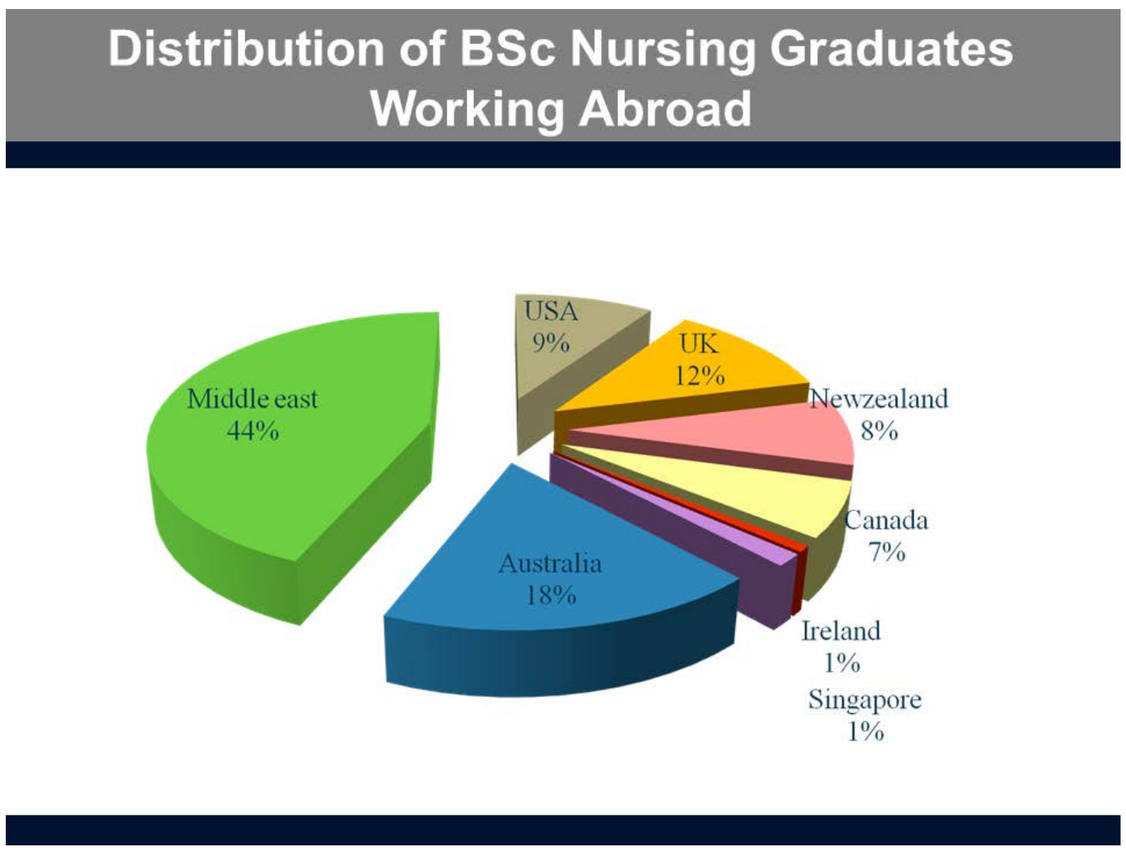
This department regularly organizes household surveys, epidemiological investigations, health projects, mass campaigns, home visits, family health care programs, school health programs, special clinics, etc. in the adopted villages. The awareness campaigns, exhibitions, and health education activities organized in the villages train the students to effectively interact with the community on health topics. Thus, this department is acting as the campus-community link of the college.

Child Health Nursing

Child Health Nursing includes Child Health Medicine and Surgery and is placed in the third year of the program. The objective of the course is to prepare students to identify the normal growth and development of children and deviation from the normal. They are also prepared to give comprehensive nursing care to children suffering from various diseases. Special emphasis is given to embryology, genetics, neonatology, growth and development, behavioural and social problems, child psychology, paediatric medicine, surgery and nutrition. In addition to the nurse specialist in the subject, experts in the field of paediatric medicine, paediatric surgery and child psychology deal with the subject. The students also have the privilege of familiarizing with the most sophisticated equipment and technology related to client care, especially in our Paediatric Cardiology, Paediatric Cardiac Surgery units, Paediatric Neurology, Neonatology, Gastroenterology and adolescent medicine.

Mental Health Nursing

Mental Health Nursing is in the third year of the BSc Nursing program. This course is designed for developing an understanding of modern concepts of mental health, mental illness, and principles of mental health nursing, and for making the student function



effectively as a member of the interdisciplinary mental health team.

The mental health nursing department organizes programs aimed at enabling the students to identify the mental health needs and problems of their clients and to acquire skill in providing comprehensive health care to them, applying preventive, promotive, curative and rehabilitative aspects of mental health care and the principles of mental health nursing. This is achieved by the expert guidance of the psychiatric nursing faculty and other members of the mental health team like psychiatrists, clinical psychologists, psychiatric social workers etc.

The students receive clinical experience from mental health centres. Their clinical experience is enriched from observational visits to various facilities like psychiatric rehabilitation centres, residential care facilities, special schools for the mentally retarded, children with physical and psychological disabilities, de-addiction centres, orphanages and old age homes. The department also offers counselling services for students having psychological and adjustment problems.

Nursing Education and Administration

The BSc Nursing Program not only prepares the students to take care of the individuals in the hospital and community but also prepares them to be nurse managers and nurse educators. Nursing education and administration are subjects which focus on preparing students for these positions. Nursing education deals with philosophies, principles, and methods of teaching, the teaching-learning process, and curriculum development. The aim of this course is to equip the student with the basic skills in the art of teaching nursing. Hence, it includes supervised teaching practice. Experience in assisting the nurses in charge of the wards, and in the service education department, prepares the students to be prospective nurse managers.

Obstetrics and Gynaecologic Nursing

The aim of the department is to prepare the students with the knowledge, skill and attitude to function as midwives and provide comprehensive nursing care to antenatal, intranatal and postnatal mothers and newborn babies with due emphasis on high-risk clients. The students are also equipped to work with child-bearing families in their final year which gives them the opportunity to experience the essence of nursing at its best. Teaching and clinical experience are provided under the guidance of a specialist nurse and obstetrician. During this period, they complete perinatal care including conducting of deliveries

BSc Nursing

Eligibility

Must have passed 12th standard in the first attempt and with a minimum of 50% in English and 60% in Physics, Chemistry and Biology taken together, from any State Higher Secondary Board or equivalent. NRI's and Persons of Indian Origin (PIO) who qualify from foreign universities will have to produce an equivalence certificate from the Association of Indian Universities, New Delhi. Candidate should have completed 17 years but should not have completed 23 years of age by 31st December in the year of admission. The candidates shall be medically fit.

Admission Procedure*

Selection is based on the marks obtained in the qualifying examination and a personal interview.

Degree Details

Degree	Duration (in years)	Seats
BSc Nursing	4 years	75

* Subject to change, to comply with the guidelines from UGC / INC / KNC / other competent authorities.

MSc Nursing

Eligibility

1. The candidate should be a Registered Nurse and Registered Midwife with any State Nursing Council.
2. The candidate should have passed BSc Nursing or BSc Hons. Nursing or Post Basic BSc Nursing with minimum of 55% aggregate marks from an Institution recognised by the INDIAN NURSING COUNCIL.
3. Candidates should be medically fit.
4. Minimum 1 Year of work experience after basic BSc Nursing or prior or after Post Basic BSc Nursing.

Admission Procedure*

Selection is based on the rank obtained in the All India entrance test conducted by **Amrita Vishwa Vidyapeetham**.

Degree Details

Degree	Duration (in years)	Seats
MSc Nursing	***2 years***	***Total 36***
a) Medical Surgical Nursing	2 years	17
b) Paediatric Nursing		9
c) Psychiatric Nursing		5
d) Obstetrics & Gynaecological Nursing		5

* Subject to change, to comply with the guidelines from UGC / INC / KNC / other competent authorities.

Post Basic BSc Nursing

Eligibility

1. The candidate should not have completed 30 years of age on or before 31st December in the year of admission.
2. The minimum educational requirement shall be passing of :

   Higher Secondary School Certificate Examination (12 years course)

   Or

   Senior School Certificate Examination (10+2) , Pre-Degree Examination (10+2)

   Or

   An equivalent with 12 years schooling from a recognized Board or University and 55% marks in GNM.

   Should have RN/RM registration under KNMC at the time of application.
3. Candidate shall be medically fit.

Admission Procedure**

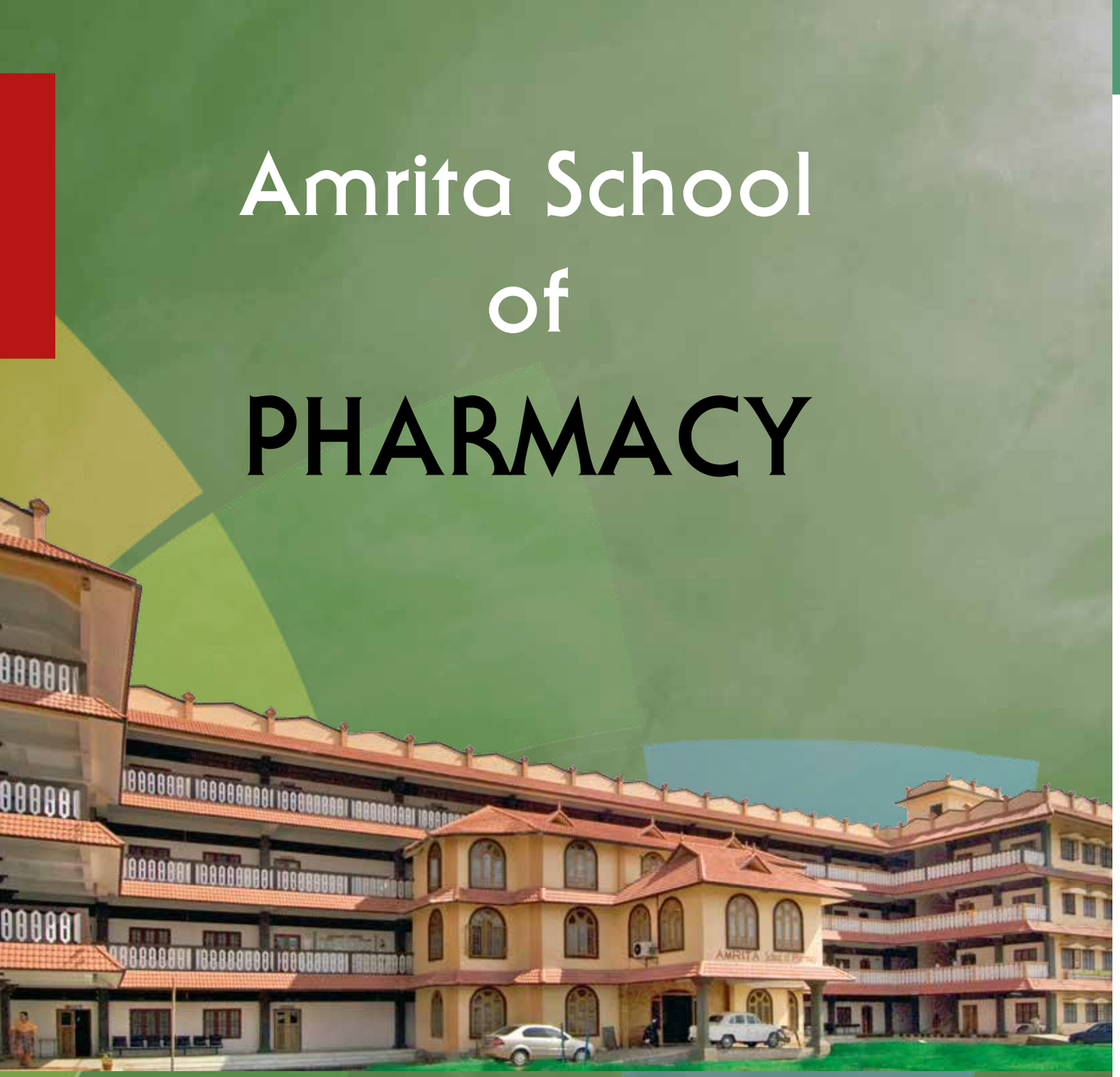
Selection is based on the rank obtained in the All India entrance test conducted by **Amrita Vishwa Vidyapeetham**.

Degree Details

Degree	Duration (in years)	Seats
Post Basic BSc Nursing	2	50

**Subject to change, to comply with the guidelines from UGC / INC / KNC / other competent authorities.

Amrita School of PHARMACY



Established as a Centre of Excellence in the field of Pharmaceutical Sciences, the School's location in the Kochi campus makes it ideally suited to offer high quality infrastructure for training and research in Pharmacy.

Amrita School of Pharmacy, an integral component of Amrita University, is the first to start functioning among the schools under Health Sciences campus.

Located in the vibrant city of Kochi, Amrita School of Pharmacy offers training for one of the most sought after professions. The School's commitment to excellence in healthcare is in line with the overall objective of the Kochi - based Health Sciences campus of the University.

The School of Pharmacy strives not only to provide quality education in pharmaceutical sciences but also to establish itself in research and serves as an ideal platform for the overall development of highly competent pharmacy professionals. The School maintains an exemplary clinical practice and conducts community outreach programmes that address the needs of Kochiites and the society at large.

Amrita School of Pharmacy is housed in a self contained, calm and quiet four storied building with a built up area about 90,000 sq.ft. It has 13 laboratories, a full fledged library and all other facilities for academic programmes at UG,PG and research levels.

PROGRAMMES OFFERED

- BPharm (4 years – 8 semesters)
- MPharm (2 years – 4 semesters)
  - Pharmacy Practice
  - Pharmaceutics
  - Pharmaceutical Chemistry
  - Pharmacology
- Pharm D Regular (4 years)
- Pharm D Post Baccalaureate (3 years)
- PhD in Pharmaceutical Sciences

The major departments of the school include:

- Dept. of Pharmacy Practice
- Dept. of Pharmaceutics
- Dept. of Pharmaceutical Chemistry
- Dept. of Pharmacology
- Dept. of Pharmacognosy

It utilizes the wide variety of resources available at the various centre of the Amrita Institute of Medical Sciences and the University for providing theoretical and practical training and orientation to the students. The School gives equal importance to Industrial pharmacy and research aspects of Clinical pharmacy. The students are encouraged and motivated to take part in the charitable outreach work of Amrita Institute of Medical Sciences (AIMS).

Our vision is to be a centre of excellence ensuring high quality value based education with an international focus and unwavering commitment to provide quality teaching and innovative research to students from all sections of society regardless of race, caste, religion or economic condition, paving the way for socioeconomic development of the nation. Amrita School of Pharmacy is recognized by the Pharmacy Council of India (PCI), All India Council for Technical Education (AICTE). The School and the University are accredited by the National Assessment and Accreditation Council (NAAC) with 'A' grade.

HOSPITAL TRAINING FACILITIES

Being located in AIMS Campus, the School of Pharmacy offers excellent training and residency facilities for students at all levels in AIMS Hospital which is a 1200 bedded multispecialty tertiary care teaching and referral hospital.

Hospital Pharmacy posting

The B.Pharm students in the final year and Pharm.D students in the second year are given training in the AIMS hospital pharmacy. AIMS hospital pharmacy has inpatient pharmacy, out patient pharmacy, pharmacy main store and satellite pharmacies spread over various locations in the hospital. It has a well maintained inventory with over 2000 molecules and are pioneers in the concept of satellite pharmacy. The students are posted in the main store and various IP/OP pharmacies which give them a practical exposure to inventory management and dispensing of medicines.

Clinical Pharmacy postings

The Pharm.D students from their 4th year and Pharm.D(PB) and M.Pharm - Pharmacy Practice from their first year are posted in various clinical departments of AIMS hospital. This include posting in various specialities and subspecialities of AIMS hospital where they are trained on conducting a complete patient interview, review of drug therapy, patient counseling etc. This kind of training for two years enable the Pharm.D students to play an active role in clinical pharmacy services during their internship. The Pharm.D actively participate in the ward rounds and provide unbiased up to date information regarding any aspects of drug on a timely manner, and they also provide suggestions on drug therapy and drug administration related issues. The excellent clinical facility for training the students make our Pharm. D programme the best in the country.

Pharmacovigilance activities

With the help of other Health Care Providers, Pharmacovigilance activities are carried out by the Pharmacy Practice department in the hospital which monitors, evaluates and reports adverse drug reactions

occurring during the treatment of patients in the hospital. The faculty and students identify, analyze and resolve various drug related issues including medication errors.

Patient Counselling

Amrita School of Pharmacy manages a patient counseling centre for discharged patients in AIMS hospital. This centre is being managed by an Assistant professor from the Department of Pharmacy Practice utilizing the services of the Post Graduate students. The patients are given information regarding their disease conditions, life style modifications if required, proper usage of medications and medical devices.

The verbal counseling is supplemented by visual aids and printed handouts wherever needed. Alert cards are supplied for selected patients who have suffered from an adverse drug reaction or are on certain medications which require warning /cautions.

Drug Information Services

Amrita School of Pharmacy has established a drug information centre attached to the department of Pharmacy Practice. This centre functions on all days. The students are given training in drug information routinely as part of their curriculum. The centre provides unbiased up to date information regarding the availability, dosage, drug interactions, adverse drug reactions, drug use in pregnancy and lactation or any other aspect of drug use.

Library Facilities

Besides the School library, a Central Library facility located in the Medical College serve the intellectual thirst of the students. The Pharmacy School Library has over 4236 books and about 61 journals

Central Research Facility

The central research facility of the campus supports the research at the school by providing both the expertise in interdisciplinary research as well as high end research infrastructure. The students of M.Pharm & Ph.D utilize facilities like DLS, scanning electron microscope, confocal microscope, flow cytometry etc for their research work

Animal House

The animal house facility for the health sciences campus located close to the pharmacy school is approved by CPCSEA for both animal breeding and experimentation, for small as well as large animals. The facilities like animal MRI, nude mice facility, histopathology lab etc. make it an outstanding preclinical research lab for the campus.

ACADEMIC PROGRAMMES

BPHARM

Pharmaceutics

The subject deals with the practical aspects of formulation, preparation and analysis of various pharmaceuticals and cosmetics.

Pharmacology

This helps the student gain knowledge and scientific information regarding pharmacology of drugs, practical aspects of pharmacological screening for various medicinal agents using the animal model, pharmacological calculations, biological standardization, and in-vivo drug interactions and toxicity studies.

Pharmacognosy

The subject of Pharmacognosy deals with drugs of natural sources like herbal drug cultivation methods, biotechnological methods, formulation and production of herbal pharmaceutical pro ducts and their evaluation. The students will develop adequate skill to extract, purify, identify, and know the therapeutic value of herbal/crude/ natural products.

Pharmacy Practice

The subject of Pharmacy Practice deals with Hospital, Clinical and Community Pharmacy. It provides understanding of the processes involved in providing primary healthcare, drug information and other clinical pharmacy services in different practice environments. This enables students to acquire knowledge of clinical studies for patient counseling, drug information, adverse drug reaction monitoring, toxicological studies, therapeutic drug monitoring and other similar aspects of clinical pharmacy.

PHARM D (Regular)

PHARM D (Post Baccalaureate)

Doctor of Pharmacy is a hospital oriented globally accepted pharmacy program. We have started the program PharmD (Regular) and PharmD (PB) in 2010 for the first time in Kerala.

Doctor of Pharmacy (PharmD)

Regular course: This is a six year course after completion of the plus two with science stream. The course is approved by the Pharmacy Council of India and the intake is 30 students per annum. The course is designed in such a way as to provide them maximum clinical exposure in order to mould them as a competent member of health care team.
The students during their clinical postings actively participate in ward rounds and contribute for better patient medication management and patient education on proper use of drugs. The students undergo internship/residency during the final year (6th year) for one year in various departments of the specialty teaching hospital in the campus.

Doctor of Pharmacy (PharmD) Post Baccaulureate: This is a three year course after B.Pharm graduation. The course is approved by AICTE and PCI. The current annual intake of students is 10. There will be internship or residency for one year (in the final year) in the hospital. After completion of the course, the candidates can work as a fully integrated member of the health care team and help maximize drug efficacy, minimize drug toxicity and promote cost effectiveness.

MPHARM

MPharm - Pharmacy Practice
(Hospital and Clinical Pharmacy)

The aim of this course is to equip the pharmacy professional with the required skills, attitudes and knowledge to become a practicing clinical pharmacist and mould him as an efficient member of the health care team.

MPharm - Pharmaceutics

This program helps the students to become experts in formulation development assessment of bioavailability and other technical aspects of drugs and cosmetics and help them to become competent professionals to work in the various units of the pharmaceutical industry.

MPharm - Pharmaceutical Chemistry

This programme gives necessary orientation and practical training in design, synthesis and characterization of medicinal compounds.

MPharm Pharmacology

The programme will give training in basic aspects of both experimental & clinical pharmacology and will mould them for management of preclinical and clinical drug research either in academia or Pharmaceutical industry.

PhD IN PHARMACEUTICAL SCIENCES

Amrita School of Pharmacy offers PhD degree in various areas of drug research. Topics related to Pharmacy practice, Pharmacology, Pharmaceutical Chemistry, Herbal drugs, Quality Control , Biotechnology, Nanotechnology, Pharmaceutical Management and other aspects of Pharmaceutical Sciences are some of the special areas of interest of the PhD program.

B.Pharm Course of Study

Semester 1	Semester 2	Semester 3	Semester 4
Pharmaceutical Chemistry - I & II (Inorganic)*	Pharmaceutical Chemistry – II* (Elementary Organic Chemistry)	Pharmaceutical Chemistry – III (Pharmaceutical Organic Chemistry)	Pharmaceutical Chemistry – IV (Heterocyclic and Stereochemistry)
Dispensing Pharmacy - I*	Dispensing Pharmacy – II*	Physical Pharmacy - I*	Physical Pharmacy – II*
Principles of Hospital Pharmacy (Hospital Pharmacy – I)*	Drug Store Management (Hospital Pharmacy – II)*	Social and Community Pharmacy	Pharmaceutical Microbiology
Human Anatomy and Physiology – I*	Human Anatomy and Physiology – II*	Pharmaceutical Technology	General Pharmacology
Computer Application and Audio Visual Programs#	Mathematics and Biostatics#	Pharmacognosy – I*	Pharmacognosy – II*
Value Based Education and Environment Science#	Basic Concepts of Social Life and Psychology	Pharmaceutical Analysis - I	Pharmaceutical Chemistry – V (Biochemistry)
Semester 5	**Semester 6**	**Semester 7**	**Semester 8**
Pharmaceutical Chemistry – VI (Chemistry of synthetic drugs)	Pharmaceutical Chemistry – VII (Medicinal Chemistry)	Pharmaceutical Analysis – III* (Instrumental)	Pharmaceutical Chemistry – VIII (Medicinal Chemistry and Drug Design)
Biopharmaceutics and Pharmacokinetics	Pharmaceutical Jurisprudence	Formulation Technology	Industrial Pharmacy
General Pathophysiology	Pharmacy Practice – Concepts and Management	Pharmacotherapy - I	Pharmacotherapy - II
Systemic Pharmacology - I*	Systemic Pharmacology - II*	Systemic Pharmacology - III*	Biochemical Pharmacology (Biological Screening and Drug Development)
Phytochemistry	Research in Pharmacy and Clinical Research Trials	Industrial Pharmacognosy	Clinical Pharmacy Practice
Pharmaceutical Biotechnology	Pharmaceutical Analysis II*	Project#	Project

* Practical Examination will be conducted for these subjects at the end of Semester 2, Semester 4, Semester 6, and Semester 8 respectively.

Subjects for School level examination.

BPharm	MPharm
Eligibility	
Must have passed 12th standard with a minimum of 50% marks in English and 50% marks in Physics, Chemistry, Biology. In place of Biology, Maths or Biotechnology or Computer Science are also acceptable.	Candidates who have passed B.Pharm from an institution approved by the Pharmacy Council of India (PCI) with at least 50% marks for all the subjects of the B.Pharm course from second year to fourth year examinations shall be eligible for admission to the Master of Pharmacy (M.Pharm) Course. Preference is given to GATE/GPAT*** qualified candidates.
Selection*	
Selection is based on the marks obtained in the qualifying examination and a personal interview..	Selection is based on the marks obtained in the qualifying examination and a personal interview.

Degree Details

Degree	Duration	Seats
BPharm	4 years	60
BPharm Lateral Entry	3 years	6
MPharm	2 years	10 in each section**
PhD		

*Subject to change, to comply with the guidelines from UGC/PCI other competent authorities.

**Sections are: 1) Pharmacy Practice, 2) Pharmaceutics, and 3) Pharmaceutical Chemistry.

***Candidates with valid GPAT score card, once admitted to MPharm are eligible to receive monthly stipend as per AICTE norms.

Pharm D	Pharm D (PB)
Eligibility	
1. Candidate should have completed 17 years but should not have completed 23 years of age by 31st December in the year of admission. 2. A pass in any of the following examinations: a) 50% marks in 10+2 examinations with Physics and Chemistry as compulsory subjects along with Mathematics or Biology. b) A pass in DPharm course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act c) Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examination	a) BPharm degree from an Institution approved by the Pharmacy Council of India (PCI), b) Not less than 50% of the maximum marks for all the subjects of the B. Pharm course from second year to fourth year examinations. c) Candidates with GATE / GPAT score preferred.
Selection*	
Selection is based on the rank obtained in the All India entrance test conducted by Amrita Vishwa Vidyapeetham.	Selection is based on the marks obtained in the qualifying examination and a personal interview.

Degree Details

Degree	Duration	Seats
PharmD	Five years plus one year internship or residency	30
PharmD (PB)	Two years plus one year internship or residency	10

*Subject to change, to comply with the guidelines from UGC/PCI/ other competent authorities.

Master of HOSPITAL ADMINISTRATION

Today the success of a hospital manager lies in multidisciplinary conceptual skill development and to protect medical profession and clients from unnecessary litigation, human resource development, quality management, risk management, environment conservation, marketing and product diversification, and logistic emergency management.

Master of Hospital Administration Program

The Master of Hospital Administration training program aims at prepareing a candidate to assume the responsibilities of a hospital administrator/executive in a government or corporate or any other hospital.

This training program emphasizes developing knowledge components, skill and attitude pertaining to hospital managers, and helping the candidates in developing expertise in planning and managing different types of hospitals in our social setting.

The concept of professionalisation, development of specialized skills and leadership in hospital administration has further emphasized the need to rationalize the resource utilization and maximize output in the health sector. Therefore, the hospital administrator of the future needs to be well equipped to meet the challenges arising out of rising health care cost – procurement, utilization, maintenance and cost effective analysis of technology import.

Objective of the program

As the health delivery system expands, and the pressure to provide services at reduced costs grows, the role of the administrator is expected to grow. Health administrators face the unique challenge due to the changing nature and increasing requirements of patient care services. They have to be good decision makers. An understanding of hospital operations, finance, information systems, human relationships and leadership skills is essential for a successful career in this field. The ultimate objective of this program is to carve out young professionals capable of solving complex problems facing the healthcare management scenario.

Why choose healthcare administration studies at AMRITA?

We offer both in depth theoretical knowledge as well as excellent practical job oriented exposure. In house campus facilities at the internationally acclaimed centre of excellence in healthcare, the Amrita Institute of Medical Sciences, provide a place for continuous learning where our on-site modules continuously supplement the theory courses spanning the entire program over four semesters. The Healthcare Campus includes the Schools of Medicine, Dentistry, Nursing, Pharmacy and Nanomedicine.

Eligibility for Admission

Graduation in any Discipline with minimum 50 % marks.

Degree structure

The Two year (four semesters) postgraduate degree program is designed to provide an equal split between theory and practice.

Program contents

Principles of Healthcare Management, Human Resources Management, Managerial Communication, Hospital Operations and Services, Behavioural Science in Management, Organisational Behaviour, Culture Education and Ethical Practices, Managerial and Healthcare Economics, Medical Terminologies, Medical Records Documentation, Group Dynamics and Team Building, IT for Management, Hospital Supportive Services, Marketing of Hospital Services, Materials Management and Inventory Control, Finance Management, Costing and Management Accounting, Operations Research and Biostatistics, Business Laws and Medico – Legal system, Customer Relationship Management, Public Relations, Nursing Administration, Emergency Preparedness, Medical Informatics and Telemedicine, Community Medicine and Outreach, Quality Assurance, Medico-legal Systems, Strategic Management and Facilities Planning, Soft Skills, Medical Insurance, Consumer Behaviour, Safety Engineering in Hospital, Employee Training and Development, Research Methodology, Biomedical Waste Management, Quantitative Techniques, Case Studies Presentations, Organizational / Hospital Visits, Internship Projects, Main Full Time Project, Dissertation and Viva voce (Final Semester).

On-Site module and the systematic approach of teaching and assessment

A blend of theoretical sessions, class room discussions, individual and

group tasks led by full time and part time / visiting expert faculty from healthcare and management domains. Aptly supplementing this, during the four semesters of the MSc(Hospital Administration) program the practical training and orientation at Amrita Institute of Medical Sciences will prepare the student for a career that is not only exciting but vital to the lives of thousands of people. Students will be assigned to various departments. They will be using the inputs from various departmental resources like the Clinics, Human Resources (HR), Medical Records Documentation (MRD), Nursing, Materials and Purchase, Finance, Facilities and Maintenance, Research, Quality and Standards, HIS and the Library. Initially, they will learn each aspect and functioning of the departments. Later on, they will consolidate their efforts towards problem solving exercises as a component of knowledge implementation.

Students will study every aspect of the following in learning process:

OP and IP divisions of departments; role of medical and paramedical staff; interfacing medical and non-medical functionalities; role of equipments and instruments; procedures; deployment of IT; assessment of employees, performance standards, disease trends and disease statistics in the departments; prevention and health protection; promotion of community interface; precautions adopted for confidentially, security and privacy; fees for different procedures and their comparison in the community, Cost factors, Inventory scheduling and activities, Role of employees in the community healthcare and checkup camps, role of a department in developing medical tourism.

Students will be asked to rigorously read standards text books and journal articles related to a department to fully understand a department and its ancillary functions and share the content by making oral and power point presentations regularly on the problems that they observe and make recommendations.

Gradually the students will gain knowledge in the higher realms like:

- Comprehensive study of the assigned department(s)
- Performance measurement and utilization review on:

Utilization of space, Utilization of rooms, Utilization beds, Utilization and output of nurses, Utilization and output of staff, Utilization of ward beds versus private rooms, OP patients that go to surgery, OP patients that becomes IP patients, Workload, Discharge procedures, Use of HIS in all services / procedures, Materials management, Customer service, Quality assessment, Patient satisfaction, Safety, Disaster Management, Compliance, Consent Issue, Interdepartmental Communication, Physical Plant, Upkeep, Risk Management, Outcomes, Conservation of Energy, Hospital Acquired Infections.

At the end of the training process students will consolidate and also improvise skills exhibiting in the areas of Professionalism, Leadership and Decision making. In the final phase of their MScHA programme they will focus their attention on Specific Full time Project with a mission to prove their caliber in problem solving, analysis and execution.

Jobs and Careers Waiting?

Master of Hospital Administration degree will open up a variety of doors for you, providing opportunities for advancement in your career as a health care professional. In the present day scenario hospitals and healthcare settings have become so complex, challenging and competitive. This requires professionally trained manpower. Therefore there are many career options whether you want to work in health care management, administration, research, insurance, public health, consulting, or another setting. It is estimated that anything not less than 25,000 trained manpower requirements exist in our country. Many healthcare service outlets abroad especially the Middle East, Europe and the West are looking for manpower from India.

Commonly, you will work with healthcare providers. In this setting, you can expect to work in the ongoing management of a health care facility, most often in a hospital. Job will likely revolve around general administration, HR, business development, risk management, patient care and safety, facilities management, finance, inventory, marketing of services and strategic planning, depending on your area of choice, talents and the needs of the specific facility.

Alternately one can work with health care suppliers, the organizations that give health care facilities like supplies, equipment, and financial and insurance services that are necessary for a hospital. These include pharmaceutical companies, training organizations, consulting firms, firms doing market research, and analysis, health care supply and equipment manufacturers, health care provider and insurance companies, and biotechnology companies.

Outreach Learning Experience

Students are also deployed on variety of outreach and community activities like organizing specialty medical camps, awareness sessions, visits to various other hospitals including that of Indian systems, market research surveys and participating as delegate presenters and volunteers in national and international conferences in healthcare. These unique opportunities will bring out the innate talents of the students for proper communication, group dynamic behavior and inculcate values for selfless service.

Placement Training

All the students are imparted compulsory professional training in Life Skills and Aptitude for Campus Recruitment.

Amrita Centre For Nanosciences & Molecular Medicine

Amrita Centre for Nanosciences & Molecular Medicine serves both as the research wing of Amrita Institute of Medical Sciences (AIMS) as well as an independent Centre with its own nonmedical research areas.

Recent advances in Nanosciences and Technology and Molecular Medicine has created an explosion of potential applications in the field of medical sciences and engineering, including new medicines and diagnostic systems, energy and electronics.

ACNSMM is at the forefront of many of these areas. In the biomedical applications of nanotechnology ACNSMM is one of the top institutes in India because of its close integration with the super-specialty hospital and its strong emphasis on clinical applications. In recognition of this, the Ministry of Science and Technology, Government of India has designated the Centre as a Thematic Unit of Excellence in Medical Bio Nanotechnology. In the energy area, ACNSMM is the only centre in India that is fully integrated with manufacturing capability of different types of solar modules along with R&D in storage integrated solar modules. The solar division of ACNSMM is also a recognized Centre by the Ministry of New and Renewable Energy (MNRE) of the Government of India. The Centre has state of the art facilities in biomedical and energy areas and, in this respect, is the only such facility in India offering such a comprehensive R&D environment. ACNSMM is an independent Centre under the Amrita University with both research and academic components. The Centre offers three Master of Technology programs: one in Nanomedical Technology; one in Nanotechnology and Renewable Energy and one in Molecular Medicine. We are only one of two Centres in India offering an MTech degree in Molecular Medicine. In total there are over 60 students currently doing MTech and about 75 PhD students in various advanced research and product development areas. All PhD students are fully supported in their research through grants and fellowships. Both MTech and PhD students have a thesis requirement and all students therefore get extensive experience in hands-on research, experience in advanced equipments and research methodology.

In the biomedical area some of the leading focus areas of research is in the development of natural tissues and organs through tissue engineering using biodegradable scaffolds, design and development of drug delivery systems for cancer, neuro-degenerative diseases, pain management and infectious diseases and the development of new imaging and diagnostic tools using nanotechnology. In the energy area, quantum dot-based dye sensitized solar cells are under investigation, as also is the development of advanced long-life batteries and pseudo-capacitors and solar integrated storage technologies.

Some of the advanced state of the art research laboratories that have been established are:

1. **High Resolution Microscopy Laboratory** with HRTEM with STEM capability, a high resolution Scanning Electron Microscope and Atomic Force Microscope and a Fluorescence microscope. Recent additions to the lab include the new generation Spectral Confocal Laser Scanning Microscope and scanning confocal Raman microscope.

2. **MALDI-TOFF Mass Spectrometer Laboratory** for identification of proteins.

3. **A class 10,000 cell culture facility** with multiple stations and equipped with an advanced patch clamp fluorescence cell manipulator and injector microscope for mechanistic studies

4. **Proteomics Laboratory** with a Luminex BioPlex 200 system for identification of a range of proteins of proteins

5. **A 7 Tesla Animal MRI Imaging Laboratory** for in-vivo biodistribution studies

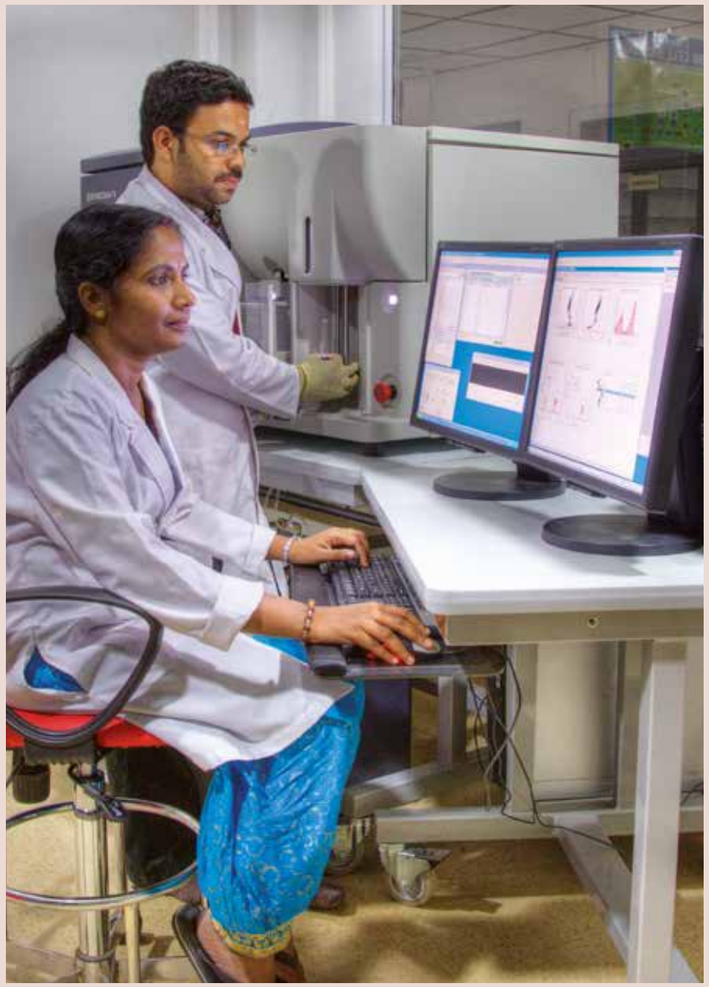
6. **Nanochemistry Laboratory** for wet chemical processing of various types of nanomaterials such as inorganic, metallic and polymeric nanoparticles.

7. **Nanocharacterization Laboratory** with FTIR, UV-VIS Spectrophotometer, Spectrofluorimeter, Thermal Analysis Systems (DSC, TGA/DTA) and Particle Sizer with Zeta Potential Analyser for phyiso-chemical characterization of nanomaterials.

8. **Mechanical Testing and X-ray Diffraction Laboratory** with a servohydraulic mechanical testing system for mechanical characterization of samples and a powder x-ray diffractometer for studying the crystallinity of samples.

9. **Polymer Chemistry Laboratory** for processing of polymeric nanomaterials and their composites, with Gel Permeation Chromatograph for the characterization.

10. **Nanofiber Preparation Laboratory** with multiple systems lined up for electrospinning polymeric solutions onto stationary, rotating as well as translating targets and setup for fabricating three dimensional scaffolds. Viscosity, contact angle and surface



tensiometer and independent hoods for electrospinning are setup in the laboratory.

11. Polymer Processing Laboratory for melt processing of polymers as well as nanocomposites using Minijet Haake mixing instrument and Minilab Haake moulding machine.

12. A Physico-Chemical Characterization Laboratory with FTIR, DSC, UV Vis, tensile and gel tester, DLS system and TG-DTA

13. Tissue Nanoengineering Laboratory with several equipments for molecular biology studies including PCR, RT-PCR, Western Blotting apparatus, Chemi-doc system, Microplate Reader, Gel doc system, Multimode Plate Reader, etc.

14. Drug Delivery Laboratory equipped with facilities for carrying out preparation of nano drug delivery vehicles for hydrophobic and hydrophilic drugs using biocompatible, biodegradable polymers and an HPLC system for quantitative determination of drug entrapment and release.

15. Nanotoxicology Laboratory equipped with a non-invasive, whole animal multispectral imaging system having fluorescence and X-ray imaging capabilities.

16. Nanomedicine Laboratory having facilities for preparing varieties of polymeric and inorganic nanomedicines for targeted and non-targeted cancer therapy and diagnosis, malaria, inflammation, etc.

17. RNAi Laboratory for developing targeted nanomedicine based gene silencing with all facilities for genomic studies.

18. A Central Facility equipped with a range of freezers, HPLCs, centrifuges, lyophilizers, DNA Sequencer, Digital HPLC, Multimode Plate Reader and core facility for isolation and characterization of stem cells from various sources including umbilical cord vein, umbilical cord blood and bone marrow.

19. A FACS Laboratory with state-of-the-art Flow Cytometer with cell sorter for diagnostics and stem cell characterization and isolation.

In the Technology and Energy areas, additional advanced state of the art laboratories include:

20. Thin Film deposition Laboratory with Spray Pyrolysis Deposition system and associated module robotics for inorganic films and Climate Controlled Electrospinning deposition to include organic films

21. XPS Laboratory for surface analysis of materials

22. Pseudo-Capacitor Laboratory with Glove Box and characterization facilities

23. Solid State Battery Laboratory for processing and characterization of Li ion based solid state batteries

24. Nano Carbon Laboratory with CVD for graphene and carbon nanotube processing

25. Hydrogen Storage Laboratrory for processing and characterization of alloy nanoparticles for hydrogen storage

26. A Core facility with Solar simulator, Electrochemical scanning microscope, battery tester, Ball Milling Machine and Spectroscopic Ellipsometer

JOB OPPORTUNITIES:

On completion of the course the students can be expected to be immediately absorbed by several industries, such as pharmaceutical companies, biotechnology companies, research institutions in biotechnology, medicine and technology areas.

About the Faculty

All the members of the faculty associated with ACNS are PhD holders with several years of post-doctoral experience in active research from around the world, with training in Physics, Chemistry, Materials Science, Nanotechnology, Molecular Medicine, Biochemistry and Genetics. There are currently 22 full time faculties in ACNSMM.

Awards and Recognitions Received by the Centre

The Centre is a recipient of over 40 major grants from the Government of India in various research areas related to medical and energy areas.

- The Director, Professor Shantikumar Nair is a 2014 recipient of the Professor C N R Rao Bangalore India Nanoscience Award for Excellence in Research in Nanotecnology and also a past recipient of the MRSI (Materials Research Society of India) Gold Medal (2011)
- Professor Manzoor Koyakutty is a recipient of the Marie Curie Award for research in Cancer Nanotechnology
- Associate Professor Deepthy Menon is a recipient of the DST BOYSCAST Fellowship from the Government of India for research in Characterization and Toxicity of Nanomaterials
- Assistant Professor Sahadev Shankarappa is the recipient of the DBT Ramalingaswamy Fellowship in 2013
- Associate Professor Raja Biswas is the recipient of the DBT Ramalingaswamy Fellowship in 2009
- Dr Gopi Krishna is the recipient of the DST Inspire Fellow, 2014
- Assistant Professor Manitha Nair, is a recipient of the India Young Biotechnologist Award for her research in tissue engineering of Bone
- PhD student, Ms. Prateeksha Menon, is a recipient of the Women's scientist Award from DST

Research Highlights and Research Initiatives at Amrita Institute of Medical Sciences (AIMS)

AIMS is the host institution of ACNSMM and ACNSMM serves as the research wing of AIMS. AIMS is one of the largest advanced clinical and research facilities in India with a 1300 bed super-specialty hospital and a 400 bed General Hospital along with a full spectrum of diagnostic labs and a Molecular Biology Lab. AIMS has Centre for Excellence in most major super-specialties.

Developing countries have been at the mercy of major pharmaceutical industries and research centres overseas for the transfer of biomedical technology and therapeutic agents. Recognising this fact, AIMS has taken very bold steps to inculcate a culture of research among the faculty and especially the student community. AIMS has initiated a pancreatic registry and a cancer registry with participation from hospitals all over India. AIMS has a strong clinical research program with both investigator initiated research and clinical trials. Paediatric cardiology with the support of ICMR is a leading epidemiological research Centre in congenital heart defects. AIMS is also internationally famous for its Infection Control Program led by Dr Sanjeev Singh which has won accolades all over the world as a model program. Medical students are also active in research. A major accomplishment was the conferring of four out of five ICMR-studentship awards for the State of Kerala to the students of Amrita School of Medicine. ICMR studentship is an award given by the Indian Council of Medical Research to encourage deserving medical college students to take up short-duration research protocols - the objective being to inculcate a culture of research right from the undergraduate years.

The present areas of advanced clinical research at AIMS include: Molecular Biology, Molecular Medicine, Nano Medicine, Inborn Disorders of Metabolism, Bio-degradable Stent, Heart Muscle Disease, Tumour Immunology, Electrical Disorders of the Heart, Non Contact Mapping and RF Ablation studies, Atrial Fibrillation – Genesis and Management, Vulnerable Plaque Recognition and Management, Studies on Tropical Pancreatitis and Hepatitis B.

A sequencer and real-time PCR and thermal cyclers have been made available to enable provision of diagnostic genetics for common inherited diseases and also to aid in research. These will also be used for microbiological and HLA-related research in addition to population genetics. Expression of relevant genes in tumours will be evaluated by real-time PCR. A homograft bank with a cryopreservation facility will also be provided for better management of cardiovascular diseases .

AIMS will maintain cell lines, which will enhance the research activities in cell biology, molecular cytogenetics, immunology, biochemistry, molecular biology, mycoplasma and virus diagnostics. Particular emphasis will be placed on a program of extensive quality and identity control and on characterisation of the cell lines.

AIMS has been awarded with research protocols by funding agencies such as Department of Biotechnology (GOI), Department of Science and Technology (GOI), Indian Council of Medical Research, and State Department of Science, Technology and Environment. AIMS is also a preferred destination for involving in multi centred international clinical studies. In the faculty of medical sciences, doctoral-level research facilities are available in certain areas of basic medical sciences and epidemiology. Given the competitive nature of research, our library provides ready access to current high-impact journals in all areas of biology and medicine with network computers. This will also be valuable for scientists and medical students in training.

AIMS has a Scientific Review Committee, an Institutional Ethics Committee and also an Institutional Animal Ethics Committee to critically review the research proposals. These committees have been constituted meeting statutory requirements.

Dr. Shantikumar Nair, Dean of Research and Dr. Prem Nair, Medical Director, Amrita Institute of Medical Sciences offer leadership to the research initiatives.

AMRITA HOSPITAL INFORMATION SYSTEMS

AIMS features one of the most advanced hospital computer networks in India, the **Amrita Hospital Information Systems (AHIS)**. The hospital has computerised nearly every aspect of patient care, including all patient information, lab testing and radiological imaging. The hospital network supports more than 2000 computers and additional devices like printers, scanners, and other peripherals. Although the software was originally designed for use at the **Amrita Institute of Medical Sciences**, it has now become popular in other leading hospitals throughout India due to its ease of use and integration.

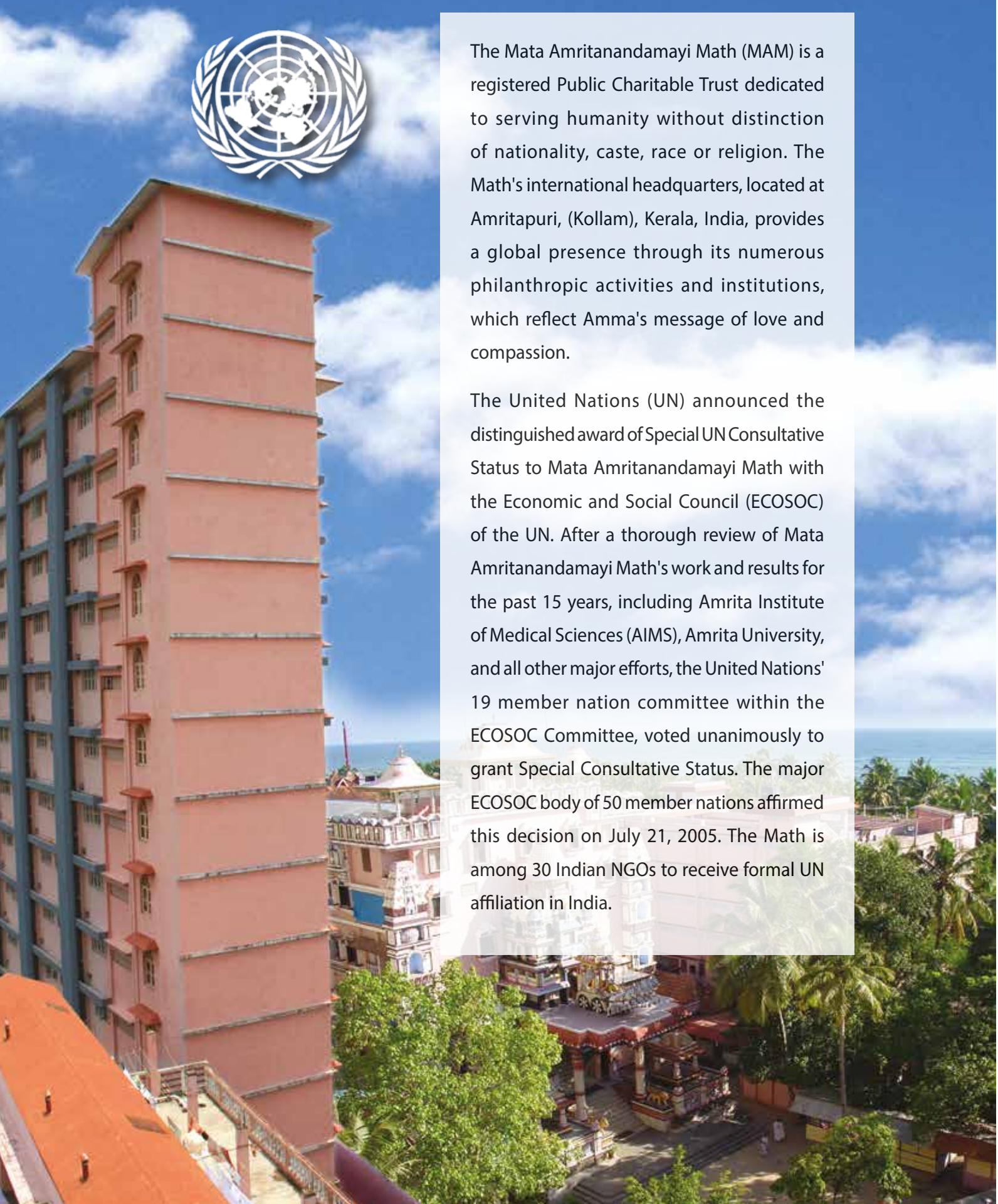
AMRITA HIS allows a holistic approach within and across clinical segments, delivering solutions with the innovation and synergy necessary to help move forward in today's changing healthcare environment. AMRITA HIS is probably the only Healthcare Solution available in the world which has been built largely based on Open Source technologies. The solution developed by Amrita Technologies addresses all the needs of the healthcare domain and provides a fully indigenous implementation, adopting best-of-the-breed technologies and design techniques. AHIS has been developed using Extreme Programming Methodologies backed by a vibrant and large community of Domain Experts. It is a fully integrated, highly configurable, platform independent Enterprise Information System which allows for scalability and performance, while at the same time ensuring to meet all the needs of a Healthcare Institution and much more. The system not only helps in daily patient care management, but also provides the foundation to foster research and development. AHIS is aided by user-friendly reports and ergonomic user-interface, and thereby ensuring maximum user efficiency.

The main focus area is on the integration of clinical applications with the financial and administrative applications.

The system allows for centralised access to all organisational and patient data through one single web interface for any authorised user. It manages all patient information from patient registration to discharge. It has many sub-modules which are very tightly and seamlessly integrated that cover the hospital transactions related to the patients.

HUMANITARIAN ACTIVITIES

Managed by —



The Mata Amritanandamayi Math (MAM) is a registered Public Charitable Trust dedicated to serving humanity without distinction of nationality, caste, race or religion. The Math's international headquarters, located at Amritapuri, (Kollam), Kerala, India, provides a global presence through its numerous philanthropic activities and institutions, which reflect Amma's message of love and compassion.

The United Nations (UN) announced the distinguished award of Special UN Consultative Status to Mata Amritanandamayi Math with the Economic and Social Council (ECOSOC) of the UN. After a thorough review of Mata Amritanandamayi Math's work and results for the past 15 years, including Amrita Institute of Medical Sciences (AIMS), Amrita University, and all other major efforts, the United Nations' 19 member nation committee within the ECOSOC Committee, voted unanimously to grant Special Consultative Status. The major ECOSOC body of 50 member nations affirmed this decision on July 21, 2005. The Math is among 30 Indian NGOs to receive formal UN affiliation in India.

AMRITA
VISHWA VIDYAPEETHAM
UNIVERSITY
Established u/s - 3 of the UGC Act 1956

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