

Allied Health Sciences



4. Allied Health Sciences

4.1 GUIDELINES FOR ADMISSION TO ALLIED HEALTH SCIENCES

Eligibility for Admission

Candidates should have passed the Higher Secondary Certificate Examination (Academic) conducted by the Tamil Nadu State Board or any other equivalent examination with the following subjects: English, Physics, Chemistry and Biology (Botany and Zoology). **Candidates applying for Bachelor & Diploma of Prosthetics & Orthotics, and Diploma in Optometry should have a minimum of 40% marks and for those applying for Diploma in Urology Technology should have a minimum of 50% marks in Physics, Chemistry & Biology.**

Candidates should have completed the age of 17 years at the time of admission or should complete the said age on or before 31st December of the said year, and the maximum limit is 40 years for AHS Degree courses.

Basis for Admission

Selection is based on merit. A preliminary Computer-based, Step -1 test (see Annexure III of the admission bulletin), followed by Step-2 test (practical tests and interview) for short-listed candidates, will assess the candidate's ability to undertake medical studies. The tests and interview will assess the candidate's character, motivation and suitability for the medical profession, and studies at the Christian Medical College, Vellore. During this process the aptitude of the candidate for the healing ministry, willingness to serve in remote mission hospitals and a sense of compassion for the suffering will be assessed.

Admission to the programme for the year is subject to being certified medically fit by the Medical Board of the Christian Medical College, Vellore.

Sponsorship will be as per the guidelines under section 1.14 of this prospectus.

THE DECISION OF THE SELECTION COMMITTEE IS FINAL.

Registration for Admission

Those finally selected for admission after interviews and tests will be required to register for the course by paying the tuition fee and completing other admission formalities. Students should submit their certificates in original. (Admission to the degree courses will continue to be provisional until approval by the Tamil Nadu Dr M.G.R. Medical University).

Dress Code

Uniform as specified will be compulsory during the course.

4.2 DEGREE COURSES

(Affiliated to Tamil Nadu Dr MGR Medical University)

Please check the relevant admission bulletin on the CMC website for updated information.

Bachelor of Science in Accident and Emergency Care Technology

The Accident and Emergency Care Technology course is a three year course which trains candidates in Emergency Medicine with technical knowledge and skills to become the first responders to all emergencies. They are taught knowledge and skills to help victims of emergencies within and outside the hospital. Training experience is predominantly in the department of Accident and Emergency Medicine, which is a 50 bedded Unit which handles





Course	No. of seats			Duration	
	Open	Sponsored	Total*	Course	Internship
BSc Accident & Emergency Care Technology	2	6	8	3 yrs	1 yr
Bachelor of Audiology & Speech Language Pathology	1	5	6	3 yrs	1 yr
BSc Cardiac Technology	1	4	5	3 yrs	1 yr
BSc Cardio Pulmonary Perfusion Care Technology	1	2	3	3 yrs	1 yr
BSc Critical Care Technology	1	5	6	3 yrs	1 yr
BSc Dialysis Technology	2	5	7	3 yrs	1 yr
BSc Medical Laboratory Technology (BSc MLT)	2	10	12	3 yrs	1 yr
BSc Medical Record Science (BMRSc)	1	5	6	3 yrs	1 yr
BSc Medical Sociology	1	4	5	3 yrs	1 yr
BSc Neuro-Electrophysiology	1	4	5	3 yrs	1 yr
BSc Nuclear Medicine Technology	1	2	3	3 yrs	1 yr
Bachelor of Occupational Therapy (BOT)	2	8	10	4 yrs	6 months
BSc Operation Theatre and Anaesthesia Technology	2	5	7	3 yr	1 yr
Bachelor of Optometry (B Optom)	2	8	10	3 yrs	1 yr
Bachelor of Physiotherapy (BPT)	2	8	10	4 yrs	6 months
Bachelor of Prosthetics & Orthotics	1	4	5	4 yrs**	6 months
BSc Radiology Imaging Technology	2	8	10	3 yrs	1 yr
BSc Radiotherapy Technology	1	3	4	3 yrs	1 yr
BSc Respiratory Therapy	1	5	6	3 yrs	1 yr

Entrance test (Step 1): Science based paper

* Variable depending on guidelines

** Lateral entry - 3rd yr

approximately 130-140 adult medical, surgical emergencies and paediatric trauma. This centre is recognized by the WHO as the South-East Asian Regional Training for Emergency Medicine and Emergency Nursing. Peripheral postings include Critical Care and Obstetrics.

Bachelor of Audiology & Speech Language Pathology

(Approved by Rehabilitation Council of India)



This specialty deals with the study of normal & abnormal functioning of the auditory system, the speech production mechanism, and language processing. This field has connections to a number of other disciplines, including anatomy, physiology, psychology, linguistics, medicine, and education. Students pursuing a degree in this field are also introduced to both basic and applied research and to various clinical applications. They acquire theoretical and practical skills needed to diagnose, treat and rehabilitate patients with Hearing, Speech and Language problems, such as voice disorders, fluency disorders, motor speech disorders, language related disorders.

Eligibility

1. Admission to B.ASLP is open to candidates who have passed the 10+2 examination or an equivalent examination conducted by the Pre University Board of Education of the respective State Governments, securing a minimum of 50% marks considered as equivalent thereto by the MGR University.

2. According to the current regulations of the RCI (Rehabilitation Council of India), candidates who have obtained a minimum of 50% (45% for SC/ST) in the PCMB (Physics, Chemistry, Mathematics/ Biology group or combinations thereof), in their

II PUC or qualifying examination are eligible for admission, out of which Physics and Chemistry are compulsory. The third subject can be either Biology or Mathematics.

3. According to the RCI's (Rehabilitation Council of India) current regulations, applicants shall not be older than 25 years on the 1st of July, of the year of admission.

Duration

Four years (6 semesters plus 1 year internship).

Bachelor of Science in Cardiac Technology

This course is designed to provide broad-based theoretical knowledge and up-to-date technical training that is relevant to current cardiac clinical practice. The areas in which training is provided include electrocardiography, treadmill stress testing, 24-hour ambulatory ECG monitoring (Holter), 24 hour blood pressure monitoring (Ambulatory BP) and cardiac catheterization laboratory technology and electro physiology.



The course includes theory classes, practical "hands on" training and periodic evaluations. Candidates successfully completing the course will be adequately equipped to independently provide technical assistance at any advanced cardiac centre.

Bachelor of Science in Cardiopulmonary Perfusion Care Technology

A perfusionist is a skilled person, qualified by academic and clinical education who operates the heart lung machine (extra corporeal circulation equipment) when it is necessary to temporarily replace

the patient's circulatory and respiratory function. While operating the heart lung machine during open heart surgery, the perfusionist is responsible for monitoring the altered circulatory process, taking appropriate measures when abnormal situations arise and keeping both the surgeon and anaesthetist fully informed of the patient's condition. The perfusionist is also educated in the administration of blood products, anaesthetic agents and drugs through the extracorporeal circuit. Perfusionists are competent in the management of other perfusion related equipment, techniques and procedures. The field of Perfusion Technology is regarded by many as a very demanding vocation requiring maturity, dedication, integrity, discipline and a mechanical aptitude.

Classes include Anatomy, Physiology, Biochemistry, Pathology, Basics of Microbiology, Principles of Perfusion Technology Part I and later in the course- introduction to Surgery, Sterilization Techniques, Cardiopulmonary Bypass & Perfusion Technology. Employment opportunities are abundant in India and abroad.

Bachelor of Science in Critical Care Technology

Critical Care Medicine is a field that deals with critically ill patients in intensive care units (ICUs). ICUs admit the sickest patients in the hospital. Saving such patients depends on the quality of work carried out by the specially trained "Critical Care Team", which comprises of doctors, nurses and critical care therapists. Critical Care Therapists, also called respiratory therapists, form an integral part of the Critical Care Team. This field is very rewarding because often patients who are about to die are given another chance at life.



Duties of critical care therapists include direct patient care as well as maintaining advanced equipment like ventilators, used to assist breathing. Patient care includes teaching and supervising breathing exercises, monitoring cardiovascular parameters and assisting procedures like insertion of central and arterial lines, endo-tracheal intubation, bronchoscopy, cardiopulmonary resuscitation, etc. These skilled personnel need to be trained adequately and this three-year course is recognized by the Tamil Nadu Dr MGR Medical University.

The course covers Anatomy, Physiology and Pharmacology related to critically ill patients, with special reference to respiratory and cardiovascular systems. It includes physiotherapy, management of ICU equipment, lung diseases and problems affecting critically ill patients, with plenty of "hands-on" experience. The importance of universal precautions and management of emergency situations is an essential component. Student rotations include Anaesthesia and Physiotherapy in addition to Surgical, Neurological, Medical and Paediatric ICUs. Job opportunities are plenty as most hospitals have ICUs, requiring critical care therapists who undoubtedly are an integral part of the health care team.

Bachelor of Science in Dialysis Technology

The Bachelor of Science degree course in Dialysis Technology is designed to provide broad based and up to date theoretical and practical technical training relevant to current dialysis clinical practice. This includes training in haemo-dialysis, peritoneal dialysis, slow low efficiency dialysis and continuous Renal Replacement Therapy,



plasmapheresis [including double filtered plasmapheresis] and home dialysis. Candidates are trained in wholesome renal care for patients with chronic kidney disease.

Bachelor of Science in Medical Laboratory Technology (BSc MLT)

Laboratory services are essential for diagnosis and study of various diseases. Laboratory science has been advancing rapidly and CMC has developed appropriate laboratory facilities and Technologist Training Programmes needed. Competent technologists with advanced scientific knowledge and skill are needed in all branches of laboratory technology. In response to this, the Bachelor of Science degree Programme in Medical Laboratory Technology, affiliated to the Tamil Nadu Dr M.G.R. Medical University, Chennai, was started in 1993.



Bachelor of Science in Medical Record Science (BMRSc)

The Medical Record Science course started as a one year training programme in 1962 and was upgraded to a Bachelor's degree course in 1982. From 1987 it has been affiliated to the Tamil Nadu Dr M.G.R. Medical University, Chennai. The course is designed to impart sufficient knowledge of the prevailing system of scientific documentation with computerization, information search and retrieval and to help students become familiar with large databases dealing with various entities. Students come to know of various pathological conditions, symptoms, drugs & concepts such as data mining and learn the classification & codification of drugs, diseases & their treatment. Students acquire knowledge of the current trends in Medical Record Science like health insurance, Third party payers



and document scanning etc. The students will learn basic sciences, medical terminology, International Classification of Diseases, telemedicine, billing design etc.

Bachelor of Science in Medical Sociology

Medical Sociology involves studying health and illness behavior and the social structure of systems which deliver health care services. What makes medical sociology important is the critical role social factors play in determining or influencing the health of individuals, groups, and the larger society. It is a well-recognized field that offers great preparation for graduates in the health-related professions. A bachelor's degree course in Medical sociology can be a stepping stone to various careers, including hospital and health administration and management.

Medical Sociologists are interested in the qualitative experiences of patients, often working at the boundaries of public health, social work, demography and gerontology, to explore phenomena at the intersection of the social and clinical sciences. Persons with a background in medical sociology work in hospitals, nursing homes, or social service agencies, which provide assistance to those with medical problems and



disabilities. They are also employed as providers of social support for patients, family intervention specialists, hospice/palliative care workers, personnel specialists, public relations officers, health project managers, coordinators of hospital volunteers and research assistants. The health care industry has recently recognized the importance of posting medical sociologists in hospitals for better health care and they are appointed as Counselors, Medical Sociologists in Hospitals. Graduates of B.Sc. Medical Sociology are eligible to apply for the Masters Degree course in Medical Sociology, M.B.A. in Health Systems Management and Masters in Hospital/Health Administration etc.

Duration

3 years followed by one year of compulsory internship in CMC, Vellore PLUS one year service obligation in sponsored organization if the candidate is sponsored, or in the organization identified by CMC if the candidate is open.

Bachelor of Science in Neuro-Electrophysiology

The Neurology Division of the Department of Neurological Sciences is a state of the art department with the full complement of Adult Neurology, Pediatric Neurology and an all encompassing Neurophysiology laboratory with EEG, EEG Telemetry,

NCV/ EMG with Quantitative EMG, SFEMG, Tremorogram, Autonomic laboratory with Finopres and Tilt Table, Transcranial Magnetic Stimulator, Sleep Studies and TCD.

The Adult and Pediatric Neurology units run the DM programme, Postdoctoral Fellowship course in Pediatric Neurology and B.Sc course in Neuro-Electrophysiology. The group works closely with the basic sciences group - Neurochemistry, Neuropathology, Neurophysiology and Neuroradiology. We have a well-equipped Neuro-critical care unit with thrombolysis, immunotherapy including PLEX. It is a quaternary referral center for the country, where complex neurological problems are referred for expert opinion and management. We have an Active Stroke Service with genetic testing being offered for young stroke diagnostics, Epilepsy Clinic, Stroke Clinic and Neuromuscular Clinic, which are multidisciplinary clinics, as well as a Neuro-metabolic and Cerebral Palsy Clinic. The new discipline being initiated is Cognitive Neurology and we have a good Neuropsychology



Complement. There is good bed to bench, and bench to bed research and there are grants from the DBT, international clinical trials on stroke rehabilitation and gene therapy in DMD.

Bachelor of Science in Nuclear Medicine Technology

Nuclear Medicine Technology is the medical speciality concerned with the use of small amounts of radioactive material for the diagnosis of various diseases and treatment of a few diseases. Nuclear Medicine scans reveal biological processes that take place at cellular and sub-cellular level and are now accepted as an integral part of molecular imaging. Technologists apply the art and skill of diagnostic imaging and treatment through safe and effective use of radionuclides. They participate in the daily operation of the Nuclear Medicine department under the supervision of Nuclear Medicine physicians.

This training helps in acquiring adequate knowledge and technical skills for the use of sophisticated instrumentation such as gamma cameras, thyroid uptake probes, and PET scanner, dedicated software to generate digital images, and preparation of radio-pharmaceuticals, as applied to investigate a wide variety of disease processes. It also includes maintaining patient records and documents regarding the amount and type of

radio-nuclides that is received, used and discarded.

When preparing radio pharmaceuticals, technologists adhere to safety standards that keep the chance of radiation exposure as low as possible to staff and patients.

The course is designed to enable students to acquire knowledge and skill in Medical Radio Isotope Technology, so that after passing the final examination and completing internship, they can function as qualified technologists in Nuclear Medicine departments.

The course is intended to help students to:

1. Acquire adequate knowledge of the basic medical subjects in the practice of radiography and medical imaging.
2. Develop skill and knowledge of various Nuclear Medicine Imaging and therapy procedures.
3. Acquire knowledge in Radiochemistry, Applied physics, Radiation physics and equipment physics.
4. Develop an attitude of compassion and concern.

Bachelor of Occupational Therapy (BOT)

Occupational therapy (OT) is a patient-centred health profession concerned with promoting health and well-being through occupations. Occupations include purposeful and meaningful activities that people need to, want to and are expected to do, such as activities of daily living, work, education and social participation. Occupational Therapists (OTs) work with people facing physical, psychological and social challenges, focusing on problem identification and treatment as well as the ways in which those conditions impact a person's life. Interventions can be used to establish a capacity that was not previously present, restore a capacity to the former level, maintain ability for as long as possible or prevent a difficulty from occurring.

Teaching in OT focuses on classroom lectures, supplemented by clinical placements involving direct contact with patients. During the first year, the students gain knowledge in basic sciences like Anatomy and Physiology, in addition to basic concepts related to OT. During the second year they learn about the various conditions causing dysfunction and the respective assessment methods. The third year is aimed at learning OT for various neurological, psychiatric, and paediatric conditions.



In the fourth year students learn to demonstrate an understanding of OT in rehabilitation, basics of research and administration related to OT. During internship, interns are required to integrate the knowledge gained over the four years of study into independent assessment and intervention. After gaining the Bachelor of Occupational Therapy Degree, an Occupational therapist can work in hospitals, rehabilitation centres, special or main stream schools, private clinics, geriatric homes or industries.

Bachelor of Sciences in Operation Theatre and Anaesthesia Technology

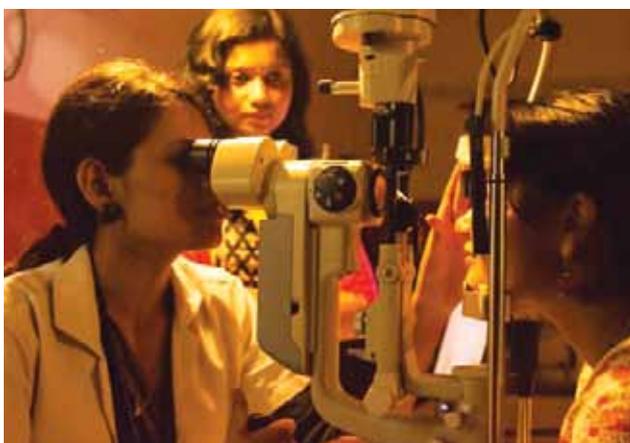
The specialty of anaesthesia has advanced tremendously in many different ways, both scientifically and technologically. More and more advanced surgeries are being performed in patients, from new-born babies to geriatric patients. The types of equipment required to provide anaesthesia and perform many surgeries have become more sophisticated and specialized. Therefore, the technological assistance required for this has become more specialized. The learning and understanding of anaesthesia technology has to keep pace with the advancement of the science of anaesthesiology.

The operation theatre and anaesthesia technologist assists the anaesthesiologist in the various procedures required for administering anaesthesia and in setting up the anaesthetic and monitoring equipment in the operation theatre. They are also involved with regular maintenance and upkeep of the anaesthetic equipment and monitoring devices.

The three year course is aimed at giving trainees a comprehensive overview of anatomy, physiology, biochemistry, pharmacology, microbiology, medicine, general nursing principles, sterilization techniques and ethics. They are also exposed to work

in the Intensive Care Units. Trainees are taught the basics of anaesthetic management in specialities such as obstetrics, paediatrics, neurosurgery, orthopaedic and general surgery and given ample practical experience in all these areas. They are exposed to anaesthesia services outside the regular operating rooms, as in radiology suite, cardiac catheterisation laboratory, endoscopy room, day care theatre etc. They also undergo training in Basic Life Support, airway management in emergency situations and Cardio-Pulmonary Resuscitation. On successful completion of the course, they will be competent to assist anaesthesiologists in all surgeries and in emergency situations.

Bachelor of Optometry (B.Optom)



Eyes add beauty and the vital function of VISION to the human body. The science of Vision (Optometry) deals with the skill to identify vision related problems and the technology to combat it. The magic of vision is often taken for granted, until things go wrong. Optometry is a field that deals with the in-depth study of the eye, vision and diseases that affect the eye. Optometrists (Vision Scientists) are a crucial part of the eye care network that is currently fighting blindness in the world. From researching solutions to preventing childhood blindness, to high energy laser technology in treating myopia, the optometrist plays a key role.

We aim to produce highly skilled and compassionate optometrists who care about patients, the communities in which they practice and have a passion for research.

If you have a people friendly sense (this is NOT A LAB BASED profession) with good communication skills, can get along well as a team, have the drive to evolve holistically (curricular and extracurricular)

and a dedication to reduce India's current blindness percentage - consider being an Optometrist (Vision Scientist).

A strong believer in HOLISTIC education, the Optometry (Vision Science) programme provides space and time for sports, dance, music, art and religion.

This programme and profession DOES NOT INVOLVE NIGHT DUTIES.

On completing the course, you can choose to be a Clinical (patient related) Optometrist, a Vision Research Scientist, teach in a College of Optometry or be a private entrepreneur owning an optical showroom. Options for higher study through Masters, PhD and Post-doctoral positions exist nationally and internationally. The career guidance-networking structure provided by the faculty and alumni of the programme will be there to help you discover your dream.

ALL students are encouraged to be in-scholars, subject to hostel availability.

Bachelor of Physiotherapy (BPT)



There is a great need for health professionals who have been trained in the rehabilitation of the physically challenged. Physiotherapy is a health care profession concerned with identifying and maximizing quality of life and movement potential within the spheres of promotion, prevention, diagnosis, treatment/intervention and rehabilitation.

The physiotherapist is trained in the physical procedures required in the rehabilitation of conditions such as hemiplegia, paraplegia, head injury, cerebral palsy, orthopaedic conditions like fractures, joint replacements, sports injuries and in



the care of patients admitted in the Intensive Care Unit (ICU) and those who undergo cardiac and lung surgery.

Those who have the passion to better the lives of the 'differently abled' would be ideally suited for this professional training programme. The course comprises of exclusive classroom teaching and demonstration in the first year and clinical teaching in the subsequent years. Learning by doing is given high emphasis.

Subjects like Anatomy, Physiology, Exercise therapy, Electrotherapy, Biomechanics, Manual therapy and Clinical Orthopaedics are an integral part of the curriculum. At the end of the course the student will be equipped with the knowledge and skills in the use of physical agents, as well as principles, to treat and alleviate pain and disability caused by various illnesses.

This is a rapidly expanding field in healthcare. Specialization in orthopaedics, paediatrics, neurology, cardiopulmonary, sports and community physiotherapy are available in other centres in India and abroad. Doctoral programmes in specific topics of interest can also be pursued by students to reach greater heights and set new trends in Rehabilitation.

Bachelor in Prosthetics & Orthotics (BPO)

(Recognized by the Rehabilitation Council of India, RCI, New Delhi)

Bachelor in Prosthetics & Orthotics course offers training in the field of rehabilitation of locomotor

disability, by the making of Prostheses and Orthoses for persons with disability. This evidence based theory and practical, hands-on course helps students to understand the human body and design appliances with theoretical knowledge of biomechanics, materials and engineering principles. It also includes prescription, design, fabrication, fitting and alignment of all Orthopaedic devices. The practical sessions include clinical examination and evaluation of patients as part of the rehabilitation team, in order to assess, prescribe, fabricate, check and follow up appropriate devices.

An examination will be conducted at the end of each year, both in theory and practical. The qualified P&O professional plays a major role in the rehabilitation of persons with disability, and in making clinical decisions. The other aspects include management & supervision, training and teaching, community services etc.

Once qualified, a prosthetist or an orthotist can work in collaboration with other healthcare professionals to provide a holistic service to address issues such as polio, amputation, rheumatoid arthritis, cerebral palsy, diabetes, stroke, traumatic brain injury, spinal cord lesions, congenital malformations etc. After successful completion of the course, the candidate will be eligible to work in hospitals, rehabilitation centres or institutes, trauma centres and various private companies in India and abroad. Avenues for higher studies & research in the area of Prosthetics and Orthotics are available.

Lateral Entry into the Bachelor in Prosthetics and Orthotics course

Lateral entry directly into 3rd year is only for diploma holders in Prosthetics & Orthotics from RCI recognized institutes, with minimum of 3 years work experience after the completion of Diploma in Prosthetics & Orthotics.

Bachelor of Science in Radiology & Imaging Technology

This course is offered by the Department of Radiology, under the auspices of The Tamil Nadu Dr MGR Medical University. All modalities in Radiology are covered in a fixed pattern over 3 years, with assessments every year. Classes are taken by dedicated teachers (radiographers, radiologists, physicists, doctors of other specialties). The department has 50 doctors and 100 radiographers.

Each student is posted for adequate periods in all modalities. While being posted in plain X-ray, Barium and Intravenous Urogram rooms, the student is taught and supervised by staff and allowed to independently use the machines when he or she is ready. In the CT scan and MRI rooms, adequate exposure is given, as these are crucial tests being done in investigating difficult problems. The DSA machine (which helps in studying the blood vessels in patients with bleeding or tumours in the brain) is also handled by students, who are exposed to State of the Art equipment.

The students have common anatomy, physiology and ethics classes with other paramedical students. During internship, students are encouraged to perform investigations under supervision.

At the end of this course, job opportunities are available for students in India as well as abroad. Being an important area in diagnosis and decision making, an individual who has done this course would have flexibility in a well equipped department. For further training, a student can apply for a Masters programme (not in CMC).

Our department, in addition to Digital Radiography and Computed Radiography, has the Picture Archiving & Computerised System by which all investigations are immediately available on computers for doctors to see across the hospital. We have 12 ultrasound and Doppler machines, 3 CT machines and 3 MRI machines (two 1.5T and one 3T). Students benefit from doing the course in our institution as there is a large volume of work in all areas, being done with excellent supervision.



Bachelor of Science in Radiotherapy Technology

Radiation Therapy is the medical use of ionizing radiation, generally as part of cancer treatment, to destroy the tumour cells and spare the normal tissues. High-energy x-rays and gamma rays generated from sophisticated equipment such as Medical Linear Accelerators, Telecobalt and High-dose rate Brachytherapy remote after-loading machines are used to treat cancer patients by various radiotherapy techniques such as Intensity Modulated Radiotherapy (IMRT), Three-dimensional conformal radiotherapy (3DCRT), Stereotactic Radiosurgery, Brachytherapy and many other special techniques.

During this course, students will learn about human anatomy and physiology, various types of cancers, patient care, radiographic techniques and different radiotherapy treatment techniques in addition to basic radiation physics and the physics and technology of radiotherapy equipment. This course also provides invaluable practical experience which includes hands-on use of the radiotherapy equipment mentioned above. Students interact closely with the team of radiographers, radiation oncologists, medical physicists and nurses which immensely helps in enhancing practical knowledge, skill and expertise.

B.Sc. Respiratory Therapy

Respiratory therapists specialize in the evaluation, treatment, education and rehabilitation of patients with respiratory diseases. They play an important role in the team that provides respiratory care



under the supervision of a physician. The strength of respiratory therapists lies in the use of evidence-based clinical practice guidelines, allowing them to develop, recommend and implement effective care plans. In collaboration with physicians they can develop disease-based clinical pathways, and disease management programmes. They enhance the quality of the clinical work in the outpatient area, the pulmonary medicine wards, the Pulmonary Function Lab, the Sleep lab and the Bronchoscopy suite. They acquire the skills to supervise and help the patients with problems relating to the use of various inhaler devices and various respiratory therapy procedures. They help in the management of chronic diseases such as COPD, Bronchiectasis, Interstitial Lung Disease, Sleep Apnoea, Asthma and allergies and would be familiar with Bronchial Hygiene Therapy and Pulmonary Rehabilitation. They gain the ability to work with respiratory equipment such as oxygen concentrator, mechanical ventilator, pulse oximeter and cardiac monitor. Part of their training is in the Intensive Care Unit (ICU) where they learn to help in the management of patients on ventilators. They become conversant with all kinds of basic and advanced lung function testing including Spirometry, measurement of lung Volumes, Diffusing capacity, Body Plethysmography, Bronchoprovocation testing, Cardio Pulmonary exercise testing and Allergen Skin Testing. They learn to perform sleep studies and assist in diagnostic and therapeutic bronchoscopy related procedures. They also become trained in patient education with regard to respiratory diseases.

The need for Respiratory therapists is growing due to a large increase in respiratory diseases. This training

would equip trainees to fit in to various hospitals under the supervision of a general or chest physician. They could work in pulmonary function labs, sleep labs and ICUs. Respiratory therapists are versatile members of the health care delivery system.

Bachelor of Business Administration (BBA) – Hospital Administration

“Programme jointly managed by Auxilium College (autonomous) and CMC Vellore, Awarded by Thiruvalluvar University”

Bachelor of Business Administration (Hospital Administration) is a 3 year full time course offered by Auxilium College, Vellore, with assistance from the Department of Hospital Management Studies & Staff Training and Development, CMC, Vellore, with the degree awarded by Thiruvalluvar University, Vellore.

This course is intended exclusively for young women wanting to pursue careers dealing with operation and administration of healthcare setups. This degree prepares students to manage finances, human resources, and daily operations of hospitals, clinics, nursing homes, and other related organizations.

Classes will be handled by faculty from both Auxilium College & CMC (former & present staff) for hospital and health system related subjects, with the advantage of integrating theory and practical knowledge. To get a better exposure to hospital setups, this course consist of 3 months internship, during which students will be posted at various hospitals in Vellore and its surroundings, to acquire hands-on experience.

The students after finishing this course, could be recruited in hospitals, or pursue a post graduate degree in any field of hospital and health systems management.

Candidates: 70 per year

Eligibility criteria: 10+2 pass, from a recognized board. Currently applicable only for women candidates.

Duration: three years

Admission: Admission shall be handled by Auxilium College. Applications may be obtained from Auxilium College. Selection of candidates through personal interviews will be held at Auxilium College, with panel members from both institutes (CMC Vellore and Auxilium College)

4.3 DIPLOMA COURSES

The table below gives the list of AHS Diploma courses offered, distribution of seats & duration of the courses. Please check the relevant admission bulletin on the CMC website for up to date information.

Name of the course	No. of seats			Duration	
	Open category	Sponsored category	Total	Course duration	Internship
Diploma in Anaesthesia Technology# (Affiliated to CMAI)	4	4	8	2 yrs	1 yr
Diploma in Dermatology Laboratory# (Affiliated to CMAI)	1	1	2	1 yr	-
Diploma in Hand and Leprosy Physiotherapy# Technology (Council of CMC Vellore Association)	3	3	6	2 yrs	6 months
Diploma in Hospital Equipment Maintenance* (Council of CMC Vellore Association)	2	2	4	1 yr	6 months
Diploma in Medical Radiation Technology (Radio diagnosis)# (Affiliated by CMAI)	1	5	6	2 yrs	-
Diploma in Optometry# (Council of CMC Vellore Association)	3	3	6	2 yrs	-
Diploma in Prosthetics & Orthotics (Affiliated to RCI)#	2	2	4	2 yrs	-
Diploma in Hospital Sterilization Technology (CMAI affiliation awaited)#	2	2	4	2 yrs	6 months
Diploma in Urology Technology# (Affiliated to CMAI)	1	1	2	2 yrs	-

CMC Vellore-Chittoor Campus Courses

Name of the course	Open category	Sponsored category	Total	Course	Internship
Diploma in Anaesthesia Technology# (Affiliated to CMAI)	2	2	4	2 yrs	1
Diploma in Medical Laboratory Technology# (Affiliated to CMAI)	2	2	4	2 yrs	1

Entrance Test - Science based paper

• Eligibility-Diploma in Engineering; Entrance Test-Speciality paper

These courses are affiliated with the appropriate national and regulatory bodies specifically mentioned under each course. All admissions are provisional pending approval by the regulatory bodies. Approximate fee structures are given in the Annexure.

Diploma in Anaesthesia Technology

(Awarded by the Christian Medical Association of India)

In the recent years, with the evolution of science and technology, more and more complex surgical procedures are being performed on sicker patients. This necessitates the need for specialized anaesthetic skills and monitoring in the perioperative period, for better postoperative outcomes. Anaesthesiologists require trained help to assist them in the process of providing adequate anaesthetic care in the perioperative period. The anaesthesia technician assists them in various aspects of perioperative care, such as setting up the anaesthesia equipment, monitoring equipment and assisting in various procedures required for anaesthesia, both inside the theatre and in remote locations such as radiology suites and the cardiac catheterisation laboratory, where anaesthesia services are required.



The course covers basic anatomy, physiology, pharmacology, microbiology, general nursing principles, sterile techniques and basics of anaesthetic management. Students are taught about the maintenance of anaesthesia machines and monitoring equipment. They are trained in Basic Life Support, CPR and assisting in emergency situations. On completion of the course, they will be able to support the anaesthesiologist and facilitate in providing better perioperative care for patients.

Eligibility: Pass at 10+2 level in English, Physics, Chemistry and Biology

Diploma in Dermatology Laboratory Technology

(Awarded by the Christian Medical Association of India)

The Department of Dermatology, Venereology and Leprosy has introduced the 1 year Diploma in Dermatology Laboratory Technology course to strengthen laboratory services in Mission hospitals and other centers with Dermatology services. We do an average of 18,000 laboratory tests per year. The course provides training in Dermatology, Venereology and Leprosy laboratory techniques and tests. Students are also taught principles of sterilization, care of microscopes and instrumentation. The students are posted in Microbiology, Clinical and General Pathology departments of CMC and SLRTC Karigiri to gain additional skills. The Dermatology faculty of CMC are involved in their training and evaluation. The diploma is awarded by CMAI. The fee structure will be as per CMAI guidelines.

Eligibility: Pass at 10+2 level in English, Physics, Chemistry and Biology. In-service candidates are also eligible.

Diploma in Hand and Leprosy Physiotherapy Technology

(Awarded by the Christian Medical College Vellore Association)

In India there is an ever increasing need for specialized care with hand therapy for mutilated injuries of the hand, neglected burns, nerve injuries, infection, stiffness, leprosy, arthritic conditions, brachial plexus injuries and birth palsies in children. All these conditions require accurate pre and post-operative assessment and devoted after-care by technical personnel whether treated by conservative or surgical methods. The need for Hand Therapy and Leprosy physiotherapy technical staff, to become part of the Hand Care Team is a growing demand.

Hand Care was pioneered in Vellore by the legendary Dr. Paul Wilson Brand. Many technical staff who have passed out after their training in CMC Vellore are working at other private & public health centres all over India. The Dr. Paul Brand Centre for Hand Surgery, Leprosy Reconstructive Surgery and Peripheral Nerve Surgery (HLRS) nurtures, educates and inculcate the science and art of Hand and Leprosy physiotherapy and other peripheral nerve physiotherapy to



students aspiring to rehabilitate the hands of individuals in all sections of the community. Basic instruction and extensive practical training in therapy techniques of hands and feet is given for 4 semesters.

Training in Basic Sociology, Basic Health Psychology, Essential Leprosy (Dermatology), Basic & Regional Anatomy, Basic Physiology, Microbiology, Pathology, Basic Surgical Aspects, Wound & Tissue Healing in Hand, Basic Surgical Nursing, Ophthalmology related to Leprosy, Physiotherapy principles and Hand Rehabilitation, Clinical Orthopaedic and Clinical Neurology centered on the hand, is imparted.

The students on completion of this course should be able to work in institutions in centres where patients with hand and peripheral nerve problems are treated, and where Orthopaedic departments are available. As technical personnel they will be equipped to work in hospitals under the direct supervision of doctors or physiotherapists.

Eligibility: Pass at 10+2 level in English, Physics, Chemistry and Biology

Diploma in Hospital Equipment Maintenance

(Awarded by the Christian Medical College Vellore Association)

This course comes under the purview of the Engineering and Maintenance Departments of CMCH, namely Biomedical Engineering, Electrical, Mechanical, and Refrigeration & Air Conditioning Engineering.

The course aims at training engineers to work in a hospital environment (or other establishments), to help them familiarize, understand, maintain and troubleshoot the various equipment and power networks pertaining to a hospital. Traditional engineering knowledge is fine-tuned and focused, to analyze and solve the problems encountered with equipment and networks. CMCH being a multispecialty hospital possessing sophisticated and technically advanced equipment, the trainees get an insight and understanding of the latest developments and trends in the field. Candidates admitted to this course are taught to repair, service and calibrate biomedical equipment used across the hospital. The overall exposure obtained is substantial in the field of engineering.

The knowledge and experience gained can be utilized to work as Technical Advisor/Supervisor in hospitals or other establishments. Candidates can work with Government Regulators for Inspection and Audit on Medical Equipment and facilities. They can work as, train, or supervise Biomedical Equipment Technicians.

Eligibility: Diploma in any of the engineering disciplines of Electrical, Electronics, Biomedical Instrumentation or Mechanical Engineering. Work experience is an added advantage for better understanding.

Diploma in Medical Radiation Technology (Radiodiagnosis)

(Awarded by the Christian Medical Association of India)

Diagnostic and interventional radiology plays a very vital role in patient care in any modern hospital. This two year Diploma course trains a person to be a Radiologic Technologist, who is an Allied Health medical professional.

This course is designed to impart training and practical experience in taking x-rays (radiographs)



of the human body using basic x-ray equipments and other special modalities such as CT and MRI. The Department of Radiodiagnosis in CMC is well-equipped with advanced imaging modalities and a fully fledged Picture Archival and Communication System. The radiology images in the hospital are stored and distributed digitally using computer networks (filmless radiology).

Eligibility: Pass at 10+2 level in English, Physics, Chemistry and Biology or Botany/Zoology

Diploma in Optometry & (Ophthalmic Technology*)

*(Awarded by the CMC Vellore Association/*Christian Medical Association of India)*



Optometry is a branch of Vision Science that deals with the study of the eye and its optics & function. Students are trained at the department of Ophthalmology in the field of vision science, in the study and diagnosis of various types of refractive errors and eye diseases. The course includes hands-on training in specialties like contact lenses, low vision aids, ophthalmic instruments and assisting an ophthalmologist. Opportunities following the completion of the course include being an Optometrist, Clinical Assistant, employment in Eye Hospitals and setting up own Optical Showrooms. There are opportunities to do Bachelors, Masters and PhD programmes as well.

Eligibility for Diploma in Optometry and Ophthalmic Technology (awarded by CMAI): Pass at 10+2 level or its equivalent, with 50% aggregate in English, Physics, Chemistry and Biology.

Diploma in Prosthetics & Orthotics (DPO)

(Recognized by the Rehabilitation Council of India)

This course gives training in the theoretical background and practical skills involved in the

design, fabrication and fitting of Prostheses (artificial limbs) and Orthoses (braces, calipers). It is aimed at producing a professional who will be able to function as a member of the Rehabilitation team in a clinical environment. With these objectives the course syllabus includes lectures, classroom work, practical demonstration, and practical work in Prosthetic and Orthotic laboratories, during which the students are introduced to Prosthetic and Orthotic workshop practices and learn the fundamentals of manufacturing, measuring and fitting of appliances.

Research, teaching, training and outreach service programmes are part of the course curriculum. Examinations are conducted at the end of each year, both in theory and practical. Once qualified, a Prosthetist & Orthotist can work in collaboration with other healthcare professionals to provide holistic service to address issues such as polio, amputation, rheumatoid arthritis, cerebral palsy, diabetes, stroke, traumatic brain injury, spinal cord lesions, congenital malformations etc.

After successful completion of the course, candidates can work as a Prosthetist & Orthotist in various Government and Non Government organizations or in multinational companies in India and abroad. Avenues for higher studies & research in the area of Prosthetics and Orthotics are available.

Eligibility: Pass at (10+2) level in science with 40% aggregate in English, Physics, Biology and/or Mathematics.

Diploma in Hospital Sterilisation Technology

(Awarded by the Christian Medical College Vellore Association)

All hospitals, nursing homes and clinics providing diagnostic, therapeutic and surgical services require sterile instruments, articles and materials. The provision of sterile supplies is a comprehensive process involving cleaning, inspecting, packing, appropriate sterilization, safe storage and timely supply and is carried out by a Central Sterile Supply Department (CSSD), staffed by technicians trained to carry out these activities. This course aims to provide the knowledge and practical training required for a Hospital Sterilization Technician capable of running a central sterile supply or operation theatre sterile supply service.

Keeping in mind the above objective, the syllabus of this two-year course, divided into four semesters,



consists of lectures and practical hands-on training in sterilization techniques. The final semester teaches workplace safety, legal and ethical issues, regulatory requirements, protocols and other administrative skills to complement the theoretical and practical knowledge required to function as a competent sterilization technician. Examinations, both theory and practical, will be conducted at the end of each year. A six-month internship will provide exposure to work in smaller setups as well. Research during the course is encouraged.

After completion of the diploma in Hospital Sterilization Technology, it is expected that the candidate will be suitable for employment in a central sterile supply department or a theatre sterile supply unit, in health care organisations in India and overseas. The diploma is awarded by the Christian Medical College Vellore Association.

Eligibility: Pass at (10+2) level in science with Physics, Chemistry, and Biology or Botany/Zoology.

Diploma in Urology Technology

(Awarded by the Christian Medical Association of India)

Urology Technology Course is a two year programme at Christian Medical College under the auspices of Christian Medical Association of India. The objectives

of the course are to acquire knowledge of basic human biology relevant to urology, and to acquire skills related to technical aspects of the functioning and maintenance of instruments & equipments used in Urology. Students gain skills related to assisting urological procedures in the operation theatre and clinic. The subjects taught in the first year are Anatomy, Physiology and Biochemistry, Pathology, Pharmacology, Microbiology and sterilization techniques, Nutrition, Ethical and Legal practice, patient care & hospital practice. The subjects taught in the second year are Urology technology - common urological procedures, common urological presentations, Physics, Genetics, medical electronics, allied specialties and office administration. At the end of two years, an examination is held for the Diploma in Urology Technology.

Eligibility: Pass at (10+2) level in science with English, Physics, Chemistry, and Biology or Botany/Zoology with a minimum aggregate of 50%.

The following courses, affiliated to CMAI, are conducted by Christian Medical College at the Chittoor Campus:

Diploma in Anaesthesia Technology in CMC Vellore's Chittoor campus

Recent advances in critical care medicine have enabled major surgeries to be performed on very sick patients. These surgeries require skilled anaesthesia and postoperative care. It has now been recognized that anaesthesiologists require trained help to handle these procedures. In recognition of this, the Indian Society of Anaesthetists plan to implement "minimum standards for patient care," which makes it mandatory for an anaesthetist to have a skilled assistant for at least the start and end of every anaesthetic procedure. These skilled assistants need to be trained.

The course will cover basic Anatomy, Physiology and Pharmacology especially with respect to air way management and relevant medication. An introduction to sterile techniques, management of emergency situations including cardiopulmonary resuscitation and understanding of equipment used in the operation room will be an essential part of the course. The Chittoor campus has state of the art operation theatres and senior consultants in charge.

All students will undergo one year compulsory internship

Eligibility for diploma courses (CMC Vellore's Chittoor campus)

Pass in 10 +2 examinations or its equivalent in Science Stream (PCB).

Minimum marks obtained should have been at least 40% aggregate (35% for SC/ST).

A good knowledge of English is essential.

Duration

The courses are of two years duration plus six months compulsory internship. The Diploma Certificates (for Medical Laboratory Technology/ Anaesthesia technology) will only be issued after the completion of the internship.

No. of candidates

Location

Most of the training will be held in Chittoor, with a few in the Vellore campus.

Only limited accommodation is available, exclusively for outstation students. Institutional transport is available between the Vellore hospital campus and Chittoor campus.

Diploma in Medical Laboratory Technology in CMC Vellore's Chittoor campus

Laboratory Technology is a health profession which deals with the identification, treatment and prevention of diseases with the help of clinical laboratory tests. These professionals assist doctors, scientists and research specialists in diagnosing diseases, thereby providing effective treatment for patients. About 70% of medical decisions are based on laboratory reports for which having a well trained professional in a good laboratory setup, is of utmost importance.

A Medical Laboratory Technologist will be required to work with a number of Automated Analysers and manual machines, which require a high level of skill and expertise.

The DMLT is approved by CMAI (Christian Medical Association of India) and is one of its leading courses. This course, started by CMAI in 1927, was the first medical technicians' course conducted in India. On completion of this diploma course, many universities offer an opportunity to do the BSc course in two years, by lateral entry.

The laboratory on the Chittoor campus has equipment which classifies it as one of the best in southern Andhra Pradesh.

The programme aims at achieving the following objectives:

- To provide skill - oriented training to students and thus create skilled professionals who will be able to manage and work in a variety of medical laboratory settings.
- To understand the importance of providing reliable laboratory service to enable the medical team to provide effective quality care at minimal cost

All students will undergo six months of compulsory internship. The Diploma Certificate will only be issued after the completion of the internship.

4.4. POST GRADUATE DIPLOMA & FELLOWSHIP COURSES

Course Name	Eligibility	Type of paper	Duration	No. of seats
PG Dip in Assisted Reproductive Technology	BSc with Zoology/Biochemistry/ Microbiology / Medical Laboratory Technology. Age not more than 30 years.	Science	1.5 years+ 6 months internship	2
PG Dip in Cardiac Technology	BSc with English and as main subject: Physics or Chemistry or Zoology or Botany or Biology	Science	2 years + 1 year internship	6
PG Dip in Clinical Pastoral Counselling	BTh or BD Degree of Serampore University or its recognised equivalent OR any degree (eg. B.A. or B.Sc. or B.Com or BBA) with three years of involvement in some form of lay ministry of the Church. No age limit.	Specialty-counselling	1 year	5
PG Dip in Community Health Management	Bachelor's Degree in any discipline or direct Masters in any discipline through a recognised University	Non-science	1 year	4
PG Dip in Cytogenetics	BSc with 1st class In Physics/Chemistry/Botany/ Zoology/Biochemistry/Microbiology/ Biotechnology or BSc MLT.	Science	2 years	2
PG Dip in Dietetics	BSc Home Science or BSc in Nutrition and Dietetics	Specialty-Dietetics	1 year + 6 months internship	4
PG Dip in Genetic Diagnosis Tech.	BSc with 1st class In Botany/Zoology/Biotechnology/ Biochemistry/Microbiology	Science	2 years	2
PG Dip in Health Economics, Policy & Financial Management	Bachelor's Degree or a direct Masters in any discipline, from any recognised University.	Non-science	1 year	4
PG Dip in Histo-pathological Lab. Technology	Pass with minimum 50% marks in BSc MLT, BSc with Biology or Botany/Zoology or Biochemistry or Microbiology as main subject; or BSc Physics or Chemistry as main, with Botany or Zoology as ancillary	Science	1 year + 1 year internship	2
PG Dip in Hospital Administration	Bachelor's Degree in any discipline, from a recognised University.	Non-science	11 months + 5 months internship	8
PG Dip in Medical Microbiology	BSc with English as the medium of instruction and Biology (Botany/Zoology) as main subject, BSc MLT, BSc Microbiology as main or ancillary subject, from a recognised University. Students who have a post-graduate degree need not apply.	Science	1.5 years + 6 months internship	6
Fellowship in Hospital Admin.	MBBS/BDS/Masters degree in any discipline. Graduates with at least 3 years full time work experience in a hospital or health related project can also be considered. PGDHA students (only CMC) are eligible to apply for FHA and will normally be given exemption from the first year.	Non-science	2 years +5 months internship	8
Fellowship in Hospital Chaplaincy	Theologically qualified and ordained pastors	Interview	1 year	3

Please check the relevant admission bulletin on the CMC website for updated information

These courses are affiliated with appropriate national and regulatory bodies specifically mentioned under each course. All admissions are provisional pending approval by the regulatory bodies. Some of these are affiliated to Universities and the Christian Medical Association of India, but many of the PG diplomas are awarded by the Christian Medical College, Vellore Association. Approximate fee structures are given in Annexure I.

PG Diploma in Assisted Reproductive Technology

(Awarded by the Christian Medical College Vellore Association)

Infertility treatment has been rapidly evolving. The reproductive medicine unit in CMC hospital, Vellore offers services in all aspects of assisted reproduction. Assisted reproductive technology (ART) collectively refers to the various laboratory procedures performed in the treatment of the infertile couple. This includes handling of human oocytes (eggs), sperm and embryos. The laboratory plays a central role in a reproductive medicine unit. The services provided include semen analysis, preparation and cryo-preservation techniques together with In-Vitro Fertilization



(IVF) techniques, such as oocyte insemination, embryo culture, Intra-Cytoplasmic Sperm Injection (ICSI), blastocyst culture & transfer, embryo cryo-preservation and laser assisted hatching.

This two year PG Diploma in ART aims to train the candidate in laboratory services required for diagnosis and treatment of infertile couples. Candidates will be encouraged to develop skills and also learn theoretical aspects of the subject. An understanding of the ethical aspects of IVF technology will be part of programme. Internal assessment will be made at the end of the first year and exit exam will be conducted at 1 ½ years' time.

Eligibility: BSc with Zoology/Biochemistry/ Microbiology / Medical Laboratory Technology. Age not more than 30 years.
Duration: 1.5 years+ 6 months internship

PG Diploma in Cardiac Technology

(Awarded by the Christian Medical College Vellore Association)



This course is designed to provide broad-based and up-to-date technical training that is relevant to current cardiac clinical practice. The areas in which training is provided include electrocardiography, treadmill stress testing, 24-hour ambulatory ECG monitoring (Holter), cardiac catheterization laboratory technology and electrophysiology. The course includes theory classes, practical "hands on" training and periodic evaluations. Candidates successfully completing the course will be adequately equipped to independently provide technical assistance at any advanced cardiac centre.

Eligibility: BSc with English, and as main subject Physics/ Chemistry/ Zoology/Botany/Biology.

Duration: 2 years + 1 year internship

PG Diploma in Clinical Pastoral Counselling

(Affiliated to the Serampore University)

This Programme is intended to:

- Provide an understanding of healing and wholeness from a Christian perspective
- Provide an awareness of and sensitivity to the various areas of need for healing
- Provide an inter-disciplinary approach in dealing with issues in healing
- Impart skills in Pastoral care and counselling
- Enable the development of attitudes and sensitivity to relate oneself to those in need
- Develop and enhance the inner strength and potential required for personal growth
- Help recognise and utilize spiritual resources

- Help understand the Biblical vision of the Church as the Healing Community and thereby enter creatively the Healing Ministry of the Church
- Emphasize the centrality of Christ while being sensitive to the religious plurality and spiritual traditions of India.

Eligibility: BTh or BD Degree of Serampore University or its recognised equivalent or any degree (eg. B.A. or B.Sc. or B.Com or BBA) with three years of involvement in some form of lay ministry of the Church.

Duration: 1 year

PG Diploma in Community Health Management (PGDCHM)

(Awarded by the Christian Medical College Vellore Association)

The PGDCHM is a one-year, well designed, carefully planned, practical-oriented training, aimed at developing individuals interested / involved in managing health and development projects. This course is in response to the need and demand for competent and committed personnel in health management, with the aptitude,



knowledge, skills and experience in the areas of Applied Sociology, Health and Nutrition, Personal Growth and Development, Social Research Methods, Participatory Planning and Management, Community Management, Organizational Development and Communication Management.

An integral part of the course is the field study, elective and practicum, providing an opportunity for effective self-directed learning and improving one's own personality. This experience equips the students with skills to bring about planned changes in the community through conducting population based studies, implementing intervention programmes and evaluating their outcomes. A wide variety of training methodologies including

group-work, discussions, field-visits, exercises, games, videos, lectures, placements etc., make the course participatory, interesting and meaningful. Those who have completed this course in the past are well placed in different levels of management in NGOs, Government and National / International Funding Agencies. The PGDCHM course is intended to prepare team leaders for integrated health and development projects, planners in health care industries, effective trainers in health NGOs, human resource development, rehabilitation, health and development projects and execution of research projects.

Eligibility: Bachelor's degree or a direct Masters in any discipline from any recognized University. Ability to handle English as a medium of learning.

Duration: 1 year

PG Diploma in Cytogenetics

(Awarded by the Christian Medical College Vellore Association)

The two-year diploma in cytogenomic technology is awarded by the Christian Medical College, Vellore. This is an in-service training programme for candidates who have completed B.Sc. in Biochemistry, Biotechnology, Botany, Chemistry, Genetics, Medical Laboratory Laboratory, Microbiology or Zoology with a first class. Ability to understand English is essential.

Cytogenetics is the study of chromosomes. Abnormalities of chromosomes may be seen in a variety of disorders, including intellectual disability, delayed or abnormal development, disordered sexual development, infertility, recurrent abortions and leukemia and other cancers. Chromosomal analysis is helpful to make an accurate diagnosis, predict outcome and plan treatment. It can also be used for prenatal diagnosis of some diseases.

Using supervised bench training and lectures, this programme aims to train cytogenetic technologists to:

- Identify normal and abnormal chromosomes using a microscope, computer and software relevant for chromosomal analysis.
- Obtain chromosomes from blood, bone marrow, amniotic fluid and solid tissues, including chorionic villus, products of conception, tumours and skin.
- Prepare reagents, use and maintain equipment required for cytogenetic analysis.
- Use appropriate cytogenomic terminology as per current international guidelines.

They are also exposed to fluorescence in situ hybridization (FISH) analysis which is used to detect specific changes in DNA, and the steps involved in basic molecular and genomic techniques such as DNA extraction and polymerase chain reaction (PCR).

There is an increasing awareness of the usefulness of cytogenomic analysis in medical practice. However, there are relatively few people with such skills, so successful candidates will be able to find jobs in any cytogenomic, cell culture or molecular genetics laboratory in India, as well as overseas.

Eligibility: BSc with 1st class in Physics/ Chemistry / Botany / Zoology / Biochemistry / Microbiology / Biotechnology or BSc MLT.

Duration: 2 years

PG Diploma in Dietetics

(Awarded by the Christian Medical College Vellore Association)

Dietetics is an applied health science which involves translating the sciences of nutrition and food to promote good health. In short, it is Nutrition, Food & Health! Dieticians are highly valued healthcare professionals. They assist individuals and families in choosing nutritious food in health or disease, supervise preparation and service of food in groups, develop modified diets and participate in nutrition research.

The Department of Dietetics at Christian Medical College is a clinical support department which offers food service to patients. Diet counselling is given for all patients, both hospitalized as well as outpatients, who require medical nutrition therapy. Teaching nursing students, as well as other health care team members in nutrition and dietetics is a core function. The department is actively engaged in collaborative research, public awareness and nutrition programmes. It is recognized by the Indian Dietetic Association for a six month registered dietician internship training programme for candidates who aspire to become registered dieticians.

P.G. Diploma in Dietetics Course is a one year in-service training programme followed by six months of compulsory internship. The focus is on practical aspects, hands on experience and exposure to real life situations. Emphasis is placed on clinical dietetics and management of food service in hospitals. The course inculcates in students the art and science of medical nutrition therapy, fundamentals of organization and management of food service in hospitals.



Employment opportunities: Graduates can work as clinical dieticians in hospitals or dieticians in health centres, schools, multinational companies, corporates, star hotels, factories, sports and health clubs; as clinical nutritionists in nutraceutical companies and as research dieticians in government and non-government institutes. They may also work as private diet consultants after clearing the Registered Dietician board examination conducted by the Indian Dietetic Association.

Eligibility: BSc Home Science/ BSc in Nutrition and Dietetics

Duration: 1 year + 6 months internship

PG Diploma in Genetic Diagnosis Technology

(Awarded by the Christian Medical College Vellore Association)

This course was started in 2008 by the Department of Haematology. This course is designed for graduates of life sciences who wish to learn more about techniques used in molecular and cell biology laboratories. This course equips a science graduate with the necessary skills to function independently in a molecular biology laboratory.

The programme has didactic lectures but also concentrates on hands on learning of a range of molecular biology techniques. This includes DNA and RNA extraction, polymerase chain reaction (PCR), gelelectrophoresis, restriction fragment length polymorphisms, various techniques involved in screening for mutations, reverse transcriptase PCR, quantitative PCR and DNA sequencing. Students learn about cell culture



techniques, microscopy and imaging. They are also involved in learning about flow cytometry for blood samples for cancers and stem cells.

While the first year is used for learning these techniques, in the second year they will be able to perform these techniques on their own so as to understand their principles better and become confident with independent functioning in a supervised environment.

Apart from this, the students are also expected to attend departmental seminars and make presentations during these sessions.

Eligibility: BSc with 1st class in Botany / Zoology / Biochemistry / Microbiology / Biotechnology
Duration: 2 years

PG Diploma in Health Economics, Policy & Financial Management (HEPFM)

(Awarded by the Christian Medical College Vellore Association)

This course is offered to medical faculty interested in finance management, accountants, superintendents/hospital administrators, healthcare students with an interest in health economics and economic researchers (students, teachers or research scholars). It aims to introduce basic conceptual tools and theory of health economics and application in day-to-day health care operations and policy analysis. It helps make cost effective, scientific and evidence based choices in health care, using health economics for financial governance in private NGO and the public sector. It also equips health professionals to face changing

needs of health care management involving the economics of health care insurance. Candidates learn to make choices based on economic analysis of health care interventions e.g. cost effectiveness, cost benefit analysis, etc. Basis of financing and healthcare, principles of accounting, financial management and research designs are covered.

Various departments of CMC are involved in teaching, e.g. accounts department, CHAD, RUHSA and clinical departments. The course involves a series of projects, involving the skill and application of the chosen specialty. The department where the projects are done mentor the candidates in primary, secondary or tertiary care settings. Students need to have an aptitude for quantitative skills, interest in taking financial decisions, ability to make decisions on investments, as well as communication and leadership skills.

In the area of globalization and insurance, economics and finance will play a major role in the development of hospitals within the public and private sectors. The health sector's demand for financial analysts and economists is expected to increase. Many mission hospitals need experienced finance managers. These opportunities are expected to increase in the future.

Eligibility: Bachelor's Degree or a direct Masters in any discipline, from any recognised University.

Duration: 1 year

PG Diploma in Histopathological Laboratory Technology

(Awarded by the Christian Medical Association of India)

This is a one year course intended to train students in processing tissues and staining of sections for microscopic examination, autopsy techniques and preservation and mounting of specimens for display in pathology museums. They are also trained in cytological methods which are widely used in the early detection of cancer in pathology laboratories and cancer hospitals.

The examination at the end of the course is conducted by the Laboratory Training Committee of the Christian Medical Association of India leading to the Post Graduate Diploma in Histopathological laboratory Technology (awarded by CMAI).

Eligibility: Pass with minimum 50% marks, in BSc MLT/ BSc with Biology or Botany/Zoology or Biochemistry or Microbiology as main subject/BSc Physics or Chemistry as main, with Botany or Zoology as ancillary.

Duration: 1 year



PG Diploma in Hospital Administration (PGDHA)

Programme jointly managed by Tata Institute of Social Sciences (TISS) and CMC,

Diploma awarded by TISS

Hospitals are highly complex organizations, irrespective of size. They provide a broad range of medical services, products (mainly pharmaceuticals) and offer hospitality services. There is a need for efficient administrators who can plan, coordinate and manage hospitals to ensure smooth and efficient delivery of healthcare services.

Recognizing the need for quality training for comprehensive knowledge and experience in the administration and operation of any level hospital, the Department of Hospital Management Studies & Staff Training and Development, CMC in collaboration with TISS offers PGDHA, a one-year full-time course. This is followed by a 5 months compulsory internship without stipend. Students will also have additional inputs from Loyola Institute of Business Administration (LIBA), Chennai.

Modules covered: Core skills for Hospital Administrators; Principles of Management; Organizational Behavior; Finance in Healthcare; Materials and Equipment Management; Managing Patient Care; Research, Statistics and Operations Research; Human Resource Management; Epidemiology & Public Health; Planning and managing hospital facilities; Quality Management and Legal Issues. Students are attached to a number of hospital departments, which give them

practical experience of day-to-day management issues and techniques in both clinical and support departments.

The course is for one year (11 months of study both in the classroom and with departments, at the end of which there will be an examination followed by 1 month posting in various departments of the institution). This is followed by five months compulsory internship without stipend.

Eligibility: Graduates in any discipline, preferably with one year working experience in a hospital. Preference will be given to those who are from mission hospitals and have assurance of a job on their return. A good working knowledge of English is necessary.

PG Diploma in Medical Microbiology

(Awarded by the Christian Medical College Vellore Association)

The Microbiology laboratory is an NABL accredited laboratory. The primary concern of Microbiology is to provide excellent laboratory support for patient care. This course is designed to produce professionally excellent technologists. It provides training in the identification of bacterial and fungal pathogens causing disease in man, with a brief exposure to diagnostic methods for viral and parasitic agents.

Besides helping to diagnose infectious diseases by organism isolation, diagnosis is also made by various serological tests to detect antibodies against the infections agents. In addition, molecular techniques to identify the DNA/RNA of bacteria and their resistant genes are used for rapid and accurate diagnosis.

The trainees also acquire the skill to carry out antimicrobial susceptibility tests, which reveal the drug or combination of drugs which would be best suited for treatment. Training in common serological procedures is also imparted in the course. Organized lectures, practical sessions and demonstrations, as well as supervised bench training opportunities are offered during the course.

This is not a post graduate degree programme. It primarily enables a trained candidate to work as a technologist in laboratory settings.

Eligibility: BSc with English as the medium of instruction and Biology (Botany/Zoology) as main subject/ BSc MLT/ BSc Microbiology as main or ancillary subject, from a recognised University. Students who have a post-graduate degree need not apply.

Duration: 1.5 years + 6 months internship



Fellowship in Hospital Administration (FHA)

FHA is a two-year full-time course jointly offered and certified by CMC and the Loyola Institute of Business Administration (LIBA), Chennai, followed by 5 months compulsory internship without stipend. It is designed as a Masters-level Programme with an aim to develop hospital administrators, with the knowledge, skills and values to manage hospitals effectively with a spirit of compassionate service and to contribute in creative ways at a senior level.

Most of the teaching and assessment in the first year will be in common with the PGDHA course (see above), but FHA students will be given additional assignments and are expected to contribute at a higher level. In the second year, greater focus is provided on building knowledge on analytical and strategic thinking and research. Modules covered include: Strategy and the Environment, Financial Management, Public Health, Health Education and Ethics, Quality Management, Healthcare Marketing, Healthcare Economics, HIS and Managing Healthcare across International Borders. Teaching is through self-learning materials, tutorials, seminars, assignments and project-based learning. Participants will carry out a number of studies/live projects in CMC hospital departments & processes and other Mission hospitals, in specific areas.

Eligibility: MBBS / Health professionals from Alternative Medicine / Master's degree in any discipline. Graduates with at least 3 years full time work experience in a hospital or health related project. A good working knowledge of English is necessary. PGDHA students (from CMC alone) are also

eligible to apply for FHA and are exempted from the first year.

Duration: two years plus 5 months compulsory internship (without stipend)

Fellowship in Hospital Chaplaincy

(Awarded by the Christian Medical College Vellore Association)

There is a growing awareness of the need for counselling in different disciplines today, This Fellowship programme is designed to particularly meet the need of pastors of churches to equip them with special skills in counselling and pastoral ministry among the sick and suffering. However, the programme also provides needed skills for the broader healing ministry in the context of schools, colleges, industries, institutions and organizations. 'Learning through doing' is the general method of this programme. Sufficient supervision from senior chaplain teachers and peer group learning and periodical lectures from faculty of different disciplines are the main feature of this programme.

It is expected that those who finish this fellowship will best be equipped to serve as counsellors or chaplains in hospitals, communities, schools, colleges, industries or other institutions. A stipend which covers basic living expenses is provided. Admission is by special interview at CMC, Vellore. In addition to the fees, candidates must be in a position to meet expenses for study programmes organized in other hospitals.

Eligibility: Theologically qualified and ordained pastors
Duration: 1 year

4.5. MASTERS COURSES

Course Name	Eligibility	Type of paper	Duration	No. of seats
Master of Physiotherapy (Orthopaedics)	BPT awarded by the Tamil Nadu Dr MGR Medical University or other university recognized as equivalent by the above university	2 years	Specialty	3



Master of Physiotherapy (Orthopaedics)

The MPT Orthopaedics course was started in 2016. This programme develops the clinical acumen, patient care, clinical reasoning and the ability of candidates to plan physiotherapy treatment using current evidence. Christian Medical College, Vellore offers our post graduate physiotherapy students, excellent clinical learning from direct patient care, trans-disciplinary teams, and specialized labs. The forte of the Christian Medical College, Vellore has always been the utmost priority given to patient care and hands-on clinical learning. MPT Orthopaedics students also have the opportunity to rotate in Orthopaedic subspecialties like Spine surgery, Paediatric Ortho, Orthopaedic Oncology, and Hand surgery. They take part in

grand rounds, clinical discussions, pre and post-operative meetings, journal club meetings and case presentations. This two-year programme will adequately equip the students to become excellent clinicians, astute teachers and also form a strong foundation to pursue doctoral programmes in orthopaedic physiotherapy.

Students enrolled in Masters in Physiotherapy – Orthopaedics course have to conduct a supervised research project, as part of the curriculum. Student research projects are encouraged at CMC Vellore. Research activities are funded from Institutional Fluid Research Grants, with statistical support from the department of Biostatistics. Postgraduate students will also be given opportunity to showcase their research activities in national and state Physiotherapy forums.