

SCHOOL OF MEDICAL SCIENCES & TECHNOLOGY

Integrated B.Sc.-M.Sc. in Clinical Embryology & Assisted Reproductive Technology

A five-year program



**MALLA REDDY
VISHWAVIDYAPEETH**

(DEEMED TO BE UNIVERSITY)
(APPROVED U/S OF UGC ACT 1956)



*This **five-year integrated BSc-MSc program** aims to provide science students with highly advanced theoretical and practical understanding of human reproductive biology, embryology, infertility and assisted reproductive technology (ART) along with intensive 'hands-on' practical training in essential laboratory skills, including the sophisticated micromanipulation techniques associated with ART. The program is administered by the **School of Medical Sciences & Technology** at MRV (Deemed to be University) in collaboration with MOMSOON Academy.*

Integrated B.Sc.-M.Sc. in Clinical Embryology & Assisted Reproductive Technology

Clinical embryology is a relatively young branch of reproductive science that has undergone enormous expansion over the last twenty years. Louise Brown, the world's first 'test tube' baby, was born in 1978 as a result of pioneering research carried out by a team of British clinicians led by Dr. Patrick Steptoe and Sir Robert Edwards. Since then, infertility treatment has undergone phenomenal development and has become a highly specialised field involving a multitude of interventions known collectively as Assisted Reproductive Technology (ART). Worldwide, approximately one million ART treatments are now performed each year and over five million ART babies have been born. However, a major concern is that there are too few appropriately trained clinical embryologists, both within India and throughout the rest of the world, to maintain this pattern of growth. In addition, the field of clinical embryology is becoming ever more closely regulated, with greater emphasis on quality assurance. Meticulous training of new personnel in theoretical knowledge and practical skills is therefore critical to future advancement and to ensure patients consistently receive the best care. In response to these concerns, the Malla Reddy Vishwavidhyapeeth (Deemed to be University) has developed an intensive, five-year integrated B.Sc.-M.Sc. Clinical Embryology programme. Our intention is to inspire, motivate and train a network of future leaders in clinical embryology throughout the world.

Our integrated BSc-MSc program provides students with theoretical and practical understanding of human reproductive biology, embryology, infertility and ART. The program includes the very latest developments in ART including legislation, ethics, and quality

management. Significant emphasis is placed upon continuing professional development and acquiring valuable transferable skills. To this end, our BSc-MSc program will include a considerable practical component. Students will learn skills and techniques directly relevant to ART, as well as a range of 'traditional' and 'cutting edge' scientific techniques and procedures. A particular strength of our program is the fact that each of our students will be individually trained in gamete manipulation / injection and embryo biopsy. For this purpose, students will use gametes and embryos acquired from mice and sheep.

Our integrated BSc-MSc program will prepare students for active employment within the clinical embryology / ART sector and / or a research career in reproductive science. As the program is designed in response to identified employment needs, our post graduates are likely to be highly sought after. In particular, we expect our post graduates to possess sufficient knowledge and skills to allow them to make a significant contribution to the design and establishment of new in vitro fertilisation (IVF) units, which need to incorporate the latest techniques and conform strictly to current legislation.

Once enrolled on the BSc-MSc programme, you will be allocated a Mentor, who will be a senior member of the clinical, scientific or research staff. Your Mentor will provide individual support and guidance throughout the course and will meet you regularly to discuss coursework and assessment. This level of individual support is a prominent and highly acclaimed feature of this program and will provide the support necessary for you to achieve maximum benefit from your studies.

Course Aims

Specific aims of the Integrated B.Sc.-M.Sc. in Clinical Embryology & Assisted Reproductive Technology programme are:

- To deliver intensive teaching for students in both fundamental and applied aspects of subject areas directly related to clinical embryology such as human reproductive biology, embryology, infertility and ART.
- To provide students with dedicated theoretical and practical training in basic laboratory research skills.
- To ensure students understand and appreciate the ethical and legal issues associated with ART and the treatment of infertility.
- To provide students with intensive 'hands-on' practical training in laboratory skills and ART, particularly gamete micromanipulation, intra-cytoplasmic sperm injection (ICSI) and pre implantation genetic diagnosis (PGD).
- To provide high quality laboratory training in research methodology that can be applied to basic or applied aspects of reproductive science / clinical embryology in the future.
- To encourage student understanding and appreciation of how current molecular technologies (such as the human genome sequencing project, embryonic stem cells, cloning, nuclear transfer and reprogramming) might relate to the future treatment of infertility and the ethical / legal issues involved.
- To understand how business management skills and quality management procedures are vital in the ART clinic.
- To provide training in professional development and transferable skills.
- To build a network of potential leaders in clinical embryology for the future.



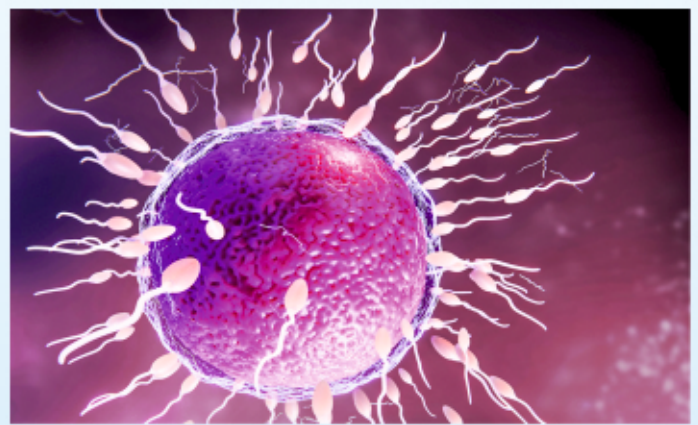
Practical Skills

Our Integrated B.Sc.-M.Sc. program places significant emphasis on practical skills and techniques, particularly those relevant to clinical embryology and reproductive science. Students will learn a wide array of 'hands on' practical techniques, these include:

- Safety, liquid handling, aseptic techniques, waste management
- Preparation of media and buffers
- Sperm counting and morphological analysis
- Oocyte and embryo grading
- Cryopreservation of gametes and embryos
- Vitrification protocols
- In vitro maturation of oocytes
- Micromanipulation of gametes (animal model)

- Intra-cytoplasmic sperm injection (animal model)
- Sperm DNA fragmentation analysis
- Embryo biopsy techniques
- Pre-implantation genetic diagnosis (PGD)
- Computer assisted sperm analysis
- Laser-assisted embryo biopsy
- Oral and written presentation skills
- Statistics, experimental design, interpretation and analysis

Emphasis is placed directly on our students acquiring 'hands on' experience, facilitated by experienced scientific and clinical instructors. Our teaching laboratory has been purposefully designed to provide a stimulating learning environment.



Professional Development

Significant emphasis will be placed on professional development and the acquisition of transferable skills. Our integrated B.Sc.-M.Sc. students will receive regular professional development seminars and workshops delivered by internal and external staff. Areas covered include:

- Information technology
- Business and management skills
- Laboratory safety / health and safety in a clinical environment
- Patents, intellectual property and technology transfer
- Bioethics and medical ethics
- Literature searches / online databases
- Experimental design, interpretation and analysis
- Getting research published
- Clinical embryology – career options and recruitment / selection procedures
- Quality management and accreditation for ART clinics



Teaching and Learning Methodology

The course will be taught by the faculty at Malla Reddy Vishwavidyapeeth (Deemed to be University) and also by the clinicians and embryologists at MOMSOON Academy & MOMSOON Fertility.

A variety of teaching methods will be employed to enhance and optimise student learning, e.g. class lectures, group tutorials, laboratory practical classes, and in-house demonstrations by visiting companies. Students will also receive regular lectures from many visiting scientists who are world experts in their field. Our program places special emphasis on the development of practical laboratory skills, especially those that are applicable to ART.

Self-directed learning strategies allow students to study topics of interest on an individual basis without formal facilitation and subsequently present their findings to the rest of the class, aided by course teaching staff.

Additional problem-based learning techniques allow the class to analyse and research a given problem collectively. In these cases, the group will be led by a student. Findings are subsequently presented and discussed with course teaching staff.

Students will also gain significant benefit from watching and discussing live clinical procedures occurring within the Fertility Unit laboratories.

Student Resources

Mentors

Each student will be allocated a mentor for the duration of their Integrated B.Sc.-M.Sc. program. Students will meet regularly with their mentor to discuss progress. The mentor will read and appraise first drafts of essays and laboratory reports, ensure that essays are marked and discussed, and will be available to offer help and advice throughout the course. The mentor will additionally provide one-on-one feedback to the students.



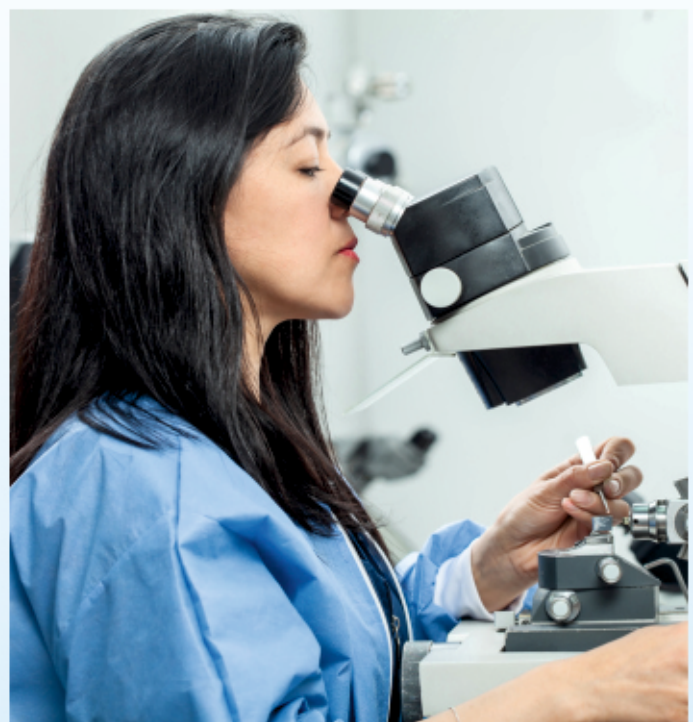
Libraries

The MRV (Deemed to be University) has one of the best library collections. Our students can access all the required academic journals and text books needed for the course.



Laboratory Equipment

The dedicated Integrated B.Sc.-M.Sc. teaching facility at MRV (Deemed to be University) is equipped with the very latest laboratory equipment, as well as several sophisticated micromanipulation work stations. A sufficient number of equipment set-ups are provided to ensure that each student is guaranteed to have hands-on practical experience in all the laboratory sessions.



IT Resources

Our Integrated B.Sc.-M.Sc. students are provided with dedicated office space and teaching facilities. The student office is equipped with a variety of IT equipment including personal computers, printer and scanner. Computers are connected to the MRV network and possess all the necessary software required by the Integrated B.Sc.-M.Sc. programme in terms of word processing, presentation preparation and data analysis. Photocopying facilities are also available.





MOMSOON Academy

MOMSOON Academy is backed by over a decade of expertise in providing excellent teaching-learning and research experience to Clinical Embryologists and Infertility Specialists. Students are significantly benefited from our diverse community of specialists who are dedicated to providing a stimulating learning environment and ensuring adequate hands-on practice.

The research activities of the students have been enormously enhanced as a result of a close partnership with the MOMSOON Fertility & IVF Centre, a fertility treatment unit founded in 2009. The MOMSOON Fertility's mission is 'to provide efficient and cost-effective fertility treatment in a caring and professional environment, and to foster research and development in the field of reproductive medicine'. The Unit offers a wide range of treatments including intra-uterine insemination, in vitro fertilisation, intracytoplasmic sperm injection, surgical sperm extraction, donor insemination, IVF with donor sperm / egg, sperm and embryo storage, oocyte in vitro maturation (IVM) and pre-implantation genetic diagnosis. MOMSOON Fertility & IVF Centre is ranked among the Best ART Clinics as per the survey conducted by the Times Group in 2022. For more information, visit the website: www.momsoonacademy.com

Malla Reddy Vishwavidyapeeth (Deemed to be University)

Malla Reddy Vishwavidyapeeth (Deemed to be University) under Distinct (Existing) Category is sponsored by the Chandramma Educational Society (CES) by visionary, founder Shri. Malla Reddy CH. MRV aspires to evolve into a Center of Excellence by undertaking new initiatives, building world-class infrastructure, fostering international collaborations, introducing innovative programs, establishing partnerships with industries, hiring well-qualified and globally trained faculty, promoting talent, nurturing research and innovation, and engaging in outreach activities with a sustainable fund flow.

Encompassing a sprawling 70-acre campus, MRV boasts state-of-the-art facilities within academic, administrative, and amenity blocks. The cosmopolitan ambiance attracts a diverse student population from across the globe, fostering an environment conducive to learning.

This atmosphere provides access to experienced teaching faculty with international exposure, nurturing students' creative abilities and encouraging new innovations through knowledge partnerships. Our curriculum includes cutting-edge technologies and innovative coursework, preparing students to navigate the dynamic developments in the contemporary world.

MRV is comprised of following constituent colleges dedicated to various disciplines: Malla Reddy Institute of Medical Sciences (MRIMS), Malla Reddy Medical College for Women (MRMCW), Malla Reddy Institute of Dental Sciences (MRIDS), Malla Reddy Dental College for Women (MRDCW), Malla Reddy College of Nursing (MRCN), Malla Reddy Institute of Pharmaceutical Sciences (MRIPS), Malla Reddy College of Engineering for Women (MRCEW)



Further information

For further information about the Integrated B.Sc.-M.Sc. in Clinical Embryology & Assisted Reproductive Technology, visit: <https://mrvv.edu.in/school-of-medical-sciences-technology/b-sc-reproductive-sciences-embryology/>

For further details about Malla Reddy Vishwavidyapeeth (Deemed to be University), visit: <https://mrvv.edu.in/>

Fees

Rs. 2,00,000/- per annum for Indian applicants
Rs. 3,00,000/- for international applicants (from Srilanka, Bhutan, Nepal and Bangladesh)
3650 USD for international applicants (except Srilanka, Bhutan, Nepal and Bangladesh)

Applications

The application procedure for the Integrated B.Sc.-M.Sc. in Clinical Embryology is as follows:

- Apply online (The link to apply online is <https://mrvv.edu.in/apply-now/>)
- Mail scanned copies of certificates for verification to info@momsoonacademy.com along with a short essay (no more than 500 words) describing why they wish to study integrated B.Sc.-M.Sc. in Clinical Embryology and how they think our program might influence their future career. (once verified, you will receive an invitation to proceed further)
- Pay 50% of the course fee and share the transaction details (you will receive an admission confirmation letter)

Admissions

Applicants must have passed in PUC / 10+2 with Biology as a compulsory subject and must have scored a minimum of 45% marks (40% in case of candidates belonging to SC/ST category) from any recognised Board / Council or any other qualification recognised as equivalent.

Further details can be obtained from:

The Programme Co-ordinator, Integrated B.Sc.-M.Sc. in Clinical Embryology & Assisted Reproductive Technology
Call or WhatsApp: +91 98864 47093
Email: info@momsoonacademy.com
Website: www.momsoonacademy.com

