



Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Science College
Semester-3 (M.Sc.)

Subject: Practicals-MSCSEM13518

Type of course: Major

Prerequisite: Basic knowledge of human reproductive physiology, embryology, hormonal regulation, and introductory ART procedures along with laboratory safety and aseptic techniques.

Rationale: These foundations help learners understand the scientific, clinical, ethical, and technical aspects of ART procedures and ensure safe and effective handling of gametes and embryos.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P		C	Theory Marks		Practical Marks		
			ESE		MSE	V	P	ALA	
0	0	12	6	00	00	40	80	30	150

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA-Active Learning Activities.

List of practical:

Sr No ,	Descriptions	Hrs
1.	Histological study of normal and pathological endometrium (slides/virtual microscopy)	4
2.	Hormonal assays interpretation (E2, P4, LH, FSH) and cycle mapping	4
3.	Endometrial thickness and pattern assessment from ultrasound images	4
4.	Protocol design for endometrial preparation (natural vs. artificial cycles)	4
5.	Case analysis: Factors affecting endometrial receptivity (age, BMI, lifestyle)	4



6.	Identification of uterine pathologies (polyp, fibroid, adenomyosis) via case images	4
7.	Endometrial receptivity markers (LIF, integrins, pinopodes) – discussion & report interpretation	4
8.	Mock demonstration of embryo transfer using dummy models	4
9.	Handling of different embryo transfer catheters (soft vs. rigid)	4
10.	Embryo loading technique under stereomicroscope (using beads/dye)	4
11.	Complete embryo transfer simulation (team-based role play)	4
12.	Interpretation of ovarian stimulation monitoring charts & ultrasound follicle tracking	4
13.	Demonstration of ovum pick-up needles and their handling	4
14.	Simulation of follicular aspiration & CQC identification (using mock samples)	4
15.	Sterility checks and aseptic precautions in OPU lab	4
16.	Case-based discussion on complications of ovarian stimulation & OPU (OHSS, bleeding)	4
17.	Post-OPU patient monitoring and counseling simulation	4
18.	Mock demonstration of ICSI dish preparation and microneedle handling	4
19.	ICSI procedure simulation using training software/microtools	4
20.	Troubleshooting failed ICSI outcomes –case studies	4
21.	Demonstration of embryo biopsy (blastomere/trophectoderm) via videos/simulators	4
22.	Handling and preservation of biopsy specimens (workflow practice)	4
23.	Genetic analysis techniques: FISH, PCR, NGS (report interpretation)	4
24.	Case-based discussion on PGS/PGD indications & counseling	4
25.	Mock informed consent form preparation for ART, ICSI, PGS/PGD	4



26.	Role-play: Ethical dilemmas (donor anonymity, embryo disposal, surrogacy)	4
27.	ART clinic compliance checklist (NABH/ICMR standards)	4
28.	Debate: Gene editing & emerging technologies in ART – ethical perspective	4
29.	Mock regulatory audit of an ART lab	4
30.	Professional standards & code of conduct drafting for embryologists	4
Total		120

Continuous Assessment:

Sr. No.	Active Learning Activities	Marks
1	Journal Unit wise Practical will be given by faculty and students will prepare Journal for the Practical and faculty will upload marks on GMIU web portal.	30
Total		30

Suggested Specification table with Marks (Theory):60

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
weightage	20%	40%	30%	10%	-	-

Note: This specification table shall be treated as a general guideline for students and teachers, The actual distribution of marks in the question paper may vary slightly from above table.



Instructional Method:

The course delivery method will depend upon the requirement of content and the needs of students.

The teacher, in addition to conventional teaching methods by black board, may also use any tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEI/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in the laboratory.

