



**Gyanmanjari**  
Innovative University

Course Syllabus  
Gyanmanjari Science College  
Semester-1(M.Sc.)

**Subject:** Practicals-MSCSEM11506

**Type of course:** Major

**Prerequisite:** Basic Knowledge of embryology laboratory: IVF laboratory and Andrology laboratory

**Rationale:** Practical in this area can help students to develop the skills they need to design and conduct experiments in areas of clinical embryology and In-vitro fertilization laboratory. As well as the Knowledge of designing, handling and maintenance of IVF laboratory and Andrology laboratory.

**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.	Study of various SOPs and work instructions in the embryology laboratory	6
2.	Study of Functions of IVF Centre and the laboratory	6
3.	Study of Operation and calibration of Laminar Flow	6
4.	Study of Operation and calibration of heating block and refrigerator.	6
5.	Study of Operation and calibration of temperature by control incubator	6



6.	Study of Operation and calibration of CO <sub>2</sub> analyser and CO <sub>2</sub> measurement	6
7.	Study of Designing and layout of embryology laboratory	6
8.	Use of Sterilization methods in embryology lab: Autoclave and dry heat sterilization	6
9.	Study of Handling of hazardous and biological samples	6
10.	Study of Cleaning and maintenance of IVF laboratory	6
11.	To determine and Identification of cells in stained blood smear	6
12.	Identification of stages of sperm development	6
13.	Identification of sperm and its morphology	6
14.	Semen analysis; normospermic and oligospermic semen samples	6
15.	Calculation of spermatozoa concentration, motility grading, morphology assessment in stained and neat semen samples	6
16.	Study and determination of sperm viability	6
17.	Examination for sperm agglutination.	6
18.	To study Sperm DNA fragmentation test	6
19.	Study of Sperm separation by classical swim up method	6
20.	Study of Sperm separation by standard swim up method.	6
21.	Study of Sperm separation by Gradient method	6
22.	Study of sperm washing by Dg Method	6
23.	Study of Semen Cryopreservation	6
24.	Study of Semen freezing	6



**Continuous Assessment:**

Sr. No.	Active Learning Activities	Marks
1	<b>Journal</b> 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
<b>Total</b>		<b>30</b>

**Suggested Specification table with Marks (Theory):60**

<b>Distribution of Theory Marks (Revised Bloom's Taxonomy)</b>						
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.

