Syllabus for Fellowship Course in Reproductive Medicine (6 Months duration)

Expectations at the end of the course, the trainee should be able to:-

Female Infertility:

Take an appropriate history and examine the woman.

Evaluate, describe, diagnosis and plan therapy for: ovulatory disorders: including use of basal body temperature, plasma progesterone and endometrial biopsy; diagnosis of causes of anovulation: syndromes of inappropriate prolactin secretion, CNS hypothalamic- pituitary syndromes and other causes; selection of ovulation induction utilizing antiestrogens, gonadotrophins, dopamine agonists, GNRH, GNRH analogues and other agents; tubal disorders: including correct use of and interpretation of studies of tubal function (e.g., ultrasound, hysterosalpingography and laparoscopy); indications for tubal reparative procedures including micro-surgery/ or laparoscopic surgery, versus assisted conception; endometriosis and other peritoneal disorders: including diagnosis and staging of endometriosis and other peritoneal causes of infertility; knowledge of the medical management of endometriosis; cervical factors: including tests for sperm/cervical mucus interaction and possible therapy; artificial insemination including the indications and contra-indications; selection of donors and sperm banking; ovum donation: indications, recruitment, counselling and methods for preparation of donors and recipients; adoption: including the indications for adoption; knowledge of appropriate counselling methods; familiarity with various local agencies and legal implications dealing with adoption. Surrogacy: indications, knowledge of appropriate counselling methods.

Male Infertility:

The trainee should be able to take an appropriate history and examine the man, including detailed genital examination and arrange /perform appropriate investigations and treatment.

The trainee should understand and be able to discuss:- the formation and content as well as examination of the seminal fluid; the cycle of spermatogenesis, including endocrinological control mechanisms, its abnormalities and the effects of drugs; the physiology and Pathophysiology of sexual function; causes of azoospermia and aspermia; the biosynthesis of estrogens, androgens and progestogens by the human testis and the biological action of testosterone in man; investigation, diagnosis and therapy of infection of the male reproductive system; cryobiology of semen, counselling of donors and recipients of DI, sperm banking; in vitro and laboratory tests of sperm function e.g., mucus penetration, biochemistry etc.; the value and limitations of testicular biopsy and endocrine assessment such as plasma FSH; the physiology of endocrine and gametogenic function of the testes and accessory glands.

Indications and methods of assisted fertilization, including intracytoplasmic sperm injection; Methods of surgical sperm retrieval.

Psychosexual Aspects of Reproductive Medicine Objectives:

The trainee should understand and be able to discuss:-

The psychodynamics of growth and development, puberty and the establishment of the gender role.

The psychological changes associated with treatment of infertility.

In-Vitro Fertilisation (IVF) and other Assisted Reproduction Techniques Objectives:

The trainee should be competent for independent clinical practice in:

- Conditions for which IVF and related techniques of assisted reproduction are appropriate.
- Determination of the menstrual cycle to plan synchronization.
- Follicular stimulation and monitoring by ultrasound, steroid and peptide assays.
- The timing of oocyte aspiration, laparoscopic, and ultrasound based procedures.
- In-vitro gamete transport, maturation and fertilization.
- Surgical and non-surgical methods of sperm retrieval and their use in assisted fertilization.
- Timing and methods of embryo transfer.
- Monitoring of implantation.
- Assessment of genetic abnormalities and their potential treatment.
- Relevant aspects of cryobiology.
- Psychological assessment and management of gamete donors and recipients.

Ethical and Legal Aspects of ART

The trainee should be able to discuss the ethical and legal aspects of the clinical practice of their Subspecialty and should have particular knowledge of the relevant areas listed below:-

- Legislation, particularly recent, relevant to their subspecialty practice.
- Ethics of health care provision and resource allocation.
- Medical confidentiality.

Consent

1- **week introductory Embryology training for beginners in IVF- ICSI and Andrology**

- How to set up Andrology Laboratory and what are the equipment required?
- Handling, cleaning, maintenance and calibration of different equipment-Laminar Flow workstation, Microscopes, Centrifuges, etc.

- Comprehensive semen analysis-Macroscopic and Microscopic-density, motility, viability, round cell differentiation etc.
- Sperm morphology assessment according to WHO and Strict (Kruger) criteria.
- Sperm survival test.
- Semen cryopreservation-both neat and processed sample.
- Semen preparation for IUI-Classical method, Standard method and Density gradient method.

2 weeks basic Embryology training for beginners in IVF- ICSI and Andrology

Andrology Laboratory Techniques

- How to set up Andrology Laboratory and what are the equipment required?
- Handling, cleaning, maintenance and calibration of different equipment-Laminar Flow workstation, Microscopes, Centrifuges, etc.
- Comprehensive semen analysis-Macroscopic and Microscopic-density, motility, viability, round cell differentiation etc.
- Sperm morphology assessment according to WHO and Strict (Kruger) criteria.
- Sperm survival test.
- Semen cryopreservation-both neat and processed sample.
- Semen preparation for IUI-Classical method, Standard method and Density gradient method.

Embryology Laboratory Techniques

- How to set up Embryology laboratory-Lab space and layout, equipment, design flooring, HEPA filter etc.
- Monitoring, calibration and maintenance of equipment-measuring and adjustment of carbon dioxide (CO2) & temperature of incubators and cleaning of incubators.
- Embryology lab maintenance-daily, weekly and monthly.
- List and selection of disposables and culture media.
- Preparation of Embryology Lab for oocyte retrieval the day before-checklist.
- Preparation of lab on the day of oocyte retrieval.
- Identification of granulose cells, cumulus and corona cells and oocytes.
- Separation of oocytes and further culture.
- Preparation of semen for insemination of oocytes-processing of ejaculated semen.
- Method of oocyte insemination-short co-incubation, etc.
- Dissection of oocytes and fertilization check.

Criteria for fertilization check

Day 1- Fertilization check, classification of zygotes and further culture.

Day 2- Assessment of embryo cleavage and identification of good embryos

Day 3- Assessment of cleavage and selection of best quality embryos for transfer

Day 5/6- Blastocyst culture -technique

Embryo Transfer:

- Preparation for embryo transfer.
- Selection of embryos for transfer- day 2, day3 or day5.
- Technique of embryo loading into the catheter (mock transfer).