IFS CURRICULUM

Time : 40 weeks (10mths) to complete the given curriculum.

Lectures: All the topics can be covered in the form of weekly seminars, Journal Clubs and case reports. 80 hours of teaching sessions per year will complete the course to be completed of which 20 may be from conferences meetings etc.

Evaluation /3mths – an interim exam held by the centre for internal evaluation

Examination: One paper – 2- 3 hrs - Two long questions and 8 short notes.

Practicals – 4 hrs – 2 case histories for discussion. Practical evaluation of USG monitoring, embryo transfer, IUI.

**Theory Topics**

- Anatomy & Physiology
- Endocrinology
- Embryology
- Andrology
- Statistics
- Investigations of Male and female partner
- Infertility Management
- Assisted Reproductive Technology
- Third party Reproduction
- Genetics
- Ethics in ART Practice and legal Issues

Recommended books

**Curriculum for fellowship in Reproductive Medicine**

**Basic Sciences**

- **Molecular biology and genetics**

B. Female anatomy - Uterus, Cervix & Fallopian tubes
   1. Congenital anomalies.
   2. Cervix & cervical canal – function & structural anomalies
   3. Structure & function of fallopian tubes ( Lecture 1)

C. Physiology & Endocrinology of the menstrual cycle
   1. Folliculogenesis- Hormonal, Autocrine & paracrine regulators of follicular growth
   2. Ovulation & Luteal phase.
   3. Endometrial changes during MC
   4. Window of implantation – factors governing implantation. (Lecture 2)

D. Evaluation & Management of female factor
   1. Importance of detailed history & physical examination
   2. Investigations – Biochemical, hormonal, ultrasound, Ovulation tests, Tubal evaluation, Luteal phase progesterone. Role of PCT, Cervical hostility tests, EB
   3. Importance of viral marker screening, Pap's smear, HPV, mammography.
   4. Endoscopic evaluation – role of Laparoscopy & Hysteroscopy, indications& complications
   5. Ovarian reserve markers.
   6. Endocrine disorders affecting ovulation – thyroid , Hyper Prolactinaemia.
   7. Primary & Secondary amenorrhoea
   8. Polycystic ovarian syndrome
   9. Hirsuitism - androgen disorders
   10. Endometriosis
   11. Fibroids & infertility
   12. Ovarian tumors
   13. Chronic pelvic inflammation & Genital Koch's
   14. Luteal phase defect
   15. Immune system involvement & Thrombophilia's
   16. Genetic evaluation

( will need atleast 7 lectures)

E. Anatomy & Physiology of male reproduction
   1. Anatomy & anatomical abnormalities – testes, epididymis, vas
   2. Spermatogenesis
   3. Hormonal control of spermatogenesis
   4. Fertilization – sperm changes leading to fertilization, contribution of male genome to the embryo.

5. Ejaculation – physiology and abnormality

F. Evaluation & Management of Male factor
   1. History & physical examination
   2. Semen analysis & morphology & tests for sperm function. Role of DNA fragmentation
   3. Role of ultrasound
   4. OAT & Azoospermia , Retrograde ejaculation
   5. Endocrine evaluation & role of endocrine abnormalities leading to MF.
   6. Impact of Infection in semen
   7. Genetic testing & immune factors – Karyotyping, Y deletions
   8. Varicocele - role in infertility & management.
   9. Medical & Surgical treatments for MF.

G. Intrauterine Insemination
   1. Indications, Ovarian stimulation, Monitoring, Trigger Timing of IUI, LPS
   2. Sperm preparation techniques
   3. Procedure of IUI, Post IUI precautions

H. Assisted Conception
   1. Indications & indications for IVF/ ICSI, Pre- IVF investigations.
   2. Ovarian stimulation protocols
      - Agonist & Antagonist Protocols, ICOS –
      - Management of Poor Responders
      - Use of Agonist & HCG as ovulation trigger.
      - Luteal Phase support in ART cycles.
      - Monitoring – ultrasound & hormonal, Importance of Pre-ovulatory P
      - FET
   3. Complication of COS – OHSS
   4. Oocyte retrieval & ET techniques and complications
   5. Techniques to Improve IVF results
   6. Recurrent implantation failure

H Embryology Lab
   i. Quality assurance & Quality controlS
   ii. How to set up a laboratory – detailing of equipment, layout, cleaning etc.
   iii. Sperm preparation for IVF & ICSI – Ejaculate, Epididymal aspiration, testicular biopsy/aspiration, micro-tesa
   iv. IVF / ICSI procedure
   v. Embryo culture systems
   vi. Assessment of Fertilization & Embryo development
   vii. Advanced lab procedures - Assisted Hatching, BET, IMSI
   viii. Preimplantation genetic diagnosis – procedure & indications
   ix. Oocyte & embryo cryopreservation

1. Third Party Reproduction
   - Oocyte donation

    - Embryo donation
    - Surrogacy
2. Genetics & epigenetics of Infertility
3. Biostatics & Data management.
4. Fertility preservation – Social & Onco- fertility.
5. Monitoring & treatment of early pregnancy after ART treatment
6. Ethical & medico-legal aspects aspects of infertility management- ICMR guidelines

Neuroendocrine anatomy and physiology.

Hypothalamic-pituitary dysfunction

- Hypogonadotrophic hypogonadism
- Kallman's syndrome
- Pituitary adenoma
- Hyperprolactinaemia
- Disorders of growth hormone.

Adrenal dysfunction:

- Cushing syndrome
- Nelson syndrome
- Addison's disease
- Adrenal hyperplasia

Basis of genetic inheritance and transmission of genetic disease:

- Single gene disorders: recessive and dominant
- Sex-linked disorders
- Late-onset disorders and disease susceptibilities
- Chromosome rearrangements: Robertsonian reciprocal translocations and their consequences
- Aneuploidy, sporadic aneuploidy and important aneuploidy syndromes (e.g. Edwards, Turner Patau).

Counselling for inherited disorders. Use of PGD