

## **Professional Elective-V (Any one)**

### **Advanced Casting Processes (3-0-0) Credits: 03**

#### **Module – I (12 hours)**

Principles of casting design, pattern design considerations, pattern allowances, pattern design and construction. Features of moulding processes, equipments, mechanizations, forces acting on moulds, mould factors in metal flow, molding factors in casting design.

#### **Module – II (12 hours)**

Design of different types of cores and core prints Fundamentals of fluid flow, design of gating system, slag traps and filters etc. Types of binders and their uses in mould and core makings. Melting practices as adopted for a few metals and alloys.

#### **Module – III (12 hours)**

Concept of directional and progressive solidification, Time of solidification and Chourinov rule, differential methods of feeder design, feeding distance, feeding efficiency, feeder aids. Feeding characteristics of alloys, types of gates and risers. gating ratio. Yield of casting and prescription for its augmentation.

#### **Books for Reference:**

1. Heine R.W., Lopper C.R. & Rosenthal P.C., Principles of Metal Casting, McGrawHill.
2. Davis, G.J., Solidification in Casting, Applied Sciences.
3. Beeley P.R., Foundry Technology, Butterworth.
4. Kondic V., Metallurgical Principles of Foundry, Edward Arnold.