Lesson Plan

Name of Institute : Ambala College of Engineering and Applied Research

Name of the Faculty member : Er. Ashok Kumar

Discipline : Mechanical Engineering

Semester : 8th

Subject : Foundary Engineering

Lesson Plan Duration : 15 weeks (from January 2020 to April 2020)

Work Load : L-4 T-0 P-0

Week	Theory	
	Lecture day	Topic (including assignment/ test)
1st	1st	Introduction to metal casting and foundry industry in modern industrial scenario.
	2nd	Advantages and limitations of casting methods. Classification of foundries.
	3rd	Different sections in a foundry and their functions.
	4th	Revision of discussed Topics
2nd	1st	Important cast metals and alloys-their composition, properties and uses.
	2nd	Types of patterns
	3rd	Brief classification of pattern making materials
	4th	Revision of discussed Topics
3rd	1st	Consideration in selection of pattern materials
	2nd	Color coding, pattern allowances
	3rd	Core boxes
	4th	Types of core boxes.
4th	1st	Introduction of Moulding and core making
	2nd	Ingredients of common type of moulding and core making sands
	3rd	Properties and behavior of sand
	4th	Revision of discussed Topics
5th	1st	Testing of sands and clay
	2nd	Classification of molding processes and casting processes
	3rd	Brief description of all processes.
	4th	Class Test – 1 (Syllabus will be notified)
6th	1st	Green sand dry sand, loam sand floor
	2nd	Pit and machine molding
	3rd	**Casting processes**
	4th	Revision of discussed Topics
7th	1st	Shell molding, CO_2 silicate process
	2nd	Investment casting process

	3rd	Permanent moulding process
	4th	Revision of discussed Topics
8th	1st	Gravity die casting
	2nd	Pressure die casting
	3rd	Centrifugal casting process
	4th	Problems & Assignment
9th	1st	Introduction of Elements of Gating system
	2nd	Classification, basic consideration in gating design
	3rd	Gating ratio
	4th	Revision of discussed Topics
10th	1st	Gating practice for ferrous and nonferrous alloys
	2nd	Pouring equipment.
	3rd	Risering Practice
	4th	Class Test – 1 (Syllabus will be notified)
11th	1st	Function of riser
	2nd	Directional and progressive solidification
	3rd	Centerline feeding resistance
	4th	Riser efficiency
12th	1st	Riser design consideration
	2nd	Risering curves, Cain's, N.R.L
	3rd	Modulus method, feeding distance feeding aids, blind and atmospheric risers.
	4th	Problems & Assignment
13th	1st	Melting of cast iron, Mechanical features of cupola
	2nd	Operational steps and principles of cupola operation
	3rd	Advanced practices in the cupola operation,
	4th	Revision of discussed Topics
14th	1st	Melting of aluminum and copper based alloys
	2nd	Mold treatments such as dressing, grain refining, and modification.
	3rd	Casting defects
	4th	Problems & Assignment
15th	1st	Causes and remedies
	2nd	Shop floor quality control tests such as composition control
	3rd	Casting Modification by different methods like Friction stir processing.
	4th	Class Test – 1 (Syllabus will be notified)

(Signature of the teacher concerned with date)