FLUIDIZATION SEMINAR AND WORKSHOP
NEW DELHI, INDIA
OCTOBER 15TH – 18TH, 2019

TUESDAY, OCTOBER 15TH 2019

8:00 AM	REGISTRATION		
8:20 AM	INTRODUCTION TO PSRI AND ITS TECHNICAL PROGRAMS		
8:30 AM	A.	INTRODUCTION AND OVERVIEW	
		1.	INTRODUCTION, TERMINOLOGY, AND PARTICULATE PROPERTIES
		2.	FLUIDIZATION REGIMES AND TRANSITIONS
10:30 AM	BREAK		
10:45 AM		3.	HYDRODYNAMICS OF FLUIDIZED BEDS
			▪ EFFECTS OF TEMPERATURE AND PRESSURE
12:00 PM	LUNCH (PROVIDED)		
1:00 PM		4.	GAS AND SOLIDS MIXING
2:45 PM	BREAK		
3:00 PM		5.	GAS SOLIDS CONTACTING, REACTION, MODELLING AND SCALE-UP
		6.	HEAT AND MASS TRANSFER
5:00 PM	ADJOURN		

WEDNESDAY, OCTOBER 16TH 2019

8:00 AM B. OVERVIEW OF INDUSTRIAL APPLICATIONS

9:00 AM C. GRIDS AND PARTICLE ATTRITION

- INTRODUCTION TO GRIDS (PRESSURE DROP ACROSS GRID)
- DESIGN OF VARIOUS TYPES OF GRIDS
  - PERFORATED PLATE
  - PIPE/SPARGER
  - EFFECT OF SHROUDS
- JET PENETRATION
  - EFFECTS OF TEMPERATURE AND PRESSURE

10:00 AM BREAK

10:15 AM C. GRIDS AND PARTICLE ATTRITION (CONTINUED)

- SOURCES OF ATTRITION
- PARTICLE ATTRITION AT SUBMERGED JETS
  - GRID DESIGN
  - EFFECTS OF TEMPERATURE AND PRESSURE
- PARTICLE ATTRITION IN CYCLONES

11:30 AM D. WORKSHOP ON GRID DESIGN

12:00 PM LUNCH (PROVIDED)

1:00 PM E. PARTICLE ENTRAINMENT & ELUTRIATION

- INTRODUCTION
- MECHANISMS OF EJECTION INTO FREEBOARD
- SOLID FLUX PROFILE AND TDH
- CORRELATION FOR BUBBLING & TURBULENT BEDS

3:00 PM BREAK

3:15 PM E. PARTICLE ENTRAINMENT & ELUTRIATION (CONTINUED)

- ENTRAINMENT CORRELATION
- EFFECTS OF GEOMETRY
- ENTRAINMENT FROM RISERS
- EFFECTS OF TEMPERATURE AND PRESSURE

4:15 PM F. WORKSHOP ON ENTRAINMENT

- FCC/POLYETHYLENE EXAMPLES

5:00 PM ADJOURN

THURSDAY, OCTOBER 17TH 2019

8:00 AM	G.	CYCLONE DESIGN

- PRINCIPLE OF OPERATION
- DIPLEG PRESSURE BALANCE
- FLAPPER & TRICKLE VALVES
- DIFFERENT CYCLONE TYPES
- EFFECT OF DIFFERENT CONFIGURATIONS
- EFFECTS OF TEMPERATURE AND PRESSURE

10:00 AM	BREAK	
10:15 AM	G.	CYCLONE DESIGN (CONTINUED)

- DESIGN PROCEDURE
- COLLECTION EFFICIENCY
- CYCLONE DESIGN CALCULATION

11:15 AM	H.	WORKSHOP ON CYCLONES
12:00 PM	LUNCH (PROVIDED)	
1:00 PM	I.	STANDPIPES

- THEORY OF OPERATION
- TYPES OF STANDPIPES
- AERATION EFFECTS
- STANDPIPE CAPACITY

3:00 PM	BREAK	
3:15 PM	I.	STANDPIPES (CONTINUED)

- ANGLED STANDPIPES
- STRIPPING
- NON-MECHANICAL VALVES
- STANDPIPE CALCULATIONS

5:00 PM	ADJOURN

FRIDAY, OCTOBER 18TH 2019

8:00 AM J. DILUTE-PHASE PNEUMATIC CONVEYING

- VERTICAL & HORIZONTAL FLOW
- PRESSURE DROP CALCULATIONS
- CALCULATION OF CHOKING, SALTATION
- BENDS
- EFFECT OF DIAMETER
- EFFECT OF PRESSURE
- FEEDING CONSIDERATIONS

10:00 AM BREAK

10:15 PM K. DENSE-PHASE PNEUMATIC CONVEYING

- PACKED-BED FLOW
- FLUIDIZED-BED FLOW
- SLUG FLOW
- SELECTION OF EQUIPMENT TYPE

11:30 AM LUNCH (PROVIDED)

12:30 PM L. PARTICLE ATTRITION

- TYPES OF ATTRITION
- ATTRITION TESTING AND MODELING

1:30 PM M. MODELING GRANULAR-FLUID SYSTEMS

- TYPES OF MODELS
- COMMON PITFALLS

2:45 PM BREAK

3:00 PM M. MODELING GRANULAR-FLUID SYSTEMS (CONTINUED)

5:00 PM CONCLUSION OF SEMINAR