FLUIDIZATION SEMINAR AND WORKSHOP
MADRID, SPAIN
NOVEMBER 1ST – 4TH, 2022

TUESDAY, NOVEMBER 1ST, 2022

08:00	REGISTRATION		
08:20	INTRODUCTION TO PSRI AND ITS TECHNICAL PROGRAMS		
08:30	A.	INTRODUCTION AND OVERVIEW	
		1.	INTRODUCTION, TERMINOLOGY, AND PARTICULATE PROPERTIES
		2.	FLUIDIZATION REGIMES AND TRANSITIONS
10:30	BREAK		
10:45		3.	HYDRODYNAMICS OF FLUIDIZED BEDS
			-EFFECTS OF TEMPERATURE AND PRESSURE
12:00	LUNCH (PROVIDED)		
13:00		4.	GAS AND SOLIDS MIXING
14:45	BREAK		
15:00		5.	GAS SOLIDS CONTACTING, REACTION, MODELLING AND SCALE-UP
		6.	HEAT TRANSFER
17:00	ADJOURN		

WEDNESDAY, NOVEMBER 2ND, 2022

08:00 B. OVERVIEW OF INDUSTRIAL APPLICATIONS

09:00 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 BREAK

10:15 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 D. WORKSHOP ON GRID DESIGN

12:00 LUNCH (PROVIDED)

13:00 E. PARTICLE ENTRAINMENT & ELUTRIATION

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

15:00 BREAK

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

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

16:15 F. WORKSHOP ON ENTRAINMENT

- FCC/POLYETHYLENE EXAMPLES

17:00 ADJOURN

THURSDAY, NOVEMEBER 3RD, 2022

08:00 G. CYCLONE DESIGN

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

10:00 BREAK

10:15 G. CYCLONE DESIGN (CONTINUED)

- DESIGN PROCEDURE
- COLLECTION EFFICIENCY
- CYCLONE DESIGN CALCULATION

12:00 LUNCH (PROVIDED)

13:00 H. WORKSHOP ON CYCLONES

14:00 I. STANDPIPES

- THEORY OF OPERATION
- TYPES OF STANDPIPES
- AERATION & ITS EFFECTS
- STANDPIPE CAPACITY
- ANGLED STANDPIPES

15:00 BREAK

15:15 I. STANDPIPES (CONTINUED)

- STRIPPING
- NON-MECHANICAL VALVES

17:00 ADJOURN

FRIDAY, NOVEMBER 4TH, 2022

08:00 J. DILUTE-PHASE PNEUMATIC CONVEYING & CIRCULATING FLUIDIZED BEDS

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

10:00 BREAK

10:15 K. DENSE-PHASE PNEUMATIC CONVEYING

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

11:30 LUNCH (PROVIDED)

12:30 L. PARTICLE ATTRITION

- TYPES OF ATTRITION
- ATTRITION TESTING AND MODELING

13:30 M. MODELING GRANULAR-FLUID SYSTEMS

- TYPES OF MODELS
- COMMON PITFALLS

15:00 BREAK

15:15 M. MODELING GRANULAR-FLUID SYSTEMS (CONTINUED)

- EXAMPLES

16:00 CONCLUSION OF SEMINAR