Workshop program 2024
<mark>(초급: Alloy Design)</mark>

Day # 1 (Wednesday)

9:00-9:20	**Registration**
9:20	**Welcome**
9:30	**Overview of FactSage and Thermodynamics**
10:30	(Coffee)
10:45	**FactSage Database overview** **Data search and simple reaction calculation (View Data, Compounds, Reaction)** - H, S, Cp of compounds - Preparing new private database - balanced chemical reactions - adiabatic reactions, heat cycles
12:15	(LUNCH)
13:30	**Equilib-regular** - Transition calculations (solidus, liquidus, phase transformation) - Thermodynamic property - Scheil cooling calculations
15:30	(Coffee)
15:45	**Phase diagram -Regular** - Classical binary phase diagrams - Isopleths - Ternary and multicomponent phase diagrams - Figure module
17:00	**END OF DAY 1**

Day #2 (Thursday)

9:30	**Phase Diagram / Equilib -Intermediate** - Oxidation of metal - Interfacial reaction calculation
10:30	(Coffee)
10:45	**Phase Diagram / Equilib -Intermediate** - Heat balance - Composition target - Para-equilibrium
12:15	(LUNCH)
13:30	**Case study I: Alloy design** - Zn galvanizing - Alloy design
15:00	(Coffee)
15:15	**Case study II: Alloy design** - Al/Mg alloy design - TTT Diagram (JMAK equation)
17:30	**END OF DAY 2**

Workshop program 2024
<mark>(초급: Process design and Pyrometallurgy)</mark>

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9:00-9:20	**Registration**
9:20	**Welcome**
9:30	**Overview of FactSage and Thermodynamics**
10:45	(Coffee)
11:00	**FactSage Database overview** **Data search and simple reaction calculation (View Data, Compounds, Reaction)** - H, S, Cp of compounds - Preparing new private database - balanced chemical reactions - adiabatic reactions, heat cycles
12:30	(LUNCH)
13:30	**Equilib-regular** - Transition calculations (solidus, liquidus, phase transformation) - Thermodynamic property - Scheil cooling calculations
15:30	(Coffee)
15:45	**Phase Diagram-regular** - Classical binary phase diagrams - Isopleths - Ternary and multicomponent phase diagrams - Figure module
17:00	**END OF DAY 1**

Day #2 (Thursday)

9:30	**Equilib-Advance I** - Stream calculations - Interface reactions - Open calculations
10:45	(Coffee)
11:00	**Equilib-advance II** - Viscosity - Metal/gas reaction - oxidation
12:30	(LUNCH)
13:30	**Equilib-advance III** - Refining: slag/metal/gas reaction - Inclusions evolution
15:00	(Coffee)
15:15	**Case study I: Pyrometallurgical processing** Steelmaking calculations Cu smelting process
17:30	**END OF DAY 2**

Workshop program 2024
(중급)

Day #1 (Wednesday)

9:00-9:20	**Registration**
9:20	**Welcome**
9:30	**Overview of FactSage and Thermodynamics**
10:45	(Coffee)
11:00	**FactSage Database and Private database** - Databases - Generation of Private database
12:15	(LUNCH)
13:30	**Case study 1** - Alloy design: Steel, Mg, Al, etc.
15:30	(Coffee)
15:45	**Case study 2** - Process Analysis: EAF, Steelmaking, etc. - Process design: Li batter / waste recycling
17:00	**END OF DAY 1**

Day # 2 (Thursday)

9:30	**Case study 3** - PyProSim: new process simulation tool
10:45	(Coffee)
11:00	**Case study 4** - Process design: F gas removal by liquid metal treatment - SMR nuclear salt design
12:30	(LUNCH)
13:30	**Case study 5** - new ceramic materials design for CO_2 and H_2O splitting - new aerospace ceramic materials design for extreme condition
15:00	(Coffee)
15:15	**Case study 6** - Others
17:30	**END OF DAY 2**

Workshop program 2024
Case study examples by all participants

Day # 3 (Friday)

9:30	**Case study (I)** - examples by participants
10:40	(Coffee)
11:00	**Case study (II)** - examples by participants
13:00	**END OF DAY 3**