

## **The content of a discipline “Sustainable development of iron and steel sector”**

- Climate change mitigation agenda in application to iron & steel sector;
- Development trends and plausible future scenarios;
- Energy saving and CO<sub>2</sub> emissions reduction potential of:
  - Secondary steelmaking route;
  - Best available technologies;
  - Japanese COURSE 50 program;
  - Direct Reduced Iron technologies
  - European Top Gas Recycling project
  - Smelting reduction technologies (Finex™ and POSCO CO<sub>2</sub> Breakthrough Framework; Romelt; HiSmelt; HiSarna)
  - Advances in DRI technologies (Midrex, HYL, Ulcored project, Hydrogen based HYBRIT concept)
  - Molten oxide electrolysis (options of MIT and ULCOLYSIS/MIDEIO)
  - Electrowinning approach
  - Hydrogen metallurgy
    - General considerations
    - H<sub>2</sub> injection to blast furnace tuyeres
    - HYBRIT
    - Ironmaking by of Hydrogen Flash Smelting
  - Carbon capture and storage/utilisation (CCS/CCU) projects at steelmaking factories
    - Al Reyadah CCS project
    - ArcelorMittal Gent CCU project