**DISCPLINE- METALLURGY**

**Name of the teacher- Sadashiba Patra**

Semester-5th

Session-2024-25

Subject-Theory-5(Non-Ferrous Metallurgy)

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| **Wk no** | **Day** | **Units to be covered** | **Remark** |
| **Wk-1**  **01/07/24 to 23/07/2024** | Day-1 | Introduction to Non-Ferrous metals. |  |
| Day-2 | Non-Ferrous ore reserves of India & Non-Ferrous Industries in India. |
| Day-3 | Non-Ferrous ore reserves of India & Non-Ferrous Industries in India. |
| Day-4 | Minerals of Aluminum, Properties & uses of Aluminum Review of Aluminum deposits & Aluminum industries in India. |
| **Wk-2 08/07/2024 to 13/07/2024** | Day-1 | Bayer’s process of alumina production. |  |
| Day-2 | Bayer’s process of alumina production. |
| Day-3 | Hall-Heroult process of aluminium production. |
| Day-4 | Factors affecting electro lyisis in Hall- Heroult process & Anode effect. |
| **Wk-3 15/07/2024 to 20/07/2024** | Day-1 | Various methods of refining Aluminium (Toth process & 3 layer process. |  |
| Day-2 | Newer processes/ other processes of Al-production review of Al-extraction. |
| **Wk-4 22/07/24 to 27/07/24** | Day-1 | Class test on Aluminium extraction. |  |
| Day-2 | Minerals, Properties & uses of tin  Deposits & tin industries in India. |
| Day-3 | Cocentration of tin ore. |
| Day-4 | Smelling of tin cone for extraction. |
| **Wk-5 29/7/24 to 03/08/24** | Day-1 | Refining of tin. |  |
| Day-2 | Review of metals extracted from oxide ore  (Aluminium & Tin) |
| Day-3 | Class test on extraction of Al &Sn. |
| Day-4 | Various principle & thermodynamic consideration for extraction of metals from sulphide ores. |
| **Wk-6 05/08/24 to 10/08/24** | Day-1 | Various principle & thermodynamic consideration for extraction of metals from sulphide ores. |  |
| Day-2 | Properties uses & deposits of copper. |
| Day-3 | Properties uses & deposits of copper. |
| **Wk-7 12/8/24**  **to 17/08/24** | Day-1 | Concentration & roasting of copper ore. |  |
| Day-2 | Matte smelting/ matte preparation. |
| Day-3 | Converting of Matte to Blister Copper. |
| **Wk-8 19/08/24 to 24 08/24** | Day-1 | Fire refining & electrolytic refining of copper |  |
| Day-2 | Minerals, Properties uses & deposits of lead. |
| Day-3 | Roasting & sintering of lead Pb ore. |
|  | Day-4 | Blast furnace smelting of lead ore (Cone) & production of base bullion. |  |
| **Wk-9 26/08/24 to 31/08/24** | Day-1 | Refinning of base bullion & review of Cu & Pb extraction |  |
| Day-2 | Extraction of Zinc (Minerals, Properties uses & deposits of Zinc) |
| Day-3 | Class test on extraction of Copper & Pb. |
| **Wk-10 02/09/2024 to 07/09/24** | Day-1 | Roasting of Zinc concentrate, extraction/production of spelter by vertical retort process. |  |
| Day-2 | Horozontal retort process & purification of Zn. |
| Day-3 | Hydrometallurgy of Zinc teaching, preparation of Zinc base solution & electrolysis. |
| Day-4 | Minerals, Properties, uses & deoisits of Nickel. |
| **Wk-11 09/09/24 to 14/09/24** | Day-1 | Roasting & smelting of Nickel ore. |  |
| Day-2 | Refining of Nickel & Review of nickel extraction. |
| Day-3 | Class test on extraction of metals from sulphides (Ca,Ni,Pb & Zn) |
| Day-4 | Introduction to metals extracted from hilides. Minerals, uses properties & titanium deposits. |
| **Wk-12 16/09/24 to 21/09/24** | Day-1 | Various types of treatment given to titanium ore. |  |
| Day-2 | Chlorination & magnetic reduction of titanium production of ductile titanium. |
| Day-3 | Refining of titanium. |
| **Wk-13 23/09/24 to 28/09/24** | Day-1 | Class test on extraction of metals from halides. |  |
| Day-2 | Introduction to precious metals & their use. |
| Day-3 | Minerals, properties & uses of gold. Deposits of gold. |
| Day-4 | Introduction to various process of gold extraction. |
| **Wk-14 30/09/24 to 05/10/24** | Day-1 | Details of cyanidation process of gold extraction. |  |
| Day-2 | Gold extraction as was adopted in India. |
| Day-3 | Class test on gold extraction. |
| **Wk-15 07/10/24 to 12/10/24** |  | PUJA HOLIDAYS |  |
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| **Wk-16 14/10/24 to 19/10/24** | Day-1 | Introduction to secondary metals. |  |
| Day-2 | Sources f various secondary metals. |
| Day-3 | Production of secondary copper. |
| Day-4 | Production of secondary pb |
| **Wk-17 21/10/24 to 26/10/24** | Day-1 | Production of secondary Zinc. |  |
| Day-2 | Production of secondary Al |
| Day-3 | Review of secondary metal production. |
| Day-4 | Pollution problem by non-ferrous industry. |
| Day-5 | Previous year questions discussion. |
| **Wk-18 28/10/24 to 02/11/24** | Day-1 | Review of metals extracted from oxides. |  |
| Day-2 | Review of metals extracted from sulphides. |
| Day-3 | Review of metals extracted for halides. |
| **Wk-19**  **04/11/24 to 08/11/2024** | Day-1 | Review of extraction pf precious metals. |  |
| Day-2 | Review of metals extracted from halides & secondary metals. |
| Day-3 | Very similar Test-1 |
| Day-4 | Very similar Test-2 |