



NATIONAL INSTITUTE OF
TECHNOLOGY ROURKELA

Department of Electrical Engineering



Supervisory Development Program (SDP)

On

“Electrical Machines and Drive Systems for Industrial and Mining Applications”

Day	09.30 – 11.00		11.15 – 12.45		14.30 – 16.00		16.15 – 18.00
Day 1 24.09.2026 Thursday EE-401	- Registration (09.15 – 09.30) - Inauguration of CPD (09.35 – 10.45) - Group Photo + High Tea(10.45 – 11.00)	Tea Break	- Electrical Machines Used in Mining Drives - DC Motors - Induction motors - Squirrel Cage Induction Motor (SCIM) - Slip Ring Induction Motor (SRIM) Prof. Krishna Roy	Lunch Break	- Electrical Machines Used in Mining Drives - Synchronous Motors - Mining Equipment Driven by Electric Drives - Selection of motors for mining applications - Duty cycles and rating for mining equipment Prof. Indrajit Sarkar	Tea Break	- Introduction to Industrial Drives - Concept and components of electric drives - Classification of industrial drives - Overview of mining equipment using drives Prof. Arnab Ghosh

Day 2 25.09.2026 Friday EE-401	- Basics of power electronic converters - Rectifiers, inverters, and choppers - Power Electronics in Industrial Drives Prof. Surja Sekhar Chakraborty		Electric Drives Lab Session		Electrical Machine Lab Session		- Earthing Philosophy in Mining Areas Under Ground & Open Cast Mines. - System Earthing Equipment Earthing - Neutral system of power supply: - Solid neutral earthing, restricted neutral earthing, isolated neutral earthing, advantages / disadvantages; provisions of the Regulation for suitably designed restricted neutral system of power supply and the requirement of neutral fail safe relay Prof. Subrata Karmakar
Day 3 26.09.2026 Saturday EE401	- ELCBs/RCCBs/RCB Os/ELRs - Protection against Overvoltages - Lightning Protection & Early warning system -case study. - Soil Resistivity determination & basis of consideration in Earthing & Lightning Protection. Prof. Subrata Karmakar		- Electrical apparatus and machinery used in Mine Under Ground & Open Cast. - Winders, man riding system, cranes LMD, Environment monitoring system. - Electrically operated HEMM, portable transportable machinery, dragline, bucket wheel excavator, SDL, LHD, Road header, shearer, continuous miner. Prof. Devidas S. Nimaje		- Enhancing Workforce Efficiency through Behavioural Management - Introduction to Workforce Efficiency - Understanding Behavioural Management - Behavioural Factors Affecting Workforce Efficiency Prof. Manvendra Pratap Singh		- Feedback and Review Session - Valedictory Session

Coordinators

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