# LESSON PLAN

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| **Name of the Institute:** | C. V. RAMAN POLYTECHNIC |
| **Department:** | ELECTRICAL ENGINEERING |
| **Semester/Division/Branch:** | 5th SEM/EE |
| **Subject Name with code:** | UTILIZATION OF ELECTRICAL ENERGY AND TRACTION(TH-4) |
| **Total No. of Class (Required):** | 60 |
| **Faculty Name:** | PALLAVI MISHRA |

| Class No. | *Brief description of the Topic/Chapter to be taught* | Remarks |
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| 1 | Definition and Basic principle of Electro Deposition | |
| 2 | Important terms regarding electrolysis | |
| 3 | Faradays Laws of Electrolysis. | |
| 4 | Definitions of current efficiency, Energy efficiency. | |
| 5 | Principle of Electro Deposition. | |
| 6 | Factors affecting the amount of Electro Deposition.<br>Factors affecting the amount of Electro Deposition & Factors governing the electro deposition | |
| 7 | Factors governing the electro deposition<br>Factors affecting the amount of Electro Deposition & Factors governing the electro deposition | |
| 8 | State simple example of extraction of metals | |
| 9 | Advantages of electrical heating. Mode of heat transfer and Stephen's Law.<br>Advantages of electrical heating. | |
| 10 | Mode of heat transfer and Stephen's Law | |
| 11 | Principle of Resistance heating. (Direct resistance and indirect resistance heating.) | |
| 12 | Discuss working principle of direct arc furnace and indirect arc furnace | |
| 13 | Principle of Induction heating. | |

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| 14 | Working principle of direct core type, vertical core type | |
| 15 | indirect core type Induction furnace. | |
| 16 | Principle of coreless induction furnace and skin effect. | |
| 17 | Principle of dielectric heating and its application | |
| 18 | Principle of Microwave heating and its application | |
| 19 | problems | |
| 20 | Explain principle of arc welding. | |
| 21 | Discuss D. C. & A. C. Arc phenomena. | |
| 22 | D.C. & A. C. arc welding plants of single | |
| 23 | D.C. & A. C. arc welding plants of multi-operation type. | |
| 24 | Types of arc welding. | |
| 25 | Explain principles of resistance welding. | |
| 26 | Descriptive study of different resistance welding methods. | |
| 27 | Nature of Radiation and its spectrum | |
| 28 | Terms used in Illuminations. [Lumen] | |
| 29 | Luminous intensity, Intensity of illumination, | |
| 30 | MHCP, MSCP | |
| 31 | problems | |
| 32 | MHSCP, Solid angle | |
| 33 | Brightness, Luminous efficiency | |
| 34 | Explain the inverse square law | |
| 35 | the cosine law. | |
| 36 | Explain polar curves. | |
| 37 | Describe light distribution and control | |
| 38 | Explain related definitions like maintenance factor | |
| 39 | depreciation factors. | |
| 40 | problems | |

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| 41 | Design simple lighting schemes | |
| 42 | Design simple lighting schemes | |
| 43 | depreciation factor. | |
| 44 | Constructional feature and working of Filament lamps | |
| 45 | effect of variation of voltage on working of filament lamps | |
| 46 | Explain Discharge lamps. | |
| 47 | State Basic idea about excitation in gas discharge lamps | |
| 48 | State constructional factures | |
| 49 | operation of Fluorescent lamp | |
| 50 | (PL and PLL)<br>Lamps) | |
| 51 | Sodium vapor lamps. | |
| 52 | High pressure mercury vapor lamps. | |
| 53 | Neon sign lamps. | |
| 54 | High lumen output & low consumption fluorescent lamps. | |
| 55 | State group and individual drive. Method of choice of electric drives | |
| 56 | starting and running characteristics of DC and AC motor | |
| 57 | State Application of all machines | |
| 58 | Explain system of traction and track electrification | |
| 59 | Running Characteristics of DC and AC traction motor. | |
| 60 | Explain control of motor<br>Explain Braking of the following types | |

**Signature of the Faculty**

**Signature of the H.O.D**