# Ch. Ranbir Singh State Institute of Engineering & Technology, Jhajjar

**DEPARTMENT OF MECHANICAL ENGINEERING**

II Yr. III Semester (Mechanical Engineering)

### LESSON PLAN

Program : **B. Tech**

Year & Sem. :  **II/ III**

Course No : **ESC-ME-211-G**

Course Title : **BME**

Max Marks **: 75**

No. of Total Lecture **: 46**

Schedule : **2L+0T=2**

Lecturer : **Satyapal Yadav**

**Recommended Books:**

1. Elements of Mechanical Engineering- R.K. Rajput LAkmi Pub.,Delhi.
2. Elements of Mechanical Engineering- D.S. Kumar, S.K. Katariaand Sons
3. Engineering Thermodynamics - P.K. Nag TMH, New Delhi.
4. Refrigeration & Airconditioning- Arora &Domkundwar, Dhanpat rai & Co. Pvt. Ltd.
5. Worshop Technology Volt. I & II - Hazra& Chaudhary, Asian Book Comp., New Delhi.
6. Process and Materials of Manufacture- Lindberg, R.A. Prentice Hall of India, New Delhi.
7. Principles of Manufacturing Materials and Processes- Compbell, J.S. - McGraw Hill.

**Lesson Plan:**

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| **Lect. No(s)** | **Ref. No.** | **Topics to be covered**  |
|  |   | **Unit I: Introduction to Commonly used Machine Tools in a Workshop** |
| 1 | 1.1 | Lathe, Shaper, Planer, Milling, Drilling, Slotter |
| 2-4 | 1.2 | Introduction to Metal Cutting. Basic concept of thermodynamics |
| 5-7 | 1.3 | Introduction, States, Work, Heat, Temperature, Zeroth, 1st, 2nd and3rd law of thermodynamics |
| 8-9 | 1.4 | ,Concept of internal energy, enthalpy and entropy, Problems. |
| 10-11 | 1.5 | Formation of steam under constant pressure, Thermodynamic properties of steam |
| 12-13 | 1.6 | use of steam tables, measurement of dryness fraction by throttling calorimeter. |
|  |  | UNIT II Refrigeration & Airconditioning |
| 14 | 2.1 | Introduction to refrigeration and air-conditioning, Rating of refrigeration machines |
| 15-16 | 2.2 | Coefficient of performance, simple refrigeration vapour compression cycle |
| 17-18 | 2.3 | Psychrometric charts and its use, Human comforts. |
| 19 | 2.4 | Introduction, Classification, Construction details and working of Pelton,  |
| 20-21 | 2.5 | Francis and Kaplan turbines |
| 22 | 2.6 | Specific speed and selection of turbines, |
| 23-24 | 2.7 | Classification of water pumps and their working. |
| 25-26 | 3.1 | **UNIT III Power Transmission Methods and Devices** |
| 27 | 3.2 | Introduction to Power transmission, Belt |
| 28 | 3.3 | Rope |
| 29 | 3.4 | Chain |
| 30 | 3.5 | Gear drive |
| 31 | 3.6 | Types and functioning of clutches |
| 32-33 | 3.7 | Introduction, Concept & types of stresses and strains |
| 34-36 | 3.8 | Poison's ratio, stresses and strains in simple and compound bars under axial loading |
|  37-38 | 3.9 | Flexure & torsional loading, Stress-strain diagram |
| 39-40 | 3.10 | Hook's law, Elastic constants & their relationships. |
|  |  | **Unit IV:** Introduction to Manufacturing Systems |
| 41-42 | 4.1 | Fundamentals of Numerical Control (NC) |
| 43 | 4.2 | Advantage of NC system |  |
| 44-45 | 4.3 | Classifications of NC |
| 46-48 | 4.4 | Comparison of NC and CNC |

 **(Satyapal Yadav)**

 Department of ME

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