PPD7G001 Non Traditional Machining and Forming

(Minor)

Module-I **[10]**

Introduction: History, Classification, Comparison between Conventional and Non-Conventional Process.Ultrasonic Machining: Introduction, Equipments, Tool Materials and Tool size, Abrasive slurry, cutting tool system design, Effect of parameter- effect of amplitude, frequency and vibration, effect of abrasive grain diameter, effect of applied static load, effect of slurry, tool and work material. USM process characteristics: MRR, Tool wear, Accuracy, Surface finish. Application, Advantages and disadvantages.

Module-II **[12]**

Electro discharge Machining: Introduction, Machine, Mechanism of Material Removal, Dielectric fluid, spark generator, EDM tools, Electrode wear. Application, advantages, and limitations. Electrical Discharge Grinding, Wire EDM.

Electro Chemical Machining: Introduction, Machine. Elements of ECM process: Cathode tool, anode workpiece, source of DC power, Electrolyte. ECM process characteristics: Mechanism of Material Removal, Accuracy, Surface finish. Application, Advantages and disadvantages.

Module-III **[10]**

Plasma Arc Machining: Introduction, Equipment, non thermal generation of plasma, selection of gas, Mechanism of Material removal, PAM parameters, process characteristics. Applications, Advantages and disadvantages.

Laser Beam Machining: Introduction, Equipment, Mechanism of Material removal, LBM parameters, process characteristics. Applications, Advantages and disadvantages.

Module-IV **[08]**

Sheet Metal Forming: Conventional Processes- H.E.R.F. techniques, Super plastic forming techniques, principles and process parameters, Advantages, Limitations and Applications. Special Forming Processes: Rubber pad forming, Water hammer forming, and fine blanking.

Text Book(s)

1. Advanced Machining Processes- V.K. Jain, Allied Publishers.
2. Theory of Metal Forming Plasticity- R. Narayanasamy, Narosa Publishers.

Reference Book(s)

1. Modern Machining Process- P.C. Pandey & H.S. Shah, T.M.H.
2. Metal Forming: Fundamentals and Applications- T. Altan, American Society of metals.