Year & Sem:	Course Code: ME3518	Course Name: **CNC Machining**	No. of Credits: 4	L	T&PS	P
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UNIT – I: Introduction To Cnc Machine Tools: Evolution of Computerized control in manufacturing, Components, Working principle of CNC, DNC and Machining centers.

UNIT – II: Constructional Features Of Cnc Machine Tools: Introduction, Spindle drives, Transmission belting, axes feed drives, Slide ways, Ball screws. Accessories: Work tables, Spindles, Spindle heads, Beds and Columns, Tooling – Automatic Tool changer (ATC).

UNIT – III: Electro-Magnetic Analogue Position Transducers: Principle, advantages, characterstics, Synchros, Synchro-Resolvers, Inductos, Laser interferometer. Control Systems And Interface: Open and closed loop systems, Micro processor based CNC systems, block diagram of typical CNC system, description of hard ware and soft interpolation systems, Standard and optional features of CNC control systems.

UNIT – VI: NC Part Programing : Introduction, NC coordinate system, Manual Part Programming, Codes and concepts, types of tape farmats. APT Programming: APT language structure, APT geometry, Definition of point, time, vector, circle, plane, patterns and matrices. APT motion commands: setup commands, point-to point motion commands, continuous path motion commands, post processor commands, control commands, Macro subroutines, Part programming preparation for typical examples.

UNIT – V: Economics And Maintenance Of CNC Machine Tools: Introduction, factors influencing selection of CNC machines, Cost of operation of CNC machines, Maintenance features of CNC machines, Preventive maintenance, Documentation, Spare parts, Training in Maintenance.

References/Text Books:

1. Computer Control of Manufacturing systems by Y.Koren, Khanna publications.
2. Computer Numerical Control Machines by Hans B.Keif and T. Frederick Waters Macmillan/McGraw Hill.
3. Computer Numerical Control Machines by Dr.Radha Krishnanan, New Central Book Agency CNC Machines by B.S. Aditahn and Pabla
4. CNC Machining technology by Smith & Graham.T Springer – Verlag

Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.

Video Lectures (Web Links):

1.
2.