DEPARTMENT OF MECHANICAL ENGINEERING

MVA021 - Modelling Machining Practices for CNC Machine

Course outcomes:

- After successfully completing the course the student will be able to:
- Describing the casting process and determining a parts suitability for this process.
- Applying sheet metal layout concepts to the construction of a sheet metal project.
- Describing other production methods and determining their effectiveness for a given part
- Creating a report outlining the production, inspection and costing of a project produce in the lab.

Syllabus:

UNIT – I

Introduction Modeling - Introduction about CNC Machines - CAD/CAM/CAE, Job opportunity in CAM - Introduction on NC Manufacturing - Expert Machinist CMM - Sheet metal - Cad, Cavity - Mold Cavity - Process Plan - Additive Manufacturing.

UNIT – II

WC Model Creation - Using, Sketching – Constrain – Dimensions - Shapes, Extrude - Revolve - Engineering tools - Hole, Round, Chamfer, Datum Coordinate System.

UNIT – III

Reference Finished Part Model - Work Piece - Automatic Work Piece - Coordinate Creations - Machine Tool Setup - Work Center - Mill, Parameters Setting- Add Tools, Cutting Tool Setup - Mill Operation, CSYS Selection - Clearance Type, Reference Surface - Mill – Face, Cut – Feed, Slep – Depth. Step over, Spindle – Speed

UNIT IV

Display Tool path - Tool Preview, Milling – Play path, Material Removal Simulation Display NC Tool Path - G-Codes used in CNC Programming Colmmon M-Codes - Reading Manufacturing Drawings - Work Steeing and Offsets, work Cordinates Milling Tool types, Face Mill, Slot Mill, Hole Making tools.

UNIT V

Work Center Lathe - Lathe Tool Setting Lathe Coordinate Setting - Clearance Setting, Turning Profile Settings - Turning Tool Path, Turning Material Removal Simulation Turning NC Tool Path

Reference Text Books

1. CNC Programming using fanus Custom Macro B, Sinha S.K.

2. CNC Machining Hand book, Alan Overby.

3. CNC setting and Operation Workbook, Tom Renshaw.

4. CNC Programming Student work book, Mill & Lathe. Machining Fundamentals,

5. John R. Walker BOB Dixon.