Birla Institute of Technology & Science, Pilani
Hyderabad Campus

FIRST SEMESTER 2019 2020

Course Handout Part II

Date: 01-08-2019

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. ***: MF F312***
Course Title ***: Tool and Fixture Design***
Instructor in charge ***: Prof. SRINIVASA PRAKASH REGALLA***

Scope and Objective of the Course:

Tool-design methods, tool making practices, tooling materials and heat treatment, design of cutting tools, gages and gage design, locating and clamping methods, design of drill jigs, design of fixtures, design of sheet metal blanking and piercing dies, design of sheet metal bending, forming and drawing dies, using plastics as tooling materials, tool design for numerically controlled machine tools and automatic screw machines.

Textbooks:

1. Donaldson C., LeCain G. H., Goold V. C. and Ghose J., "Tool Design", 4th Edition (SIE), Tata McGraw Hill Education Private Ltd., New Delhi, 2012.

Reference books

1. Krulikowski Alex, "Fundamentals of Geometric Dimensioning and Tolerancing", Delmar Thomson Learning, 1998, NY, USA.
2. Meadows James D., "GD & T", ASME Press, 2009, NY, USA.

Course Plan:

Lecture No.	Learning objectives	Topics to be covered	Chapter in the Text Book
4	M1: Gages and Gage Design	Fixed gages, their tolerances and materials, Indicating gages and automatic gages,	TB: CH5
4	M2: Geometric Dimensioning and Tolerancing (GD & T)	GD & T symbols, terms, concepts & rules, different GD & T controls	RB1 & RB2 (CH1-12)
3	M3: Locating and clamping methods	Locating and clamping methods	TB: CH6 & RB-Part I: CH2&3
4	M4: Design of drill jigs	Design of drill jigs	TB: CH7 & RB-Part I: CH4
4	M5: Design of fixtures	Design of fixtures	TB: CH8 & RB-Part I: CH5&6

SYLLABUS FOR MID-SEMESTER EXAMINATION IS THE FIRST 5 MODULES			
6	M6: Design of sheet metal blanking and piercing dies	Design of sheet metal blanking and piercing dies	TB: CH9 & RB-Part II: CH1 to CH4
6	M7: Design of sheet metal bending, forming and drawing dies	Design of sheet metal bending, forming and drawing dies	TB: CH10 & RB-Part II: CH5
2	M8: Using plastics as tooling materials	Using plastics as tooling materials	TB: CH11
6	M9: Design of single point and multi-point cutting tools for machining processes	Design of single point and multi-point cutting tools for machining processes	TB: CH4
3	M10: Introduction to tool design for CNC and automatic machine tools	Get an overview of the general methods applying to them	TB: CH12 TB: CH13
SYLLABUS FOR COMPREHENSIVE EXAMINATION IS ALL 10 MODULES			

Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Mid-semester Examination	90 min	40 (20%)	3/10: 1.30 – 3 PM	CB
Experiential Learning Component-1: Tutorials	50 min	40 (20%)	Every week	OB
Experiential Learning Component -2: Project	6 weeks	20 (10%)	After Midsem	Batch Mode
Comprehensive Exam	3 hours	80 (40%)	10/12 FN	CB
Classroom Interaction Test (CIT)	10 min	20 (10%)	In the last lecture class of every week	Batch Mode

Chamber Consultation Hour: To be declared in the first lecture class.

Notices: On CMS.

Make-up Policy: Only for genuine cases of hospitalization due to illness, on production of medical certificate and with prior email intimation.

Academic Honesty and Integrity Policy: ***Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.***

INSTRUCTOR-IN-CHARGE