



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

## MECHANICAL ENGINEERING

### ASSIGNMENT QUESTIONS

|                    |   |                                                                              |
|--------------------|---|------------------------------------------------------------------------------|
| Course Name        | : | DESIGN FOR MANUFACTURING                                                     |
| Course Code        | : | A70339                                                                       |
| Class              | : | IV B. Tech I Semester, JNTUH - R-15                                          |
| Branch             | : | Mechanical Engineering                                                       |
| Year               | : | 2018 – 2019                                                                  |
| Course Coordinator | : | Mr. A Venuprasad, Assistant Professor, Department of Mechanical Engineering. |
| Course Faculty     | : | Mr. A Venuprasad, Assistant Professor, Department of Mechanical Engineering. |

#### Course Objective:

Design for manufacturing and assembly covers basic design philosophy ,creativity in product design, selection of materials for engineering applications, design rules for machining, design rules for joining, casting, forming and important factors in product assembly.

| S. No                                              | Question                                                                                    | Blooms Taxonomy Level | Course Outcome |
|----------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------|----------------|
| <b>ASSIGNMENT-I</b><br><b>UNIT-I, II &amp; III</b> |                                                                                             |                       |                |
| 1                                                  | Explain importance of product design                                                        | Understand            | 1              |
| 2                                                  | Compare scientific method and design method.                                                | Remember              | 2              |
| 3                                                  | Explain factors for selection of materials for design                                       | Understand            | 3              |
| 4                                                  | Discuss factors for machining of rotational components                                      | Understand            | 4              |
| 5                                                  | Discuss selection of casting processes for various materials                                | Remember              | 5              |
| 6                                                  | Compare product design rules for sand casting with general design rules.                    | Remember              | 6              |
| 7                                                  | Discuss pre and post heat treatments of welded joints.                                      | Understand            | 7              |
| 8                                                  | Explain the importance of solidification and simulation in casting design.                  | Remember              | 8              |
| 9                                                  | Discuss the general design guidelines of welding, explain post and pretreatment of welding. | Understand            | 8              |
| 10                                                 | Discuss the effects of thermal stresses in welding.                                         | Remember              | 8              |
| <b>ASSIGNMENT – II</b>                             |                                                                                             |                       |                |
| 1                                                  | Explain the design guidelines for extruded sections.                                        | Understand            | 9              |
| 2                                                  | Describe the design principles for punching and blanking.                                   | Remember              | 9              |
| 3                                                  | Enumerate the design principles for bending.                                                | Understand            | 10             |
| 4                                                  | Explain the design principles for deep drawing.                                             | Remember              | 11             |
| 5                                                  | Discuss the keeler Goodman Forming line diagram.                                            | Understand            | 12             |
| 6                                                  | Explain the general design guidelines for manual assembly.                                  | Remember              | 12             |
| 7                                                  | Explain the system for manual insertion and fastening.                                      | Understand            | 13             |
| 8                                                  | Briefly discuss the design for assembly fits in the design process.                         | Remember              | 14             |
| 9                                                  | Describe the classification system for manual handling.                                     | Understand            | 15             |
| 10                                                 | Explain design guidelines for part assembly.                                                | Remember              | 15             |

Prepared By: Mr. A. Venuprasad, Assistant Professor

HOD, Mechanical Engineering