# VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY
# LESSON PLAN

| Semester >>2nd (M.Tech) | Year >> 2016 | Contact Hours per week >>4 |
|---|---|---|
| **Sub: TOOL& DIE DESIGN** | **Branch >>** **Production Engineering** | **Total Credit >>4** |
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| TEACHER | **Dr.Pragyan Paramita Mohanty** | |
| Period | **Jan 2016-April 2016** | |
| Recommended books >> | **Text book**:<br><br>1. . Fundamentals of Tool Design: ASTME, PHI<br>2. 2. Metal Cutting Theory & Cutting Tool Design: Arshinov, MIR Pub.<br>3. 3. A Text Book of Production Engg.: P.C.Sharma, S.Chand & Co<br>4. 4. Tool Design: Donaldson, Le Cain, Goold, TMH<br>5.  Fundamentals of Tool Engg. Design: Basu, Mukherjee, Mishra, Oxford & IBH. | |

| Sl. No. | Lecture No. | Topics to be covered | No. of Classes |
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| | | **MODULE-1** | |
| 1 | Lecture-01 | Introduction to Tool Design | 6 |
| 2 | Lecture-02 | **System approach to production design**: Elements of a product manufacturing facility, materials selection | |
| 3 | Lecture-03 | **System approach to production design**: Interchangeability | |
| 5 | Lecture-04 | **System approach to production design**: standardization, | |
| 4 | Lecture-05 | **System approach to production design**: Use of new technology, value engineering and analysis | |
| 6 | Lecture-06 | **System approach to production design**: Cost analysis. | |
| | | **MODULE-2** | |
| 7 | Lecture-06 | **Design of single-point cutting tools**: Tool strength and rigidity calculation, selection of tool angles, chip breakers, carbide, tipped tools, High production cutting tools. | 14 |
| 8 | Lecture-07 | **Design of single-point cutting tools**: Problems on single point cutting tool i.e Tool strength and rigidity calculation. | |
| 9 | Lecture-08 | **Design of single-point cutting tools**: Problems on single point cutting tool i.e Design of single point cutting tool. | |
| 10 | Lecture-09 | **Design of single-point cutting tools**: Introduction to Form Tools | |
| 11 | Lecture-10 | Form Tools: Types of form tools, method of determining the profile of circular and flat form of tool, analytical | |
| 12 | Lecture-11 | Method of determining the profile of circular and flat form of tool | |

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| | | graphical method. | |
| 13 | Lecture-12 | **Design of single-point cutting tools** Problems on single point cutting tool i.e Design of form tool(Graphical). | |
| 14 | Lecture-13 | **Design of single-point cutting tools**: Problems on single point cutting tool i.e Design of form tool(Analytical). | |
| 15 | Lecture-14 | Problems practice | |
| 16 | Lecture-15 | **Design of single-point cutting tools**: Cutting process in broaching | |
| 17 | Lecture-16 | **Design of single-point cutting tools**:  geometric elements of broach teeth, | |
| 18 | Lecture-17 | Design of Internal & external surface broach, calculation of no. of teeth, Rigidity, cutting force, power. | |
| 19 | Lecture-18 | **Design of single-point cutting tools**: Problems on single point cutting tool i.e Design of broach tool. | |
| 20 | Lecture-19 | **Design of single-point cutting tools**: Problems on single point cutting tool i.e Design of broach tool. | |
| 21 | Lecture-20 | Problems practice | |
| | | **MODULE-3** | |
| 22 | Lecture-22 | **Inroduction to Forging Design** | |
| 23 | Lecture-23 | Forging Design-Allowances, Forging process, | |
| 24 | Lecture-24 | Forging die design, Drop forging Dies and auxiliary tools, | |
| 25 | Lecture-25 | Upset forging. Die block design | |
| 26 | Lecture-26 | Punch design, punch support, stop, pilot, stripper, knockout, blanking & piercing die design | **10** |
| 27 | Lecture 27 | Design for sheet metal works: Press working-shearing action | |
| 28 | Lecture 28 | Center of pressure, clearance, cutting force | |
| 29 | Lecture 29 | Progressive & compound die design, Drawing dies, metal flow, Blank diameter, Drawing force. | |
| 30 | Lecture 30 | **Forging Design** : Problems on single point cutting tool | |
| 31 | Lecture 31 | Class Test on Module-III | |
| | | **Module-4** | |
| 31 | Lecture 31 | **Introduction** | |
| 32 | Lecture 32 | Jigs & Fixture design: | **10** |
| 33 | Lecture 33 | Locating & clamping, principles of location | |
| 34 | Lecture-34 | Clamping, devices, materials for locating & clamping elements | |
| 35 | Lecture-35 | Design principles: Design of Drilling Jig | |
| 36 | Lecture-36 | Design principles: Design of Milling fixtures. | |
| 37 | Lecture-37 | Problems on Jig | |
| 38 | Lecture-38 | Problems on Fixtures | |
| 39 | Lecture-39 | Class Test on Module-IV | |
| 40 | Lecture-40 | Old question paper discussion | |

**Signature of Teacher**