**GUJARAT TECHNOLOGICAL UNIVERSITY**

**Syllabus for Bachelor of Vocation (B.Voc), 4th Semester**
**Branch: Production Technology**
**Subject Name: Non-Conventional Machining**
**Subject Code: 1140304**

**With effective from academic year 2018-19**

**Type of course:** Engineering Science

**Prerequisite:** Zeal to learn the subject

**Rationale:** Students will explore advance manufacturing process over conventional manufacturing process known as non-conventional manufacturing. The nonconventional manufacturing is designed to prepare interested students for future careers manufacturing industry where non-conventional machines are used.

**Teaching and Examination Scheme:**

| Teaching Scheme | | | Credits | Examination Marks | | | | Total Marks |
|---|---|---|---|---|---|---|---|---|
| | | | | Theory Marks | | Practical Marks | | |
| L | T | P | C | ESE (E) | PA (M) | ESE (V) | PA (I) | |
| 3 | 0 | 0 | 3 | 50 | 0 | 0 | 0 | 50 |

| Sr. No. | Topic | No. of Hours |
|---|---|---|
| 01 | **Introduction:** Limitations of conventional manufacturing processes, need of unconventional manufacturing processes and its classification. | 03 |
| 02 | **Un-Conventional Machining Processes:** Principle and working and applications of unconventional machining processes such as Electric Discharge machining (EDM), Electro-Chemical machining (ECM), Ultrasonic Machining (USM), and Abrasive Jet machining (AJM) | 07 |
| 03 | **Un-Conventional Welding Processes:** Principle and working and applications of unconventional welding processes such as Laser Beam Welding, Electron Beam Welding, Ultrasonic Welding, Plasma Arc Welding processes. | 07 |
| 04 | **Explosive Welding:** Cladding etc. Under water welding, Metalizing Theory, Process and applications | 06 |
| 05 | **Un-conventional forming processes:** Principle and working and applications of high energy forming processes such as Explosive forming, Electromagnetic forming. Electro discharge forming Water hammer forming, Explosive Compaction | 07 |

**Distribution of marks weightage for cognitive level:**

| Distribution of Theory Marks | | | | | |
|---|---|---|---|---|---|
| R Level | U Level | A Level | N Level | E Level | C Level |
| **10** | **20** | **20** | **-** | **-** | **-** |

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

**Reference Books:**


1. Modern Machining Process, P.C. Pandey
2. Un-conventional machining, V.K. Jain

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**Syllabus for Bachelor of Vocation (B.Voc), 4th Semester**
**Branch: Production Technology**
**Subject Name: Non-Conventional Machining**
**Subject Code: 1140304**

**With effective from academic year 2018-19**

**Course Outcome:**

| Sr. No. | CO statement | Marks % weightage |
|---|---|---|
| CO 1 | To learn basic concepts Non-conventional Machining | 10 |
| CO 2 | To understand Un-Conventional Machining Processes. | 25 |
| CO 3 | To understand Un-Conventional Welding Processes. | 25 |
| CO 4 | To study Explosive Welding | 20 |
| CO 5 | To understand Un-conventional forming processes. | 20 |

**List of Open Source Software/learning website:**
https://nptel.ac.in,