# "PVCNSSK" GOVT. POLYTECHNIC BILASPUR at KALOL

PTSC-7.1

## PLANNED THEORY SYLLABUS COVERAGE

| GPB | Department: Electrical Engg. | Subject: Electronics Devices and Circuits-II |
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| | Sem. & Branch : 4th & EE | Duration : 3years |
| SYLLABUS COVERAGE | Total Periods: Theory:56 | Practical:28 |

| Sr No | Period Nos | Topic | Details | Instruction Reference | Additional Study Recommended | Remarks |
|---|---|---|---|---|---|---|
| 1 | 10(1-10) | **Sinusoidal Oscillators** | Working Principle of Oscillator, Use of positive feedback in amplifier circuit; Barkhausen criterion, Difference between Oscillator & Electrical Generator. Different Types of Oscillator circuits: Tuned collector, Hartley, Colpitts, Phase shift, Wien Bridge, and Crystal oscillator-Their working principle, frequency range and applications. | | | |
| 2 | 6(11-16) | **Tuned Voltage Amplifier** | Series and Parallel Resonant Circuits, Comparison between Series and Parallel resonant Circuits, Single & Double Tuned Voltage Amplifier Circuits and their frequency response. | | | |
| 3 | 8(17-24) | **Wave Shaping Circuits** | Integrating and differentiating circuits: Their working and applications, Diode Clipping circuits, biased Clipping circuits, Clamping circuits. | | | |
| 4 | 8(25-32) | **Multivibrator Circuits** | Working principle of Transistor as Switch, Concept of Multi-vibrator: Astable, Monostable, and Bistable, Block diagram of IC555 and its working and applications, Working of IC555 as astable and monostable multivibrator, Applications of Multivibrator Circuits | | | |

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| 5 | 10(33-42) | **Operational Amplifiers** | Characteristics of an ideal operational amplifier and its block diagram, Pin Identification of IC741, Definitions: Differential voltage gain, CMRR, slew rate, input offset current, input offset voltage, total output offset voltage, Open loop configurations: Differential, Inverting & Non Inverting modes, limitations of open loop configuration. ,Closed loop configuration: As an Inverting & Non-inverting amplifier, Schmitt trigger circuit, Comparator, Differentiator and Integrator. | | | |
| 6 | 6(43-48) | **Optoelectronic Devices** | Working principle of Photo-resistor, photo diode, photo transistor and their applications, Need for Opto-isolation in electronic circuit, Working of optocoupler circuit. | | | |
| 7 | 8(49-56) | **Regulated Power Supplies** | - Working of DC regulated power Supply<br>- Line and load side regulation<br>- Regulator ICs (78XX, 79XX)<br>-Switching Mode Power Supply (SMPS)-Working Principle, advantages & applications. | | | |

| APPROVED | SIGN HOD/OIC |
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| DATE 13/02/23 | |