

PT. CHIRANJI LAL SHARMA GOVT. COLLEGE, KARNAL  
DEPARTMENT OF ELECTRONICS & IT  
LESSON PLAN

Name: GURDEV SINGH

Subject: Digital Electronics-II

Class: B. Sc. (H)-IT First Year (NEP)

Course Code: B23-HIT-201

Semester: 2nd.

| Week | Date                     | Topics To Be Covered                                                                                                           |
|------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 1    | 19.02.2024 to 21.02.2024 | <b>Sequential Circuits-I Counters:</b> Asynchronous Counters- Mod-N or divided by N Counter.                                   |
| 2    | 26.02.2024 to 28.02.2024 | Synchronous Counter-Modulo Counters, Decade Counter.                                                                           |
| 3    | 04.03.2024 to 06.03.2024 | UP-Down Counters, Basic principle of digital clock.                                                                            |
| 4    | 11.03.2024 to 13.03.2024 | <b>Sequential Circuits-II: Registers :</b> Shift Registers, Serial-in serial out (SISO), serial-in-parallel out (SIPO).        |
| 5    | 18.03.2024 to 20.03.2024 | parallel-in-serial-out (PISO) parallel-in-parallel-out (PIPO), bi-directional shift register.                                  |
| 6    | 25.03.2024 to 27.03.2024 | Universal Shift Register Applications of shift register – Ring counter, Twisted Ring Counter, Sequence Generator               |
| 7    | 01.04.2024 to 03.04.2024 | <b>Digital Memories:</b> Memory System Parameters, ROM,                                                                        |
| 8    | 08.04.2024 to 10.04.2024 | PROM, EPROM, EEPROM, RAM (Static and dynamic), Programmable Logic Devices: Expanding Memory Size                               |
| 9    | 15.04.2024 to 17.04.2024 | Programmable Logic Arrays, Programmable Array Logic,                                                                           |
| 10   | 22.04.2024 to 24.04.2024 | <b>D/A and A/D converters:</b> Digital and Analog Representation, D/A Converters: Weighted Resistor DAC, R-2R Ladder Type DAC, |
| 11   | 29.04.2024 to 01.05.2024 | Specifications of DAC. A/D converters: Single slope A/D converter, Dual slope A/D converter                                    |
| 12   | 06.05.2024 to 08.05.2024 | Successive approximation A/D converter, Specification of ADC and DAC                                                           |

PT. CHIRANJI LAL SHARMA GOVT. COLLEGE, KARNAL  
DEPARTMENT OF ELECTRONICS & IT  
LESSON PLAN

Name: GURDEV SINGH

Subject: Introduction to C & Its Programming

Class: B. Sc. Electronics Final Year

Course Code: EL-II

Semester: 6th

| Week | Date                     | Topics To Be Covered                                                                               |
|------|--------------------------|----------------------------------------------------------------------------------------------------|
| 1    | 08.01.2024 to 10.01.2024 | C Fundamentals: The character set , Identifiers & Key words, Data types, Constants                 |
| 2    | 15.01.2024 to 17.01.2024 | Variables & Arrays, Declaration, Expressions statements, Symbolic constants                        |
| 3    | 22.01.2024 to 24.01.2024 | Operators and expressions: Arithmetic operators, Unary operators, Relational and logical operators |
| 4    | 29.01.2024 to 31.01.2024 | Assignment operators, Conditional operators.                                                       |
| 5    | 05.02.2024 to 07.02.2024 | Data input and output: Entering input data- The scanned function                                   |
| 6    | 12.02.2024 to 14.02.2024 | Writing output data- The print function. Control statements: While statement, Do-while statement   |
| 7    | 19.02.2024 to 21.02.2024 | For statement, If-else statement, Switch statement                                                 |
| 8    | 26.02.2024 to 28.02.2024 | Break statement, Continue statement                                                                |
| 9    | 04.03.2024 to 06.03.2024 | Function: Defining a Function                                                                      |
| 10   | 11.03.2024 to 13.03.2024 | Accessing a Function,                                                                              |
| 11   | 18.03.2024 to 20.03.2024 | Passing arguments to a Function                                                                    |
| 12   | 25.03.2024 to 27.03.2024 | Specify arguments, Data types.                                                                     |
| 13   | 01.04.2024 to 03.04.2024 | Arrays: Defining an Array, Processing an Array                                                     |
| 14   | 08.04.2024 to 10.04.2024 | Passing arrays to a function, Multidimensional arrays, Arrays and Strings.                         |
| 15   | 15.04.2024 to 17.04.2024 | Pointers: Fundamentals, Pointer declaration                                                        |
| 16   | 22.04.2024 to 24.04.2024 | Passing pointers to a function, Pointers and one dimensional arrays,                               |
| 17   | 29.04.2024 to 01.05.2024 | Operations on pointers.                                                                            |
| 18   | 06.05.2024 to 08.05.2024 | Programs                                                                                           |

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DEPARTMENT OF ELECTRONICS & IT  
LESSON PLAN

Name: GURDEV SINGH  
Subject: Digital Electronics-III  
Class: B.Sc. (H)-IT Second Year

Course Code: BSIT-401  
Semester: 4th

| Week | Date                     | Topics To Be Covered                                                                                                           |
|------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 1    | 11.01.2024 to 13.01.2024 | <b>Sequential Circuits-I Counters:</b> Asynchronous Counters- Mod-N or divided by N Counter.                                   |
| 2    | 18.01.2024 to 20.01.2024 | Synchronous Counter-Modulo Counters, Decade Counter.                                                                           |
| 3    | 25.01.2024 to 27.01.2024 | UP-Down Counters, Basic principle of digital clock.                                                                            |
| 4    | 01.02.2024 to 03.02.2024 | Controlled counters and arbitrary counters                                                                                     |
| 5    | 08.02.2024 to 10.02.2024 | <b>Sequential Circuits-II: Registers :</b> Shift Registers, Serial-in serial out (SISO), serial-in-parallel out (SIPO).        |
| 6    | 15.02.2024 to 17.02.2024 | parallel-in-serial-out (PISO) parallel-in-parallel-out (PIPO), bi-directional shift register.                                  |
| 7    | 22.02.2024 to 24.02.2024 | Universal Shift Register Applications of shift register                                                                        |
| 8    | 29.02.2024 to 02.03.2024 | Ring counter, Twisted Ring Counter, Sequence Generator                                                                         |
| 9    | 07.03.2024 to 09.03.2024 | <b>Digital Memories:</b> Memory System Parameters, ROM,                                                                        |
| 10   | 14.03.2024 to 16.03.2024 | PROM, EPROM, EEPROM, RAM (Static and dynamic),                                                                                 |
| 11   | 21.03.2024 to 23.03.2024 | Programmable Logic Arrays, Programmable Array Logic,                                                                           |
| 12   | 28.03.2024 to 30.03.2024 | Programmable Logic Devices: Expanding Memory Size                                                                              |
| 13   | 04.04.2024 to 06.04.2024 | <b>D/A and A/D converters:</b> Digital and Analog Representation, D/A Converters: Weighted Resistor DAC, R-2R Ladder Type DAC, |
| 14   | 11.04.2024 to 13.04.2024 | Specifications of DAC. A/D converters: Single slope A/D converter, Dual slope A/D converter                                    |
| 15   | 18.04.2024 to 20.04.2024 | Successive approximation A/D converter,                                                                                        |
| 16   | 25.04.2024 to 27.04.2024 | Specification of ADC and DAC                                                                                                   |
| 17   | 02.05.2024 to 04.05.2024 | Problems based on counters design                                                                                              |
| 18   | 09.05.2024 to 11.05.2024 | Problems based on expanding memory size                                                                                        |

PT. CHIRANJI LAL SHARMA GOVT. COLLEGE, KARNAL  
DEPARTMENT OF ELECTRONICS & IT  
LESSON PLAN

Name: GURDEV SINGH

Subject: Oscillators & Multivibrators

Class: B.Sc. (H)-IT Second Year

Course Code: BSIT-402

Semester: 4th

| Week | Date                     | Topics To Be Covered                                                                                                                                |
|------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | 11.01.2024 to 13.01.2024 | <b>Operational Amplifier-II:</b> Offset Voltages and currents, input bias Current, input offset voltage,)                                           |
| 2    | 18.01.2024 to 20.01.2024 | error introduced by offset voltage, integrating and differentiating circuit using opamp                                                             |
| 3    | 25.01.2024 to 27.01.2024 | multiplication, division, Schmitt Trigger                                                                                                           |
| 4    | 01.02.2024 to 03.02.2024 | Active filters using opamp ( 1st order)                                                                                                             |
| 5    | 08.02.2024 to 10.02.2024 | <b>Feedback in Amplifier:-</b> Classification of Amplifiers (voltage, current, Transconductance, Transresistance amplifier), Feedback concept       |
| 6    | 15.02.2024 to 17.02.2024 | calculation of transfer gain in degenerative and regenerative feedbacks, Feedback topologies, Effect of negative feedback on gain                   |
| 7    | 22.02.2024 to 24.02.2024 | Non-linear distortion, Frequency response, Effect of negative voltage shunt feedback on input and output resistance                                 |
| 8    | 29.02.2024 to 02.03.2024 | Effect of negative voltage series feedback on input and output resistance                                                                           |
| 9    | 07.03.2024 to 09.03.2024 | Effect of negative current shunt feedback on input and output resistance, Effect of negative current series feedback on input and output resistance |
| 10   | 14.03.2024 to 16.03.2024 | <b>Oscillators:</b> Principle of oscillations, condition for sustained oscillation,                                                                 |
| 11   | 21.03.2024 to 23.03.2024 | Principal, working and frequency calculation of RF oscillators (Hartley oscillator,                                                                 |
| 12   | 28.03.2024 to 30.03.2024 | Colpitts oscillator, crystal oscillator)                                                                                                            |
| 13   | 04.04.2024 to 06.04.2024 | AF Oscillators (Wein Bridge oscillator, Phase-shift oscillator)                                                                                     |
| 14   | 11.04.2024 to 13.04.2024 | <b>Multivibrators:</b> Astable Multivibrator, Bistable Multivibrator,                                                                               |
| 15   | 18.04.2024 to 20.04.2024 | Monostable Multivibrator using BJT, Triangular waveform generator,                                                                                  |
| 16   | 25.04.2024 to 27.04.2024 | The 555 Timer, Block diagram of 555 and its application                                                                                             |
| 17   | 02.05.2024 to 04.05.2024 | Astable & Monostable Multivibrator                                                                                                                  |
| 18   | 09.05.2024 to 11.05.2024 | Numerical problems based on feedback                                                                                                                |

PT. CHIRANJI LAL SHARMA GOVT. COLLEGE, KARNAL  
DEPARTMENT OF ELECTRONICS & IT  
LESSON PLAN

Name: GURDEV SINGH

Subject: Advanced Digital Electronics

Class: B.Sc. Electronics Second Year

Course Code:EL-II

Semester: 4th

| Week | Date                     | Topics To Be Covered                                                                                     |
|------|--------------------------|----------------------------------------------------------------------------------------------------------|
| 1    | 11.01.2024 to 13.01.2024 | <b>Digital to Analog conversion:</b> DAC conversion, Types of DAC conversion, Weighted Resistor Type DAC |
| 2    | 18.01.2024 to 20.01.2024 | R-2R Ladder Type DAC, The Switched Current source type DAC                                               |
| 3    | 25.01.2024 to 27.01.2024 | The Switched Capacitor type DAC                                                                          |
| 4    | 01.02.2024 to 03.02.2024 | DAC accuracy and resolution                                                                              |
| 5    | 08.02.2024 to 10.02.2024 | <b>Analog to Digital Conversion:</b> ADC conversion, Types of ADC conversion                             |
| 6    | 15.02.2024 to 17.02.2024 | The Counter Type ADC, The Tracking type ADC, Flash type ADC                                              |
| 7    | 22.02.2024 to 24.02.2024 | The Successive Approximation ADC                                                                         |
| 8    | 29.02.2024 to 02.03.2024 | ADC accuracy and resolution                                                                              |
| 9    | 07.03.2024 to 09.03.2024 | <b>Memories:</b> Parameters of memory, Volatile and non volatile memories                                |
| 10   | 14.03.2024 to 16.03.2024 | Memory organization & operation, ROM, PROM, EPROM, EEPROM                                                |
| 11   | 21.03.2024 to 23.03.2024 | RAM (Static and dynamic)                                                                                 |
| 12   | 28.03.2024 to 30.03.2024 | Expanding the size of memory                                                                             |
| 13   | 04.04.2024 to 06.04.2024 | Content addressable memory/ associative memory                                                           |
| 14   | 11.04.2024 to 13.04.2024 | <b>Programmable Logic Devices (PLDs):</b> Introduction, ROM as a PLD, Programmable Logic Array(PLA)      |
| 15   | 18.04.2024 to 20.04.2024 | Programmable Array Logic(PAL),Features of PLD,                                                           |
| 16   | 25.04.2024 to 27.04.2024 | Complex Programmable Logic Devices(CPLDs),                                                               |
| 17   | 02.05.2024 to 04.05.2024 | Field Programmable Gate Array(FPGA).                                                                     |
| 18   | 09.05.2024 to 11.05.2024 | Problems based on expanding memory size                                                                  |

PT. CHIRANJI LAL SHARMA GOVT. COLLEGE, KARNAL  
DEPARTMENT OF ELECTRONICS & IT  
LESSON PLAN

Name: GURDEV SINGH

Subject: - Electronics Devices & Basic Digital Electronics

Class: B.Sc. Electronics First Year

Course Code: B23-ELE-201

Semester: 2<sup>nd</sup> Sem.

| Week | Date                     | Topics To Be Covered                                                                                                                                                              |
|------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | 15.02.2024 to 17.02.2024 | <b>Transistor Biasing Techniques:</b> -Why Bias a Transistor, Selection of Operating Point, need for Bias Stabilization, Requirement of a Biasing Circuit,                        |
| 2    | 22.02.2024 to 24.02.2024 | Different Biasing Circuits: Bias Circuit with Emitter Resistor, Voltage Divider Biasing Circuit,                                                                                  |
| 3    | 29.02.2024 to 02.03.2024 | Emitter-Bias Circuit, Gain of a multi-stage amplifier.                                                                                                                            |
| 4    | 07.03.2024 to 09.03.2024 | <b>Field Effect Transistor:</b> - Junctions Field Effect Transistor, Qualitative Description of JFET,                                                                             |
| 5    | 14.03.2024 to 16.03.2024 | Drain and transfer characteristics of JFET, FET small signal low frequency model, CS & CD low frequency model,                                                                    |
| 6    | 21.03.2024 to 23.03.2024 | MOSFET -Depletion and enhancement and their drain & transfer characteristics, CMOS (Basic idea).                                                                                  |
| 7    | 28.03.2024 to 30.03.2024 | <b>Number Systems:</b> - Binary, Octal, Hexadecimal number system and base conversions, Binary Arithmetic operations, 1's and 2's complement representation and their arithmetic, |
| 8    | 04.04.2024 to 06.04.2024 | Binary codes-BCD, Gray, Error detecting and correcting codes, BCD addition, Boolean Algebra:                                                                                      |
| 9    | 11.04.2024 to 13.04.2024 | Postulates, Duality Principle, De Morgan's Law, Simplification of Boolean Identities, Standard SOP & POS Forms,                                                                   |
| 10   | 18.04.2024 to 20.04.2024 | Simplification using K-map (upto 4 variables), don't care condition, implementation of SOP & POS                                                                                  |
| 11   | 25.04.2024 to 27.04.2024 | <b>Logic Gates:</b> Positive and Negative logic level, Logic Gates: AND, OR, NOT, XOR, XNOR, NOR, NAND (Definition, Symbols & Truth table.).                                      |
| 12   | 02.05.2024 to 04.05.2024 | <b>Logic families:</b> Unipolar & Bipolar Logic families, characteristics of Digital IC's (fan in, fan out, propagation delay. Noise Margin),                                     |
| 13   | 09.05.2024 to 11.05.2024 | RTL (NOR), DTL (NAND), TTL (NAND), CMOS Logic gate (NAND, NOR                                                                                                                     |

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DEPARTMENT OF ELECTRONICS & IT  
LESSON PLAN

Name: GURDEV SINGH

Subject: - (MDC) Understanding of Mobiles and Computer Systems

Class: B.Com. First Year

Course Code: B23-ELE-204

Semester: 2<sup>nd</sup> Sem.

| Week | Date                     | Topics To Be Covered                                                                  |
|------|--------------------------|---------------------------------------------------------------------------------------|
| 1    | 16.02.2024 to 17.02.2024 | Identification of various parts of Computer/ Laptop                                   |
| 2    | 23.02.2024 to 24.02.2024 | Understanding the computer configuration                                              |
| 3    | 01.03.2024 to 02.03.2024 | Understanding the Laptop configuration                                                |
| 4    | 08.03.2024 to 09.03.2024 | Understanding the Laptop configuration                                                |
| 5    | 15.03.2024 to 16.03.2024 | Understanding the Mobile Configuration                                                |
| 6    | 22.03.2024 to 23.03.2024 | Power Backup: Inverter                                                                |
| 7    | 29.03.2024 to 30.03.2024 | UPS, Dry Battery                                                                      |
| 8    | 05.04.2024 to 06.04.2024 | Various Interfacing Cables, connectors and converters for computer, Laptop and Mobile |
| 9    | 12.04.2024 to 13.04.2024 | Printer Scanner Configuration Projector                                               |
| 10   | 19.04.2024 to 20.04.2024 | Types of Projectors and their Installation                                            |
| 11   | 26.04.2024 to 27.04.2024 | Setting Up of Internet Connection: Wired & Wi-fi                                      |
| 12   | 03.05.2024 to 04.05.2024 | Setting Up of a complete ICT solution using Computer/laptop                           |
| 13   | 10.05.2024 to 11.05.2024 | Setting Up of a complete ICT solution using Mobile and interactive Panel              |