

Department of Electronics

UG & PG Department of Electronics and Research Center.

(Give separate information for each subject if Department offers more subjects)

Name of the Subject : -	Electronics
Number of full time teachers in the subject teaching only UG courses : -	02
Number of full time teachers in the subject teaching only PG courses : -	00
Number of teachers teaching both UG and PG courses : -	02
Program outcomes of all Programs (UG and/or PG and/or Diploma) offered by the Department : -	1) B.Sc. (Electronics) 2) M. Sc. (Electronics)

B.Sc. Electronics Program Outcomes

PO1:	To impart knowledge in fundamental aspects of all branches of Electronics
PO2:	The student apply knowledge and skills they have acquired to the solution of specific theoretical and applied problems in electronics.
PO3:	The student acquires an ability to model, simulate and evaluate the phenomenon and systems in the advanced areas of electronics.
PO4:	Provide students with skills that enable them to get employment in industries or pursue higher studies or research assignments or turn as entrepreneurs.
PO5:	To develop skills in the proper handling of apparatus and components
PO6:	The student will have the abilities to design and develop innovative solutions for benefits of society, by diligence, leadership, team work and lifelong learning.

B.Sc. Electronics Program Specific Outcomes

PSO1:	Apply the concepts of Electronics in the design, development and implementation of application oriented real time systems.
PSO2:	They will be capable enough of taking up higher studies in electronics and to get jobs in the industries.
PSO3:	Understand the use of electronics in the field of computer science.

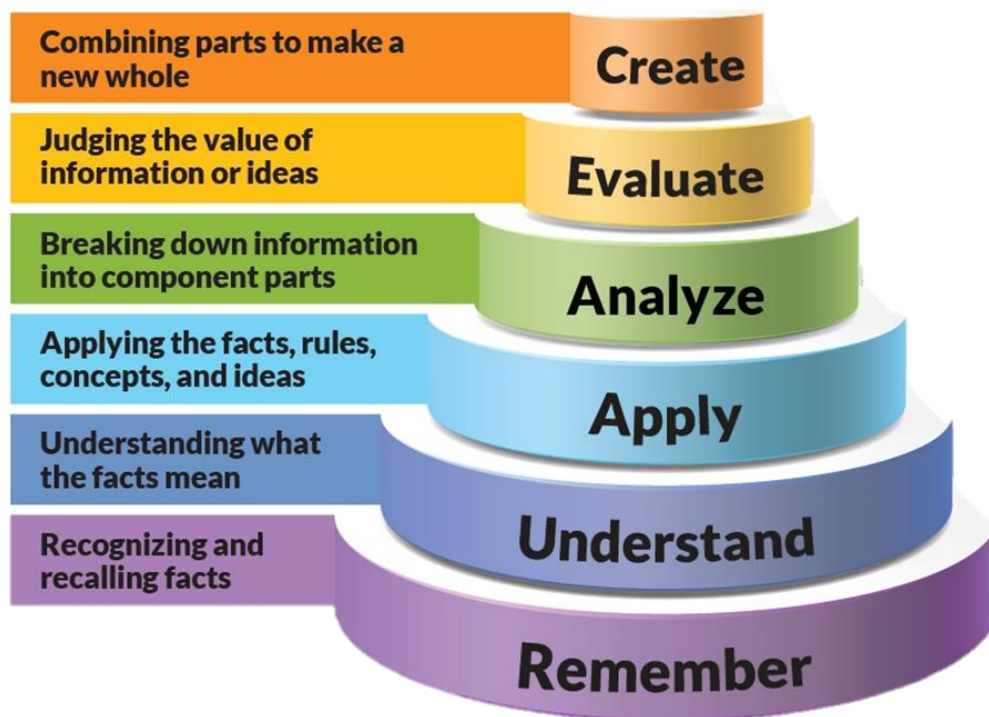
First Year B.Sc. Electronics

Course Outcomes (COs), Bloom's Levels & CO-PO Mapping

B.Sc. First Year – Electronics (NEP 2024-25)

Program Outcomes (POs)

1. PO1: To impart knowledge in fundamental aspects of all branches of Electronics.
2. PO2: The student applies knowledge and skills to solve theoretical and applied electronics problems.
3. PO3: The student acquires ability to model, simulate, and evaluate phenomena and systems in electronics.
4. PO4: Enable students to seek employment, pursue higher studies, or become entrepreneurs.
5. PO5: To develop skills in proper handling of apparatus and components.
6. PO6: Ability to design and develop innovative solutions benefiting society with teamwork and lifelong learning.



Course Name: SELECT1101: Fundamentals of Analog & Digital Electronics

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ COs with Bloom's Taxonomy Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Apply Ohm's and Kirchhoff's Laws to analyze series and parallel circuits.	K3 – Apply
CO2: Solve linear electrical networks using network theorems.	K4 – Analyze
CO3: Perform conversions among number systems and apply binary arithmetic.	K3 – Apply
CO4: Interpret digital codes such as BCD and Gray code.	K2 – Understand
CO5: Simplify logical expressions using Boolean algebra and implement logic circuits.	K4 – Analyze

❖ CO-PO Mapping Matrix

CO \ PO	P01	P02	P03	P04	P05	P06
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–
CO4	–	1	2	3	2	1
CO5	–	–	1	2	3	2

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related

- – = Not Related

Course Name: SELECP1101: Electronics Lab-I

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ COs with Bloom's Taxonomy Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Identify electronic components and test them using measuring instruments.	K2 – Understand
CO2: Verify theoretical circuit laws using experimental setups.	K4 – Analyze
CO3: Construct and test basic digital logic circuits using ICs.	K3 – Apply

❖ CO-PO Mapping Matrix

CO \ PO	P01	P02	P03	P04	P05	P06
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

Course Name: SELEGE1101: Electronic Components (GE)

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ COs with Bloom's Taxonomy Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Identify and classify active and passive electronic components.	K1 – Remember
CO2: Describe applications of components in simple circuits.	K2 – Understand
CO3: Measure and calculate resistance using color code and multimeter.	K3 – Apply

❖ CO-PO Mapping Matrix

CO \ PO	P01	P02	P03	P04	P05	P06
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

Course Name: SELESC1101: Electronic Measurements and Instrumentation

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ COs with Bloom's Taxonomy Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Understand characteristics of measurement systems and basic meters.	K2 – Understand
CO2: Perform accurate measurements using AC/DC bridges and digital meters.	K3 – Apply
CO3: Measure voltage, phase, and frequency using oscilloscopes.	K4 – Analyze

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

Course Name: SELECT1151: Electronic Devices and Digital Logic Circuits

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ COs with Bloom's Taxonomy Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Explain working principles and characteristics of semiconductor devices.	K2 – Understand
CO2: Analyze the operation of BJTs and UJTs.	K4 – Analyze
CO3: Design and implement arithmetic circuits using logic gates.	K3 – Apply
CO4: Construct and compare various types of flip-flops.	K4 – Analyze

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–
CO4	–	1	2	3	2	1

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

Course Name: SELECP1151: Electronics Lab-II

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ COs with Bloom's Taxonomy Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Test and interpret the behavior of semiconductor devices.	K3 – Apply
CO2: Implement digital logic circuits like adders, MUX, DEMUX, flip-flops.	K3 – Apply
CO3: Apply practical circuit skills to solve real-world electronics problems.	K4 – Analyze

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

Course Name: SELEGE1151: Consumer Electronics

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ COs with Bloom's Taxonomy Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Describe the operation of microphones and speakers.	K2 – Understand
CO2: Explain the function of color TVs, LCDs, LEDs and DTH systems.	K2 – Understand
CO3: Understand the working of digital cameras and photocopiers.	K2 – Understand

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

Course Name: SELESC1151: AC Fundamentals & Electronic Circuits

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ COs with Bloom's Taxonomy Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Analyze phasor algebra and resonance in AC circuits.	K4 – Analyze
CO2: Design and simulate passive and active filter circuits.	K4 – Analyze
CO3: Construct and test clipper, clamper and amplifier circuits.	K3 – Apply

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

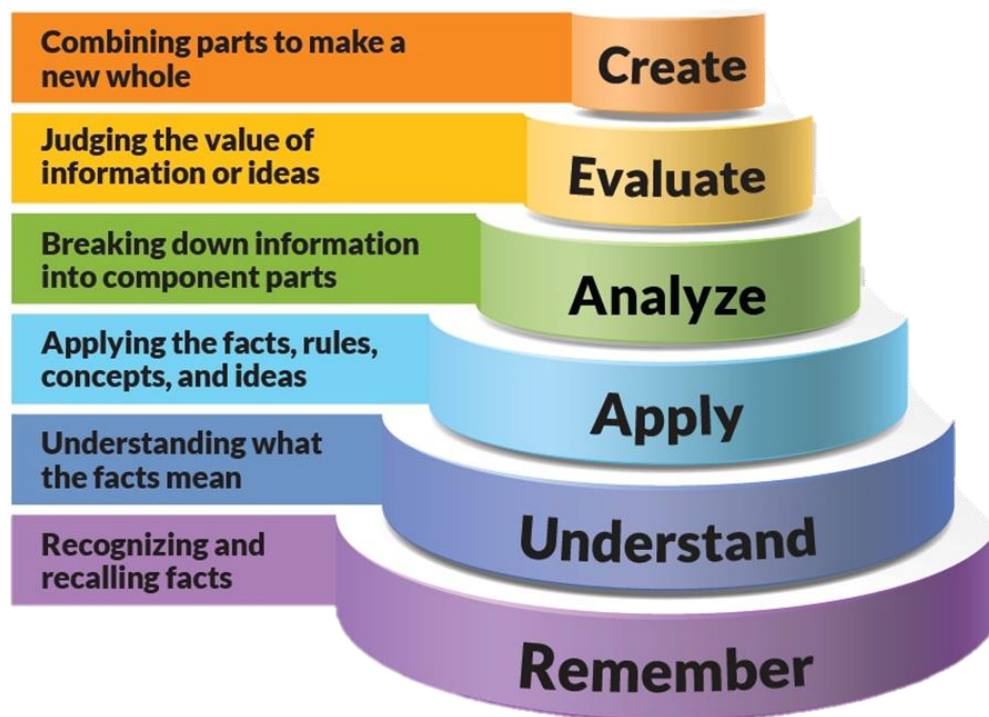
Second Year B.Sc. Electronics

Course Outcomes (COs), Bloom's Levels & CO-PO Mapping

Academic Year: 2025–2026 | As per NEP | University: S.R.T.M.U., Nanded

Program Outcomes (POs)

1. PO1: To impart knowledge in fundamental aspects of all branches of Electronics.
2. PO2: The student applies knowledge and skills to solve theoretical and applied electronics problems.
3. PO3: The student acquires ability to model, simulate, and evaluate phenomena and systems in electronics.
4. PO4: Enable students to seek employment, pursue higher studies, or become entrepreneurs.
5. PO5: To develop skills in proper handling of apparatus and components.
6. PO6: Ability to design and develop innovative solutions benefiting society with teamwork and lifelong learning.



Bloom's Levels

Course Name: SELECT1201: Amplifiers

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Explain the concept of transistor biasing and analyze stability of bias circuits.	K3 – Apply
CO2: Analyze signal amplifiers using h-parameter models.	K4 – Analyze
CO3: Understand ideal Op-Amp characteristics and applications.	K2 – Understand
CO4: Apply Op-Amp to solve analog signal processing problems.	K3 – Apply

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–
CO4	–	1	2	3	2	1

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

Course Name: SELECT1202: Microprocessor and Its Applications

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Understand architecture and pin functions of 8085 microprocessor.	K2 – Understand
CO2: Explain instruction set and addressing modes.	K2 – Understand
CO3: Write simple assembly programs using 8085 instruction set.	K3 – Apply
CO4: Interface basic components like IC 8255 with microprocessor.	K3 – Apply

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–
CO4	–	1	2	3	2	1

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

Course Name: SELECP1201: Electronics Lab-II (Based on Amplifiers)

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Construct and test amplifier circuits and operational amplifiers.	K3 – Apply
CO2: Use amplifiers to solve real-life electronics problems.	K4 – Analyze
CO3: Design and innovate circuits using Op-Amps for practical needs.	K6 – Create

❖ CO-PO Mapping Matrix

CO \ PO	P01	P02	P03	P04	P05	P06
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- 3 = Strongly Related
- 2 = Moderately Related
- 1 = Slightly Related
- – = Not Related

Course Name:SELECP1202: Electronics Lab-III (Based on Microprocessor)

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Write and execute assembly programs for arithmetic operations.	K3 – Apply
CO2: Apply logical and data operations using ALPs.	K3 – Apply
CO3: Understand and implement basic interfacing with microprocessors.	K4 – Analyze

❖ CO-PO Mapping Matrix

CO \ PO	P01	P02	P03	P04	P05	P06
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

Course Name: SELEMT1201: Sequential Logic Circuits

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Simplify Boolean expressions using K-map.	K3 – Apply
CO2: Design counters and shift registers using digital ICs.	K4 – Analyze
CO3: Implement A/D and D/A conversion circuits.	K4 – Analyze

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

Course Name: SELEMP1201: Lab on Sequential Logic Circuits

Course Outcomes:

Upon the completion of this course, the student will be able to

❖ Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Implement minimized Boolean functions using K-map.	K3 – Apply
CO2: Design and test sequential circuits using ICs.	K3 – Apply
CO3: Construct D/A and A/D conversion circuits.	K3 – Apply

❖ CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

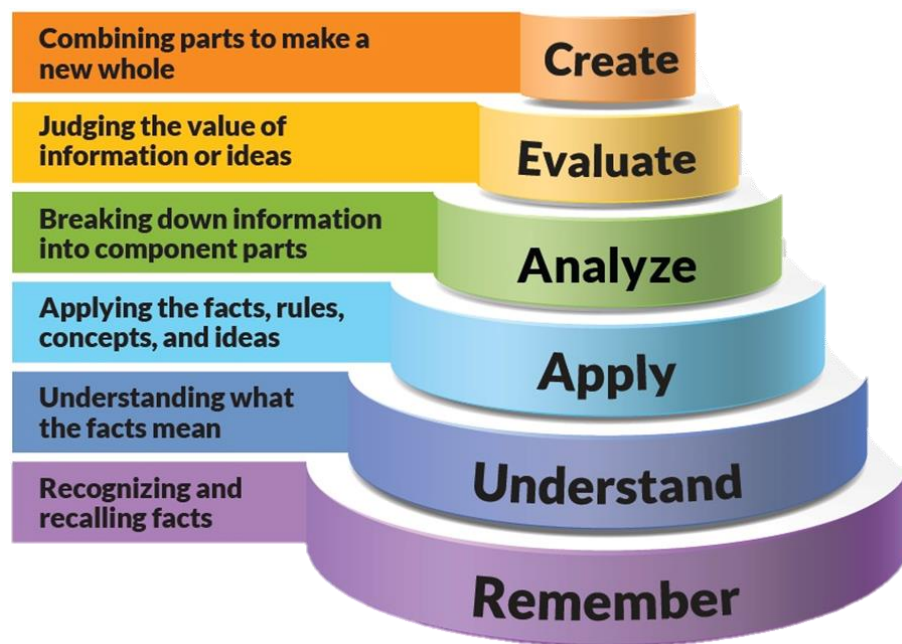
- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

Third Year B.Sc. Electronics

Course Outcomes (COs), Bloom's Levels & CO-PO Mapping

Program Outcomes (POs)

1. PO1: To impart knowledge in fundamental aspects of all branches of Electronics.
2. PO2: The student applies knowledge and skills to solve theoretical and applied electronics problems.
3. PO3: The student acquires ability to model, simulate, and evaluate phenomena and systems in electronics.
4. PO4: Enable students to seek employment, pursue higher studies, or become entrepreneurs.
5. PO5: To develop skills in proper handling of apparatus and components.
6. PO6: Ability to design and develop innovative solutions benefiting society with teamwork and lifelong learning.



DECE-IA (P-XII): Communication Electronics-I

Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Understand communication systems and their components.	K2 – Understand
CO2: Explain and analyze amplitude and frequency modulation techniques.	K3 – Apply
CO3: Understand and compare analog and digital pulse modulation techniques.	K4 – Analyze
CO4: Interpret bandwidth, efficiency, and circuit applications in analog communication.	K4 – Analyze

CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–
CO4	–	1	2	3	2	1

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

DECE-I B (P-XIII-B): C Programming

Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Understand C programming fundamentals including data types and operators.	K2 – Understand
CO2: Write programs using control statements, loops, and arrays.	K3 – Apply
CO3: Implement functions, strings, pointers, structures, and unions in C programs.	K3 – Apply
CO4: Develop structured C programs for solving real-world problems.	K4 – Analyze

CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–
CO4	–	1	2	3	2	1

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

DECE-IIA (P-XIV): Communication Electronics-II

Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Understand the working of radio receivers and their characteristics.	K2 – Understand
CO2: Explain microwave principles, RADAR systems, and mobile communication basics.	K3 – Apply
CO3: Understand the structure, types, and applications of optical fibers.	K2 – Understand
CO4: Analyze communication techniques across RF, Microwave, and Optical domains.	K4 – Analyze

CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–
CO4	–	1	2	3	2	1

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

DECE-II B (P-XV-B): Electronic Instrumentation

Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Understand performance and error characteristics of instruments.	K2 – Understand
CO2: Explain working of various electrical and electronic transducers.	K3 – Apply
CO3: Use signal conditioning and digital instruments for measurements.	K3 – Apply
CO4: Select and evaluate suitable transducers for a specific measurement application.	K4 – Analyze

CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–
CO4	–	1	2	3	2	1

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

DECEP-I (P-XVI): Practical Based on P-XII and P-XIV

Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Perform and analyze modulation, demodulation and amplifier experiments.	K3 – Apply
CO2: Investigate and evaluate characteristics of communication circuits and optical fibers.	K4 – Analyze
CO3: Design and demonstrate applications of optical and RF communication modules.	K6 – Create

CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related

DECEP-II (P-XVII B): Practical Based on P-XIII(B) and P-XV(B)

Course Outcomes (COs) and Bloom's Levels

Course Outcome (CO)	Bloom's Taxonomy Level
CO1: Write, compile and execute C programs for electronics applications.	K3 – Apply
CO2: Conduct experiments on transducers, amplifiers, sensors and instrumentation circuits.	K4 – Analyze
CO3: Design embedded experiments integrating C programming with sensors/transducers.	K6 – Create

CO-PO Mapping Matrix

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	–	–	–
CO2	2	3	2	1	–	–
CO3	1	2	3	2	1	–

Bloom's Taxonomy Knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Legend:

- **3** = Strongly Related
- **2** = Moderately Related
- **1** = Slightly Related
- **–** = Not Related