

DEPARTMENT OF ELECTRONICS
RAJEEV GANDHI GOVT. P.G. COLLEGE, AMBIKAPUR,
CHHATTISGARH



B.Sc. -ELECTRONICS
(SEMESTER PATTERN)
CHOICE BASED CREDIT SYSTEM (CBCS) UNDER NEP-2020

PROGRAMME OUTCOME (PO), COURSE COUTCOME (CO) AND
ITS MAPPING



DEPARTMENT OF ELECTRONICS
RAJEEV GANDHI GOVT. P.G. COLLEGE, AMBIKAPUR,
CHHATTISGARH

VISION

The vision of the Electronics Department is to provide in proficiency both in depth understanding of principles and concept of Electronics, theoretical and experimental Electronics. The Department aims to enhance the students' knowledge in basic and applied electronics. To inculcate aptitude for a research career in academia or industry by introducing advanced ideas and techniques that are applicable while emphasizing the underlying concepts of Electronics.

MISSION

- To impart quality education in Electronics such that they aim to become Scientists in reputed Research Organisations. To make the students effectively disseminate their knowledge in Electronics to coming generations..
- Develop the capacity and know -how to apply principles/laws of Electronics to solve the problems. The ability to do and interpret the data obtained in experiments. To become a center of excellence and extend research facilities.
- Apply the Electronics knowledge for sustainable development useful for society. Assume responsibility and always practice ethical principles. To function effectively as individual as well as in a team.

PROGRAMME OUTCOMES (POs)

PO-1: Disciplinary and inter-disciplinary knowledge for capacity building

Students will acquire improved knowledge of the laws governing nature through classroom teaching and experimenting in the laboratories. They will develop a sense of interdisciplinary approach to identify and resolve issues through project, seminars, field work, internships and industrial visits.

PO-2: Core Competency Development

Skills for effective and efficient communication

Students will be able to improve and enhance their communication skills such as reading, writing, listening and speaking. This will help them to express their ideas clearly and effectively and subsequently empower them to become agents of social change and hence pave the way for betterment of the society at large.

PO-3:- Sense of inquiry and problem-solving skills

Students will demonstrate the core competencies of their discipline through analytical reasoning, problem solving and research related skills, cooperation, team work, scientific reasoning and thinking that would make them emerge as entrepreneurs or administrative personnel.

PO-4: Energy, Ethics and Environment

They will be able to involve themselves in framing policies and develop scientific temper to harness energy and work on alternate resources. They will be aware of the environmental issues and imbibe the spirit of ethical values in establishing a self-sustained environment for a healthy society.

PO-5: Self-directed and lifelong learning

Through digital literacy, students will engage in self-paced and curious learning with limitless knowledge acquisition and hence develop motivation for a sustained lifelong learning capability. Students will accumulate knowledge by continuous learning and leverage the past knowledge seamlessly to solve the problems in the future.

PO-6: National and international-priorities preferences and perspectives

Students will be able to prioritize national and global issues with an aim to build a nation and an integrated world through contributions that imbibe the spirit of multicultural competency, creative thinking, critical analysis, political awareness and the much-needed international policies.

PO-7:National and international-priorities preferences and perspectives

Students will be able to prioritize national and global issues with an aim to build a nation and an integrated world through contributions that imbibe the spirit of multicultural competency, creative thinking, critical analysis, political awareness and the much-needed international policies.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO-1: Acquire scientific temper leading to critical thinking and research motivation in Electronics and its allied areas.

PSO-2: Gain knowledge and the skills to measure some of the properties of solid materials and understand the underlying principles governing the dynamics of rigid bodies.

PSO-3: Appreciate the principles of optics, electricity and magnetism and their applications in daily life

PSO-4: Design and construct electronic circuits with computer interfacing for sophisticated analysis of material behavior and properties.

PSO-5: Comprehend algebraic concepts and advanced mathematical tools involved in the interpretation of various physical properties of materials.

PSO-6: Attain the required skills to interpret the Electronics behind the phenomena occurring in nature and surroundings and hence apply them to enhance our life style.

PSO-7: Develop essential logical and analytical skills to approach a problem both quantitatively and qualitatively.

Graduate Attributes

Some of the characteristic attributes of a graduate in Electronics are

- **Disciplinary knowledge and skills:** Capable of demonstrating

(i) good knowledge and understanding of major concepts, theoretical principles and experimental findings in Electronics and its different subfields like Astroelectronics and Cosmology, Material science, Nuclear and Particle Electronics, Condensed matter Electronics, Atomic and Molecular Electronics, Mathematical Electronics, Analytical dynamics, Space science and other related fields of study, including broader interdisciplinary subfields like Chemistry, Mathematics, Life sciences, Environmental sciences, Atmospheric Electronics, Computer science, Information Technology etc.

(ii) ability to use modern instrumentation and laboratory techniques to design and perform experiments is highly desirable in almost all the fields of Electronics listed above in (i).

- **Skilled communicator:** Ability to transmit complex technical information relating all areas in Electronics in a clear and concise manner in writing and oral ability to present complex and technical concepts in a simple language for better understanding.
- **Critical thinker and problem solver:** Ability to employ critical thinking and efficient problem solving skills in all the basic areas of Electronics.
- **Sense of inquiry:** Capability for asking relevant/appropriate questions relating to the issues and problems in the field of Electronics, and planning, executing and reporting the results of a theoretical or experimental investigation.
- **Team player/worker:** Capable of working effectively in diverse teams in both classroom, laboratory, Electronics workshop and in industry and field-based situations.
- **Skilled project manager:** Capable of identifying/mobilizing appropriate resources required for a project, and manage a project through to completion, while observing responsible and ethical scientific conduct; and safety and laboratory hygiene regulations and practices.
- **Digitally Efficient:** Capable of using computers for simulation studies in Electronics and computation and appropriate software for numerical and statistical analysis of data, and employing modern e-library search tools like Inflightnet, various websites of the renowned Electronics labs in countries like the USA, Europe, Japan etc. to locate, retrieve, and evaluate Electronics information.
- **Ethical awareness / reasoning:** The graduate should be capable of demonstrating ability to think and analyze rationally with modern and scientific outlook and identify ethical issues related to one's work, avoid unethical behavior such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights, and adopting objectives, unbiased and truthful actions in all aspects of work

National and international perspective: The graduates should be able to develop a national as well as international perspective for their career in the chosen field of the academic activities. They should prepare themselves during their most formative years for their appropriate role in contributing towards the national development and projecting our national priorities at the international level pertaining to their field of interest and future expertise.

- **Lifelong learners:** Capable of self-paced and self-directed learning aimed at personal development and for improving knowledge/skill development and reskilling in all areas of Electronics.

B.Sc. -ELECTRONICS
(YEAR/SEMESTER)(OLD COURSE)

**PROGRAMME OUTCOME (PO), COURSE COUTCOME (CO) AND ITS
MAPPING**

B.Sc. I YEAR/Semester-I

Paper-I: Network Analysis & Analog Electronics

Course Outcomes

After completing the course the students will able to : -

CO-01:The concepts of electromagnetic induction and its applications and eddy currents.

CO-02: Resonant circuits with RC, LR and LCR combinations and the power factor of an AC circuit.

CO-03: Basics of circuit theory and network analysis.

CO-04:Resonant circuits with RC, LR and LCR combinations and the power factor of an AC circuit.

CO-05: Faraday's Law, Kirchoffs Current Law, Kirchoffs Voltage Law.

CO-06:Apply the knowledge of basic circuit law and simplify the network using reduction technique.

Analyze the circuit using Kirchoffs law and network theorem.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓						
CO-02	✓		✓			✓	
CO-03							
CO-04	✓						
CO-05	✓						
CO-06	✓						

B.Sc.-I YEAR /Semester-II

Paper-I: Linear and Digital Integrated Circuits

Course Outcomes

After completing the course the students will able to :-

CO-01: Study of Operational amplifier

CO-02: Apply the knowledge of Inverting and Non inverting Amplifier, Summing Difference ,Differentiator,Integrator,

CO-03: Number system and codes.

CO-04: Learning about Logic Gates and Boolean Algebra.

CO-05: Analyze the Combinational Logic &Design.

CO-06: Multiplexers & Demultiplexers,IC555,Asatble and Moostable Multimeter.

CO-07: Knowing about Flip Flop and it's types.

CO-08: Learn about Materslaves ,Jk ,Serial in Serial out,counters(4bit).

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01							
CO-02			✓				
CO-03						✓	
CO-04	✓						
CO-05							✓
CO-06			✓				
CO-07							
CO-08							

B.Sc. –II YEAR/Semester-III

Paper-: Communication Electronics

Course Outcomes

After completing the course the students will able to : -

CO-01: Introduction to communication its means and modes,TRAI,Electromagnetic communication spectrum,Concept pof Noise.

CO-02: Learn about Analog modulation and Analog pulse modulation.

CO-03: Learn the concept of Amplitude Shift Key(ASK),Frequency Shift Key(FSK), Phase Shift Key(PSK)&BSK.

CO-04: Learn about the Sattelite communication.

CO-05:Knowing about the concept and applications of Mobile Telephony System.

CO-06: In the laboratory course, the students are expected to do some basic experiments in Design of Amplitude Modulation using transistor, envelope detector, study of FM,AM transmitter and receiver,TDM.PWMPPM,and the types of modulation I.e-(ASK,PSK,BSK).

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓						
CO-02			✓				
CO-03							
CO-04							
CO-05						✓	
CO-06	✓				✓		

B.Sc. –II YEAR/Semester-IV

Paper: Microprocessor and Microcontroller

Course Outcomes

After completing the course the students will able to :-

CO-01: Learning the concepts of , Microcomputer Organization: Input/Output Devices. Data storage (idea of RAM and ROM). Computer memory. Memory organization & addressing, Memory Interfacing , Memory Map. 8085 Microprocessor Architecture: Main features of 8085, Block diagram, Pin-outdiagram of 8085,Registers, ALU, Stack memory. Program counter.

CO-02: Apply basic knowledge of Instructions set (Data transfer includingstacks).

CO-03: Understand the concept of 8051 microcontroller,and its block diagram.

CO-04: Explain several phenomena we can observe in everyday life that can be explained

CO-05: Understand the working of 8051 I/O port programming: Introduction of I/O port programming, pin out diagram of8051 microcontroller, I/O port pins description & their functions, I/O port programming in 8051 (using assembly language), I/O programming: Bit manipulation.

CO-07: In the laboratory course, student will gain hands-on experience of using various Addition and subtraction of numbers using direct addressing mode, Use of CALL and RETURN Instruction, Use one of the four ports of 8051 for O/P interfaced to eight LED's. Simulate binary counter (8 bit) on LED's.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01							✓
CO-02			✓			✓	
CO-03	✓						
CO-04						✓	
CO-05				✓		✓	
CO-06	✓						
CO-07				✓		✓	

B.Sc.-III YEAR/ Semester-V

Paper-I: Industrial Electronics

Course Outcomes

After completing the course the students will able to :-

CO-01: Know main aspects of the Thyristor, Principle using SCR.

CO-02: Understand the Applications of SCR: Multiple connections of SCR, Series operation, Triggering of series connected SCR, Parallel operation, Triggering of parallel connected SCR, SCR di/dt calculation, Snubber circuit, dv/dt calculation across SCR.

CO-03: Understand the Full wave controlled rectifier with resistive load, FWCR with inductive load, FWCR with freewheeling diode

CO-04: Understanding the Induction heating, Resistance welding, Over voltage protection, Zero voltage switch, SMPS, UPS, DC circuit breaker, Battery charger, AC static switch, DC static switch. Time delay, Fan regulator using TRIAC.

CO-05: Learning about PCB, PCB Advantages, components of PCB. Electronic components, ICs, Surface Mount Devices (SMD). Classification of PCB single, double, multilayer and flexible boards, Manufacturing of PCB, PCB standard.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓					✓	
CO-02	✓		✓				
CO-03	✓						
CO-04	✓						
CO-05				✓	✓	✓	

B.Sc.-III YEAR/ Semester-VI

Paper-II: Mobile application Programming and Introduction to VHDL.

Course Outcomes

After completing the course the students will be able to : -

CO-01: A brief idea about mobile Application Programming, different Platforms, architecture and working of Android, iOS and Windows phone 8 operating system, comparison of Android, iOS and Windows phone 8 Android Development Environment: Android, Advantages and Future of Android.

CO-02: Knowing about Android Software Development Platform: Understanding Java SE and the Dalvik Virtual Machine, directory Structure of an Android Project, common Default Resources Folders, the Values Folder. Leveraging Android XML Screen Sizes, Launching your application: The AndroidManifest.xml File, Creating your First Android Application.

CO-03: At knowledge of 0 The Foundation of OOP, the APK File, Android Application Components, Android Activities: Defining the User Interface. Android Services: Processing in the Background, Broadcast Receivers: Announcements and Notifications, Content Providers: Data Management, Android Intent Objects: Messaging for Components, Android Manifest XML.

CO-04: Secured an understanding about the Views and Layouts, Buttons, Menus, and Dialogs, Graphics Resources in Android.

CO-05: Understanding above the Introducing the Drawables, Implementing Images, Core Drawable Subclasses, Using Bitmap, PNG, JPEG and GIF Images in Android, Creating Animation in Android

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

Pos Cos	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓						
CO-02	✓		✓				
CO-03	✓						
CO-04	✓						
CO-05	✓						

B.Sc. -ELECTRONICS
(SEMESTER PATTERN)
CHOICE BASED CREDIT SYSTEM (CBCS) UNDER NEP-2020

**PROGRAMME OUTCOME (PO), COURSE COUTCOME (CO) AND ITS
MAPPING**

Discipline Specific Core Course (DSCC-1)

Semester-I

Paper: Basic Circuit Theory

Course Learning Outcomes

After completing the course the students will able to :-

- CO-01:** The concepts of electromagnetic induction and its applications and eddy currents,
CO-02: Resonant circuits with RC, LR and LCR combinations and the power factor of an AC circuit, basics of circuit theory and network analysis
CO-03: Resonant circuits with RC, LR and LCR combinations and the power factor of an AC circuit.
CO-04: Apply the knowledge of basic circuit law and simplify the network using reduction technique.
CO-05: Analyze the circuit using Kirchoff's law and network theorem.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓						
CO-02			✓				
CO-03	✓						
CO-04					✓	✓	
CO-05			✓				

Generic Elective Course (GEC-1)

Semester-I

Paper: Basic Circuit Elements

Course Learning Outcomes

After completing the course the students will able to :-

CO-01: basics of circuit theory.Learning about Resistance, Capacitor,Inductor.

CO-02: Learning about Resistance, Capacitor,Inductor.

CO-03: Idea of R,L,C, series parallel connection of R,L,C, types of energy sources.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓					✓	
CO-02			✓			✓	
CO-03			✓		✓	✓	

Value added Course (VAC-1)

Semester-I

Paper: RENEWABLE ENERGY

Course Learning Outcomes

After completing the course the students will able to :-

CO-01: Understand the concept of renewable energy

CO-02: Harvesting of renewable energy

CO-03: Different kind of renewable energy

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓						✓
CO-02			✓		✓		
CO-03	✓						

Skill Enhancement Course (SEC-1)

Semester-I

Paper: ELECTRONIC INSTRUMENTATION-I

Course Learning Outcomes

After completing the course the students will be able to :-

CO-01: Understanding the physics of the devices their characteristics and applications, to be able to use them in electronic circuits.

CO-02: Students would be aware of various signal conditioning, processing and generation techniques thus being better equipped to understand their use in larger and complex systems.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓	✓				✓	
CO-02		✓	✓			✓	

Discipline Specific Core Course (DSCC-2)

Semester-II

Paper: Electronics Circuits

Course Learning Outcomes

After completing the course the students will able to :-

CO-01 the design and working of RC coupled amplifiers, transformer coupled amplifiers and power amplifiers, b. the concept of negative and positive feedback,.

CO-02: structure, characteristics, working and applications of various diodes, JFET, MOSFET, etc.,

CO-03: Principles of charge coupled devices, metal semiconductor junction characteristics.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓			✓			✓
CO-02			✓		✓		
CO-03				✓		✓	

Generic Elective Course (GEC-2)

Semester-II

Paper: Basic Semiconductor devices

Course Learning Outcomes

After completing the course the students will able to :-

CO-01: structure, characteristics, working and applications of various diodes, JFET, MOSFET,transistor etc

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓						

Value added Course (VAC-2)

Semester-II

Paper: CONSUMER ELECTRONICS

Course Learning Outcomes

After completing the course the students will able to :-

CO 1:Understanding and learn about different

CO:2 Type of consumer elctronics devices used in daily life.

POs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
COs							
CO-01	✓			✓			✓
CO-02			✓		✓		

Skill Enhancement Course (SEC-2)

Semester-II

Paper: ELECTRONIC INSTRUMENTATION-II

Course Learning Outcomes

After completing the course the students will be able to :-

- **CO-01:** Understanding the electronics of the devices their characteristics and applications, to be able to use them in electronic circuits.
- ☐ **CO-02:** Students would be aware of various signal conditioning, processing and generation techniques thus being better equipped to understand their use in larger and complex systems.

☐

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓					✓	
CO-02			✓		✓	✓	

Discipline Specific Core Course (DSCC-3)

Semester-III

Paper-I: Linear and Digital Integrated Circuits

Course Outcomes

After completing the course the students will able to :-

CO-01: Study of Operational amplifier

CO-02: Apply the knowledge of Inverting and Non inverting Amplifier, Summing Difference ,Differentiator,Integrator,

CO-03: Number system and codes.

CO-04: Learning about Logic Gates and Boolean Algebra.

CO-05: Analyze the Combinational Logic &Design.

CO-06: Multiplexers & Demultiplexers,IC555,Asatble and Moostable Multimeter.

CO-07: Knowing about Flip Flop and it's types. Learn about Materslaves ,Jk ,Serial in Serial out,counters(4bit).

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓				✓	✓	
CO-02	✓		✓				
CO-03	✓						
CO-04						✓	
CO-05	✓						
CO-06			✓		✓		
CO-07				✓	✓	✓	

Discipline Specific Core Course (DSCC-4)

Semester-IV

Paper-: Communication Electronics

Course Outcomes

After completing the course the students will able to :-

CO-01: Introduction to communication its means and modes,TRAI,Electromagnetic communication spectrum,Concept pof Noise.

CO-02: Learn about Analog modulation and Analog pulse modulation.

CO-03: Learn the concept of Amplitude Shift Key(ASK),Frequency Shift Key(FSK), Phase Shift Key(PSK)&BSK.

CO-04: Learn about the Sattelite communication.

CO-05:Knowing about the concept and applications of Mobile Telephony System.

CO-06: In the laboratory course, the students are expected to do some basic experiments in Design of Amplitude Modulation using transistor, envelope detector, study of FM,AM transmitter and receiver,TDM.PWMPPM,and the types of modulation I.e-(ASK,PSK,BSK).

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓						
CO-02			✓				
CO-03							
CO-04							
CO-05						✓	
CO-06	✓				✓		

Discipline specific core course (DSCC-5)

Semester-V

Paper: Microprocessor and Microcontroller

Course Outcomes

After completing the course the students will able to :-

CO-01: Learning the concepts of , Microcomputer Organization: Input/Output Devices. Data storage (idea of RAM and ROM). Computer memory. Memory organization & addressing, Memory Interfacing , Memory Map. 8085 Microprocessor Architecture: Main features of 8085, Block diagram, Pin-outdiagram of 8085,Registers, ALU, Stack memory. Program counter.

CO-02: Apply basic knowledge of Instructions set (Data transfer includingstacks).

CO-03: Understand the concept of 8051 microcontroller,and its block diagram.

CO-04: Explain several phenomena we can observe in everyday life that can be explained

CO-05: Understand the working of 8051 I/O port programming: Introduction of I/O port programming, pin out diagram of8051 microcontroller, I/O port pins description & their functions, I/O port programming in 8051 (using assembly language), I/O programming: Bit manipulation.

CO-07: In the laboratory course, student will gain hands-on experience of using various Addition and subtraction of numbers using direct addressing mode, Use of CALL and RETURN Instruction, Use one of the four ports of 8051 for O/P interfaced to eight LED's. Simulate binary counter (8 bit) on LED's.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01							✓
CO-02			✓			✓	
CO-03	✓						
CO-04						✓	
CO-05				✓		✓	
CO-06	✓						
CO-07				✓		✓	

Discipline Specific Core Course (DSCC-6) Semester-VI

Paper-I: Industrial Electronics Course Outcomes

After completing the course the students will able to :-

CO-01: Learning about the Thyristor, it's Principle and using SCR.

CO-02: Understand the Applications of SCR: Multiple connections of SCR, Series operation, Triggering of series connected SCR, Parallel operation, Triggering of parallel connected SCR, SCR di/dt calculation, Snubber circuit, dv/dt calculation across SCR.

CO-03: Understand the Full wave controlled rectifier with resistive load, FWCR with inductive load, FWCR with freewheeling diode

CO-04: Understanding the Induction heating, Resistance welding, Over voltage protection, Zero voltage switch, SMPS, UPS, DC circuit breaker, Battery charger, AC static switch, DC static switch. Time delay, Fan regulator using TRIAC.

CO-05: Learning about PCB, PCB Advantages, components of PCB. Electronic components, ICs, Surface Mount Devices (SMD). Classification of PCB single, double, multilayer and flexible boards, Manufacturing of PCB, PCB standard.

MAPPING OF CO (COURSE OUTCOME) AND PO (PROGRAMME OUTCOME):

POs COs	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	PO-07
CO-01	✓					✓	
CO-02	✓		✓				
CO-03	✓						
CO-04	✓						
CO-05				✓	✓	✓	