

Name of the Activity: System Response to Input Signals Faculty Name: Dr. V. Santhosh Kumar Class / Semester: II/I ECE B Academic Year: 2024-25 Subject Name: SS Description:

This activity focuses on analyzing how linear time-invariant (LTI) systems respond to different types of input signals. The goal is to help students understand the fundamental behavior of systems in both time and frequency domains using theoretical and simulation-based approaches.

Students will explore system responses to standard test signals such as: Impulse Signal (δ [n]), Step Signal (u[n]), Sinusoidal Signal, Exponential Signal

The analysis includes:

Convolution operation to determine output in the time domain.

Use of system properties like linearity, time-invariance, and causality.

Frequency response using Fourier and Laplace/Z-transforms where applicable. Stability and causality checks.

Practical implementation may involve MATLAB, or simulation tools to visualize the output signal and validate theoretical predictions.

By completing this activity, students will:

Understand how different systems respond to a range of input signals.

Gain proficiency in using convolution and transform techniques.

Relate time-domain and frequency-domain characteristics of systems.

This activity builds the foundation for analyzing filters, control systems, and signal processing applications.



Number of students involved: 65 Date of the activity: 01/08/2024 For any Queries, please contact: <u>santhosh.v@bvrithyderabad.edu.in</u>



Name of the Activity: Signal Classification and Visualization Faculty Name: Dr. V. Santhosh Kumar Class / Semester: II/I ECE B Academic Year: 2024-25 Subject Name: SS Objective:

Enhance students' conceptual understanding of various types of signals—such as periodic, aperiodic, even, and odd—through hands-on classification and visualization exercises.

Description:

This activity is designed to help students develop a deeper understanding of signal types through classification and visualization. By working with real-world signal datasets in MATLAB, students learn to identify and distinguish between periodic and aperiodic signals, as well as even and odd signals, based on their mathematical properties and graphical representations. Students are grouped into teams of four to encourage collaborative learning. Each group is tasked with analyzing signals using definitions discussed in class, plotting them in MATLAB, and engaging in group discussions to justify their classification. This hands-on experience enhances both conceptual clarity and practical skills in signal analysis. Through this activity, students strengthen their ability to visually interpret and mathematically classify signals, setting a solid foundation for further studies in signal processing and systems theory.

Activity Setup:

Students were organized into groups of four, promoting teamwork and peer discussion. Each group was provided with MATLAB access and a collection of real-world signal datasets.

Learning Outcomes:

Understand and distinguish between periodic, aperiodic, even, and odd signals.

Apply MATLAB to visualize and analyze signal properties.

Strengthen reasoning and communication skills through collaborative discussion.

Build a foundation for advanced topics in signal processing.



Number of students involved: 60 Date of the activity: 09/08/2024 For any Queries, please contact: santhosh.v@bvrithyderabad.edu.in



Name of the Activity: Applications of Diode - Chart activity

Faculty Name: MS. Rajidi Sahithi

Class / Semester: I/I CSE A & B

Academic Year: 2024-25

Subject Name: Electronic Devices and Circuits

Objectives of the Activity:

- To enhance students' understanding of Diode Applications.
- To foster collaborative learning and teamwork among students.
- To develop students' skills in presenting technical information visually.

Description of the Activity:

The chart preparation activity focused on the Applications of Diode. Students were divided into groups of four and tasked with creating detailed charts on various topics related to Diode applications, such as clippers, clampers, Regulators.

Materials/Resources Used:

- Chart papers
- Markers, pens, and pencils
- Reference books and online resources on Digital Electronic Circuits
- Printed handouts with guidelines and example diagrams

Outcome/Feedback:

• **Students' Performance**: All groups successfully completed their charts, demonstrating a good understanding of their assigned topics. The charts were visually appealing and contained accurate information.

• **Teamwork and Collaboration**: The activity promoted teamwork, as students collaborated effectively within their groups.

• **Feedback from Instructors**: The instructors provided positive feedback on the students' work, noting improvements in their comprehension and presentation skills.

• **Students' Feedback**: Students found the activity engaging and informative. They appreciated the hands-on approach to learning and the opportunity to work in teams.

No. of Students Participated: 64

Date: 31/10/2024 & 02/11/2024





Activity: Chart Preparation on Digital Electronic Circuits

Faculty Name: Dr.V.Hindumathi Class / Semester: II / I / CSE-A & IT-B Academic Year: 2024-25 Subject Name: Digital Electronics Topic: Design of combinational circuitss

Brief Write - Up

As part of an engaging and collaborative learning initiative, a chart preparation activity was organized focusing on the key concepts and components of Digital Electronic Circuits. This hands-on activity aimed to enhance students' understanding through visual representation and teamwork.

Students were divided into groups of four to encourage peer learning, communication, and cooperation. Each group was assigned a specific topic under the broad domain of Digital Electronics, such as logic gates, flip-flops, multiplexers, demultiplexers, encoders, decoders, and counters. The topics were chosen to cover both fundamental and advanced components of digital circuit design.

This activity not only reinforced the theoretical knowledge but also developed essential skills like presentation, creativity, teamwork, and technical articulation. Additionally, it helped students gain a stronger conceptual grasp of how digital components function and interact within larger electronic systems.

Overall, the chart preparation activity proved to be an effective pedagogical tool in making digital electronics both understandable and enjoyable for the students.

• Objective:

- To enhance students' understanding of Digital Electronic Circuits.
- To foster collaborative learning and teamwork among students.
- To develop students' skills in presenting technical information visually

Photos:





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Name of the Activity: Learning by Doing and Discussion

Faculty Name: Ms. M. Praveena Class / Semester: II/I ECE B Academic Year: 2024-25 Subject Name: Digital Electronics Topic: Unit II (Design of combinational circuits)

Brief Write-up (Not exceeding 200 Words)

This is a group activity wherein students confer among themselves over a concept and prepare a chart on which they were asked to give their views. This is in turn passed on to next group who will study the first group representation of the concept and add either question marks over the representation which require clarity or put a cross mark over the representation which are wrongly interpreted. Like this the paper will be passed on to all the groups and finally the first group receives its paper and then they need to give justifications to all the representations done by them, answer all the question marks and correct all their mistakes.

Objective:

This gives a wide range of scope to the students to discuss with their peers regarding the concepts and help them in better understanding the concepts because of these discussions in peer group and identifying the mistakes done by other peers.

Photographs





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Name of the Activity: Techno Crossword

Faculty Name: Ms. Rama Lakshmi G Class / Semester: III/II ECE A Academic Year: 2024-25 Subject Name: IoT A&P Topic: Protocols

Brief Write-up (Not exceeding 200 Words)

The Techno Crossword is a gamified learning activity where participants solve a crossword puzzle filled with terms related to technology, engineering, and innovation. This activity encourages students to recall definitions, applications, and abbreviations commonly used in their field of study (e.g., IoT, AI, Electronics, Programming, Cybersecurity, etc.).

Participants work individually or in teams to complete the crossword based on a set of clues — either definitions, use-cases, or technical synonyms. It promotes critical thinking, teamwork, vocabulary building, and content retention in a fun, low-pressure environment.

Objective:

To reinforce key technical terms and concepts through an engaging and collaborative puzzlesolving activity.



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Name of the Activity: Application oriented Project

Faculty Name: Ms. Rama Lakshmi G Class / Semester: III/I ECE A Academic Year: 2023-24 Subject Name: IoT A&P Topic: Protocols

Brief Write-up (Not exceeding 200 Words)

This project-based activity involves designing a complete IoT application (e.g., Smart Home, Smart Agriculture, Health Monitoring) that integrates sensors, microcontrollers, communication modules, and cloud platforms. Students will implement various layers of the IoT protocol stack—starting from device communication (physical and link layer) to data transmission (network, transport), and application layer protocols (like MQTT, CoAP, HTTP). Students will:

- Select a real-world problem and define the IoT use case.
- Interface sensors/actuators with microcontrollers (e.g., Arduino, ESP32).
- Implement data transmission using suitable protocols (e.g., MQTT, CoAP).
- Store and visualize data using platforms like ThingSpeak, Blynk, or Firebase.
- Ensure basic security practices like token authentication or encryption.

Objective:

To provide students with hands-on experience in developing an IoT system by applying various IoT communication protocols and understanding the complete architecture from sensing to cloud integration.



Photographs

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BVRIT HYDERABAD

College of Engineering for Women Department of Electronics and Communication Engineering

Activity: Lab into Class Faculty Name: Mr. N.M. Sai Krishna Class: II – I / ECE – A & B Academic Year: 2024–25 Subject Name: Analog Circuits Topic: Clippers Date: 23-12-2024

Brief Write-Up

The Lab into Class activity on **Clippers** focused on bridging theoretical understanding with practical implementation of wave-shaping circuits. Students explored the design and behavior of various clippers, including series and shunt configurations using diodes. They examined how clippers can be used to remove or "clip" parts of input waveforms above or below certain voltage levels.

Students analyzed input-output waveform characteristics and interpreted the effect of bias voltages and diode orientation. Circuit performance was verified using breadboards and oscilloscopes to validate expected results.

Photo(s):



Impact:

This hands-on activity helped students consolidate their theoretical understanding of waveform shaping through clippers. It improved their analytical thinking and problem-solving skills, as they gained exposure to both ideal and practical diode behavior. The experience fostered better engagement, increased confidence, and readiness to apply these concepts in real-world circuit design challenges.



Name of the Activity: Chart preparation

Faculty Name: T. Amy Prasanna Class / Semester: I CSE-AIML Academic Year: 2024-25 Subject Name: Electronic Devices and circuits Topic: Unit I (Diodes)

Brief Write-up (Not exceeding 200 Words)

students are divided into groups, They need to make a chart on given topic by collecting required material. This activity makes the students to involve in a team and discuss various concepts with peer and there by enhancing knowledge on those concepts.

Objective:

This gives a wide range of scope to the students to discuss the concepts as a group and help them in better understanding the concepts.



Photographs



Department of Electrical and Electronics Engineering Name of the Activity: Group Presentation

Faculty Name: Dr. Mamidi Ranjeeth

Class: II – I / EEE

Academic Year: 2024-25

Subject Name: Analog Electronic circuits

Date :13/11/2024

Write-up:

PPT presentations enhanced communication skills and creativity by allowing students to organize ideas visually and present confidently. This interactive activity fostered engagement, critical thinking, and practical presentation skills for future use.

Chart presentations helped students simplify and visualize data effectively. This activity encouraged creativity, teamwork, and precision while building analytical and communication skills valuable in academic and professional contexts.

The virtual lab offered hands-on experimentation in a digital environment, making learning engaging and practical. It encouraged curiosity, problem-solving, and the application of theoretical concepts in a risk-free setting.

Multisim provided a practical platform for circuit design and simulation, bridging theory and application. It developed technical skills, teamwork, and a deeper understanding of electronics, preparing students for real-world challenges.





No. of Students Participated:70Photos:



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(Activities and ICT tools)



BVRIT HYDERABAD College of Engineering for Women Department of Electronics and Communication Engineering

Name of the Activity: Solving Technical Crossword Puzzle with the given clues

Faculty Name: Dr T Thammi Reddy

Class: III – II / ECE –A

Academic Year: 2024-25

Subject Name: Microcontrollers

Topic: 8086 Microprocessors

Brief Write –**Up:** A crossword puzzle using 8086 microprocessors is solved by dividing the class into four batches. The objective was to enhance students' understanding of assembly language programming and problem-solving skills. Each batch was assigned specific clues and implemented solutions using 8086 basics. The activity improved teamwork, logical thinking, and understanding of microprocessor basics. 4-5 student volunteers have conducted the score boarding activity etc.

Date: 18-09-2024

No. of Students Participated: 62 Photos:







Across

- This instruction of 8086 is used to perform the iteration of certain process to perform for given number of times.
- 3 Signal used to latch the address from the data bus in the 8086 microprocessor.
- 6 Tracks the address of the next instruction.
- 8 RAM in the 8086 is organized into this many segments.
- 9 A term for a segment of code that modifies the behavior of an instruction.
- 10 Operation that moves bits to the left or right within a register
- 11 Instruction used to move to a different part of the code.
- This instruction repeats until the condition of 12 the zero flag is no longer met or until the count in CL/CX reaches zero.
- 16 Which type of register is used especially in arithmetic and I/O operations?
- 18 The 8086 microprocessor falls under which architecture?
- In the 8086 instruction set, this instruction 20 type is used to move data between registers and memory.
- Data structure used for storing and managing 21 temporary information in a last-in, first-out manner.
- 23 Helps with additional data storage during string manipulations.
- 24 This operation adds an item to the stack.
- 26 A Memory where elements are processed using First In, First Out (FIFO) principle.
- 27 This prefix instruction is used to repeat a string operation while the zero flag is not set.

Down

- 2 The formula for calculating a physical address is: (Segment × 16) + ____
- 3 This unit processes integer arithmetic and logic tasks in the processor.
- 4 Which flag is used to compare if two numbers are equal or not in magnitude.
- 5 The brain of the computer, managing all operations and processing tasks
- 7 Interrupt type that cannot be ignored by the processor
- 9 Register that holds the status and control flags in a microprocessor.
- 13 This term refers to the part of an instruction that specifies the operation to be performed.
- 14 This pin is used for synchronization of the 8086 with external devices.
- The 8086 microprocessor uses this architecture, which stores both data and instructions in the same memory.
- 17 This term describes the variable or constant involved in a 8086 operation.
- The number of bits that can be transmitted simultaneously through the data bus of the 8086.
- 22 Another term for the brain of the computer
- 25 Instruction that stops the processor.

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Faculty Sign

(Activities and ICT tools)



BVRIT HYDERABAD College of Engineering for Women Department of Electronics and Communication Engineering

Name of the Activity: Question the Answers

Faculty Name: Dr T Thammi Reddy

Class: III – II / ECE –A

Academic Year: 2024-25

Subject Name: Microcontrollers

Topic: 8051 Microcontrollers

Brief Write –**Up:** The "Question the Answer" activity was conducted to enhance students' understanding of 8081 microcontrollers through an interactive and engaging approach. Students were provided with answers related to 8081 concepts such as architecture, memory, registers, timers, and instruction sets, and were tasked with formulating the corresponding questions. This encouraged critical thinking, reinforced key concepts, and promoted collaborative learning. The activity successfully improved conceptual clarity, analytical skills, and student engagement in a fun and effective manner.

Date: 02-12-2024

No. of Students Participated: 65 Photos:







Answer: The 8051 is an 8-bit microcontroller. Question: What is the data bus width of the 8051 microcontroller?

Answer: The 8051 has 128 bytes of internal RAM. Question: How much internal RAM is available in the 8051 microcontroller?

Answer: It has four parallel I/O ports. Question: How many I/O ports are present in the 8051 microcontroller?

Answer: The program memory of 8051 can be up to 64 KB. Question: What is the maximum program memory that the 8051 microcontroller can support?

Answer: The 8051 has a Harvard architecture. Question: What type of architecture does the 8051 microcontroller use?

Answer: It has two 16-bit timers/counters. Question: How many timers/counters are available in the 8051 microcontroller?

Answer: The clock frequency of 8051 is typically 12 MHz. Question: What is the standard clock frequency of the 8051 microcontroller?

Answer: It supports both serial and parallel communication. Question: What types of communication does the 8051 microcontroller support?

Answer: The Special Function Registers (SFRs) control various operations of the microcontroller. Question: What is the purpose of Special Function Registers (SFRs) in the 8051 microcontroller?

Answer: The accumulator (A) is the most commonly used register in the 8051. Question: Which register is most frequently used for arithmetic and logic operations in the 8051 microcontroller?

Faculty Sign



Department of Electronics and Communication Engineering

Activity: Plan and Prototype Faculty Name: Mr.N.M.Sai Krishna

Class: II – I / ECE – A & B

Academic Year: 2024-25

Subject Name: Analog Circuits

Topic: Transistor applications

Date: 12-09-24

Brief Write - Up

The Plan & Prototype activity focused on exploring the applications of transistors through hands-on experimentation and design. Participants began by understanding transistor functionalities, including amplification, switching, and signal modulation. Teams then selected real-world applications such as amplifiers, logic gates, or sensor circuits and designed prototypes using transistors. The process involved circuit simulation, hardware implementation, and testing for optimization. Through iterative improvements, participants enhanced efficiency and functionality. This activity reinforced practical knowledge of transistor-based circuits

Photo(s):





Co - Po mapping :

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Impact: This activity boosted their confidence in innovation and prepared them for real-world problem-solving, making learning more engaging and effective.



Department of Electronics and Communication Engineering

Activity: Visit to Library - Papers / Articles

Faculty Name: Dr J Naga Vishnu Vardhan

Class / Semester: IV – I / ECE –B

Academic Year: 2024-25

Subject Name: Microwave and Optical Communications

Brief Write - Up

As Students are now aware of the concepts of Microwave and Optical Communications, they were asked to search for papers /articles published in Journals related to the course.

Objective: It helps them to understand about the course and its applications in real world. Some of the articles also inspired them like them Women in Microwaves

Photos:



Some Articles / Papers Mentioned

- 1. Women in Microwaves
- 2. Python for Microwave and RF Engineers
- 3. Optical Microwave Generation and Transmission Experiments In The 12- And 60-Ghz Region for Wireless Communications
- 4. Microwave Industry Outlook-Wireless Communications In Healthcare
- 5. Leo-Based Optical/Microwave Terrestrial Communications
- 6. The Benefit of Split Nonlinearity Compensation for Single-Channel Optical Fiber Communications
- 7. Restoring quantum communication efficiency over high loss optical fibres
- 8. Analysis of Optical Communications, Fiber Optics, Sensors and Laser Applications
- 9. Survey on Free Space Optical Communication: A Communication Theory Perspective
- 10. Recent Advances and Future Perspectives in Optical Wireless Communication, Free Space Optical Communication and Sensing for 6G

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Department of Electronics and Communication Engineering

Activity: Interesting facts about Microwaves

Faculty Name: Dr J Naga Vishnu Vardhan

Class / Semester: IV – I / ECE –B

Academic Year: 2024-25

Subject Name: Microwave and Optical Communications

Brief Write - Up

Students were asked to share one interesting fact about usage of Microwaves

Objective: Students will get interest on the course and at the same time they will know the importance of the course and its applications.

Photo(s):



Interesting Facts:

The first microwaves were cooled by water but they were later changed to be cooled by air. Invention by Accident:

The microwave oven was invented accidentally by Percy Spencer, an engineer working for Raytheon. In 1945, while testing a magnetron (a device used in radar systems), he noticed that a chocolate bar in his pocket had melted. This serendipitous discovery led to the development of the first microwave oven, called the 'Radarange,' in 1947.

How Microwaves Can Detect Life Signals through Walls

Microwaves have the fascinating ability to penetrate certain materials (like walls) and detect minute movements caused by life signals, such as breathing and heartbeats. Here's how it works: Principle - Doppler Effect: When microwaves are emitted and reflected back by a moving object (like a chest rising and falling during breathing), there's a slight frequency shift in the returned wave due to motion. This is the Doppler Effect in action.

Interesting fact: Microwaves help astronomers study the Cosmic Microwave Background Radiation (CMB), which provides insights into the universe's origins after the Big Bang.

Interesting facts about microwave engineering - "Advanced Packaging Technology"

Microwaves preserve nutrients. Microwaving is a quick and simple way to heat food, and it preserves more nutrients than conventional cooking methods.

An interesting and unique fact about microwaves in engineering is their use in microwave propulsion systems for spacecraft, such as the experimental EM Drive (Electromagnetic Drive).

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Department of Electronics and Communication Engineering

Activity: Demonstration of Optical Fiber Working Mechanism and Splicing

Faculty Name: Dr J Naga Vishnu Vardhan

Class / Semester: IV – I / ECE –B

Academic Year: 2024-25

Subject Name: Microwave and Optical Communications

Brief Write - Up

Demonstration was given to students on Optical fiber working and Splicing Mechanism. Explained about measurement of optical power using Multimeter and verification of Optical link using OTTR

Objective: Students gained knowledge on how splicing will be done. Also understand the power loss due to improper splicing, indentifying the cable damage using OTTR etc

Photo(s):



Optical Fiber Demonstration by Mr. Sai Varma, Gateway Info Comm



Demonstrating Coupling Mechanism



Measuring Power using Optical Multimeter



Verification of Output at fiber end after coupling

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