||Jai Sri Gurudev||

**BGS INSTITUTE OF TECHNOLOGY, B G NAGAR**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE OUTCOMES AND CO-PO-PSO MAPPING**

 **Course Coordinator: Nethravathi H M**

 **Sem & Sec: III CSE**

 **Academic Year: 2020-21**

 **COURSE CODE: 18CS32**

 **COURSE NAME: Analog and Digital Electronics**

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| **CO1** | Develop analysis capability in multivibrators, Op-Amp and their applications. |
| **CO2** |  Apply Boolean laws and Boolean equation minimization techniques to logic circuits by using different methods and write VHDL code for all circuits. |
| **CO3** |  Apply the knowledge of flip-flops and design the data processing circuits. |
| **CO4** | Apply the knowledge in the design of shift registers, counters using flip-flops. |
| **CO5** | Apply the knowledge of A/D and D/A techniques. |
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| **PSO1** | Ability to apply Mathematical Methodologies, Management Principles and Ethics, Electronics and Embedded Systems and Programming Technologies to solve real time problems. |
| **PSO2** | Ability to apply software design and development practices to develop software in emerging areas such as Internet of Things, Data Management, Social Networking and Security, Cloud and High-Performance Computing. |

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| **COs** | **POs** | **PSOs** |
| PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | P07 | PO8 | PO9 | P010 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 2 | 1 | - | 3 | - | - | - | - | - | - | - | - | 3 | - |
| CO2 | 3 | 1 | 1 | - | 3 | - | - | - | -- | - | - | - | 2 | - |
| CO3 | 3 | 3 | 2 | 2 |  | - | - | - | -- | - | - | - | 1 | - |
| CO4 | 2 | 2 | - | 3 | 2 | - | - | - | -- | - | - | - | 2 | - |
| CO5 | 1 | - | 2 | - | - | - | - | - | - | - | - | - | 2 |  |
| **AVG** | **2.2** | **1.75** | **1.66** | **2.66** | **2.5** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **2** | - |

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| **Cos** | **Justification** |
| **CO1-PO1** | Able to understand the basic concepts of op-amp, Multivibrators and their applications |
| **CO1-PO2** | Students will identify the basic concepts of op-amp and their applications |
| **CO1-PO4** | Students will able to design and develop the experimental systems of op-amps and FETs |
| **CO1-PSO1** | Get technical knowledge of op-amps, FETs and their applications |
| **CO2-PO1** | Students will able to understand the basic concepts of logic circuits and VHDL codes |
| **CO2-PO2** | Students will identify and analyse the concepts of combinational logic circuits |
| **CO2-PO3** | Able to design and develop the combinational logic circuits |
| **CO2-PO5** | Able to understand the concepts of Verilog code for combinational logic circuits |
| **CO2-PSO1** | Get technical knowledge of logical circuits, Verilog code for combinational circuits |
| **CO3-PO1** | Able to know the concepts of flip-flops and data processing circuits |
| **CO3-PO2** | Students will identify, analyse the basic concepts of flip-flops and data processing  |
| **CO3-PO3** | Able to design and develop the data processing circuits |
| **CO3-PO4** | Students will able to develop the experimental systems of data processing circuits |
| **CO3-PSO1** | Get technical knowledge of data processing circuits |
| **CO4-PO1** | Able to understand the concepts of shift registers and counters |
| **CO4-PO2** | Able to identify and analyse the concepts of shift registers and counters |
| **CO4-PO4** | Students will be able to design and develop the experimental systems of shift registers and counters |
| **CO4-PO5** | Able to execute the shift registers using HDL code |
| **CO4-PSO1** | Get technical knowledge of shift registers and counters |
| **CO5-PO1** | Able to understand the concepts of A/D and D/A converter |
| **CO5-PO3** | Able to design and develop A/D and D/A converter |
| **CO5-PSO1** | Get the knowledge of D/A converter and A/D converter |