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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| <Course Code> | | | | | **Analog Circuit Design Lab** | | | | | |
| **Teaching Scheme** | | | | | **Examination Scheme** | | | | | |
| **L** | **T** | **P** | **C** | **Hrs/Week** | **Theory** | | | **Practical** | | **Total Marks** |
| **MS** | **ES** | **IA** | **LW** | **LE/Viva** |
| **0** | **0** | **2** | **1** | **2** | **--** | **--** | **--** | **25** | **25** | **50** |

Pandit Deendayal Petroleum University, Gandhinagar

# COURSE OBJECTIVES:

* To analyse BJT, FET and MOSFET devices and their frequency response.
* To study the design aspect of amplifiers using BJT.
* To critically analyse the OPAMP circuits to study its Applications.
* To develop circuits using ADC and DAC.

**List of Experiments:**

1. **To study BJT input and output characteristics of BJT in CE configuration**
2. **To study transfer and output characteristics of FET and MOSFET**
3. To obtain frequency response of single stage CE amplifier

# To obtain frequency response of RC coupled amplifier

# To study the effect of bypass and coupling capacitors through frequency response

1. To study Effect of feedback in amplifier circuits
2. To design OPAMP as inverting and non-inverting amplifier
3. To study active filters using OPAMP
4. To study Clipping and clamping circuits using OPAMP
5. To study and design active filters (1st 2nd order Butterworth)
6. To design a astable, Bistable and Monostable multivibrators using 555 IC.
7. To study Use of Sample and Hold circuit in ADC.
8. To design different A/D converter
9. To design different D/A converters

# Some of the above topics would be covered through the associated theory course.

**COURSE OUTCOMES:**

On completion of the course, the student will be able to:

CO1- Describe the behavior of BJT, FET and MOSFET.

CO2- Understand the frequency response of single and multistage amplifier. CO3- Identify the basics aspects of single stage and multistage amplifier design. CO4- Analyse OPAMP in simple circuit applications.

CO5- Apply Timer IC for real life applications.

CO6- Design a circuits for different application using A/D and D/A converters.

# TEXT/REFERENCE BOOKS:

* + J. Millman, C. Halkias and C. Parikh, “Integrated Electronics”, Tata McGrawHill.
  + R. A. Gayakwad, “Opamp and Linear Integrated Circuits” PHI.
  + Boylestad and Nashlesky, “Electronic Devices and Circuit Theory”,PHI
  + Salivahanan, “Electronic Devices and Circuits”, Tata McGrawHill.

# END SEMESTER LABORATORY EXAMINATION PATTERN

**Max.Marks:25 Exam Duration:2Hrs.**

25 Marks

The laboratory exam would be conducted in the Lab, and students would be provided one or more questions on: designing/experimentation/programming- coding/implementation/investigation/solution- development.

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