



**B.Sc. (Electronics) SEMESTER III**

**Paper I**

**(Analog Circuits)**

**Unit I**

**Diode circuits:** Introduction to diode:

<https://youtu.be/EdUAecpYVWQ?si=hO4R1eM5jusxMoBj>

**Clipping circuits:**

Introduction to clippers:

<https://youtu.be/ttSxAdPM5XU?si=Iz9nLhJ5LQVQ7F5m>

Unbiased series clippers:

<https://youtu.be/ITTbcCADOIY?si=A687XfVxLjkH6R25>

Biased series clippers:

<https://youtu.be/pieY6wUEGbU?si=KOTPQQ6MQYrI05Fv>

Unbiased parallel clippers:

[https://youtu.be/foafJEF0rw4?si=\\_jmJbqnZeCNYrVos](https://youtu.be/foafJEF0rw4?si=_jmJbqnZeCNYrVos)

Biased parallel clippers:

[https://youtu.be/RkPGtBhayUg?si=iSH\\_YpQDAjgKUuBH](https://youtu.be/RkPGtBhayUg?si=iSH_YpQDAjgKUuBH)

Zener diode clipping circuits:

<https://youtu.be/sGiWKqixYI0?si=EkENuXCcIOBKkn5q>

Combination clipper circuits:

<https://youtu.be/Mvmfqg28ZnY?si=ReoeMyiYQ90zUnoD>

Transfer characteristics of clipper circuits:

<https://youtu.be/qiO5jDVbgBU?si=ajtOw2IgNwhrqVDN>

Two-level clipping circuits:

<https://youtu.be/Mvmfqg28ZnY?si=wkWzCoB7lN1p2940>

**Clamping circuits:** Introduction to clampers:

<https://youtu.be/LA7c7jenkd0?si=bPJmYQ4MbKJsk3p>

Positive and negative clamper circuits:

<https://youtu.be/zFdy23F-pEM?si=IQ6MU-2IqIxGvoVT>

Biased clamper circuit:

<https://youtu.be/kLRuU3VcXPA?si=SMiz2RqgAtLceJT2>



Numerical problem on clamper circuit:

[https://youtu.be/rkP3xmDF1oA?si=u8VdSk\\_doF55oJlf](https://youtu.be/rkP3xmDF1oA?si=u8VdSk_doF55oJlf)

**Rectifiers:** Introduction to rectifier circuits (rectifier circuits, rectification, types of rectifiers):

<https://youtu.be/Xmu31a-59vw?si=FSGF7mGR5gx6fd5F>

**Half wave rectifier (HWR):**

[https://youtu.be/AspBbh\\_jOuk?si=bjsTsnZ25LpR17oQ](https://youtu.be/AspBbh_jOuk?si=bjsTsnZ25LpR17oQ)

HWR (RMS load current and RMS load voltage):

<https://youtu.be/XTfWAYuyfVU?si=BnuZ8KgFy0Po21to>

HWR (Form factor):

[https://youtu.be/PJLUpzt5ZME?si=JkIPI0s8W\\_w2fnTN](https://youtu.be/PJLUpzt5ZME?si=JkIPI0s8W_w2fnTN)

HWR (Ripple factor):

[https://youtu.be/SgK\\_kyIibrk?si=XKnW1T3MYp-v9o7o](https://youtu.be/SgK_kyIibrk?si=XKnW1T3MYp-v9o7o)

HWR (Efficiency and PIV):

<https://youtu.be/XLBtAmcXYKA?si=LD28nMCDYXNibduW>

Full wave rectifier (FWR) - Bridge Rectifier:

<https://youtu.be/KI8IOESVWIM?si=ejK5O1uo20WdWt3e>

FWR (Centre-tapped rectifier):

<https://youtu.be/CGZ0yHaAmjs?si=rZvckyreyv397Eg>

FWR (DC Load Current & DC Load Voltage):

<https://youtu.be/XI4mHDveD7g?si=km8HSYKnJ5FxOo3u>

FWR (RMS Load Current & RMS Load Voltage):

<https://youtu.be/czhNvqGO7I4?si=U4jmxsdmd6YnwV1o>

FWR (Form factor and Ripple factor):

<https://youtu.be/J6k9IStBYyU?si=mRtG65p0hNRE5F8f>

FWR (Efficiency and PIV):

[https://youtu.be/NzxjUGk\\_pFE?si=nEMEIh82alHHcj\\_f](https://youtu.be/NzxjUGk_pFE?si=nEMEIh82alHHcj_f)

**Filters:** types, circuit diagram and explanation of shunt capacitor filter with waveforms.

Filter:

<https://youtu.be/BkgV97H7rdY?si=HVIjVfhHxrC28-VA>

Types and components of filter:

<https://youtu.be/uu61HmeA2d8?si=vImdPAaZaZT-NmRl>

<https://youtu.be/nUN3fQctjAw?si=hZnQlXoEWBZijw5m>



## **Unit II**

Bias stabilization and stability factors:

<https://youtu.be/o5qiPytBEBQ?si=s6jDTdg5V59NPT0a>

Factors affecting stability:

<https://youtu.be/YTH-4Yx1IHg?si=Ztae0TSbUO7DNHis>

Fixed bias or base bias circuit:

[https://youtu.be/\\_3Dppe1EEsk?si=NxPWaR-0B496Qu-N](https://youtu.be/_3Dppe1EEsk?si=NxPWaR-0B496Qu-N)

Numerical on fixed bias circuit:

[https://youtu.be/rOg\\_9yID6yU?si=lQIdxdtFxBYyzolm](https://youtu.be/rOg_9yID6yU?si=lQIdxdtFxBYyzolm)

Collector to base bias:

<https://youtu.be/3hmtNNo7KmM?si=2Z7rJw43pfJRG0SD>

Numerical on collector to base bias circuit:

[https://youtu.be/Zaz-kiaVc7E?si=R7Pk\\_7e0a4nzmhcm](https://youtu.be/Zaz-kiaVc7E?si=R7Pk_7e0a4nzmhcm)

Voltage divider bias circuits:

<https://youtu.be/Zlq-hzwDsC4?si=o9MbOxgdB4IGAyjy>

Introduction to two port network:

[https://youtu.be/pn777Ya0OHk?si=JMtFNjJyngJ\\_tTvD](https://youtu.be/pn777Ya0OHk?si=JMtFNjJyngJ_tTvD)

h-parameter equivalent circuit:

<https://youtu.be/jZ-pD8nVD6s?si=yN60exhspovh5BW7>

<https://youtu.be/Vd5cxAS-lpg?si=kJ7XiOG3crk6ZGeb>

Small signal analysis of single stage CE amplifier:

[https://youtu.be/5MLVr9r6Vzk?si=DjssOzQhXy9-3Kf\\_](https://youtu.be/5MLVr9r6Vzk?si=DjssOzQhXy9-3Kf_)

Current and Voltage gains:

<https://youtu.be/-MyVscG-Pew?si=208gna4-h1gx7ik2>

Input and Output impedance:

[https://youtu.be/7jw2\\_x8dyQ8?si=624d53vLLP1GRTcC](https://youtu.be/7jw2_x8dyQ8?si=624d53vLLP1GRTcC)

## **Unit III**

Power Amplifiers: Difference between voltage and power amplifier, classification of power amplifiers, Class A, Class B, Class AB, Class C:

[https://youtu.be/0e\\_OUyGCaBs?si=I44P5Sxy6c-wlZ9](https://youtu.be/0e_OUyGCaBs?si=I44P5Sxy6c-wlZ9)

Comparison of different types of power amplifiers:

<https://youtu.be/ciRG0JnjzqQ?si=Gti-AIaYLgGJGuTg>



Construction and Operation of Transformer coupled Class A power amplifier:

<https://youtu.be/YrO4FXKg5Hw?si=2Mc4GyXf0vinnkJc>

Overall efficiency of Transformer coupled Class A power amplifier:

[https://youtu.be/7b8he7bmA\\_c?si=lfz0PfGLo5QGSP-W](https://youtu.be/7b8he7bmA_c?si=lfz0PfGLo5QGSP-W)

Complementary symmetry Class B push pull power amplifier construction:

[https://youtu.be/d0VklAzA04c?si=s2QLY\\_0nT2Uitc51](https://youtu.be/d0VklAzA04c?si=s2QLY_0nT2Uitc51)

Cross over distortion:

[https://youtu.be/hl6--uj6q2o?si=XrW\\_B-isS1YmUhFK](https://youtu.be/hl6--uj6q2o?si=XrW_B-isS1YmUhFK)

#### **Unit IV**

**Feedback Amplifiers:** Negative and Positive feedback, Theory of feedback using block diagram:

<https://youtu.be/GAFwUegUvNI?si=DQVrtGOkYJeLgvTS>

Advantages and disadvantages of negative feedback:

<https://youtu.be/jhWKeyiAd8Q?si=FyzZaDSkVN2UTM24>

#### **Oscillators:**

Principle of operation:

<https://youtu.be/XVS8Puf4tiw?si=wESNOYhcvBAzSxE5>

Analysis and derivation of frequency of oscillation of phase shift oscillator:

<https://youtu.be/Gvb4GIV5ig8?si=asYIeLTIAOwVqt2t>

Wien bridge oscillator:

[https://youtu.be/gbUXbaxvX94?si=2DOzBIT5s\\_IxkeMo](https://youtu.be/gbUXbaxvX94?si=2DOzBIT5s_IxkeMo)

Crystal oscillator:

<https://youtu.be/YzckQWwkzWs?si=O5-rDcyLTG1RGUaw>