# SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

**Accredited by NBA-AICTE and Accredited by NAAC – UGC with A++ Grade**

**Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai**

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

**COURSE NAME: 23EET206/ Measurements and Instrumentation**

II YEAR / IV SEMESTER

UNIT 2 - COMPARATIVE METHODS OF MEASUREMENTS

Topic 5 – Anderson

# SUCCESSFUL STUDENT

Positive Attitude

Professionally Groomed

Socially Interactive

Technically Skillful

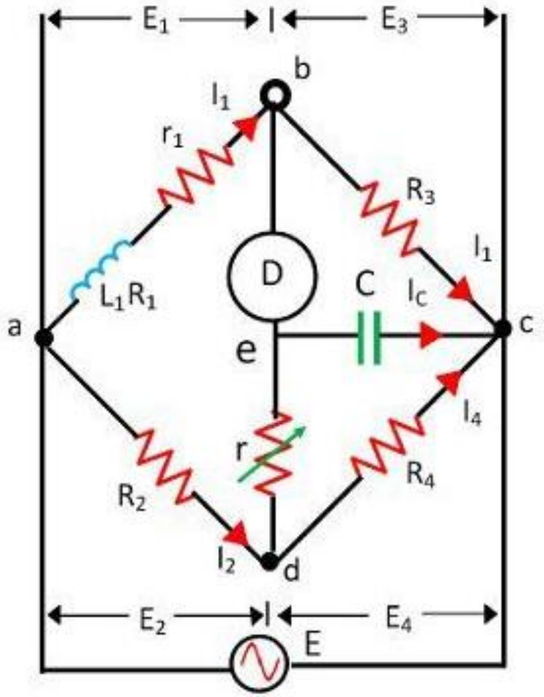

STUDY OF ANDERSON BRIDGE
HARPAL AND SONS

Anderson’s Bridge

**Definition:** The **Anderson’s bridge** gives the **accurate measurement** of **self-inductance** of the circuit. The bridge is the **advanced form** of **Maxwell’s inductance capacitance bridge.** In Anderson bridge, the **unknown inductance** is compared with the **standard fixed capacitance** which is connected between the two arms of the bridge.

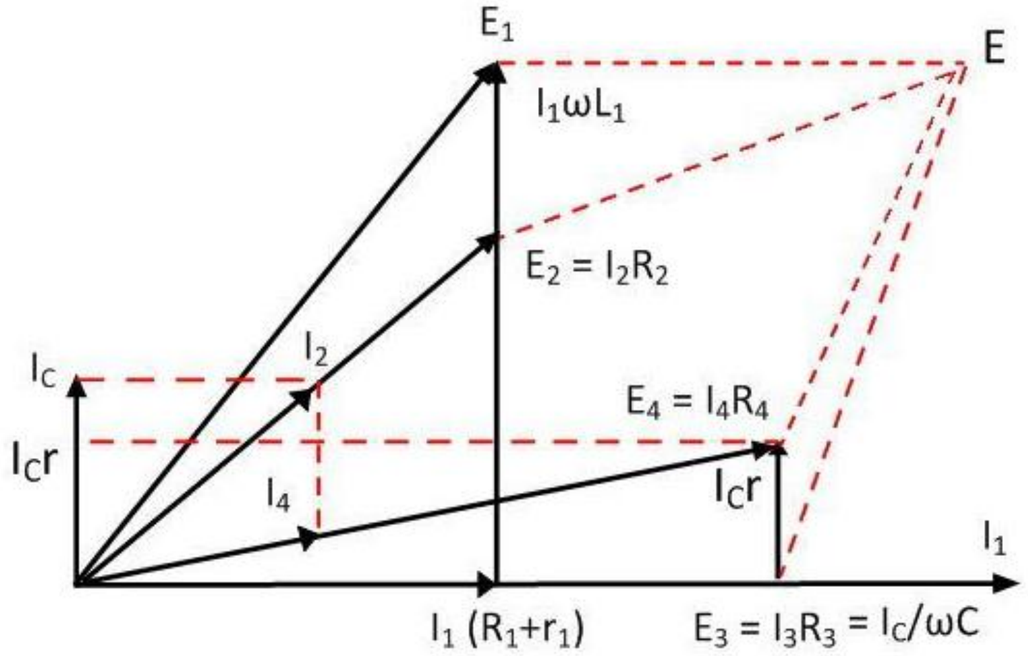
## Constructions of Anderson's Bridge

The bridge has fours arms **ab, bc, cd,** and **ad.** The arm **ab** consists unknown inductance along with the resistance. And the other three arms consist the purely resistive arms connected in series with the circuit.



## Phasor Diagram of Anderson's Bridge

The phasor diagram of the Anderson bridge is shown in the figure below. The current $I_1$ and the $E_3$ are in phase and represented on the horizontal axis. When the bridge is in balance condition the voltage across the arm **bc** and **ec** are equal.



## Advantages of Anderson Bridge

The following are the advantages of the Anderson's Bridge.

1. The balance point is easily obtained on the Anderson bridge as compared to Maxwell's inductance capacitance bridge.
2. The bridge uses fixed capacitor because of which accurate reading is obtained.
3. The bridge measures the accurate capacitances in terms of inductances.

## Disadvantages of Anderson Bridge

The main disadvantages of Anderson's bridge are as follow.

1. The circuit has more arms which make it more complex as compared to Maxwell's bridge. The equation of the bridge is also more complex.
2. The bridge has an additional junction which arises the difficulty in shielding the bridge.

Because of the above-mentioned disadvantages, Maxwell's inductance capacitance bridge is used in the circuit.

# ASSESSMENT


# REFERENCE


**TEXT BOOKS**

**T1** **A. K. Sawhney, “A Course in Electrical & Electronic Measurements & Instrumentation”, Dhanpat Rai & CO., New Delhi, 2022.**

**T2** **S. Gupta and J. John , "Virtual Instrumentation using Lab VIEW", Tata McGraw-Hill Publishing Company Limited, New Delhi, 2010.**

**REFERENCES**

**R1** **David A.Bell, "Electronic Instrumentation and Measurements”, Oxford Higher Education, 2013**

**R2** **Bouwens A J, “Digital Instrumentation”, Tata Mc Graw Hill, New Delhi2016**

**R3** **Martin U. Reissland, “Electrical Measurement – Fundamental Concepts and Applications”, New Age International (P) Ltd., 2015**

**R4** **J. B. Gupta, “A Course in Electronic and Electrical Measurements and Instrumentation”, S. K. Kataria & Sons, Delhi, 2013**

**R5** **M. S. Anand, “Electronics Instruments and Instrumentation Technology”, Prentice Hall India, NewDelhi, 2012.**

**WEB REFERENCES**

**W1** **https://pasargadabzar.com/wp-content/uploads/2022/04/Morris_Langari-1.pdf**

**W2** **https://www.vssut.ac.in/lecture_notes/lecture1423813026.pdf**

**W3** **https://hombredelamancha.com/products/ebook-electrical-and-electronic-measurements-and-instrumentation?srsltid=AfmBOorTb5k9Ga1rsImj69-l3SximYYra7U8VhGcqYahqsfk9BR9rC7k**

# THANK YOU!!