# TRANSIENT STABILITY ANALYSIS OF SYNCHRONOUS GENERATOR IN POWER SYSTEM



Asst. Professor, Electrical Engineering Department Swarnim Startup Innovation University, Gandhinagar



#### A Thesis Submitted to

Swarnim Startup Innovation University in Partial Fulfillment of the Requirements for the Master of Engineering in Electrical Engineering (Power System)

May-2020



#### **DEPARTMENT OF ELECTRICAL ENGINNERING**

Swarnim Startup Innovation University, Gandhinagar

### **CERTIFICATE**

This is to certify that research work embodied in this thesis entitled "TRANSIENT STABILITY ANALYSIS OF SYNCHRONOUS GENERATOR IN POWER SYSTEM" was carried out by Mr. Pandya Parth Jaileshkumar (Enrollment no. 1826001002) studying at Swarnim Startup Innovation University, Gandhinagar for partial fulfillment of Master of Engineering degree to be awarded by Swarnim Startup Innovation University, Gandhinagar This research work has been carried out under my guidance and supervision and it is up to my satisfaction.

Date:

Place: Gandhinagar



Signature and Name of supervisor

**Head Of Department** 

(Asst.Prof. Ramji Kanani) ERS

(Prof. Ajit Pujara )

Where Ideas Cose Alive.



Signature and Name of Principal (Prof. Ajit Pujara)



SWARNIM INSTITUTE OF

**Seal of Institute** 

## **COMPLIANCE CERTIFICATE**

This is to certify that research work embodied in this thesis entitled "TRANSIENT STABILITY ANALYSIS OF SYNCHRONOUS GENERATOR IN POWER SYSTEM" was carried out by Mr.Pandya Parth Jaileshkumar (Enrollment no. 1826001002) studying at Swarnim Startup Innovation University, Gandhinagar for partial fulfillment of Master of Engineering degree to be awarded by Swarnim Startup Innovation University, Gandhinagar

This research work has been carried out under my guidance and supervision and it is up to my satisfaction.

Date:

Place: Gandhinagar.

gnature and Name of student Signature and Name of Guide andya Parth Jaileshkumar) (Asst.Prof. Ramji Kanani)

## THESIS APPROVAL CERTIFICATE

This is to certify that research work embodied in this thesis entitled "TRANSIENT STABILITY ANALYSIS OF SYNCHRONOUS GENERATOR IN POWER SYSTEM" carried out by Mr. Pandya Parth Jaileshkumar (Enrollment no. 1826001002) at Swarnim Startup Innovation University, Gandhinagar is approved for the degree of Master of Engineering with specialization of Automation Control & Power System by Swarnim Startup Innovation University.

| <                  | 100        | 1          |           |
|--------------------|------------|------------|-----------|
| Date:              |            | A Sim      | <b>-</b>  |
| Place: Gandhinagar | -          |            |           |
| 11.                |            |            |           |
| Examiners Sign and | d Name:    | / -        |           |
| the Szenot         | V          |            | -         |
|                    | W/ATR      | प्राधाः    | PAT       |
| (Prof.K.N.Barot)   |            | 11000 0 10 | (         |
| IJ                 | HIVE       | RSI        | T 3       |
| 500 to             | own fracts | Consum As  | CONTRACT. |

DECLARATION OF ORIGINALITY

We hereby certify that we are the sole authors of this thesis and that neither any part of this

thesis nor the whole of the thesis has been submitted for a degree to any other University

or Institution.

We certify that, to the best of our knowledge, the current thesis does not infringe upon

anyone's copyright nor violate any proprietary rights and that any ideas, techniques,

quotations or any other material from the work of other people included in our thesis,

published or otherwise, are fully acknowledged in accordance with the standard

referencing practices. Furthermore, to the extent that we have included copyrighted

material that surpasses the boundary of fair dealing within the meaning of the Indian

Copyright (Amendment) Act 2012, we certify that we have obtained a written permission

from the copyright owner(s) to include such material(s) in the current thesis and have

included copies of such copyright clearances to our appendix.

We declare that this is a true copy of thesis, including any final revisions, as approved by

thesis review committee.

We have checked write up of the present thesis using anti-plagiarism database and it is in

allowable limit. Even though later on in case of any complaint pertaining of plagiarism, we

are sole responsible for the same and we understand that as per UGC norms, University

can even revoke Master of Engineering degree conferred to the student submitting this

thesis.

Date:

Place: Ahmedabad

**Signature of Student:** 

Name of Student:

PANDYA PARTH JAILESHKUMAR

**Enrollment No: 1826001002** 

P.J. Pandya

Signature of Guide:

Name of Guide:

Asst.Prof. RAMJI KANANI

4

### **ACKNOWLEDGEMENT**

The dissertation has been one of the most significant academic challenges that I have ever had to face. Without the support, patience and guidance of the following people, this study would not have been completed. It is to them that I owe my deepest gratitude.

It gives me immense pleasure to express my deepest sense of gratitude and sincere thanks to my highly respected and esteemed guide **Prof. RAMJI KANANI**, Associate Professor in Electrical Engineering Department of Swarnim Startup Innovation University. for his revered supervision throughout my dissertation work, which made this task a pleasant job. He has always provided me the wise advice, useful discussions and comments. It was real pleasure to work under his supervision.

I am grateful to **Prof. AJIT PUJARA**, **Head of Electrical Engineering Department & Mr. ADITYA LIMGAVKAR (D.G.M.) of CAPACITOR DIVISION - INDUCTOTHERM INDIA PVT. LTD.** and the other faculty members of Electrical Engineering Department for the guidance and suggestions whenever I needed them.

Further I am thankful to all colleagues for their continuous support during my project work. I would like to thank Electrical Department Faculty from Swarnim Startup Innovation University, for encouraging me throughout my post-graduation.

Most importantly, I would like to thank My Parents and My Professors for everything that they have done for me throughout my life and the joy they have brought to me for just having their support. Much of my success has been because of their love and encouragement.

AJIT PUJARA (H.O.D. & PRINCIPAL) (ELECTRICAL DEPARTMENT)

RAMJI KANANI (ASSISTANT PROF.) (ELECTRICAL DEPARTMENT)

ADITYA LIMGAVKAR (D.G.M.) INDUCTOTHERM INDIA PVT. LTD