

# TEZPUR UNIVERSITY

SCHOOL OF ENGINEERING

DEPARTMENT OF ENERGY

## Forwarding Certificate

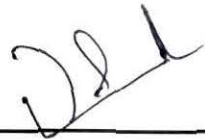
I/We hereby recommend that the thesis prepared under my supervision by Ms. Swapna Ojah entitled **“SYNTHESIS AND CHARACTERIZATION OF METAL-SENSITIZED TITANIA FOR DYE- SENSITIZED SOLAR CELL”** be accepted in partial fulfillment of the requirements for the degree of Master of Technology in Energy Technology.



(Prof S.K. Samdarshi)

Supervisor

Department of Energy



(Prof D.C. Baruah)

Head

Department of Energy



(Prof M. Bhuyan)

Dean

School of Engineering

*Dean*

School of Engineering  
Tezpur University

**TEZPUR UNIVERSITY**  
**SCHOOL OF ENGINEERING**  
**DEPARTMENTT OF ENERGY**

**Certificate of approval**

The foregoing thesis by Swapna Ojah (ENE09003) is hereby approved as a creditable study carried out and presented in a manner satisfactory to warrant its acceptance as a pre-requisite to the degree for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approved any statement made, opinion expressed or conclusion drawn therein but approved only for the purpose for which it is submitted.

*Committee*

*On*

*Final Examination for*

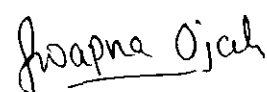
*Evaluation of thesis*

Ak Jain  
10.5.11

A. K. JAIN  
Director, SSS- NIRE  
Kapue thala

## **Declaration**

I, Swapna Ojah, hereby declare that this dissertation thesis entitled "*Synthesis and Characterization of Metal-Sensitized titania for Dye-sensitized solar cell*" is submitted to the Department of energy, Tezpur university, Tezpur, Assam, India for the acceptance to award the degree of the Master of Technology in Energy Technology is a dissertation prepared by me and the same has not been/is not being submitted to any other institution.



Swapna Ojah

## ACKNOWLEDGEMENT

I am extremely happy to express my thanks and profound sense of gratitude to **Prof. S.K Samdarshi**, Dept of Energy for supervising me to carry out this work. Without his help I could not have brought this work to the present form. His valuable suggestions, persistent encouragement, creative criticism and scientific approach throughout the duration of my investigation help me overcome the challenges of the present work.

I am proud to express my profound thanks to **Prof. D.C Baruah**, Head, Dept of Energy, for providing all the facilities for the present work.

I would like to thank **Prof M. Bhuyan**, Dean, School of Engineering, Tezpur University, for support during all phase of the project

I sincerely thank **Dr. D. Deka, Dr. Rupam Kataki, Mr. S. Mahapatra and Dr. D K Bora**, Dept. of Energy, Tezpur University for their valuable suggestions and constant encouragement through out the project.

I am grateful to express my sincere thanks to **Lt. Prof D. Konwar**, Dept. of Energy, Tezpur University, for his care and support.

I am grateful to **Mr. P. K. Chaudhury**, Technical Officer, Department of Energy, Tezpur University, for his valuable and timely help to complete this project.

I am extremely thankful to **Mr. Ranjith G Nair**, RS, Solar and Energy Material Lab. For his exemplary guidance and support during all phase of this project.

I am very thankful to **Mr. Samrat Paul and Mr. P J Lahkar**, RS, Solar and Energy Material Lab for instructing me with valuable lessons during my project work.

I would like to thank **Mrs. P Talukdar**, Dept of energy, for providing the print out of the study material and valuable suggestions.

I transmit my intense thanks to **Mr Ratan Baruah**, Technical Assistant, Dept of Physics, for providing all the support to carry out the characteristic of the material.

My thanks to **Mr Nipu Dutta**, Technical Assistant, Dept of Chemistry, for providing all the support to carry out the FT-IR analysis.

I proudly thank **The Director, NEHU** for providing necessary permission to carry out the TEM analysis.

I sincerely thank **Ms Bijumani Rajbongshi, Mr Birinchi Bora, Mr Pankaj Borah, Mr Paranjyoti Bharadwaj and Mr Dwipen Konwar**, for their support and encouragement.

I gratefully acknowledge **my friends and colleagues** for their care and support.

Last but not least I am overwhelm to express my deep sense of gratitude to **my beloved parents, sister, brother and family members** for their affectionate care and co-operation on all walks of my life.

Swapna Ojah