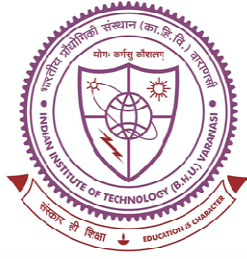


UNDERTAKING

I, Hari Shankar Singh, certify that the work embodied in this Ph.D. thesis is my own bonafide work carried out by me under the supervision of Dr. M. K. Meshram for a period from September 2011 to June 2015 in the Department of Electronics Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi. The matter embodied in this Ph.D. thesis has not been submitted for the award of any other degree/ diploma.

(Hari Shankar Singh)



इलेक्ट्रॉनिकी अभियांत्रिकी विभाग
भारतीय प्रौद्योगिकी संस्थान
(काशी हिन्दू विश्वविद्यालय)
वाराणसी-221005

**DEPARTMENT OF ELECTRONICS ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY
(BANARAS HINDU UNIVERSITY)
VARANASI-221005**

☎: 0542-2307010, 6701501

Fax: 0542-2366758

e-mail: head.ece@itbhu.ac.in

COURSE WORK COMPLETION CERTIFICATE

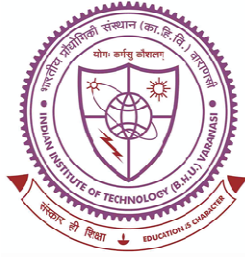
This is to certify that Mr. Hari Shankar Singh (Enrolment No. 338956), a bonafide research scholar of this department, has successfully completed the course work requirement which is a part of his Ph.D. programme.

Date:

(Prof. Satyabrata Jit)

Place: Varanasi

Head of the Department



इलेक्ट्रॉनिकी अभियांत्रिकी विभाग
भारतीय प्रौद्योगिकी संस्थान
(काशी हिन्दू विश्वविद्यालय)
वाराणसी-221005

**DEPARTMENT OF ELECTRONICS ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY
(BANARAS HINDU UNIVERSITY)
VARANASI-221005**

☎: 0542-2307010, 6701501

Fax: 0542-2366758

e-mail: head.ece@itbhu.ac.in

COMPREHENSIVE EXAMINATION COMPLETION CERTIFICATE

This is to certify that Mr. Hari Shankar Singh (Enrolment No. 338956), a bonafide research scholar of this department, has successfully completed the comprehensive examination clearance requirement which is a part of his Ph.D. programme.

Date:

Place: Varanasi

(Prof. Satyabrata Jit)

Head of the Department



इलेक्ट्रॉनिकी अभियांत्रिकी विभाग
भारतीय प्रौद्योगिकी संस्थान
(काशी हिन्दू विश्वविद्यालय)
वाराणसी-221005

DEPARTMENT OF ELECTRONICS ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY
(BANARAS HINDU UNIVERSITY)
VARANASI-221005

Phone: 0542-2307010, 6701501

Fax: 0542-2366758

e-mail: head.ece@itbhu.ac.in

Ref. No.: IIT (BHU)/EC/2014-15/

Date: 16.06.2015

Ph.D. PRE-SUBMISSION SEMINAR CERTIFICATE

This is to certify that **Mr. Hari Shankar Singh**, Ph.D. Scholar, Department of Electronics Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi has delivered his Ph.D. Pre-submission seminar on his Ph.D. thesis entitled **“Some Investigations on MIMO/Diversity Antennas for Mobile Handset Applications”** on 01.06.2015 at 11:30 AM in the Committee Room of the Department as per the satisfaction of RPC and DPGC members.

(Dr. M. K. Meshram)

Supervisor

(Prof. Satyabrata Jit)

Convener of DPGC

(Prof. Satyabrata Jit)

Head of the Department

Signature of RPC Members:

1.

2.

3.

4.

Signature of DPGC Members:

1.

2.

4.

5.

7.

8.

3.

6.

COPYRIGHT TRANSFER CERTIFICATE

Title of the Thesis:

Some Investigations on MIMO/Diversity Antennas for Mobile Handset Applications

Candidate's Name: Hari Shankar Singh

Copyright Transfer

The undersigned hereby assigns to the Indian Institute of Technology (Banaras Hindu University), Varanasi all rights under copyright that may exist in and for the above thesis submitted for the award of the Ph.D. degree.

Signature of the candidate

Note: However, the author may reproduce or authorize others to reproduce material extracted verbatim from the thesis or derivative of the thesis for author's personal use provided that the sources and the University's copyright notice are indicated