

## **Contents**

<b>1</b>	<b>B.Tech</b>	<b>2</b>
<b>2</b>	<b>MTP</b>	<b>3</b>
<b>3</b>	<b>Work Experience and non-academic project</b>	<b>4</b>
3.1	Interview Portal . . . . .	4
3.2	workex . . . . .	5
<b>4</b>	<b>key Projects</b>	<b>6</b>
4.1	Scheduling in 4G LTE . . . . .	6
4.2	Cellular Simulation . . . . .	6
4.3	Seminar . . . . .	7
4.4	Image Dehazing . . . . .	8
4.5	Basic Image Editor tool in Python . . . . .	8
4.6	Wavelets . . . . .	9
4.7	Spam URL classification using Machine Learning . . . . .	10
<b>5</b>	<b>System Adminstrator, PC Lab</b>	<b>11</b>
<b>6</b>	<b>PGAC, Web Nominee</b>	<b>12</b>
<b>7</b>	<b>Hostel-1, Mess Secretary</b>	<b>14</b>
<b>8</b>	<b>Co-Curricular Activites</b>	<b>17</b>
8.1	Machine Learning . . . . .	17
8.2	Linux, Vim & Git . . . . .	18
8.3	Python . . . . .	20
8.4	Chinese . . . . .	21
8.5	Digital System Design . . . . .	23
8.6	National Service Scheme (NSS) . . . . .	24
8.7	French . . . . .	25
8.8	World Parliament of Spirituality . . . . .	26
8.9	Spoken English . . . . .	27

# 1 B.Tech

JAWAHARALAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD HYDERABAD - 500 085, TELANGANA STATE, INDIA.											
ACKNOWLEDGED MARKS MEMO / CREDIT SHEET											
B.Tech : ELECTRONICS & COMMUNICATION ENGINEERING Regd. No. E-0672303 Batch No. 211400119 Name : M ARUN RUMAR Adm. No. 11841A0421				Name of the College : 84-K-E.C.UPPAL Month & Year of Final Exam : May, 2015							
Year of Admission : 2011-2012				Class Awarded : FIRST CLASS WITH DISTINCTION							
Subject Title	Max Marks in Theory	M ARKS	O BT MARKS	T OTAL	C REDITS	Subject Title	Max Marks in Lab	M ARKS	O BT MARKS	T OTAL	C REDITS
I YEAR											
1. ENGLISH	22	49	71	4	2	MATHEMATICS - I	23	61	84	6	
2. MATHEMATICAL METHODS	24	43	87	6	4	ENGINEERING PHYSICS	22	39	61	4	
3. ENGINEERING CHEMISTRY	21	89	73	4	6	COMPUTER PROGRAMMING & DATA STRUCTURES	21	37	58	6	
4. ENGINEERING DRAWING	23	80	73	4	8	COMPUTER PROGRAMMING LAB	24	41	65	4	
5. ENGG. PHYSICS & ENGG. CHEMISTRY LAB	28	80	75	4	10	ENGLISH LANGUAGE COMMUNICATION SKILLS LAB	24	47	71	4	
6. II WORKSHOP & ENGINEERING WORKSHOP	21	48	89	4							
I SEMESTER				II YEAR				II SEMESTER			
1. MATHEMATICS-II	21	86	87	3	1	PRINCIPLES OF ELECTRICAL ENGINEERING	24	55	79	3	
2. PROBABILITY THEORY & STOCHASTIC PROCESSES	23	31	54	3	2	ELECTRONIC CIRCUIT ANALYSIS	19	33	49	4	
3. ENVIRONMENTAL STUDIES	21	57	78	3	3	PULSE & DIGITAL CIRCUITS	22	42	64	4	
4. ELECTRIC CIRCUITS	18	86	74	4	4	SWITCHING THEORY & LOGIC DESIGN	21	52	73	4	
5. ELECTRONIC DEVICES & CIRCUITS	20	35	85	4	5	ELECTROMAGNETIC THEORY & TRANSMISSION LINES	22	38	60	4	
6. SIGNALS & SYSTEMS	22	42	84	4	6	ELECTRICAL ENGINEERING LAB	25	40	65	2	
7. ELECTRONIC DEVICES & CIRCUITS LAB	28	49	74	2	7	ELECTRONIC CIRCUIT ANALYSIS LAB	23	48	71	2	
8. BASIC SIMULATION LAB	23	46	69	2	8	PULSE & DIGITAL CIRCUITS LAB	24	50	74	2	
I SEMESTER				III YEAR				II SEMESTER			
1. CONTROL SYSTEMS	22	52	74	4	1	DIGITAL COMMUNICATIONS	21	33	54	3	
2. COMPUTER ORGANIZATION	20	38	58	4	2	MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS	20	34	54	4	
3. ANTENNAS & WAVE PROPAGATION	23	26	49*	3	3	DIGITAL SIGNAL PROCESSING	23	36	59	4	
4. ELECTRONIC MEASUREMENTS & INSTRUMENTATION	21	46	67	4	4	OPERATING SYSTEMS	22	38	60	4	
5. ANALOG COMMUNICATIONS	23	51	74	3	5	MICROPROCESSORS & MICROCONTROLLERS	23	44	67	4	
6. IC APPLICATIONS	20	64	84	3	6	DIGITAL SIGNAL PROCESSING (LAB)	23	45	68	2	
7. ANALOG COMMUNICATIONS (LAB)	24	49	73	2	7	ADVANCED ENGLISH COMMUNICATION SKILLS (LAB)	24	49	73	2	
8. IC APPLICATIONS (LAB)	20	48	68	2	8	MICROPROCESSORS & MICROCONTROLLERS (LAB)	24	49	73	2	
I SEMESTER				IV YEAR				II SEMESTER			
1. EMBEDDED SYSTEMS	24	27	51	4	1	CELLULAR & MOBILE COMMUNICATIONS	23	50	73	3	
2. COMPUTER NETWORKS	19	35	54	4	2	RADAR SYSTEMS	22	48	70	3	
3. MICROWAVE ENGINEERING	23	33	56	3	3	WIRELESS COMMUNICATIONS & NETWORKS	22	26	48*	3	
4. VLSI DESIGN	22	39	61	4	4	INDUSTRY ORIENTED MINI PROJECT	-	43	43	2	
5. DIGITAL IMAGE PROCESSING	24	38	62	3	5	SEMINAR	50	-	50	2	
6. MANAGEMENT SCIENCE	23	42	65	3	6	MAJOR PROJECT	60	133	183	10	
7. MICROWAVE ENGG AND DIGITAL COMMNS. LAB	23	47	70	2	7	COMPREHENSIVE VIVA	-	79	79	2	
8. E-LAB AND VLSI LAB	24	48	72	2							
(# Project Internal= 50, External= 160 )											
Number of Credits registered for : 200 Aggregate Marks Secured for best : 194											
Aggregate Marks Secured : 3862 OUT OF 5200 (74.08%)											
Date of Issue : June 14, 2015											
(Courses registered but not counted for calculation of aggregate)											
A indicates : ABSENT											
CONTROLLER OF EXAMINATIONS											

## 2 MTP

Re: points to be verified regarding MTP and se...

**Subject:** Re: points to be verified regarding MTP and seminar.

**From:** Kumar Appaiah <akumar@ee.iitb.ac.in>

**Date:** 19/08/19, 5:57 PM

**To:** M Arun kumar <173079004@iitb.ac.in>

**CC:** pg.verifyresume2019itb@gmail.com

Verified.

On Mon, 19 Aug, 2019, 17:22 M Arun kumar, <[173079004@iitb.ac.in](mailto:173079004@iitb.ac.in)> wrote:

Dear Sir,

Please verify the following for my resume.

**M.Tech Project: An efficient channel estimation scheme in MIMO TDD systems (May'19 - Present)**

Guide: Prof. Kumar Appaiah, Electrical Engineering, IIT Bombay

**Objective:**

To design an efficient channel estimation scheme in Time Division Duplexing (TDD) with the help of feedback in MIMO Communication which will reduce the effect of pilot contamination on MIMO channel estimation.

**Completed work:**

- Implemented Multi Cell MMSE based MIMO precoding in multiple antenna cellular
- systems which used non-orthogonal pilots for channel estimation.
- Analyzed and implemented co-variance based channel estimation which uses Bayesian estimation in single cell multi antenna system and observed its performance based on rate vs number of antennas.
- Implemented Kalman estimation for multi antenna cellular system.
- Parameterized the feedback for postcoder in massive MIMO TDD systems with multi antenna users.
- Formulated a lower bound on the achievable rate for systems with perfect CSIT and partial CSIR.

**Ongoing work:**

Working on implementing a basic precoder which utilises the information obtained from Kalman estimate in coordinated MIMO systems.

**M.Tech Seminar: Inter cell interference in Multi Cell MIMO systems (Jul'18 - Nov'18 )**

Guide: Prof. Kumar Appaiah, Electrical Engineering, IIT Bombay

1 of 2

20/08/19, 8:44 PM

Re: points to be verified regarding MTP and se...

- Studied the structure and working of MIMO systems and impact on BER on using Non-orthogonal pilot sequences for channel estimate.
- Simulated BER vs SNR for MIMO systems in Interference and Interference-free scenarios to study the impact of pilot contamination on the performance of the system.

--  
Thanks and regards  
M.Arun Kumar,  
M.Tech,  
IITB.

### 3 Work Experience and non-academic project

#### 3.1 Interview Portal

Re: verification for the work done in department...

**Subject:** Re: verification for the work done in department admission process for resume.

**From:** Bikash Kumar Dey <bikash.kr.dey@gmail.com>

**Date:** 14/08/19, 11:17 AM

**To:** M Arun kumar <173079004@iitb.ac.in>

**CC:** Bikash Kumar Dey <bikash@ee.iitb.ac.in>, Madhu belur <belur@ee.iitb.ac.in>, pg.verifyresume2019iitb@gmail.com

This is verified and approved.

Best wishes,  
Bikash

On Wed, Aug 14, 2019 at 12:24 AM M Arun kumar <[173079004@iitb.ac.in](mailto:173079004@iitb.ac.in)> wrote:

Dear Sir,

Please verify the following points for my resume.

- The EE department holds admission process for PhD twice a year, and another admission process for M Tech once a year.
- Each admission session attracts a large number of applicants.
- Admissions are simultaneously held for different types of positions, some institute funded and others funded by funded projects.
- The selection is based on written test followed by interviews.
- The same candidate is interviewed by multiple panels to judge their merit for various positions.
- The logistics of handling such a complex interview process with more than 20 interview panels over 100 candidates in a restricted time-frame was always very challenging.
- An online platform for the purpose has been under development.
- I took a leading role in building this online system that made automatic coordination across interview committees possible through their interfaces.
- The online system allowed committees to decide in real-time using a cross platform web application about starting/combinig interviews.
- I also built various other peripheral interfaces to collect data at different times from students and other sources to allow all major activities related to the admission to happen through the same system.
- The system was used successfully in the last 3 admission sessions.

Thanks and regards

M.Arun kumar,

### 3.2 workex

Re: Verification of the work done during my ten...

**Subject:** Re: Verification of the work done during my tenure at Infosys.  
**From:** Ratnadeep Ponnappalli <Ratnadeep\_P@infosys.com>  
**Date:** 16/08/19, 12:04 PM  
**To:** M Arun kumar <173079004@iitb.ac.in>  
**CC:** "pg.verifyresume2019iitb@gmail.com"  
<pg.verifyresume2019iitb@gmail.com>

Hi Arun

I confirm that you have worked on below mentioned activities.  
I wish you all the best for future

Regards  
Ratnadeep

---

**From:** M Arun kumar <173079004@iitb.ac.in>  
**Sent:** Wednesday, August 14, 2019 11:24 AM  
**To:** Ratnadeep Ponnappalli <Ratnadeep\_P@infosys.com>  
**Cc:** pg.verifyresume2019iitb@gmail.com <pg.verifyresume2019iitb@gmail.com>  
**Subject:** Verification of the work done during my tenure at Infosys.

[\*\*EXTERNAL EMAIL\*\*]

Dear Sir,

Can you please verify the following points  
Position: Systems Engineer (Dec'15 - Jul'17)  
Tools Used: Oracle Peoplesoft.

- Roles and responsibilities: Part of the team which developed an application which automates billing for the customers of the client.
- Wrote SQL queries to fetch data to the module and to develop features using Oracle Peoplesoft ERM tool.
- Assisted in designing billing template in XML and in completion of Technical Document Report for the project.

Thanks and regards  
M.Arun Kumar,  
M.tech, IITB.

## 4 key Projects

#### 4.1 Scheduling in 4G LTE

Verified By DPC

## 4.2 Cellular Simulation

Verified By DPC

## 4.3 Seminar

Re: points to be verified regarding MTP and se...

**Subject:** Re: points to be verified regarding MTP and seminar.

**From:** Kumar Appaiah <akumar@ee.iitb.ac.in>

**Date:** 19/08/19, 5:57 PM

**To:** M Arun kumar <173079004@iitb.ac.in>

**CC:** pg.verifyresume2019iitb@gmail.com

Verified.

On Mon, 19 Aug, 2019, 17:22 M Arun kumar, <[173079004@iitb.ac.in](mailto:173079004@iitb.ac.in)> wrote:

Dear Sir,

Please verify the following for my resume.

**M.Tech Project: An efficient channel estimation scheme in MIMO**

**TDD systems (May'19 - Present)**

Guide: Prof. Kumar Appaiah, Electrical Engineering, IIT Bombay

**Objective:**

To design an efficient channel estimation scheme in Time Division Duplexing (TDD) with the help of feedback in MIMO Communication which will reduce the effect of pilot contamination on MIMO channel estimation.

**Completed work:**

- Implemented Multi Cell MMSE based MIMO precoding in multiple antenna cellular
- systems which used non-orthogonal pilots for channel estimation.
- Analyzed and implemented co-variance based channel estimation which uses Bayesian estimation in single cell multi antenna system and observed its performance based on rate vs number of antennas.
- Implemented Kalman estimation for multi antenna cellular system.
- Parameterized the feedback for postcoder in massive MIMO TDD systems with multi antenna users.
- Formulated a lower bound on the achievable rate for systems with perfect CSIT and partial CSIR.

**Ongoing work:**

Working on implementing a basic precoder which utilises the information obtained from Kalman estimate in coordinated MIMO systems.

**M.Tech Seminar: Inter cell interference in Multi Cell MIMO systems**

**(Jul'18 - Nov'18 )**

Guide: Prof. Kumar Appaiah, Electrical Engineering, IIT Bombay

1 of 2

20/08/19, 8:44 PM

Re: points to be verified regarding MTP and se...

- Studied the structure and working of MIMO systems and impact on BER on using Non-orthogonal pilot sequences for channel estimate.
- Simulated BER vs SNR for MIMO systems in Interference and Interference-free scenarios to study the impact of pilot contamination on the performance of the system.

--  
Thanks and regards  
M.Arun Kumar,  
M.Tech,  
IITB.

## 4.4 Image Dehazing

Verified By DPC

The screenshot shows a Google Sheets document titled "EE1 Course Verification List". The table has columns for Roll number, Course code, Instructor Name, Year of course, and four project descriptions. Projects 24, 25, and 26 are highlighted in red, while others are green. Project 24: "Title: Iris Localisation and Segmentation" (2018) - Implemented motion magnification and attenuation prior in Python using cv2. Project 25: "Motion Magnification" (2018) - Implemented motion magnification and attenuation in python using euclidean method. Project 26: "Enhancement of Low-light & Hazy Images" (2018) - Developed algorithm for hazy image enhancement using Luminance map and Dark Channel Prior approach. Project 27: "Basic Image Editor tool in Python" (2018) - Implemented image editor using pyQT to implement Histogram Equalisation, Gamma correction, Log transformation, Horizontal and Vertical edge detection using Sobel operators, Blurring and Sharpening with a mechanism to control the extent of blurring and Sharpening respectively. Project 28: "Image Colorization using Convolutional Neural Network" (2018) - Developed an Image Editor which could perform Image Restoration and other conventional techniques. Project 29: "Title: Cartonification of Images, Image editor GUI" (2018) - Performed Canny edge detection on a median filtered colour image and then performed colour homogenization using Bilateral Filtering and Quantization of images. Project 15d070057: "Created a MATLAB GUI to implement Log, Gamma transform and histogram equalization on images" (2018) - Developed a MATLAB GUI to implement Log, Gamma transform and histogram equalization on images.

1	A	B	C	D	E	F	G	H	I	J	K	L
Roll number	Course code	Instructor Name	Year of course	1st Project Description (with title)	2nd Project Description (with title)	3rd Project Description (with title)	4th Project Description (with title)					
24	173079024	EE610	Prof. Amit Sethi	2018	Investigated and implemented two different approaches existing in the literature, namely circular houghtransform and total variation model for detecting and segmenting the iris region from a grayscale image.							
25	173079004	EE610	Prof. Amit Sethi	2018	Motion Magnification	Implemented motion magnification and attenuation in python using euclidean method.						
26	15d070007	EE610	Prof. Amit Sethi	2018	Enhancement of Low-light & Hazy Images	Optimized code using vectorization method to reduce the computation time from 3 hours to 30 seconds.						
					Design algorithm for hazy image enhancement using Luminance map and Dark Channel Prior approach	Designed algorithm for hazy image enhancement using Luminance map and Dark Channel Prior approach						
					Accomplished 12x faster implementation in luminance approach enabling real-time processing applications	Accomplished 12x faster implementation in luminance approach enabling real-time processing applications						
27	173079004	EE610	Prof. Amit Sethi	2018	Basic Image Editor tool in Python	(Jul'18 - Nov'18 )						
					- Implemented image editor using pyQT to implement Histogram Equalisation, Gamma correction, Log transformation, Horizontal and Vertical edge detection using Sobel operators, Blurring and Sharpening with a mechanism to control the extent of blurring and Sharpening respectively.	- Implemented image editor using pyQT to implement Histogram Equalisation, Gamma correction, Log transformation, Horizontal and Vertical edge detection using Sobel operators, Blurring and Sharpening with a mechanism to control the extent of blurring and Sharpening respectively.						
					- Implemented Guided Filter to reconstruct the Haze-free image using Hazy Image and its Depth map.	- Implemented Guided Filter to reconstruct the Haze-free image using Hazy Image and its Depth map.						
28	15d070006	EE610	Amit Sethi	2018	Image Colorization using Convolutional Neural Network	Implemented a Convolutional Neural Network to colourize input black and white images which can thus be used to replace the strenuous human intervention for the process of colourizing images.						
					Developed an Image Editor which could perform Image Restoration and other conventional techniques	Developed an Image Editor which could perform Image Restoration and other conventional techniques						
29	15d070057	EE610	Amit Sethi	2018	Title: Cartonification of Images, Image editor GUI	Performed Canny edge detection on a median filtered colour image and then performed colour homogenization using Bilateral Filtering and Quantization of images.						
					Created a MATLAB GUI to implement Log, Gamma transform and histogram equalization on images	Created a MATLAB GUI to implement Log, Gamma transform and histogram equalization on images						

## 4.5 Basic Image Editor tool in Python

Verified By DPC

The screenshot shows a Google Sheets document titled "EE1 Course Verification List". The table has columns for Roll number, Course code, Instructor Name, Year of course, and four project descriptions. Projects 24, 25, and 26 are highlighted in red, while others are green. Project 24: "Title: Iris Localisation and Segmentation" (2018) - Implemented motion magnification and attenuation prior in Python using cv2. Project 25: "Motion Magnification" (2018) - Implemented motion magnification and attenuation in python using euclidean method. Project 26: "Enhancement of Low-light & Hazy Images" (2018) - Developed algorithm for hazy image enhancement using Luminance map and Dark Channel Prior approach. Project 27: "Basic Image Editor tool in Python" (2018) - Implemented image editor using pyQT to implement Histogram Equalisation, Gamma correction, Log transformation, Horizontal and Vertical edge detection using Sobel operators, Blurring and Sharpening with a mechanism to control the extent of blurring and Sharpening respectively. Project 28: "Image Colorization using Convolutional Neural Network" (2018) - Developed an Image Editor which could perform Image Restoration and other conventional techniques. Project 29: "Title: Cartonification of Images, Image editor GUI" (2018) - Performed Canny edge detection on a median filtered colour image and then performed colour homogenization using Bilateral Filtering and Quantization of images. Project 15d070057: "Created a MATLAB GUI to implement Log, Gamma transform and histogram equalization on images" (2018) - Developed a MATLAB GUI to implement Log, Gamma transform and histogram equalization on images.

1	A	B	C	D	E	F	G	H	I	J	K	L
Roll number	Course code	Instructor Name	Year of course	1st Project Description (with title)	2nd Project Description (with title)	3rd Project Description (with title)	4th Project Description (with title)					
24	173079024	EE610	Prof. Amit Sethi	2018	Investigated and implemented two different approaches existing in the literature, namely circular houghtransform and total variation model for detecting and segmenting the iris region from a grayscale image.							
25	173079004	EE610	Prof. Amit Sethi	2018	Motion Magnification	Implemented motion magnification and attenuation in python using euclidean method.						
26	15d070007	EE610	Prof. Amit Sethi	2018	Enhancement of Low-light & Hazy Images	Optimized code using vectorization method to reduce the computation time from 3 hours to 30 seconds.						
					Design algorithm for hazy image enhancement using Luminance map and Dark Channel Prior approach	Designed algorithm for hazy image enhancement using Luminance map and Dark Channel Prior approach						
					Accomplished 12x faster implementation in luminance approach enabling real-time processing applications	Accomplished 12x faster implementation in luminance approach enabling real-time processing applications						
27	173079004	EE610	Prof. Amit Sethi	2018	Basic Image Editor tool in Python	(Jul'18 - Nov'18 )						
					- Built a GUI tool using pyQT to implement Histogram Equalisation, Gamma correction, Log transformation, Horizontal and Vertical edge detection using Sobel operators, Blurring and Sharpening with a mechanism to control the extent of blurring and Sharpening respectively .	- Built a GUI tool using pyQT to implement Histogram Equalisation, Gamma correction, Log transformation, Horizontal and Vertical edge detection using Sobel operators, Blurring and Sharpening with a mechanism to control the extent of blurring and Sharpening respectively .						
					- Implemented Guided Filter to reconstruct the Haze-free image using Hazy Image and its Depth map.	- Implemented Guided Filter to reconstruct the Haze-free image using Hazy Image and its Depth map.						
28	15d070006	EE610	Amit Sethi	2018	Image Colorization using Convolutional Neural Network	Implemented a Convolutional Neural Network to colourize input black and white images which can thus be used to replace the strenuous human intervention for the process of colourizing images.						
					Developed an Image Editor which could perform Image Restoration and other conventional techniques	Developed an Image Editor which could perform Image Restoration and other conventional techniques						
29	15d070057	EE610	Amit Sethi	2018	Title: Cartonification of Images, Image editor GUI	Performed Canny edge detection on a median filtered colour image and then performed colour homogenization using Bilateral Filtering and Quantization of images.						
					Created a MATLAB GUI to implement Log, Gamma transform and histogram equalization on images	Created a MATLAB GUI to implement Log, Gamma transform and histogram equalization on images						

## 4.6 Wavelets

Verified By DPC

The screenshot shows a Google Sheets document titled "EE1 Course Verification List". The table has columns for Roll number, Course code, Instructor Name, Year of course, and four project descriptions. Rows 51, 52, 53, 54, 55, and 56 are visible, each containing a different project summary. Row 56 is highlighted in red.

Roll number	Course code	Instructor Name	Year of course	1st Project Description (with title)	2nd Project Description (with title)	3rd Project Description (with title)	4th Project Description (with title)
51	160070038	EE621	Prof. Prasanna C	2019 Image Denoising with Markov Chain Monte-Carlo • Used Metropolis Hastings technique to obtain acceptance probability of randomly flipped pixel from a noisy image	Markov Chain Monte Carlo (MCMC) Simulation Characterised the asymptotic attractor set for Markov Chains & also convergence of MCMC simulation schemes Implemented thermodynamics inspired Simulated Annealing to derive approximate solutions of TSP		
52	150070006	EE621	Prasanna Chpk	2019			
53	160070048	EE621	Prof. Prasanna C	2019 Monte-Carlo Simulations   Markov Chains and Queuing Systems • Generated samples of the raised cosine distribution from Uniform distribution using Rejection sampling	Monte-Carlo Simulations   Markov Chains and Queuing Systems • Got an acceptance rate of $J/M$ with the finite bound value $M$ , thus verifying the theory of rejection sampling		
54	173079004	EE678	Prof. Vikram M.	2018 Wavelet based leaders and P leaders in Multi Fractal Analysis • Studied about p-exponents and the corresponding multi-resolution quantities called p-leaders which measure negative regularity which appear in most real time signal analysis	Wavelet based leaders and P leaders in Multi Fractal Analysis • Studied about p-exponents and the corresponding multi-resolution quantities called p-leaders which measure negative regularity which appear in most real time signal analysis • Simulated Multi-scale quantities obtained by estimation using DWT based P-leader and were able to prove their convergence with Multi-scale quantities obtained by estimation using DWT based Wavelet leader as P tends to infinity.		
55	173079024	EE678	Prof. Vikram Gad	2018 Title: Super-Resolution of Ear Image using Wavelets and Deep Learning Trained a deep CNN on Nvidia GTX 1080 GPU using USTB-HelloEar dataset (consisting of ~6 lakhs earimages) to predict wavelet packets of low-resolution ear image which is then used	Project Title: Spot Detection of Fingerprints using Wavelets Team Members: B.V.S Anusha (173070001), K.L.Phalguni (173070007) Description: A convolutional neural network was used for classification of live and fake fingerprints.		
56							

## 4.7 Spam URL classification using Machine Learning

Re: Verification of Course Project (EE 777) for resume

**Subject:** Re: Verification of Course Project (EE 777) for resume  
**From:** "Gaurav S. Kasbekar" <gskasbekar@ee.iitb.ac.in>  
**Date:** 14/08/19, 11:10 AM  
**To:** "Hitesh Kurapati" <hitesh\_hk@iitb.ac.in>  
**CC:** pg.verifyresume2019iitb@gmail.com, 173079004@iitb.ac.in, hitesh\_hk@iitb.ac.in

Verified.

Thanks and regards,  
Gaurav Kasbekar

Dear Sir,

We(Arun Kumar: 173079004,Hitesh Kurapati:173079007), have done course project titled "Common Vulnerabilities in Web Applications & Spam URL classification using Machine Learning" as per course requirements.  
Please verify the following points.

- \* Exposure of Top-10 vulnerabilities (like external entity attack, SQL injection, Cross site scripting, Broken access control, Broken Authentication etc) of OWASP Standard with practical implementation and proposed solutions.
- \* Spam URL classification using Machine Learning Techniques like Logistic Regression, Naive Bayes, Linear Support Vector Machine, One-vs-Rest : 96.97%,96.65%,98.49%,99.17% accuracies respectively.

Thanks and Regards  
Hitesh Kurapati

1 of 2

20/08/19, 10:51 PM

## 5 System Adminstrator, PC Lab

Re: Points to be verified for the work done as System Administrator at P...

**Subject:** Re: Points to be verified for the work done as System Administrator at PC Lab, EE Department, IITB.  
**From:** Prasanna Chaporkar <chaporkar@ee.iitb.ac.in>  
**Date:** 19/08/19, 9:22 PM  
**To:** 173079001@iitb.ac.in, 173079004@iitb.ac.in, 173079023@iitb.ac.in  
**CC:** pg.verifyresume2019iitb@gmail.com

Verified.

On 16-Aug-2019 4:08 PM, M Arun kumar <173079004@iitb.ac.in> wrote:

Dear Sir,

Please Verify our RESUME points,  
for system administrator, Electrical Department, IIT Bombay

Roll No	Name	Work Done	Duration
173079001	Anuraag Tummanapally	<ul style="list-style-type: none"><li>Development of EE department website, Dashboard, and maintaining numerous portals like faculty search committee, meeting room booking system, faculty wiki pages and TA allotment portals.</li><li>Provide mail service, storage space, computing and network facilities to the Department.</li><li>Automation of admission process through web based services and Bash Scripts</li></ul>	July 2017-Present
173079004	M.Arun Kumar	<ul style="list-style-type: none"><li>Building and maintaining website of EE department, maintaining TA feedback and allotment portals.</li><li>Provide mail service, storage space, computing facilities and network facilities to department.</li></ul>	July 2017-Present

1 of 2

20/08/19, 10:53 PM

Re: Points to be verified for the work done as System Administrator at P...

		<ul style="list-style-type: none"><li>Designed online portals and automated Interviews co-ordination in the department admission process.</li><li>Handled the Department M.Tech and PhD Admission process; Helped in generation of admit cards, coordinating the answer sheet corrections.</li></ul>	
173079023	Pilankar Prathamesh Milind	<ul style="list-style-type: none"><li>Responsible for ensuring uninterrupted email, storage, network &amp; computing facilities of the Department</li><li>Installed and configured the faculty and student mail server, network file server for faculties, computational server, puppet server, PXE server, calendar server; Handled the software requirements of students and faculties</li><li>Handled the Department M.Tech and PhD Admission process; Helped in generation of admit cards, coordinating the answer sheet corrections and publishing of results</li></ul>	July 2017-Present

--  
Thanks and regards  
M.Arun Kumar,  
M.Tech,  
IITB.

## 6 PGAC, Web Nominee

Re: Verification of points for resume

**Subject:** Re: Verification of points for resume  
**From:** "General Secretary Academic Affairs (PG)" <gsecaapg@iitb.ac.in>  
**Date:** 14/08/19, 10:52 AM  
**To:** 173079001@iitb.ac.in, 173079004@iitb.ac.in  
**CC:** pg.verifyresume2019iitb@gmail.com

To whomsoever it may concern,  
This is to certify that Anuraag T and M. Arun Kumar have served as Web Nominees in the PG Academic Council for 2018-19.

We are thankful for their contributions to the PGAC during the course of their tenure.

Regards,  
Aditya Chalishazar

On 2019-08-12 18:21, Anuraag Tummanapally wrote:

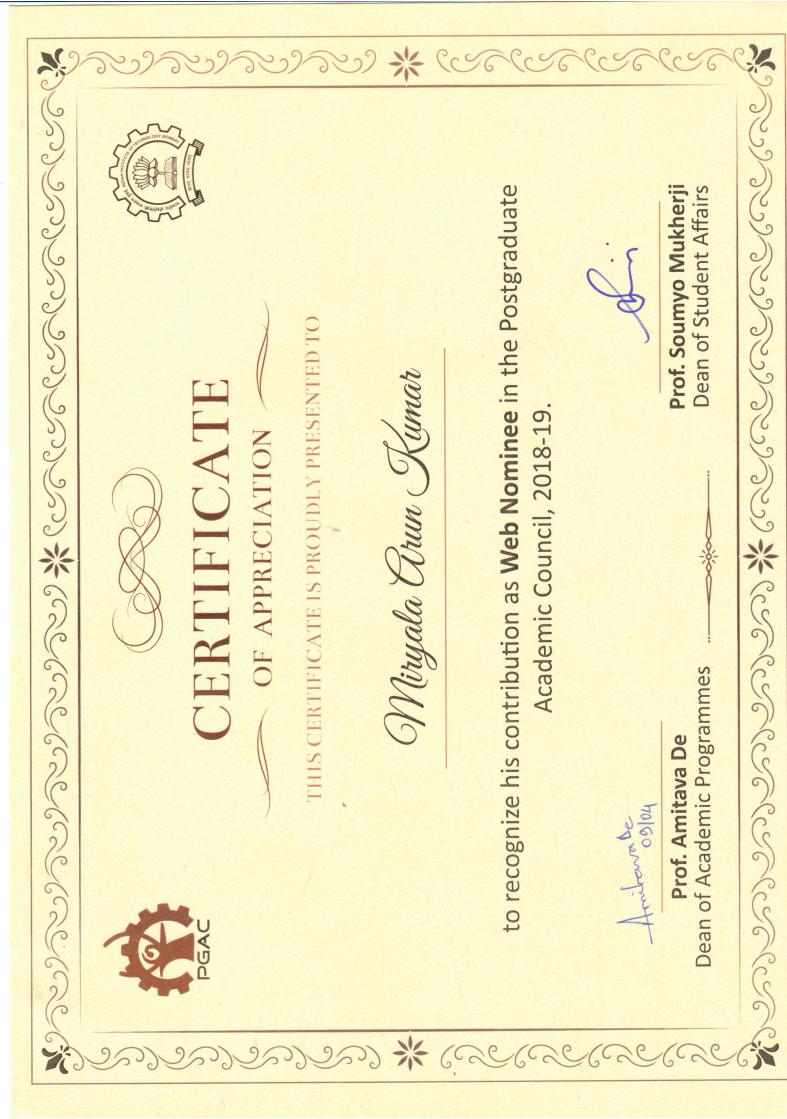
Dear General Secretary,

Following is the list of positions held and work done, please approve them.

Roll No	Name	Position held	Work done	Term duration
173079001	Anuraag Tummanapally	Web Nominee	1. Developed website for PGAC from scratch 2. Created GitHub account for development of PGAC web site 3. Tools / Softwares used: Bootstrap, HTML, PHP, CSS	July'18 - June'19
173079004	M. Arun Kumar	Web Nominee	1. Developed website for PGAC from scratch 2. Created GitHub account for development of PGAC web site 3. Tools / Softwares used: Bootstrap, HTML, PHP, CSS	July'18 - June'19

--  
Regards,  
Anuraag Tummanapally

--  
Aditya Chalishazar  
General Secretary  
Academic Affairs (PG)  
Indian Institute of Technology Bombay  
Powai, Mumbai - 400076  
Phone: +91-99-30-62-6982  
Gmail: gsaa.pg[at]gmail.com



## 7 Hostel-1, Mess Secretary

Re: Fwd: Verification of points for various previous positions held in H-1.

**Subject:** Re: Fwd: Verification of points for various previous positions held in H-1.  
**From:** "General Secretary H1" <gsech1@iitb.ac.in>  
**Date:** 13/08/19, 2:21 PM  
**To:** pg.verifyresume2019@iitb@gmail.com  
**CC:** gsech1@iitb.ac.in, 173079001@iitb.ac.in, 173079007@iitb.ac.in, 173079006@iitb.ac.in, 173079004@iitb.ac.in

To whomsoever it may concern,

Dear Sir/Madam,

This is to verify that the following students have carried out the responsibilities as per their positions mentioned.

Thanks & Regards,  
Deepak Ranjan Padhi  
G.Sec (in charge)  
Hostel-1

Dear General Secretary,

Following is the list of positions held and work done during the council term please approve them.

Roll No	Name	Position held	Work done	Term duration
173079004	M.Arun kumar	Mess Secretary		

1. Managed all mess related activities for a mess which catered for 250+ students with an approximate budget of 8,00,000/- per month.
2. Responsible for verification of mess bills, coordinating with vendors.
3. Reduced mess bill from Rs 140/- per student per day to around Rs

1 of 3

20/08/19, 11:55 PM

Re: Fwd: Verification of points for various previous positions held in H-1.

- 114/- per students per day in span of two months.  
4. Were able to continue smooth functioning of mess services even in the absence of Mess Councilor.  
5. Minimized the average waste from 25-30kg to 3-8kg.  
6. Increase in transparency in kitchen and counter area by installing camera and by conducting random checks on the vendors.

June 17- Mar 18  
173079001  
Anuraag Tumanapally  
Web Secretary

1. Development and Maintenance of Hostel-1 Web site and Computer.
2. Installed digital notice board in mess area.

June 17- Mar 18  
173079006  
Abhishek kumar  
Computer Councilor

1. Maintenance of internet network and resolution of network issues as and when faced.
2. Design and maintenance of hostel web site and continuous updation of hostel activities.
3. Uninterrupted Network and Computer services to all the inmates of the hostel round the clock.

June 18-Mar 19  
173079007  
Hitesh Kurapati  
Maintenance Secretary

1. Responsible for the proper maintenance and smooth functioning of the hostel of 250+ inmates.
2. Played a leading role in design of Annual maintenance contract for

2 of 3

20/08/19, 11:55 PM

Re: Fwd: Verification of points for various previous positions held in H-1.

the hostel.  
3. initiated action plan to renovate unused land to garden area.

June'17-Mar'18

173079007

Hitesh Kurapati  
Election & Awards Committee Member

1. Worked in a team of 4 as a part of election committee to conduct hostel council election and awards distribution among outgoing council members for their exceptional service to the hostel.
2. was responsible for conducting election in hostel with 250+ inmates.
3. Part of Awards committee and was responsible for selecting Awardees among applied contestants and awards distribution.

Mar19-June 19

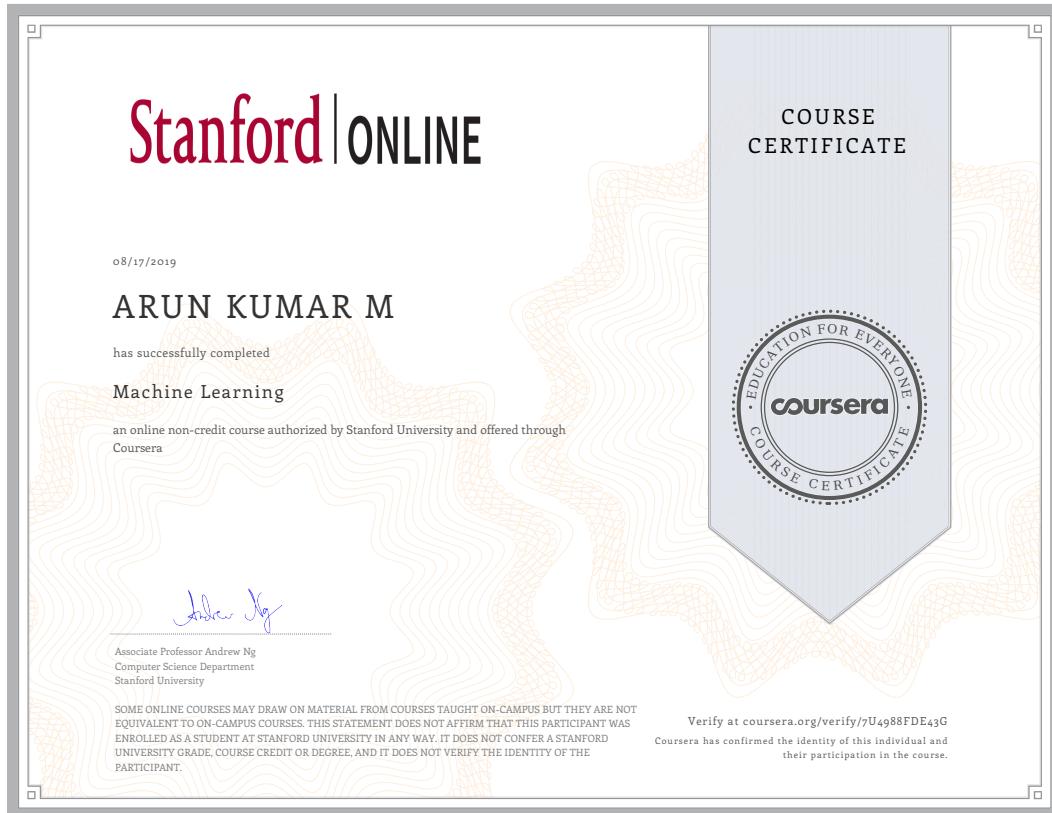
\*PS: Some of the points mentioned for mess and maintenance are taken from hostel-1 annual magazine ANUBHOOTI April 2018, and can be used for verification. \*

--  
Thanks and regards  
M.Arun kumar.



## 8 Co-Curricular Activites

### 8.1 Machine Learning



## 8.2 Linux, Vim & Git

Re: Verification for work done as a part of bridge course 2019.

**Subject:** Re: Verification for work done as a part of bridge course 2019.  
**From:** "Department of Electrical Engineering, IIT Bombay" <bridgetcourses.ee@gmail.com>  
**Date:** 20/08/19, 11:09 PM  
**To:** 173079004@iitb.ac.in  
**CC:** Pg Verifyresume2019iitb <pg.verifyresume2019iitb@gmail.com>

verified

Warm Regards,  
Narendra Gangwar | Samiksha Baid | Suvajit Das  
Bridge Courses Overall Coordinators,  
Department of Electrical Engineering,  
IIT Bombay  
+91-7838877657 | +91-8668391739 | +91-6290928883

On Mon, Aug 19, 2019 at 6:38 PM M Arun kumar <[173079004@iitb.ac.in](mailto:173079004@iitb.ac.in)> wrote:

Hi,

Please verify the following points

Roll no	Name	Work done	Year
173079004	M.Arun Kumar	<ul style="list-style-type: none"><li>Conducted an introductory session on Linux, Vim and Git as a part of Bridge Course which helps in smooth transition of new joiners to institute.</li><li>Volunteered for an introductory session on Python which was conducted as a part of Bridge Course for a group of more than 100 M.tech students</li></ul>	2019

1 of 3

20/08/19, 11:12 PM

Re: Verification for work done as a part of bridge course 2019.

173079001	Anuraag tummanapally	<ul style="list-style-type: none"><li>Volunteered for an introductory session on Linux, Vim and Git which was conducted as a part of Bridge Course.</li><li>Volunteered for an introductory session on Python which was conducted as a part of Bridge Course for a group of more than 100 M.tech students</li></ul>	2019
173079003	Nikhar P Rakhshia	<p><b>Teaching Assistant: Math Preliminaries, Bridge Course, IIT Bombay (Jul'18, Jul' 19)</b></p> <ul style="list-style-type: none"><li>Designed the tutorial problem set and helped students to get acquainted with the IITB curriculum.</li><li>Responsible for conducting tutorial sessions on fundamental mathematical concepts for new entrants.</li></ul> <p><b>Conducted a tutorial on LATEX in Bridge Course at IIT Bombay. (Jul' 2019)</b></p>	2018-2019
17307R002	Nayak Premanand Alias Sachin Vinayak	Conducted a bridge course tutorial on introduction to python for a group of more than 100 M.tech students	2019
173079005	Patil Akhilesh Subhash	Conducted an introductory session on Linux, Vim and Git as a part of Bridge Course which helps in smooth transition of new joiners to institute.	2019
173079023	Pilankar Prathamesh Milind	Conducted an introductory session on Linux, Vim and Git as a part of Bridge Course which helps in smooth transition of new joiners to institute.	2019
173079023	Pilankar Prathamesh Milind	Conducted an introductory session on ngSpice as a part of Bridge Course which helps in smooth transition of new joiners to	2018

18

2 of 3

20/08/19, 11:12 PM

Re: Verification for work done as a part of bridge course 2019.

|\_\_\_\_\_|institute.|\_\_\_\_\_|

--  
Thanks and regards  
M.Arun Kumar,  
M.Tech,  
IITB.

## 8.3 Python

Re: Verification for work done as a part of bridge course 2019.

**Subject:** Re: Verification for work done as a part of bridge course 2019.  
**From:** "Department of Electrical Engineering, IIT Bombay" <bridgecourses.ee@gmail.com>  
**Date:** 20/08/19, 11:09 PM  
**To:** 173079004@iitb.ac.in  
**CC:** Pg Verifyresume2019iitb <pg.verifyresume2019iitb@gmail.com>

verified

Warm Regards,  
Narendra Gangwar | Samiksha Baid | Suvajit Das  
Bridge Courses Overall Coordinators,  
Department of Electrical Engineering,  
IIT Bombay  
+91-7838877657 | +91-8668391739 | +91-6290928883

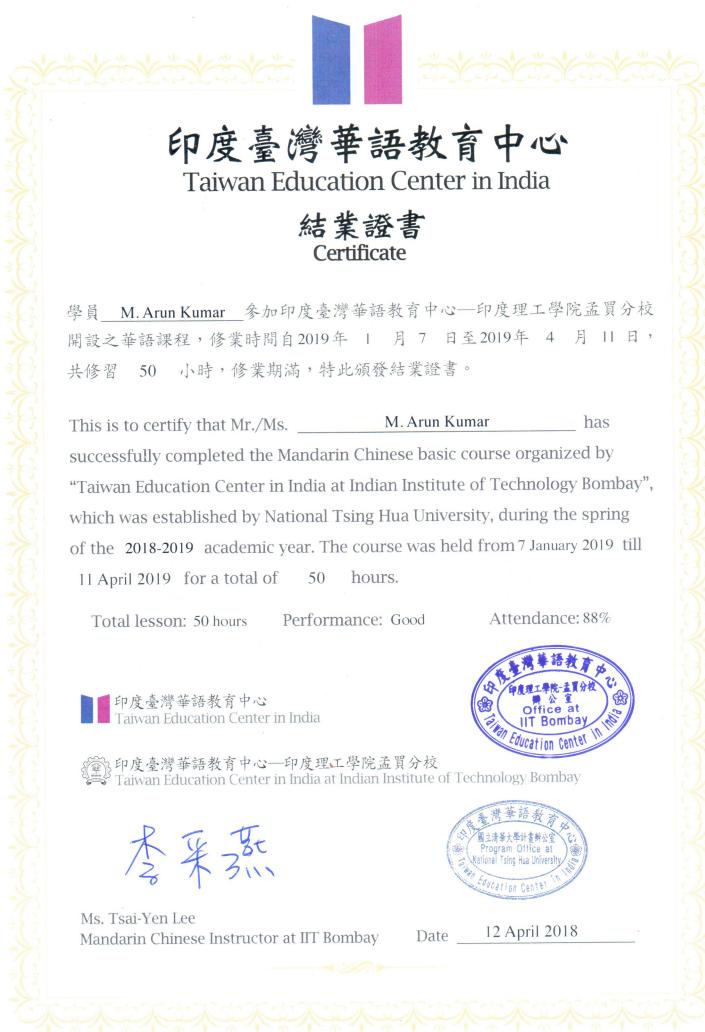
On Mon, Aug 19, 2019 at 6:38 PM M Arun kumar <[173079004@iitb.ac.in](mailto:173079004@iitb.ac.in)> wrote:

Hi,

Please verify the following points

Roll no	Name	Work done	Year
173079004	M.Arun Kumar	<ul style="list-style-type: none"><li>Conducted an introductory session on Linux, Vim and Git as a part of Bridge Course which helps in smooth transition of new joiners to institute.</li><li>Volunteered for an introductory session on Python which was conducted as a part of Bridge Course for a group of more than 100 M.tech students</li></ul>	2019

## 8.4 Chinese





印度臺灣華語教育中心  
Taiwan Education Center in India

結業證書  
Certificate

學員 **M. Arun Kumar** 參加印度臺灣華語教育中心—印度理工學院孟買分校開設之華語課程，修業時間自 2018 年 8 月 6 日至 2018 年 11 月 2 日，共修習 50 小時，修業期滿，特此頒發結業證書。

This is to certify that Mr./Ms. **M. Arun Kumar** has successfully completed the Mandarin Chinese basic course organized by "Taiwan Education Center in India at Indian Institute of Technology Bombay", which was established by National Tsing Hua University, during the Autumn of the 2018-2019 academic year. The course was held from 6 August 2018 till 2 November 2018 for a total of 50 hours.

Total lesson: 50 hours      Performance: Good      Attendance: 96 %

 印度臺灣華語教育中心  
Taiwan Education Center in India

 印度臺灣華語教育中心—印度理工學院孟買分校  
Taiwan Education Center in India at Indian Institute of Technology Bombay

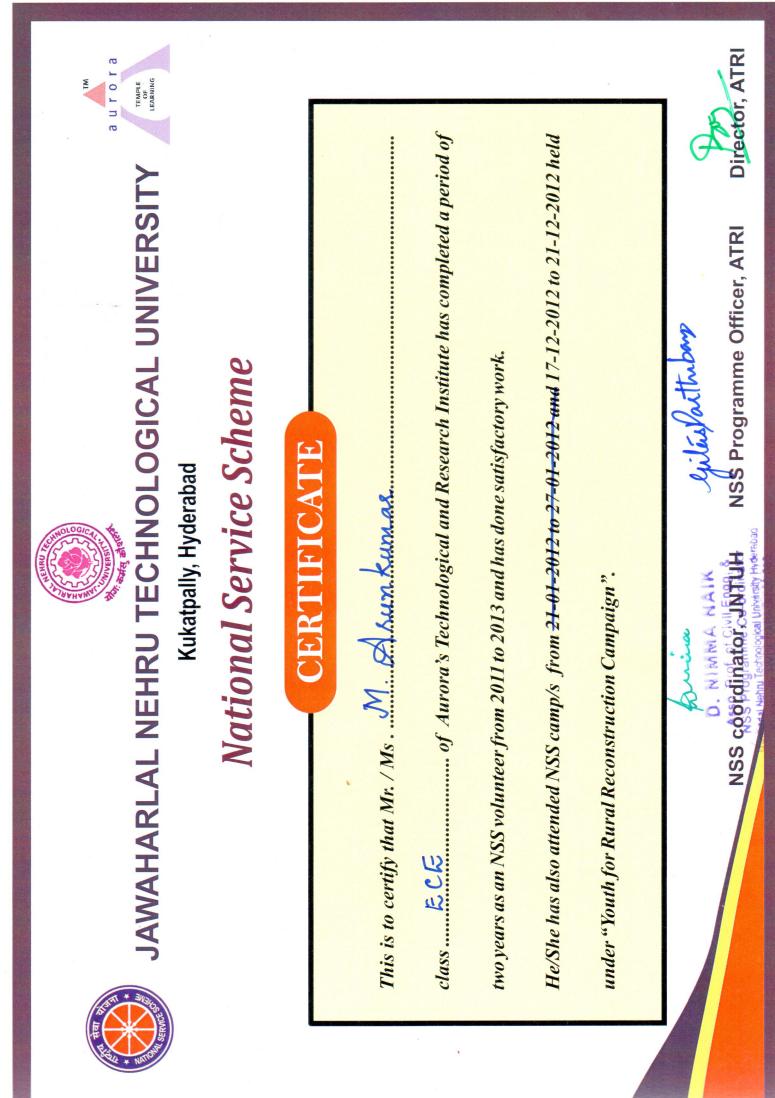


Ms. Tsai-Yen Lee  
Mandarin Chinese Instructor at IIT Bombay      Date 9 November 2018

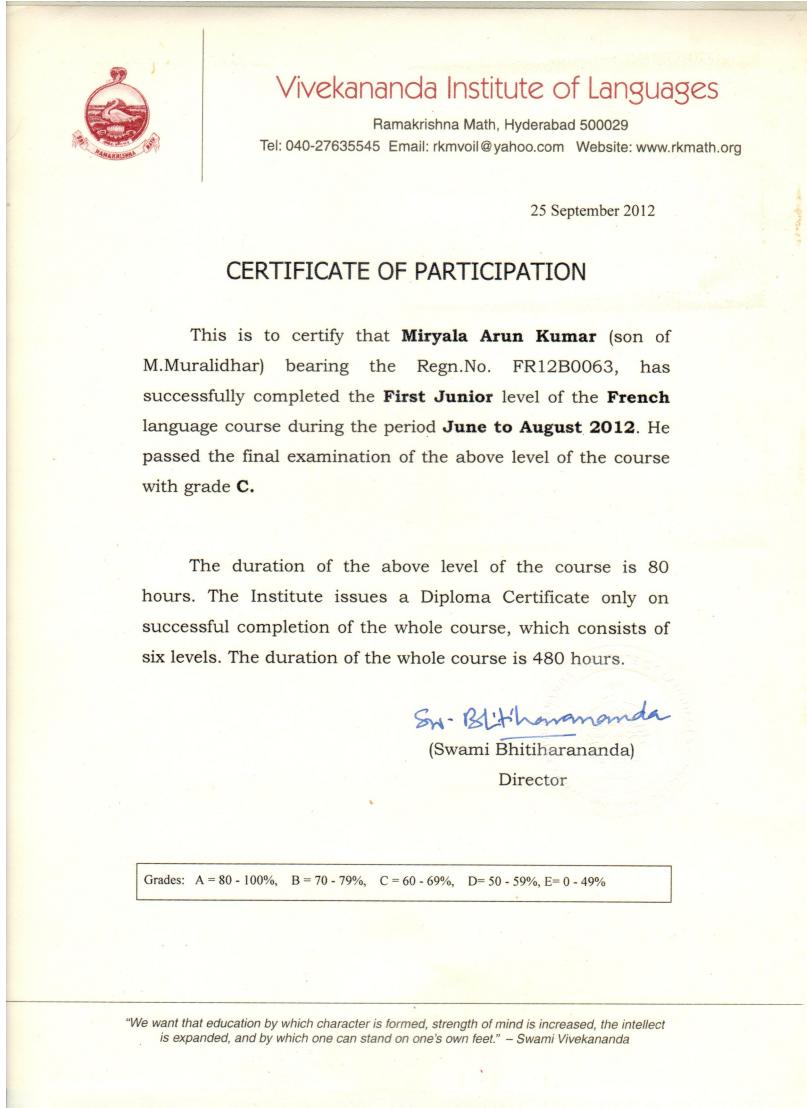
## 8.5 Digital System Design



## 8.6 National Service Scheme (NSS)



## 8.7 French



## 8.8 World Parliament of Spirituality



## 8.9 Spoken English

