



POORNIMA

COLLEGE OF ENGINEERING

Department of Electrical Engineering

Report on “Faculty Development Programme” attended at MNIT, Jaipur

Attended “A two week (81 hours) Faculty Development Program on "Advanced Optimization Techniques" during 6th to 15th Oct. 2017 at MNIT, Jaipur. This program was funded by E&ICT Academy, MNIT Jaipur.

The inauguration session of FDP proceeded at NKN-II, 2nd floor, PrabhaBhawan in the presence of

1. Prof. Udaykumar R. Yaragatti, Director, MNIT Jaipur
2. Prof. Viswanath Sinha, Academy Chair, E&ICT Academy, MNIT Jaipur
3. Prof. Ganapati Panda, FNAE, FNASc., Professor Emeritus, IIT Bhubaneswar

The course contained 40 hours of theory and 40 hours of laboratory sessions in which 20 specialized experiments, carried out to enrich practice skills at par with the theory. The experiment carried out mostly in MATLAB and Simulink environment. There were two quiz test based on the theory and lab sessions of 1 hour.

The course content coverage was cross-disciplinary in nature, i.e. several aspects of engineering optimization to benchmark problems of Electrical Engg., Electronics & Communication Engg., Comp. Engg., Mechanical Engg., Chemical Engg., and Bioinformatics covered. It was helpful for the Faculty Members to discuss recent technology area problems with the experts in the field.

There were also two quiz test and a LAB viva session based on which grades awarded to the participants. The E&ICT Academy certified courses have similar value that of AICTE and UGC approved courses.

Following Eminent Speakers who delivered the course contents:

1. Prof. Ganapati Panda, FNAE, FNASc, SMIEEE, School of Electrical Sciences, IIT Bhubaneswar.
2. Prof. Bijay. K. Panigrahi, Dept. of Electrical Engineering, IIT Delhi.
3. Dr. Pyari Mohan Pradhan, Dept. of Electronics & Communication Engineering, IIT Roorkee.
4. Dr. Nithin V. George, Dept. of Electrical Engineering, IIT Gandhinagar.
5. Dr. Sitanshu S. Sahu, Dept. of Electronics & Communication Engineering, BIT Mesra, Ranchi.
6. Dr. Rajesh Kumar, Dept. of Electrical Engineering, MNIT, Jaipur.
7. Dr. Satyasai Jagannath Nanda, Dept. of Electronics and Communication Engineering, MNIT, Jaipur.

8. Dr. KusumVerma, Dept. of Electrical Engineering, MNIT, Jaipur.
9. Dr. GunjanSoni, Dept. of Mechanical Engineering, MNIT, Jaipur.
10. Dr. Rajeev Dohare, Dept. of Chemical Engineering, MNIT, Jaipur.

The Time table of AOT-2017 from 6th to 15th October 2017 was as follows:

Time Table of AOT-2017

(6th to 15th October 2017)

Day	Theory Sessions (NKN-II)		Lab Sessions (Computer Center)		Test
	Slot1 9.00-11.00AM	Slot 2 11.30-1.30	Slot 3 2.00-4.00	Slot 4 4.15-6.15	
6-10-2017 Friday	8.00 AM <u>Registration</u> 9.00 AM <u>Inauguration</u> 9.30-11.30 Prof. G. Panda Module 1	Dr. R. K. Dohare Module 1	Prof. G. Panda Expt.1	Dr. R. K. Dohare Expt.2	Sl. 5 6.15- 6.45
7-10-2017 Saturday	Prof. G. Panda Module 1	Dr. P. M. Pradhan Module 2	Prof. G. Panda Expt.3	Dr. P. M. Pradhan Expt.4	
8-10-2017 Sunday	Prof. G. Panda Module 2	Dr. P. M. Pradhan Module 2	Dr. P. M. Pradhan Expt.5	Dr. S. J. Nanda Expt.6	
9-10-2017 Monday	Dr. N. V. George Module 3	Dr. S.S. Sahu Module 3	Dr. N. V. George Expt.7	Dr. S. S. Sahu Expt.8	
10-10-2017 Tuesday	Dr. S.S. Sahu Module 3	Dr. Kusum Verma Module 3	Dr. Kusum Verma Expt.9	Dr. S. S. Sahu Expt.10	Quiz Test1
11-10-2017 WednessDay	Dr. Rajesh Kumar Module 4	Dr. S. J. Nanda Module 4	Dr. Kusum Verma Expt.11	Dr. S. J. Nanda Expt.12	
12-10-2017 Thursday	Dr. Rajesh Kumar Module 4	Dr. S. J. Nanda Module 4	Dr. Rajesh Kumar Expt.13	Dr. S. J. Nanda Expt.14	
13-10-2017 Friday	Dr. Rajesh Kumar Module 4	Dr. Gunjan Soni Module 4	Dr. Rajesh Kumar Expt.15	Dr. Gunjan Soni Expt.16	
14-10-2017 Saturday	Dr. Gunjan Soni Module 4	Dr. S. J. Nanda Module 5	Dr. Gunjan Soni Expt.17	Dr. S. J. Nanda Expt.18	
15-10-2017 Sunday	Prof. B. K. Panigrahi Module 5	Prof. B. K. Panigrahi Module 5	Dr. Rajesh Kumar Expt.19	Dr. S. J. Nanda Expt.20	Quiz Test2

Following were the theory session with modules (40 Hours)

Module 1 : Prof. Ganapati Panda, Dr. Rajeev Kumar Dohare (6 hours)

Theme : Classical Opt. techniques and introduction to ‘Evolutionary Computation’

Contents : Derivative based approaches, LMS Algorithm, RLS Algorithm, Introduction to nature Inspired algorithms and Swarm Intelligence, Genetic Algorithm, Differential Evolution, Bacterial Foraging Optimization, Application to : System Identification, Communication Channel Equalization, Intelligent Instrumentation

Module 2 : Prof. Ganapati Panda, Dr. Pyari Mohan Pradhan (6 hours)

Theme : Multi-Objective Optimization

Contents : Non-dominated Sorting Genetic Algorithm, Multi-Objective Particle Swarm Optimization, Multi-Objective Cat Swarm Optimization, Evaluation criterion of Algorithms.

Module 3 : Dr. Nithin V. George, Dr. SitanshuSekharSahu, Dr. KusumVerma (8 hours)

Theme : Neural Network and Fuzzy Logic

Contents : Introduction to Neural Networks, Multi Layer Perceptron, Functional Link ANN, Radial Basis Function, Introduction to Fuzzy Logic, Fuzzification and De-fuzzification, Fuzzy

logic based models, Application to Genomic Signal Processing, Aquastic Noise Cancellation and Hearing Add Design, Classification of Data Sets.

Module 4: Dr. Rajesh Kumar, Dr. GunjanSoni, Dr. S. J. Nanda (14 hours)

Theme : Nature Inspired Algorithms

Contents : Gray Wolf Optimization, Monkey Algorithm, Spider Algorithm, Social Spider Algorithm, Symbiotic Organism Search, Cuckoo Search and Levy flight, Firefly Algorithm, Whales Optimization, Artificial Immune Systems, Application to Data Classification and Clustering, Pattern Recognition.

Module 5 : Prof. BijayaKetanPanigrahi, Dr. S. J. Nanda, Dr. Rajesh Kumar (6 Hours)

Theme : Swarm Intelligence

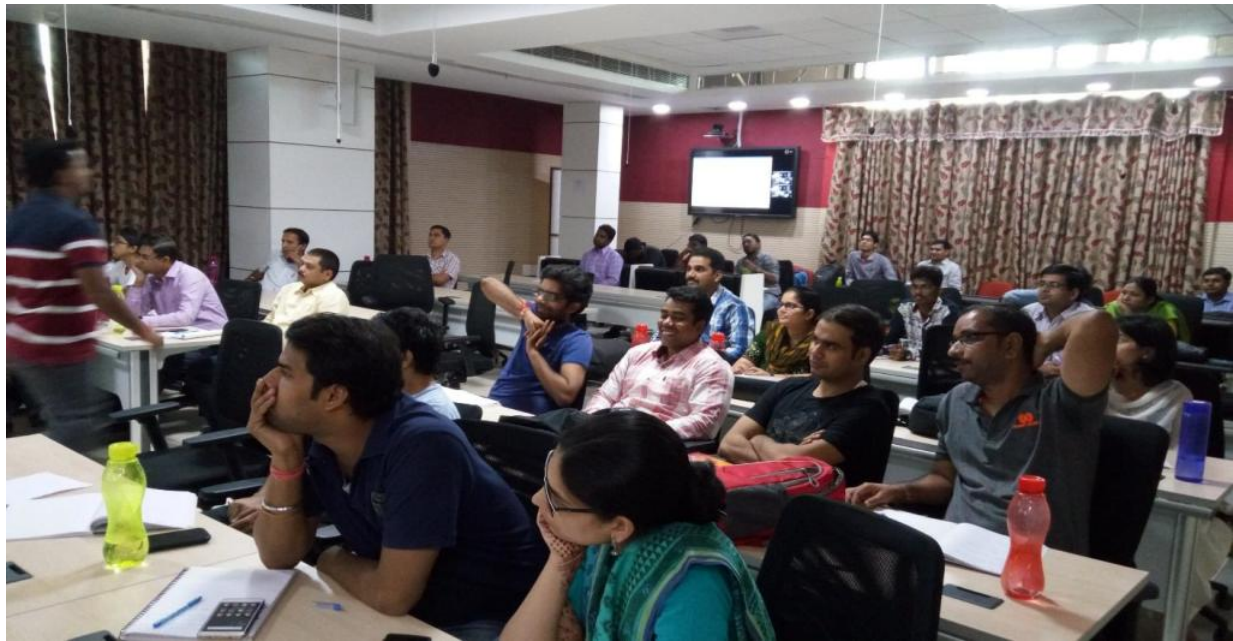
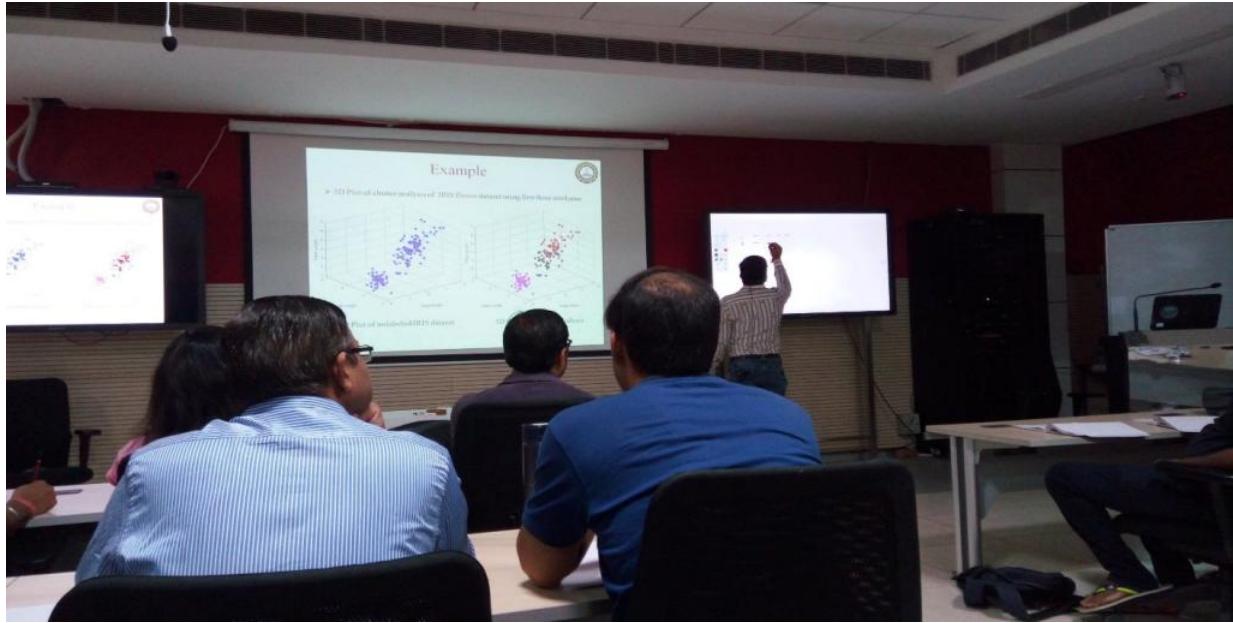
Contents : Particle Swarm Optimization and its variants, Ant Colony Optimization, Aritificial Bee Colony Algorithm, Directed Bee Optimization, Termites Algorithm, Application to Travelling Salesman Problem, Power System Optimization Problem.

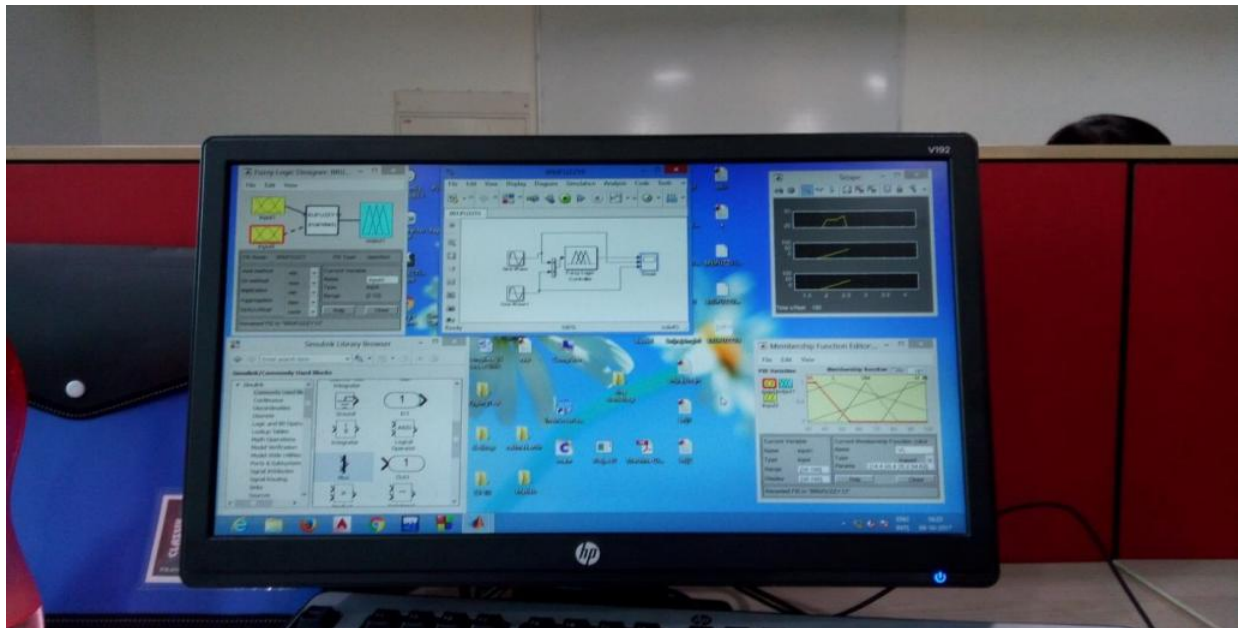
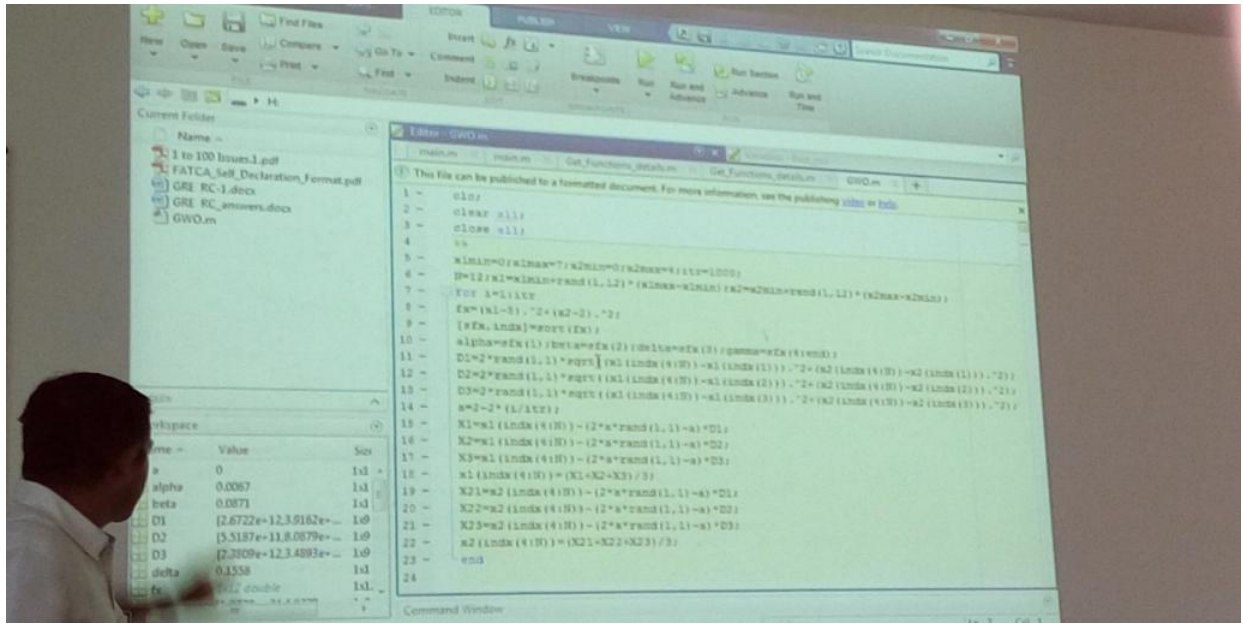
Following were the laboratory session (40 Hours)

- Expt. 1 : Prof. G. Panda : System Identification using LMS Algorithm
- Expt. 2 : Dr. R. K. Dohare : QP and GRG for Multivariable Problem
- Expt. 3 : Prof. G. Panda : Function Optimization using Genetic Algorithm
- Expt. 4 : Dr. P. M. Pradhan : Function Optimization using Particle Swarm Optimization
- Expt. 5 : Dr. P. M. Pradhan : On coding of multi-objective Optimization
- Expt. 6 : Dr. S. J. Nanda : System Identification using evolutionary algorithm
- Expt. 7 : Dr. N. V. George : Opt. techniques in Noise Cancel and hearing add design
- Expt. 8 : Dr. S. S. Sahu : Neural Network and Opt. algorithms in Genomic Studies
- Expt. 9 : Dr. KusumVerma : Neural Network for classification
- Expt. 10 : Dr. S. S. Sahu : Neural Network and Opt. algorithms in Genomic Studies
- Expt. 11 : Dr. KusumVerma : Neural Network for Regression
- Expt. 12 : Dr. S. J. Nanda : Communication Channel Equalization using Evol. algorithms
- Expt. 13 : Dr. Rajesh Kumar : Parameter Estimation using Heuristic methods
- Expt. 14 : Dr. S. J. Nanda : Optimization using Artificial Immune Systems
- Expt. 15 : Dr. Rajesh Kumar : Power Management with Optimization Methods
- Expt. 16 : Dr. GunjanSoni : SA for TSP
- Expt. 17 : Dr. GunjanSoni : Agent Based Modelling for Manufacturing Process
- Expt. 18 : Dr. S. J. Nanda : Clustering using K-means and other approaches
- Expt. 19 : Dr. Rajesh Kumar : Teaching & research methodologies in this field
- Expt. 20 : Dr. S. J. Nanda : Techniques to write quality papers in this field

Some photographs of theinauguration, theories, laboratories and valedictory session are presented here:













MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY, JAIPUR
ELECTRONICS & ICT ACADEMY MNIT JAIPUR

GRADE SHEET

THIS IS TO CERTIFY THAT BRIJRAJ SINGH SOLANKI

Obtained Very good GRADE IN TWO WEEKS FACULTY DEVELOPMENT PROGRAMME ON "ADVANCE OPTIMIZATION TECHNIQUES (AOT-2017)" HELD IN MNIT JAIPUR UNDER THE PURVIEW OF DeU SPONSORED ELECTRONICS & ICT ACADEMY FROM 6TH OCT. TO 15TH OCT., 2017. THE CREDIT FOR THIS GRADE IS 4 CORRESPONDS TO (L-T-P =3-0-2).

1 ST QUIZ(20)	2 ND QUIZ(20)	LAB (20)	TOTAL (100)	GRADE
10.5	10	57	77.5	Very good

Rajesh
Dr. Rajesh Kumar
(Course Coordinator)

S.J.Nanda
Dr. S. J. Nanda
(Course Coordinator)

Grade Range	Grade
>=90	Outstanding
>=80	Excellent
>=70	Very Good
>=60	Good
>=50	Average



मालवीय राष्ट्रीय प्रौद्योगिकी संस्थान जयपुर

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Program : Two weeks FDP on Advance Optimization Techniques (AOT-2017)

Received an amount of Rs. 4500/- (Four thousand five hundred only) in the form of online transaction, from Brijraj Singh Solanki of organization Poornima College of Engineering by Electronics and ICT Academy, MNIT Jaipur towards registration fee for the two-weeks faculty development programme on Advance Optimization Techniques (AOT-2017) from 6th Oct. to 15th Oct., 2017.

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Assistant Professor, Electronics and Communication Engg., MNIT Jaipur

Rajesh
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I thank to Dr. Omprakash Sharma, Director Poornima College of Engineering, and Dr. VirendraSangtani, Head of Department, Electrical Engineering, Poornima College of Engineering for providing me this opportunity to attend this Faculty Develop Program from 6th to 15th Oct. 2017 at MNIT, Jaipur.

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