POORNIMA
COLLEGE OF ENGINEERING

Promoted by Shanti Education Society, Affiliated to Rajasthan Technical University & Approved by AICTE

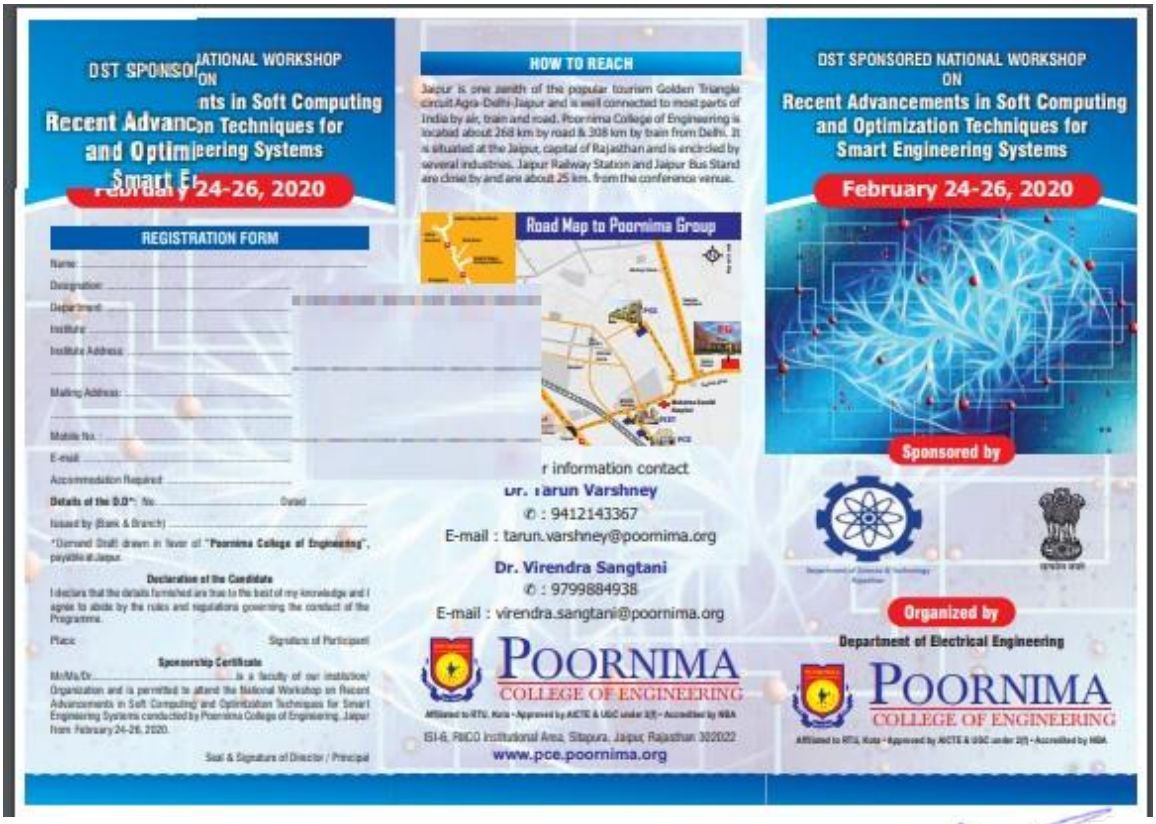
A REPORT ON THREE DAY NATIONAL WORKSHOP

TITLE AND DURATION: "Recent Advancements in Soft Computing and Optimization Techniques for Smart Engineering Systems" on February 24th -26th, 2020.

SPONSORS & SUPPORTERS: Department of Science and Technology, Rajasthan.

ORGANIZERS: Department of Electrical Engineering, Poornima College of Engineering, Jaipur.

FLYER / POSTER:



Dr. Mahesh Bundele
B.E., M.E., Ph.D.
Director
Poornima College of Engineering
ISI-6, RIICO Institutional Area
Sitapura, JAIPUR

POORNIMA COLLEGE OF ENGINEERING

Poornima College of Engineering (PCE), established as a trend of technical education in the year 2000, has its own glorious legacy of leading the young engineers to the mammoth sky of success. Its accomplishments forecast its journey through the hardships and its triumph over them one after another. PCE left no stone unturned since its establishment in turning the glorious vision into unbelievable reality providing the platform for knowledge and research and their practical implementations in different engineering professional prospects. Glorious glimpses of PCE:

Highly recognized and renowned affiliated technical institution all over Rajasthan with built up area more than 5.5 lacs square feet

Affiliated to RTU, Kota & approved by AICTE, New Delhi

The most preferred NBA Accredited Engineering College with running of six specializations of Engineering at UG Level (CSE, ECE, EE, ME, IT, CIV) and two at PG level (CS & VLSI)

The only institution permitted by RTU to admit PhD/GuIT students & designated as centre of excellence by BIM

An excellent institution building its rapport in all sectors of education, research and development

WORKSHOP AIM AND EXPECTED OUTCOMES

The workshop aims at developing expertise of soft computing and optimization techniques like Fuzzy Logic, Artificial Neural Networks, Particle Swarm Optimization etc. that can be used to solve various complex and smart engineering systems.

Expected outcomes: participants will be able to:

1. Gain expertise of Soft Computing and Optimization Techniques like Fuzzy Logic, Artificial Neural Networks, Particle Swarm Optimization etc. that can be used to solve various Complex and Smart Engineering Systems
2. Apply suitable Soft Computing/Optimization Technique for linear, non-linear, complex and multi-dimensional engineering systems to reach to the solution of complex problems in various engineering domains
3. Understand features of Smart Grid in the context of Indian Grid and address various issues related to the Generation, Transmission, Distribution, Utilization, Optimization and Scheduling of electrical power in Smart Grids
4. Apply Evolutionary Algorithms to the Smart Grids and Distributed Generation systems.

COURSE CONTENTS

The topic will include

- Optimization of power drives systems by using soft computing
- Concept of Grey wolf optimization algorithm
- Application of Grey wolf optimization algorithm with fuzzy logic
- Concept of Neuro-fuzzy
- Application of Neuro-fuzzy systems
- Modeling and simulation of eddy current braking system using various soft computing techniques

REGISTRATION

Candidates should complete the enclosed registration form and send scanned copy by mail to the coordinator: **babita.jain@poornima.org**. Confirmation of eligible candidates will be on FIRSTCOME-FIRST-SERVE basis. The complete registration form should be received to the coordinator **till February 21, 2020.**

HOW TO APPLY

No registration fee for participant from AICTE approved institutions. The interested participants are requested to complete the online registration form **https://forms.gle/7FHe1PHSPLwWBWV8**. A registration fee for participants from industries is ₹ 1000/- which can be paid through Demand Draft.

ACCOMMODATION

Accommodation will be provided to the participants on prior request based on availability in hostel on payment.

TARGET AUDIENCE

Faculty, researchers and students from Academic, Industry and Research & Development sector.

RESOURCE PERSON

Experts from IITs, NITS and other reputed institutions and industries will handle the session.

COURSE MATERIAL

Each registered participant will be provided with a set of comprehensive lecture notes.

IMPORTANT DATES

Last date of recipient of applicant	February 21, 2020
Intimation of selection by mail	February 22, 2020
Workshop duration	February 24-26, 2020

DATE AND VENUE

National Workshop will be held during February 24-26, 2020 at Poornima College of Engineering, Jaipur

PATRON

Dr. S. M. Seth
Chairman (Emeritus) Poornima Group

Ar. Shashikant Singhi
Chairman, Poornima Group

ADVISORS

Mr. M. K. M. Shah
Director (Admin & Finance)
Poornima Group

Mr. Hari Singh Shekhawat
Director (Infrastructure)
Poornima Group

Ar. Rahul Singhi
Director, Poornima Group

Dr. Mahesh M. Bundele
Principal & Director
Poornima College of Engineering

Er. Pankaj Dhanda
Vice-Principal
Poornima College of Engineering

COORDINATORS

Dr. Babita Jain	Professor, EE, PCE
Dr. Virendra Sanghani	Professor, EE, PCE
Dr. Tarun Varshney	Professor, EE, PCE

PCE ACADEMIC COMMITTEE

Dr. Amit Shrivastava	Professor, PCE
Dr. Deepika Chauhan	Professor, PCE
Dr. Himani Goyal Sharma	Professor, PCE
Dr. Neeraj Tiwari	Professor, PCE
Dr. Pravin Machhindra Sonawane	Professor, PCE
Dr. Sunil Gupta	Professor, PCE
Dr. Ranjeet Kumar	Associate Professor, PCE
Dr. Vijay Kumar Gaur	Associate Professor, PCE
Mr. Brijraj Singh Solanki	Associate Professor, PCE
Mohammad Asif Iqbal	Associate Professor, PCE
Mr. Pankaj Gakhar	Assistant Professor, PCE
Mr. Arpit Khandelwal	Assistant Professor, PCE
Mr. Devendra Kumar Dada	Assistant Professor, PCE
Mr. Gaurav Jain	Assistant Professor, PCE
Mr. Gaurav Srivastava	Assistant Professor, PCE
Mr. Mahesh Kumar Meena	Assistant Professor, PCE
Mr. Manish Sharma	Assistant Professor, PCE
Mr. Mayank Sharma	Assistant Professor, PCE

Dr. Mahesh Bundele
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ISI-6, RIICO Institutional Area
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PROGRAM SCHEDULE:

Program Outline	
Monday, Day 1: 24th February, 2020	
8.00 AM – 09.00 AM	Welcome Reception and Registration Opens
9.00 AM – 9.30 AM	**Inaugural Function,** Venue: CG-05
9.30 AM – 10.00 AM	**High Tea / Coffee Break**
10.00 AM -11.30 AM	**Session-1** **Keynote Address:** **Resource Person:** Prof. (Dr.) Prof. Rahul Banerjee, Director, LMNIT, Jaipur. **Venue**: CG-05
11.30 AM - 1.15PM	**Session-2** **Title:** Self-tuning Fuzzy controller for sun-tracker system using Grey Wolf optimization technique **Resource Person:** Dr. Ashish Srivastava, Professor, EED, Manipal University, Jaipur **Venue**: CG-05
1.15PM - 1.45PM	**Lunch Break**
1.45PM –3.45 PM	**Session-3** Hands on **Resource Person:** Dr. Ashish Srivastava, Professor, EED, Manipal University, Jaipur **Venue:** WL01

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Tuesday, Day2: 25th February,2020	
8.30 AM -10.30 AM	**Session-4** **Topic:** Optimization of power drives systems by using soft computing **Resource Person:** Dr. Nitin Gupta, Assistant Professor, EED, MNIT Jaipur **Venue:** CG-05
10.30 AM – 11.00 AM	**High Tea / Coffee Break**
11.00 AM - 1.15 PM	**Session-5** Hands on **Resource Person:** Dr. Nitin Gupta, Assistant Professor, EED, MNIT Jaipur **Venue:** WL 01
1.15PM - 1.45PM	**Lunch Break**
1.45PM –3.45 PM	**Session-6** **Topic:** Implementation of Fuzzy logic tool in MATLAB with a real time example **Resource Person:** Dr. Babita K Jain, Professor, EED, PCE Jaipur **Venue:** WL 01

Wednesday, Day3:26th February,2020	
8.30 AM -10.30 AM	**Session-7** **Topic:** Modelling and simulation of eddy current braking system using soft computing techniques **Resource Person:** Dr. Arunesh K Singh, Assistant Professor, EED, JMI, New Delhi **Venue:** WL 01
10.30 AM – 11.00 AM	**High Tea / Coffee Break**
11.00 AM - 1.15PM	**Session-8** **Topic:** Fuzzy logic for MPTT in PV systems **Resource Person:** Dr. Bhavnesh Kumar, Assistant professor, EED, NSIT, New Delhi **Venue:** WL 01
1.15PM–2.00PM	**Lunch Break**
2.00PM –3.00 PM	Valedictory Function& Feedback Session Venue: CG-05

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WORKSHOP INTRODUCTION:

Department of Electrical Engineering, Poornima College of Engineering, Jaipur has organized **DST (Rajasthan) SPONSORED NATIONAL WORKSHOP ON "Recent Advancements in Soft Computing and Optimization Techniques for Smart Engineering Systems"** on **February 24-26, 2020.**

The workshop aimed at developing expertise of soft computing and optimization techniques like Fuzzy Logic, Artificial Neural Networks, Particle Swarm Optimization etc. that can be used to solve various complex and smart engineering systems.

The main expected outcomes was to enable the participants gain expertise of Soft Computing and Optimization Techniques like Fuzzy Logic, Artificial Neural Networks, Particle Swarm Optimization etc. that can be used to solve various Complex and Smart Engineering Systems. Also it is expected that the participants will be able to apply suitable Soft Computing/Optimization Technique for linear, non-linear, complex and multi-dimensional engineering systems to reach to the solution of complex problems in various engineering domains. Particpants are also expected to understand features of Smart Grid in the context of Indian Grid and address various issues related to the Generation, Transmission, Distribution, Utilization, Optimization and Scheduling of electrical power in Smart Grids. They are also expected to apply Evolutionary Algorithms to the Smart Grids and Distributed Generation systems.

The Certificate of participation were awarded to all the participants on successful completion of the program.

Registration link : https://forms.gle/7FHe1P6tSPLwVtBW9

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Govt. of Rajasthan

Three Day Workshop
on
"Recent Advancements in Soft Computing and Optimization Techniques for Smart Engineering Systems"
February 24th -26th , 2020
Organized by:
Department of Electrical Engineering, **Poornima College of Engineering, Jaipur**
Sponsored by:
Department of Science and Technology, Rajasthan
Inaugural Session Q- Sheet
Friday, 24th February, 2020

Venue: CG 05, PCE, Jaipur

S. No	Activity	Duration	Time
1.	Reporting and Registration of Delegates	30 Min	08:30 AM-09:00AM
2.	Welcome of Dignitaries by the anchors	5 Min	09:00 AM -09:05 AM
3.	Request the dignitaries for lightning of lamp A. **Chief Guest Prof. (Dr.) Rahul Banerjee, Director LNMIIT, Jaipur** B. **Dr. Mahesh M Bundele**, Principal & Director, Poornima College of Engineering C. **Mr. Pankaj Dhemla**, Vice Principal, Poornima College of Engineering D. **Dr Virendra Sangtani,** HOD, EE E. **Dr. Babita Jain,** Organizing Secretary F. **Dr Tarun Varshney,** Coordinator	5 Min	09:05 AM -09:10 AM
4.	Felicitation of **Chief Guest Prof. (Dr.)** Rahul Banerjee by **Dr. Mahesh M Bundele**, Principal & Director, Poornima College of Engineering	5 Min	09:10 AM -09:15 AM
5.	Welcome Address by **Dr. Babita Jain**, Professor EE, PCE	5 Min	09:15 AM -09:20 AM
6.	Words of Wisdom by **Dr. Mahesh M Bundele,** Director, Poornima College of Engineering	5 Min	09:20 AM -09:25 AM
7.	Address by **Prof. (Dr.)** Rahul Banerjee	5 Min	09:25 AM -09:30 AM
8.	Vote of Thanks by **Dr. Virendra Sangtani**, HOD, EE	2 Min	09:30 AM -09:32 AM
9.	Group Photograph	3 Min	09:32 AM -09:35 AM
10.	**High Tea**	25 Min	9.35 AM -10.00 AM

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EVENT PHOTOGRAPHS:

Dr. Mahesh Bundele
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SUMMARY OF SESSION:

Prof. (Dr.) Ashish Shrivastava spoke on Self-tuning fuzzy controller for sun-tracker system using gray wolf optimization (GWO) technique. He said the design and implementation of TSK fuzzy with variable membership functions has been used to test different objective functions, i.e., MSE, IAE, ISE , ITAE, ITAE & ITAU, ISE & ISU and IAE & IAU, in optimization process. The obtained results authenticate that GWO based optimization technique is a good choice to find optimal solution of fuzzy tuning parameter and error minimization on different constrain set for Sun-Tracker System.

Dr. Babita jain discussed on the topic fuzzy logic. She covered what Is Fuzzy Logic, Fuzzy sets, Membership function, Difference between Fuzzy and Probability, Fuzzy Inference, Why Fuzzy Logic.

Dr. S. DasMahapatra spoke on Game Theory and Optimization .He said a game is a competitive activity in which multiple agents contest or compete to maximize their profit according to a set of 16 rules. He discussed some Examples Market- {Between firms for setting prices, adjusting quantities and finally to maximize profit}Politics- {Contesting election, campaigning strategy, vote share}Wireless Communication- {Maximize spectrum bandwidth, throughput, avoid packet collision}Auction of Art, Coal Blocks, Spectrum etc.

Dr. P. M. Sonwane discussed on Soft Computing through Particle Swarm Optimization. He covered Why Optimization is required ,When to use PSO , How to use PSO, What do you mean by PSO parameter tuning, Practice with one example of your own.

Dr. Rahul Banerjee, discussed on Bio-Inspired Routing in VANETs & Intelligent Transportations Systems. He covered Fuzziness in thoughts and many human expressions , Neural Information Processing , Genetic evolution ,Creatures' Behaviour like Ants , Bee ,Firefly , Cuckoo , Particle Swarm

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LIST OF PARTICIPANTS:

S N o.	Applicant name	Are you faculty?	Designation	Are you student?	Category	Department	Institute	Mobile number	Is Institute AICTE approved?	Academic /Industry	Accommodation required
1	Vikas Verma	Yes	Assistant Professor	Faculty - Outside	1	CSE	Jaipur National University	8560892484	Yes	Academic	No
2	Dr. Sandeep Gupta	Yes	Assistant Professor	Faculty - Outside	1	EE	JECRC University	8769065042	Yes	Academic	No
3	Amit Sharma	No		PG - Outside	1	Civil	MNIT	7791041266	Yes	Academic	No
4	Sohit Agarwal	Yes	Assistant Professor	Faculty - Outside	1	CE & IT	Suresh Gyan Vihar University, Jaipur	9251836030	Yes	Academic	No
5	Nagendra Kumar Swarnkar	Yes	Professor	Faculty - Outside	1	EE	Suresh Gyan Vihar University, Jaipur	9828229045	No	Academic	No
6	Priyank Agarwal			Faculty - Poornima Group	2	CSE	PGI	8949512266	Yes	Academic	No
7	Dr. Sushindra Kumar Gupta		Assistant Professor	Faculty - Poornima Group	2	Civil	PIET	9461239358	Yes	Academic	No
8	Udit Mamodiya		Assistant Professor	Faculty - Poornima Group	2	EE	PIET	9694802324	Yes	Academic	No
9	Priyanka sharma		Assistant Professor	Faculty - Poornima Group	2	ECE	PIET	9983175627	Yes	Academic	No

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10	Suraj Kumar Prasad	No		UG - Poornima Group	3	CSE	PIET	9955947106	Yes	Academic	Yes
11	Mohit Talmni	No		UG - Poornima Group	3	CSE	PIET	7014844324	Yes	Academic	Yes
12	Yuvraj Dagur	No		UG - Poornima Group	3	CSE	PIET	8949090660	Yes	Academic	No
13	Atishey Jain	No		UG - Poornima Group	3	CSE	PIET	9799415822	Yes	Academic	No
14	Shubham singh dagur	No		UG - Poornima Group	3	CSE	PIET	9511559076	Yes	Academic	Yes
15	Yuvraj Saxena	No		UG - Poornima Group	3	CSE	PIET	9116123915	Yes	Academic	No
16	Kunal Kumar	No		UG - Poornima Group	3	CSE	PIET	7033279724	Yes	Academic	Yes
17	Kunwar Abhishek	No		UG - Poornima Group	3	BCA	PU	8368024694	Yes	Academic	No
18	Chetna Bhurani	No		UG - Poornima Group	3	BCA	PU	9983245564			
19	Naman Dixit	No		UG - Poornima Group	3	CSE	PU	9461981920	Yes	Academic	No
20	Shashank Singh	No		UG - Poornima Group	3	CSE	PU	9694631058	Yes	Academic	No
21	Arvind Kumar Gupta	No		UG - Poornima Group	3	EE	PU	9877967479	No	Academic	No
22	Nayan Kumar	No		UG - EE, PCE	4	EE	PCE	9507898557	Yes	Academic	No
23	Dr Himani Goyal Sharma		Professor	Faculty - EE, PCE	5	EE	PCE	9676974176	Yes	Academic	No
24	Arpit khandelwal		Assistant Professor	Faculty - EE, PCE	5	EE	PCE	8058227694	Yes	Academic	No
25	Amit Shrivastava	Yes	Professor	Faculty - EE, PCE	5	EE	PCE	9314860660	Yes	Academic	No
26	Dr.Deepika chauhan	Yes	Professor	Faculty - EE, PCE	5	EE	PCE	9252605292	Yes	Academic	No

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ISI-6, RIICO Institutional Area
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27	Devendra Kumar Doda		Assistant Professor	Faculty - EE, PCE	5	EE	PCE	9352260373	Yes	Academic	No
28	Mohammad Asif Iqbal	Yes	Associate Professor	Faculty - EE, PCE	5	EE	PCE	9602022384	Yes	Academic	No
29	Pankaj Ghakkar	Yes	Assistant Professor	Faculty - EE, PCE	5	EE	PCE	7737764255	Yes	Academic	No
30	Dr. Pravin Machhindra sonwane	Yes	Professor	Faculty - EE, PCE	5	EE	PCE	8805868462	Yes	Academic	No
31	Trimesh Kumar		Assistant Professor	Faculty - EE, PCE	5	EE	PCE	9413056699	Yes	Academic	No
32	Dr. Payal Bansal	Yes	Associate Professor	Faculty - Non - EE, PCE	6	ECE	PCE	9785487195	Yes	Academic	No
33	Arpit Singh Bhadoria		Assistant Professor	Faculty - Non - EE, PCE	6	Civil Engineering	PCE	8770918450	Yes	Academic	No
34	Amit Kumar Jain	Yes	Assistant Professor	Faculty - Non - EE, PCE	6	ECE	PCE	9509677599	Yes	Academic	No
35	Tarun Mishra	Yes	Assistant Professor	Faculty - Non - EE, PCE	6	ECE	PCE	9982013388	Yes	Academic	No
36	Manisha Kumawat	Yes	Assistant Professor	Faculty - Non - EE, PCE	6	ECE	PCE	8209399842	Yes	Academic	No
37	mukesh chand		Assistant Professor	Faculty - Non - EE, PCE	6	ECE	PCE	9461779584	Yes	Academic	No
38	Brijraj Singh Solanki	Yes	Assistant Professor	Faculty - Non - EE, PCE	6	ECE	PCE	9829533943	Yes	Academic	No

Dr. Mahesh Bundele
B.E., M.E., Ph.D.
Director
Poornima College of Engineering
ISI-6, RIICO Institutional Area
Sitapura, JAIPUR

39	Seeta Gupta	Yes	Assistant Professor	Faculty - Non - EE, PCE	6	IT	PCE	7062247280	Yes	Academic	No
40	Aman Jain	No		UG - Non - EE, PCE	7	ECE	PCE	7014383427	Yes	Academic	No
41	Rahul Rathi	No		UG - Non - EE, PCE	7	ECE	PCE	7737821823	Yes	Academic	No
42	Vansh gupta	No		UG - Non - EE, PCE	7	ECE	PCE	6377163048	Yes	Academic	No
43	Manish Kumar	No		UG - Non - EE, PCE	7	ECE	PCE	9262225777	Yes	Academic	No
44	Vikash kumar	No		UG - Non - EE, PCE	7	ECE	PCE	7488103127	Yes	Academic	No
45	Ananya katara	No		UG - Non - EE, PCE	7	ECE	PCE	8094611961	Yes	Academic	No
46	Harsh saini	No		UG - Non - EE, PCE	7	EC E	PCE	8619920374	Yes	Academic	No
47	Ishita chauhan	No		UG - Non - EE, PCE	7	ECE	PCE	9.19057E+11	Yes	Academic	No

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FEEDBACK ANALYSIS:

DST (Rajasthan) SPONSORED NATIONAL WORKSHOP ON "Recent Advancements in Soft Computing and Optimization Techniques for Smart Engineering Systems" on **February 24-26, 2020.**

	Attributes	Comments	No. Of Comments
Program	Organizing level	Excellent	8
		Very Good	7
		Good	6
		Poor	2
	Guests/ Dignitaries	Excellent	16
		Very Good	2
		Good	3
		Poor	2
		Excellent	5
	Reception & publicity	Very Good	7
		Good	9
		Poor	2
The Talk Contents	Relevance	Excellent	8
		Very Good	7
		Good	8
		Poor	0
	Depth	Excellent	8
		Very Good	8
		Good	5
		Poor	2
	Interest	Excellent	8
		Very Good	9
		Good	5
		Poor	1
	Importance	Excellent	10
		Very Good	7
		Good	5
		Poor	1
	Understansding	Excellent	5
		Very Good	8
		Good	7

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		Poor	3
The Facilitators	Knowledge	Excellent	16
		Very Good	3
		Good	2
		Poor	2
	Preparedness	Excellent	12
		Very Good	3
		Good	5
		Poor	3
	Response to participant's questions	Excellent	12
		Very Good	2
		Good	6
		Poor	3
	Delivery	Excellent	11
		Very Good	5
		Good	5
		Poor	2
Overall understanding of concepts		Excellent	5
		Very Good	11
		Good	7
		Poor	7
Duration of the program		Excellent	5
		Very Good	7
		Good	10
		Poor	0
Overall how would you rate this program		Excellent	9
		Very Good	7
		Good	5
		Poor	2
Would you like to work in this direction		Yes	16
		No	7
Would you like to attend similar activity in future?		Yes	20
		No	3
Suggestions	The duration could be extended to seven days More Practical sessions should be included		
	Nice startup for information		
	Session should cover more duration		
	Gave good knowledge		

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VOTE OF THANKS:

Dr Babita Jain thanked all the participants for wholeheartedly take active participation in the National Lelvel Three days workshop sponsored by De Department of Science and Technology, Rajasthan. Out of the overwhelming reponse of 85 participants, 47 participants were shortlisted.The main objective tough very comprehensive highligeted on barious techniques used for smart Engineering Systems and their recent advancement. After a theory session of almost four hours of theory Interactive Session, at least two hours of hands on practice was given to 29 the participants .

The workshop aimed at developing expertise of soft computing and optimization techniques like Fuzzy Logic, Artificial Neural Networks, Particle Swarm Optimization etc. that can be used to solve various complex and smart engineering systems.

The participants gained expertise in various techniques of Soft Computing and Optimization like Fuzzy Logic, Artificial Neural Networks, Particle Swarm Optimization etc. They were also able to solve various Complex and Smart Engineering Systems. The participants were able to apply suitable Soft Computing/Optimization Technique for linear, non-linear, complex and multi-dimensional engineering systems to reach to the solution of complex problems in various engineering domains. Particpants also understood features of Smart Grid in the context of Indian Grid and address various issues related to the Generation, Transmission, Distribution, Utilization, Optimization and Scheduling of electrical power in Smart Grids. They are also expected to apply Evolutionary Algorithms to the Smart Grids and Distributed Generation systems.

FINALLY, An INSPIRING QUOTE BY MARTIN LUTHER KING, “AN INDIVIDUAL HAS NOT STARTED LIVING UNTIL HE RISES ABOVE THE CONFINES OF HIS INDIVIDUALISTIC CONCERNS TO THE BROADER CONCERNS OF ALL HUMANITY

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