Two week online Faculty Development Program on

"Additive Manufacturing and 3D Printing (AM & 3DP)"

July 18-29, 2022

Schedule

Session	Title	Date	Time
	Day 1		
1.	Introduction to AM, Need of AM; Classification of manufacturing processes, Basic Principles of AM, Steps in AM, Process chain in AM	July 18, 2022	3:30pm to 4:30pm
2.	Research Opportunities for Factories of the Future	July 18, 2022	4:30pm to 5:30pm
3.	Issues and Challenges in Additive Manufacturing: Errors in AM, volumetric errors, accuracy, stair case effect etc.	July 18, 2022	6:00pm to 7:00pm
4.	Product Cycle with AM: Product Developing Cycle, Components of Rapid Product Development	July 18, 2022	7:00pm to 8:00pm
	Day 2		
5.	Additive Manufacturing: Classification, Materials and Variants	July 19, 2022	3:30pm to 4:30pm
6.	Pharmaceutical Applications of Additive Manufacturing	July 19, 2022	4:30pm to 5:30pm
7.	Machine learning application in Additive Manufacturing	July 19, 2022	6:00pm to 7:00pm
8.	Additive Manufacturing using MATLAB	July 19, 2022	7:00pm to 8:00pm
	Day 3		
9.	Development of patient specific cardiovascular stent using Solvent Cast 3D Printing	July 20, 2022	3:30pm to 4:30pm
10.	STL File Problems/errors	July 20, 2022	4:30pm to 5:30pm
11.	Data Preparation for AM using MAGICS	July 20, 2022	6:00pm to 7:00pm
12.	STL file reading using MATLAB	July 20, 2022	7:00pm to 8:00pm
	Day 4		
13.	Advancement of 3 D printing in orthopedic implants	July 21, 2022	3:30pm to 4:30pm
14.	STL File Manipulation and Repair Algorithms	July 21, 2022	4:30pm to 5:30pm
15.	Suitability of Nanocomposite in Fused Filament Fabrication	July 21, 2022	6:00pm to 7:00pm
16.	STL repairing using MATLAB	July 21, 2022	7:00pm to 8:00pm
	Day 5		
17.	Positioning control	July 22, 2022	3:30pm to 4:30pm
18.	Build your own Printer	July 22, 2022	4:30pm to 5:30pm
19.	Open-source software for 3D printing	July 22, 2022	6:00pm to 7:00pm
20.	Issues and Challenges in Part printing	July 22, 2022	7:00pm to 8:00pm
	Day 6		
21.	Slicing Procedures: different Slicing procedures e.g. direct slicing, adoptive slicing etc.,	July 25, 2022	3:30pm to 4:30pm
22.	Part Orientation in RP: Part deposition orientation for support minimization, surface finish, Time, volumetric loss.	July 25, 2022	4:30pm to 5:30pm
23.	Design for Additive Manufacturing	July 25, 2022	6:00pm to 7:00pm
24.	Materials and their characteristics for Additive Manufacturing	July 25, 2022	7:00pm to 8:00pm
	Day 7		
25.	Zinc based implants for orthopedic applications	July 26, 2022	3:30pm to 4:30pm
26.	Algorithm development and Problem formulation for slicing/data preparation of AM	July 26, 2022	4:30pm to 5:30pm
27.	4D Printing	July 26, 2022	6:00pm to 7:00pm
28.	Essentials of Programming for Innovative Post processing techniques in AM	July 26, 2022	7:00pm to 8:00pm

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	Day 8		
29.	Indirect Metal Additive Manufacturing	July 27, 2022	3:30pm to 4:30pm
30.	Slicing algorithm and implementation, contour generation, path planning, G&M code generation using MATLAB	July 27, 2022	4:30pm to 5:30pm
31.	MATLAB programming for generating customized lattice structure for Additive Manufacturing	July 27, 2022	6:00pm to 7:00pm
32.	Introduction to CLI file, RP tools, repair of CLI file, reading and plotting CLI file using MATLAB	July 27, 2022	7:00pm to 8:00pm
	Day 9		
33.	Product Design and Development	July 28, 2022	3:30pm to 4:30pm
34.	Product Development through Additive Manufacturing and 3D Printing	July 28, 2022	4:30pm to 5:30pm
35.	Tessellation Algorithms: Delaunay, Dirchlet, Voronai diagram etc	July 28, 2022	6:00pm to 7:00pm
36.	Innovative Applications: Renovated Designs with AM, Tailoring Material properties, Integration of RP with CAE/FEM	July 28, 2022	7:00pm to 8:00pm
	Day 10		
37.	Guided Endodontics, CT scan to STL: Generation of STL model from CT scan MRI Images, Introduction to MIMICS	July 29, 2022	3:30pm to 4:30pm
38.	Medical Applications of AM: education, surgery planning etc.	July 29, 2022	4:30pm to 5:30pm
39.	Pellet based Additive Manufacturing: Opportunities and Challenges	July 29, 2022	6:00pm to 7:00pm
40.	Induction Heating as Alternative Energy Source for Metal Additive Manufacturing	July 29, 2022	7:00pm to 8:00pm

List of Speakers for the Course:

S. No.	Name & Designation	Affiliated Department and Institute	Name
1.	Dr. P. M. Pandey	IIT Delhi	PMP
2.	Dr. Puneet Tandon	PDPM IIITDM Jabalpur	PT
3.	Dr. Prashant K. Jain	PDPM IIITDM Jabalpur	PKJ
4.	Dr. Pavan Kumar Kankar	IIT Indore	PKK
5.	Dr. K. Senthil Kumaran	IIITDM Kanchipuram	KSK
6.	Dr. Amit Singh	MNIT Jaipur	AS
7.	Dr. Mohammad Taufik	MANIT Bhopal	MT
8.	Dr. Narendra Kumar	NIT Jalandhar	NK
9.	Dr. Vishal Gupta	Thapar Institute of Engineering & Technology, Patiala, Punjab	VG
10.	Dr. Vineet Shrivastava	Thapar Institute of Engineering & Technology, Patiala, Punjab	VS1
11.	Dr Gurminder Singh	IIT Bombay	GS
12.	Dr Varun Sharma	IIT Roorkee	VS2
13.	Dr Pawan Sharma	IIT BHU	PS
14.	Dr Dayanidhi Krishna Pathak	G. B. Pant Govt. Engineering College New Delhi	DKP
15.	Dr. Jasvinder Singh	SRM University	JS
16.	Dr. Manu Srivastava	PDPM IIITDM Jabalpur	MS
17.	Dr. Ankit Nayak	Banasthali Vidyapith, Rajasthan	AN
18.	Dr. Vishal Francis	Lovely Professional University, Phagwara	VF
19.	Mr. Piyush Ukey	Nu Ossa Mediquip, Nagpur	PU