

# 3 DAYS WORKSHOP ON PCB FABRICATION AND ASSEMBLY



## SCHEDULE DAY 1-(5<sup>th</sup> March 2025)






TIME	TOPIC	SPEAKER(S)
<b>BREAKFAST &amp; REGISTRATION (8:30-9:15 AM)</b>		
9:15-9:45 AM	INTRODUCTION (PCB FABRICATION) <ul style="list-style-type: none"> <li>INTRODUCTION AND FACILITIES AVAILABLE AT mPRAGATI</li> <li>AIM AND OBJECTIVES OF THE WORKSHOP</li> </ul>	Prof. Shahid Malik Prof. Dinesh Kalyanasundaram
9:45-10:45 AM	BASICS OF ELECTRONIC COMPONENTS <ul style="list-style-type: none"> <li>OVERVIEW OF ELECTRONIC COMPONENTS</li> <li>PASSIVE ELEC. COMPONENTS (RESISTORS, CAPACITORS, INDUCTORS)</li> <li>ACTIVE ELEC. COMPONENTS (DIODES, INTEGRATED CIRCUITS (ICs))</li> </ul>	Prof. Deepak Joshi
<b>TEA BREAK (10:45-11:00 AM)</b>		
11:00-01:00 AM	INTRODUCTION TO PCB DESIGN AND FABRICATION <ul style="list-style-type: none"> <li>PCB DESIGN PROCESS</li> <li>PCB FABRICATION PROCESS</li> <li>DIFFERENT TYPES OF MATERIALS USED FOR PCB FABRICATION</li> </ul>	Prof. Shahid Malik
<b>LUNCH BREAK (1:00-2:00 PM)</b>		
01:00-3:30 PM	HANDS-ON PRACTICE IN PCB DESIGNING <ul style="list-style-type: none"> <li>SETTING UP THE DESIGN ENVIRONMENT.</li> <li>COMPONENT SELECTION AND ROUTING TRACES</li> <li>DESIGN RULE CHECKING (DRC) AND ERROR CORRECTION</li> <li>GENERATING MANUFACTURING FILES</li> </ul>	Prof. Shahid Malik Dr. Veenus Kansal Mr. Abhishek Singh Aswal
<b>TEA BREAK (3:30-4:00 PM)</b>		
04:00-05:30 PM	APPLICATION OF PCBs IN MEDICAL DEVICES	Prof. Naveen Kumar Singh

Venue: Board Room, 3rd floor (lectures) and 3C3 (hands-on training), R&I Park IIT Delhi

# 3 DAYS WORKSHOP ON PCB FABRICATION AND ASSEMBLY



## SCHEDULE DAY 2-(6<sup>th</sup> March 2025)

TIME	TOPIC	SPEAKER(S)
<b>BREAKFAST (8:30-9:10 AM)</b>		
9:10-9:30 AM	RECAP OF THE PREVIOUS DAY	Prof. Shahid Malik Prof. Dinesh Kalyanasundaram
09:30-10:30 AM	PROCESS-I: MARKING AND DRILLING OF PCB <ul style="list-style-type: none"> <li>OVERVIEW AND SETTINGS OF LPKF S104 MACHINE</li> <li>PREPARING PCB FOR MARKING AND DRILLING</li> </ul>	Prof. Dinesh Kalyanasundaram Dr. Veenus Kansal Mr. Deepak Mittal
		
10:30-11:30 AM	PROCESS-II: ELECTROPLATING (METHOD AND ITS USES) <ul style="list-style-type: none"> <li>OVERVIEW OF LPKF CONTACT 4 MACHINE</li> <li>PREPARING PCB FOR ELECTROPLATING &amp; SETTING UP LPKF CONTACT 4</li> </ul>	Dr. Veenus Kansal Mr. Deepak Mittal
		
<b>TEA BREAK (11:30-11:45 AM)</b>		
11:45-1:00 PM	PROCESS-III: MILLING OF THE PCB AND QUALITY CHECK <ul style="list-style-type: none"> <li>PREPARING PCB FOR MILLING PROCESS &amp; SETTING UP THE MILLING MACHINE</li> <li>QUALITY CHECK PROCEDURES: VISUAL INSPECTION &amp; ELECTRICAL TESTING (E.G., CONTINUITY TESTING)</li> </ul>	Prof. Dinesh Kalyanasundaram Dr. Veenus Kansal Mr. Abhishek Aswal
		
<b>LUNCH BREAK (1:00-2:00 PM)</b>		
02:00-04:00 PM	PROCESS-IV: MASKING <ul style="list-style-type: none"> <li>INTRODUCTION TO MASKING</li> <li>PURPOSE OF MASKING IN PCB MANUFACTURING</li> <li>MASKING METHODOLOGY</li> </ul> PROCESS-V: LEGEND PRINTING. <ul style="list-style-type: none"> <li>INTRODUCTION TO LEGEND PRINTING</li> <li>METHODOLOGY OF LEGEND PRINTING IN PCB MANUFACTURING</li> </ul>	Prof. Shahid Malik Dr. Veenus Kansal Mr. Abhishek Singh Aswal
		
4:00-5:30 PM	PROCESS-VI: TINNING (ITS NEED AND TECHNIQUE) <ul style="list-style-type: none"> <li>OVERVIEW OF TINNING TECHNIQUES</li> <li>TINNING BY ELECTROPLATING</li> </ul>	Prof. Naveen Kumar Singh Mr. Deepak Mittal Mr. Abhishek Singh Aswal
		

Venue: Board Room, 3rd floor (lectures) and 3C3 (hands-on training), R&I Park IIT Delhi

# 3 DAYS WORKSHOP ON PCB FABRICATION AND ASSEMBLY



## SCHEDULE DAY 3-(7<sup>th</sup> March 2025)

TIME	TOPIC	SPEAKER(S)
<b>BREAKFAST (8:30-9:10 AM)</b>		
9:10-9:30 AM	RECAP OF THE PREVIOUS DAY	Prof. Shahid Malik
09:30-11:00 PM	PROCESS-VII: PCB ASSEMBLY <ul style="list-style-type: none"> <li>• OVERVIEW OF PCB ASSEMBLY PROCESS</li> <li>• TYPES OF PCB ASSEMBLY:               <ul style="list-style-type: none"> <li>→ THROUGH-HOLE ASSEMBLY</li> <li>→ SURFACE MOUNT ASSEMBLY</li> </ul> </li> <li>• COMPONENTS USED IN PCB ASSEMBLY</li> </ul> SOLDERING TECHNIQUES	Prof. Dinesh Kalyanasundaram Dr. Veenus Kansal Mr. Deepak Mittal
11:30-11:30 PM	PROCESS-VIII: TESTING OF THE ASSEMBLED PCB <ul style="list-style-type: none"> <li>• TESTING AND INSPECTION METHODS</li> <li>• TROUBLESHOOTING COMMON ASSEMBLY ISSUES</li> <li>• ENVIRONMENTAL CONSIDERATIONS AND COMPLIANCE</li> </ul>	Prof. Shahid Malik Mr. Deepak Mittal Mr. Abhishek Singh Aswal
<b>TEA BREAK (11:30-11:45 AM)</b>		
11:45-1:00 PM	INTRODUCTION TO FUSION 360 AND GENERATION OF G-CODE FILE	Prof. Dinesh Kalyanasundaram Dr. Veenus Kansal Mr. Deepak Mittal
<b>LUNCH BREAK (1:00-2:00 PM)</b>		
2:00-4:00 PM	INTRODUCTION TO FLEXIBLE SUBSTRATE PRINTING ON IDS NANOJET	Mr. Deepak Mittal Mr. Abhishek Singh Aswal
4:00-5:00 PM	CONCLUDING REMARKS  HANDING OVER THE CERTIFICATES	
<b>HIGH-TEA (5:00 PM)</b>		

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