Serving SMT Industry

TechMent Consultancy

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SBL Claimable

Improving SMT PCBA Process

Towards High Reliability and Quality SMT

Who Should attend :

Managers, Engineers, Technicians and Technical Supervisors from various discipline such as Process, Manufacturing, Quality and Equipment Engineering in OEM and CEM industry.

Course Fee :

RM 1200 per participant. (Inclusive of notes, coffee and tea breaks, Lunch and Certificates). Group discount of 5% for more than 3 participants from same organisation.

Course Outlines

1. SMT Process, Wetting Mechanism and Components understanding
2. Advanced packages, CSP, Flip Chip Assembly Process.
3. PCB substrate technology and compositional Analysis
4. Troubleshooting Solderability problems
5. Solder joints reliability, intermetallic and microstructures.
6. Lead Free vs leaded soldering
7. Solder paste selection and its relation to reflow soldering.
8. Solder paste printing process parameters
9. Stencil design guidelines and its impact on manufacturing and reliability
10. Reflow soldering, thermal profile implication and optimisation
11. Board Testing and AOI
12. Process Clinic, discussion on possible causes/solution.

REGISTRATION FORM

1. Name : ______________________________ Position : ______________________
2. Name : ______________________________ Position :______________________
3. Name : ______________________________ Position : ______________________
4. Name : ______________________________ Position : ______________________

Contact Person:

Name: ________________________________ Position: ______________________

Company: ____

Address: ____

Tel: ______________ Fax: _______________Email: _________________________

Cheque: Payment by cheques should be crossed and made payable to **Techment Consultancy** being payment for ______participant(s).)

For registration, please call Ms Teo: *Tel: 04-6433817 Fax: 04-6446067*

Email: admin@techment.com.my or **afng@pc.jaring.my** **Or** register on-line www.techment.com.my

Detail Course Content

Development of SMT

- Benefits of SMT versus THT
- Traditional SMD
- Advanced SMT packages BGA, CSP and Flip Chips, 0201etc
- Process discussion on handling these advanced packages.
- Flip Chip bumping and under filling.
- Wetting mechanism with Young's equation
- Solder joints reliability detail study.

SMT manufacturing equipment requirements and investment

- What are the critical processes in a SMT assembly line.
- Key equipment features for each process steps.

Understanding Printed circuit substrates.

- Types and construction of Printed circuit substrates.
- Common surface finishes .HASL, Imm Ag, ENIG,OSP...
- Laminates, solder mask, laminates, via holes concerns.
- Land pattern designs, purpose and impacts.

Solderability study for assembly.

- Factors affecting solderability.
- Details solder joint structures and formation.
- Factors affecting solder joint reliability.
- Solder joint microstructure
- Intermetallic compound understanding
- Creep, Fatigue strength.

Solder paste characteristics and handling procedures.

- Solder composition, discussion on function of each elements such as volatile ,flux activators, rheological modifiers etc.
- Selection of solder paste for application.
- Storage and handling procedure for optimum performance.
- Paste characteristic during printing, viscosity, rheology.

Solder paste printing

- Critical printer set up parameters, achieve good printability.
- Stencil design, aspect and area ratio, AAR.
- Maximising transfer ratio through stencil design.
- Paste-in-Hole technology.

Flux selection and cleaning concerns.

- Types of fluxes for SMT application.
- Clean versus No-clean operation.
- Fluxing action throughout reflow oven.
- Types of cleaning commonly used

Reflow Soldering

- Types of reflow oven and mechanism.
- Thermal profiling, factors affecting solderability.
- Thermal profiling impacting solder joint reliability
- Reflow oven heating uniformity and capacity.
- Application of Nitrogen in reflow, results and impacts.

Lead Free Soldering

- Reasons for Lead-free
- Impact on SMT line, printing, reflow
- Lead Free solder alloy comparison
- Common lead free solder joint defects.

Testing and AOI

- ICT and functional test
- AOI and AXI application for SMT assembly

Process discussion and problem encountered, possible solutions.

- Problems such as Tombstoning, voids, cold joints, non-wetting solder crack, delamination, bridging will be discussed in detail

Course Leader :

AF.Ng, a full-time consultant with TechMent Consultancy has conducted many in-house and public technical programmes for manufacturing sector, and currently a consultant for SMT line set up, process yield improvement and other engineering consultancy projects. Mr. Ng has a total of 30 years of Engineering experience in various disciplines namely equipment, process and maintenance. He has been providing training on SMT Board assembly process; Wave Soldering Process and other related program since 1998, they have been very well received by the participants, with good feedback. His expertise in SMT includes maintenance, process control and equipment selection. More than **100** companies have used his training service since its inception and more than 2000 participants attended the course. He has been conducting the similar program throughout Malaysia and Overseas.