

MEDIATEK

Smartphone Design Training Program (2017-18)

Course Structure



Smartphone Design Training Program (2017-18)

- **Motivation** : Building up mobile phone design and fabrication capability

- **Outline of program** :
 1. Mobile phone design process
 2. Performance testing and tuning
 3. Basic BSP knowledge
 4. Case study
 5. Final contest

Highlights of the Program

- Taiwan mobile phone eco-system visit tours
- Real practice in MediaTek platform
- Digital /Analogue /Cellular RF /Wireless Connectivity /Multimedia relative knowledge

Contents

- Mobile phone market segmentation and positioning
- Digital and analog design
- RF and Wireless Connectivity
- Camera/Audio tuning
- Power consumption and thermal design
- Certification and regulation
- BSP driver
- Case study (measurement and debugging)

Agenda

- **Part I (in India)**
 - 6 weeks (1 day per week)
 - Fundamental knowledge and skill
- **Part II (in Taiwan)**
 - 3 weeks (5 days per week)
 - Specific topics and practical case study

Topics and outline

Category	Topics
Common/ From panoramic to perspective	<ol style="list-style-type: none">1. Telecommunication System introduction2. Mobile communication migration3. Mobile Platform Introduction
Common/ Market segmentation and positioning (high level features)	<ol style="list-style-type: none">1. Design flow2. Evaluation of PCBA stack3. Key Parts Introduction
Common/ Digital design	<ol style="list-style-type: none">1. System Block2. Baseband and Application processor3. Memory4. Peripherals
Common/ Power	<ol style="list-style-type: none">1. System Power2. PDN3. Charger and Fuel Gauge4. Safety

Topics and outline

Topic	Outline
Common/ DFM (Design For Manufacture)	Reliability, DFMEA, NPI
Common/ SW related	<ol style="list-style-type: none">1. Android/MTK system architecture and building2. HW configuration/BSP driver porting3. Android Framework introduction4. Android/MTT debugging system5. Low memory behavior and tuning, lagging issue analysis6. MTBF, monkey concept, debug notice and demo
Common/ Production Tools	<ol style="list-style-type: none">1. Download2. Calibration Tools3. System Function test design

Topics and outline

Topic	Outline
Specific – System/ Audio and Speech	<ol style="list-style-type: none">1. Audio Application2. Audio Test3. Speech Application4. Speech Tuning
Specific – System/ Power and Thermal	<ol style="list-style-type: none">1. Low Power Concept and Measurement2. Thermal Concept and Measurement
Specific – System/ Interference and ESD	<ol style="list-style-type: none">1. EMI/ESD concept and debugging
Specific – Multimedia/ Display	<ol style="list-style-type: none">1. Display Introduction2. LCM and Touch Panel
Specific – Multimedia/ Camera	<ol style="list-style-type: none">1. Camera Basic (sensor and module)2. Camera Calibration3. Camera Tuning/Testing

Topics and outline

Topic	Outline
Specific – RF/ RF design basic	<ol style="list-style-type: none">1. RF System Block2. Frontend Design3. Transceiver4. RF Tuning5. RF Measurement
Specific – RF/ Wireless Connectivity	<ol style="list-style-type: none">1. BT Spec, System block2. WiFi Spec, System block3. GPS Spec, System block4. FM Spec, System block5. Debug and De-sense design guidelines
Specific – RF/ Antenna Design	<ol style="list-style-type: none">1. Mobile Antenna Design2. SAR

Workshop

- **Testing equipment Day**
 - Invited company: Anritsu, KeySight, Litepoint, Rohde-Swarz, etc.
- **Key Components Day**
 - Camera/ Audio devices / Touch and Finger Printer
 - Invite company: AAC, Airoha, Goodix, Ilitek, MXIC, Knowles, Murata, Nanya, Richtek, TXC, Voltafield, Winbond, etc.



everyday genius