

COURSE SYLLABUS

**Name of the Group:** *Embedded System Group*

**Name of the Course:** Certificate course on *Mobile Hardware and Architecture*

**Course Code:** *MC 300*

**Starting Date:** 10<sup>th</sup> April 2018

**Duration:** \*4 Weeks (*Last week optional*)

**Course Structure:** *This course contains total three modules. Case studies and mini projects will be available as an optional module of this course.*

<i>MC300</i>	<i>Module Name</i>	<i>Weeks</i>
<i>MC301</i>	Mobile Hardware Basics	<i>1</i>
<i>MC302</i>	<i>Embedded Bus protocols and interfacing</i>	<i>1</i>
<i>MC303</i>	<i>Operating Systems Fundamentals for Mobile Phones</i>	<i>1</i>
<i>MC304*</i>	<i>Case study (Mobile Handset Assembly and Mini project) - optional module</i>	<i>1</i>
	<b><i>Total</i></b>	<b><i>4</i></b>

a. Course Contents :

**MC 301: Mobile Hardware Basics**

**Module Duration: 5 days**

**Objective**

This course covers the architecture of the popular Mobile phones , Electronic basics for understanding the Mobile hardware, Various Wireless technologies used in the Mobile phones

**Course Description**

Mobile Hardware Architecture

Mobile Processors

Wireless Technologies in Mobile Hand set - FM, 3G/4G/5G, Bluetooth, WiFi

**Learning Outcomes**

After successful completion of the module, the students shall be able to understand the various architecture used in smart phone and get overview of technologies involved in smart phones.

**MC302: Embedded Bus protocols and interfacing**

**Module Duration: 5 days**

**Objective**

The objective of the module is to introduce various embedded bus protocols used in smart phones.

## Course Description

Embedded Bus protocols

SPI/I2C, MIPI etc.

Interfacing touch screen, camera and other peripherals

## Learning Outcomes

After successful completion of the module, the students shall be able to:

- Understand the Embedded bus protocols and how to interface various modules to smart phone hardware.

## **MC 303:** *Operating Systems Fundamentals for Mobile Phones*

**Module Duration:**5 days

### Objective

The participants of this module will learn various software tools OS basics related to smart phone.

## Course Description

- OS Fundamentals
- Porting OS to hardware
- Boot loaders
- Application development

## Learning Outcomes

After successful completion of this module, students should be able to:

- Understand the basics of OS used in smart phones .
- Understand how application can be developed in smart phone.

## **MC 304:** *Case study & Mini project - Optional module*

**Module Duration:**5 days

***\*Optional: Candidates (Including SC/ST Reservation candidates) need to pay Rs5000/- + GST for the Mobile handset Assembling kit, which will be provided for last module)***

## Objective

The participants of this module will learn how to assemble Smartphone and feature phone from scratch and make some applications .

## Course Description

- Smart phone assembling
- Mini Project

## Learning Outcomes

After successful completion of this module, students should be able to:

- Understand the how to assemble a Smartphone .