

It is hereby informed to all concerned that, on the recommendation of the Dean, Faculty of Science & Technology, the Hon'ble Vice-Chancellor **has accepted the "Elective for B.E. Final Year for the branches of CSE/IT, ETC i.e. Cross-Platform Application Development for semester IInd as an Electives -II** under the Faculty of Science & Technology in his emergency powers under section 12(7) of the Maharashtra Public Universities Act, 2016 on behalf of the Academic Council as appended herewith.

This shall be effective from the Academic Year 2017-2018 and onwards.

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

REF.NO. SU/B.E./2017/ 6499-6533
Date:- 20-12-2017.

Date:- 20-12-2017.

[Signature]
Deputy Registrar,
Syllabus Section.

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Copy forwarded with compliments to :-

- 1] **The Principals, affiliated concerned Colleges,
Dr. Babasaheb Ambedkar Marathwada University.**
- 2] **The Director, University Network & Information Centre, UNIC, with
a request to upload this Circular on University Website.**

Copy to :-

- 1] The Director, Board of Examinations & Evaluation,
- 2] **The Section Officer, [Engineering Unit] Examination Branch,**
- 3] The Section officer, [Eligibility Unit],
- 4] **The Programmer [Computer Unit-1] Examinations,**
- 5] **The Programmer [Computer Unit-2] Examinations,**
- 6] The In-charge, [E-Suvidha Kendra],
- 7] The Public Relation Officer,
- 8] The Record Keeper,

**DR. BABASAHEB AMBEDKAR
MARATHWADA UNIVERSITY,
AURANGABAD.**



Syllabus of

"CROSS -PLATFORM APPLICATION DEVELOPMENT"

B.E.[CSE/IT/ECT]

SECOND SEMESTER

[ELECTIVE]

Effective from the Academic Year 2016-17 & onwards]

Dr. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD
FACULTY OF ENGINEERING AND TECHNOLOGY

Final Year Engineering
(CSE/IT/ECT) Semester – II

Course Code: **Title: Elective II Cross-Platform Application Development**

Teaching Scheme:
Theory: 4 Hours/Week

Examination Scheme
Class Test: 20 Marks
Theory Examination (Marks): 80 Marks
Theory Examination (Duration): 03 Hrs

Prerequisite:

- Fundamentals of C# and OOPS Concepts.

Objectives:

- To train the students with the concepts of Cross-Platform Application Development
- To develop applications in C# because of the need in the availability of growing number of application developers in Smart phone technologies.

CONTENTS

SECTION-A:

Unit 1: Introduction: Cross-Platform Application Development (6 Hrs)

What is Cross-Platform, Different type of cross-platform application development tools, What Is Xamarin. Development Environments, Xamarin. Forms and Platform-Specific UI, Mobile UI Design, Xamarin.Forms Solution Architecture, Platform-specific UI Solution Architecture. PCL and Shared project, Mobile UI Elements.

Unit 2: UI Development with Xamarin.Forms (6Hrs)

Views in-depth, Views Label ,Button ,Entry ,Image View, WebView, Layouts StackLayout, RelativeLayout, AbsoluteLayout, Grid, Application Lifecycle Methods, Building Pages Using ContentPage , User Interaction Using Controls, Picker , Stepper ,Slider ,Switch , Android Controls , iOS Controls.

Unit 3: Navigation and Data Adapters, Binding (8Hrs)

Data Adapters, Xamarin.Forms ListView , Binding to a Data Model, Binding to a List of Strings , Customizing ListView , Navigation Patterns , Hierarchical Navigation Using NavigationPage , Managing State , Navigation Drawer Using MasterDetailPage , Tabs Using TabbedPage , Carousel Using CarouselPage.

SECTION-B:

Unit 4: Application Fundamental Concepts

(6 Hrs)

Introduction to Custom Renderers, When to Use a Custom Renderer, Creating and Using a Custom Renderer, Android Custom Renderer, iOS Custom Renderer, Renderer Base Classes and Native Controls, Customizing an Entry, ContentPage, ListView

Unit 5: DependencyService and Features

(8 Hrs)

Introduces the overall architecture of the DependencyService concept. Effects, Gestures, MessagingCenter, Triggers, Platform-Specifics, Plugins, Themes

Unit 6: Data Access with SQLite and Data Binding

(6 Hrs)

Data Binding, Xamarin.Forms Data Binding, Using INotifyPropertyChanged, Understanding ViewModels and MVVM, Using SQLite Database, Web Services, Enterprise Cloud Data Solutions, Microsoft Azure, Deployment and Testing

Text Books:

1. "Xamarin Mobile Application Development Cross-Platform C# and Xamarin.Forms Fundamentals" by Dan Hermes, Apress Publications.
2. "Xamarin Cross-platform Application Development", Second Edition by Jonathan Peppers, Packet Publication.

Reference Books:

1. "Mastering Xamarin.Forms | PACKT Books - Packet Publishing", Author: Ed Snider.
2. "Creating Mobile Apps with Xamarin.Forms" - by Charles Petzold Microsoft Publication.

PATTERN OF QUESTION PAPER:

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no. 1 from section A and Question no. 6 from section B, 10 marks each, will be compulsory.
4. From the remaining questions in section A and B students are supposed to solve any two questions from each section, 15 marks each.

**Dr. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD
FACULTY OF ENGINEERING AND TECHNOLOGY**

**Final Year Engineering
(CSE/IT/ECT) Semester – II**

Course Code:

**Title: - LAB-I Elective-II
Cross-Platform Application Development**

Teaching Scheme

Practical: 2 Hours/Week

Examination Scheme

Term Work: 50 Marks

List of Practical Assignments:

Minimum 8 assignments should be conducted.

1. Introduction to C# and Visual Studio and Xamarin Installation
2. Application Program to use Entry and Lable.
3. Application Program to use Button and ImageView
4. Program to create WebView.
5. Program to create a StackLayout and GirdLayout .
6. Program to implement ListView.
7. Program to implement Navigations.
8. Program to implement INotifyPropertyChanged
9. Program to implement Custom Renderers.
10. Program to create Application using SQLite

Term Work:

The term work shall consist of at least 8 experiments/ assignments based on the syllabus above.

Assessment of term work should be done as follows

- ☐ Continuous lab assessment
- ☐ Actual practical performance in Laboratory.