**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY**

**CIRCULAR NO.ACAD/SU/Engg./B.E./Elective/111/2014**

It is hereby informed to all concerned that, on the recommendation of the Dean, Faculty of Engineering & Technology, the **Hon'ble Vice-Chancellor has permitted to include One Elective "Android Technology" for EC /ECT /E&C branches and another one viz: "Non Convention Energy System" for the branch of Mechanical Engineering both for Semester-I of B.E. Final Year** on behalf of the Academic Council Under Section-14(7) of the Maharashtra Universities Act, 1994 as appended herewith.

This is effective from the **Academic Year 2014-2015** 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.

University Campus,
Aurangabad-431 004.
REF.NO. ACAD/ SU/ ENGG./
2014/24187-219

Date:- 09-09-2014.

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*Director,*
*Board of College and*
*University Development.*

**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 Controller of Examinations,
**2] The Superintendent, [ Engineering Unit ] Examination Branch,**
3] The Superintendent, [Eligibility Unit],
**4] The Programmer [Computer Unit-1] Examinations,**
**5] The Programmer [Computer Unit-2] Examinations,**
6] The Director, [E-Suvidha Kendra], in-front of Registrar's Quarter, Dr. Babasaheb Ambedkar Marathwada University,
7] The Public Relation Officer,
8] The Record Keeper,

**Dr. Babasaheb Ambedkar Marathwada University.**

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# DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

## Syllabus of

## 'Android Technology'

## B.E. [EC/ECT/E&C/IE]

## SEMESTER – I

## AS AN ELECTIVE.

*[ Effective from the Academic Year 2014-15 & onwards ]*

Dr. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD
FACULTY OF ENGINEERING AND TECHNOLOGY
FINAL YEAR (EC/ECT/E&C/IE) ENGINEERING

| SEMESTER-I | |
|---|---|
| **EXD-445 – Android Technology (EL-I For EC/ECT/E&C)** | |
| **Teaching Scheme: 4Hrs/week**<br>**Practical: 2Hrs/week** | **Examination Scheme**<br>**Theory Examination : 80 Marks**<br>**Class Test : 20 Marks**<br>**Practical/Oral : ---**<br>**Term Work: 25 Marks** |

**Objectives:**

- Introduce major Android application concepts.
- To study about the android architecture and the tools for developing android applications.
- To learn about the user interfaces used in android applications.
- To learn about how to handle and share android data.
- To learn about how to develop an android services and to publish android application for use.

| | |
|---|---|
| **Unit-1**<br>**Basic concepts of Object Oriented Programming:**<br>Java Tokens: Keywords, Character set, Identifiers, Literals, Separator, Java Virtual Machine (JVM), Comments in Java program, Constants, Variables, Data types, Scope of variables, Type casting, Operators: Arithmetic, Logical, Bit wise operator, Increment and Decrement, Relational, Assignment, Conditional, Special operator, Expressions Evaluation of expressions. Decision making and Branching: Simple if statement, if else statement, switch statement, Decision making and looping: While loop, do – While loop, for loop, break, labelled loop, continue Statement. Arrays: One Dimensional Array – Creating an array, Multidimensional Array, Strings, Class and objects: Defining a class, Methods, Creating objects, Accessing class members, Constructors, destructor, Method overloading, Static members, and keywords. | 08 |
| **Unit-2**<br>**Inheritance and Exception Handling:**<br>Inheritance: Defining a subclass, deriving a sub class, Single Inheritance, Polymorphism: Overriding methods, Final variables and methods, Final classes, finalizer methods, Abstract methods and classes, Visibility Control: Public access, Private access, protected. Interfaces: Multiple Inheritances - Defining interface, Extending interface, Implementing Interface, Accessing interface variables, Packages in java.Exception Handling: Limitations of Error handling, Advantages of Exception Handling, Types of Errors, Basics of Exception Handling, try blocks, throwing an exception, catching an exception, finally statement. | 08 |

| | |
|---|---|
| **Unit-3**<br><br>**Introduction to Android:**<br><br>Introduction to Android, Android Architecture, Deep Overview in Android Stack, Installing Android Machine, Creating First Android Application, Android Components, Hello World App | 04 |
| **Unit-4**<br><br>**Android Activities, UI Design and Database:**<br><br>Understanding Intent, Activity, Activity Lifecycle and Manifest, Form Widgets, Text Fields, Layouts: Relative Layout, Table Layout, Frame Layout, Linear Layout, and Nested Layout. UI design: Time and date, images and media, composite, alert dialogs and toast, popup. Menu: option menu, context menu, sub menu. Database: Introducing SQLite, SQLite Open Helper, SQLite database, cursor, content providers: defining and using content providers, example sharing database among two different applications using content providers. | 08 |
| **Unit-5**<br><br>**Telephony, SMS and Location based services:**<br><br>Telephony: Accessing phone and network properties and status, monitoring changes in phone state, phone activity and data connection. SMS: Sending SMS and MMS from your application, sending SMS manually, listening for incoming SMS. Location based services: Using location based services, working with google maps, geocoder. | 06 |
| **Unit-6**<br><br>**Accessing Android Hardware:**<br><br>Networking: An overview of networking, checking the network status, communicating with a server socket, working with HTTP, web services. Bluetooth: Controlling local Bluetooth device, discovering and bonding with Bluetooth devices. Audio and Video: Playing/Recording Audio and Video, using camera and taking picture. | 06 |

**References Books / Handbooks:**


1. Wei - Meng Lee, "Beginning Android 4 Application Development" , John Wiley & Sons, Inc, 2012
2. Jerome (J.F.) Di Marzio, "Android™ A Programmer's Guide", Tata McGraw Hill.
3. Lauren Darcey and Shane Conder, "Sams Teach Yourself Android Application Development in 24 Hours".
4. Barry Burd, "Android Application Development All-in-one for Dummies".
5. Reto Meier, "Professional Android-2 Application Development".
6. Neil Smyth, "Android 4.2 App Development Essentials "First Edition.
7. Mark L. Murphy, "The Busy Coder's Guide to Android Development".
8. Kogent Learning Solutions Inc., "Java 7 Programming - Black Book".
9. Cay S. Horstmann & Gary Cornell, "Core JAVA Volume I – Fundamentals", Pearson Education Asia.
10. E Balagurusamy, "Programming in JAVA a primer", Tata McGraw Hill.

**Term Work:**

1. Continuous assessment of the students in the semester
2. Satisfactory performance of laboratory experiments
3. Internal oral for the students

**EXD-445 List of Experiments:**

1. Write a program to create and casting of different variables in JAVA.
2. Write a program to check the largest number from three number using nested if-else with logical operator.
3. Write a program that reads all the text from a file named "xyz.txt" and copies it into a new file named "abc.txt".
4. Write a program create a class "Student" having following attributes:
   a. Student Name
   b. Roll no
   c. Branch
   d. Percentage.

   Create two methods, one method for input data using command line argument and one method for display data on screen.
5. Write a program for constructor overloading.
6. Write a program to write 'Hello' word in android.
7. Write a program to for addition of two numbers in android.
8. Write a program for age calculator in android.
9. Write a program to perform crude operations of SQLite.
10. Write a program for designing a simple game in android.

**Section A: Unit 1, 2, 3**
**Section B: Unit 4,5,6**

**PATTERN OF QUESTION PAPER**

Six units in the syllabus shall be divided into equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

**For 80 Marks papers:**

1. Section A & Section B should be of 40 marks each.
2. Five questions in each section.
3. Out of five four questions asked should be of 15 Marks & one question asked should be 10Marks.
4. 10 marks question will be compulsory.

## EXD-445 – Android Technology (EL-I for EC/ECT/E&C)

**Overview:**

The Android Technology course is designed to give students a high level overview of Android as a development platform. It is the gentle introduction to what the Android operating system is, what makes it fundamentally different than any other platform, and how to take advantage of its uniqueness. Android Technology is designed for both technical managers seeking a high-level understanding of the platform as well as developers warming up for a deep dive into programming for Android. By the end of this course, students will have a complete understanding of the entire operating system, at a high level.

**Significance of Course:** Students will be benefited by learning this course. Some of the key features of this course are mentioned below.

- History of Android: How we got here, and where we may be heading.
- Android Stack: The big picture overview of entire Android OS.
- Hello, Android: Dissecting an Android app to understand all the moving parts.
- Architecting Android Apps: Understanding main building blocks of an Android app.
- System Services: What Android ecosystem offers to developers?
- Debugging and Testing: Tools those are available today.
- Android Security: An overview of how Android security model works.

**Course Objectives (COs):**

- Introduce major Android application concepts.
- To study about the android architecture and the tools for developing android applications.
- To learn about the user interfaces used in android applications.
- To learn about how to handle and share android data.
- To learn about how to develop an android services and to publish android application for use.

# DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

## Syllabus of

## 'Non Convention Energy System'

## B.E. [MECHANICAL ENGINEERING]

## SEMESTER – I

## AS AN ELECTIVE.

*[ Effective from the Academic Year 2014-15 & onwards ]*

# Dr. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

## B.E. [Mech.] Part-I
## Open Elective- Nonconventional Energy Systems

**Teaching Scheme**

**Lectures : 4 Hrs/Week**

**Examination Scheme**

**Theory: 80 Marks [3 Hrs.]**

**Class Test : 20 Marks [1 Hr.]**

Unit 1:

**FUNDAMENTALS OF ENERGY**

Introduction. Classification of energy resources. Importance of energy sources. Comparison of conventional & non conventional energy sources. Indian energy scenario, Energy pricing in India, Energy conservation & its importance.

[04 Hrs.]

Unit 2:

**SOLAR ENERGY**

Introduction – Solar radiation at the earth's surface. Solar radiation geometry & its measurements. Estimation of solar radiation. Solar energy collectors – Types of flat plate collectors, types of concentrating collectors. Advantages & disadvantages of concentrating collectors over flat plate collectors. Performance analysis & testing procedure of flat plate collector.

[08 Hrs.]

Unit 3:

**APPLICATION OF SOLAR SYSTEM AND ECONOMIC ANALYSIS**

Solar water heaters-Solar air heater- Solar dryers– Solar Refrigeration and Air-Conditioning Systems-Solar cookers-Solar furnaces- Solar greenhouse-Solar Distillators-Solar pond Electric power plant-Distributed Collector- Solar thermal Electric power plant. Principles of photovoltaic conversion of solar energy – types of solar cells – solar Photo Voltaic applications. Economic Analysis, net present value concept.

[08 Hrs.]

Unit 4:

**WIND ENERGY**

Introduction-Basic principles of wind energy conversion: Nature of the wind, power in the wind, forces on the blades and wind energy conversion-wind data and energy estimation-site selection-classification of wind energy conversion systems-Advantages and Disadvantages-Types of wind machines-Horizontal axis machine-Vertical axis machine-Generating system-Energy Storage– Application of wind energy-Safety and environmental aspects.

[07 Hrs.]

Unit 5:

**BIO – ENERGY**

Introduction – photo synthesis, Biomass energy resources, Biomass conversion processes, Direct combustion of Biomass, Thermochemical conversion of Biomass, Biochemical conversion, Types of Biogas plants & applications.

[05 Hrs.]

Unit 6:

**OCEAN AND GEOTHERMAL ENERGY**

Ocean energy resources – principle's of ocean thermal energy conversion (OTEC) – Methods of Ocean thermal electric power generation – Energy utilisation – basic principle of tidal power – components and operations of tidal power plant – Energy and Power forms of waves – Wave energy conversion devices. Geothermal Energy – Geothermal Sources –Types of Geothermal power plants – Advantages and Disadvantages – Applications.

[08 Hrs.]

**SECTION A:** Unit 1, 2, & 3,

**SECTION B:** Unit 4, 5, & 6.

**Text Books:**


1. Non Conventional Energy Sources - G.D. Rai – Khanna Publishers, New Delhi,1999.
2. Energy Technology- Rao S.and Parulekar B.B.,Khnna Publishers,2013
3. Non Conventional Energy Sources and Utilisation - R.K. Rajput - S.Chand & Company Ltd., 2012.
4. Renewable Energy Sources - Twidell, J.W. and Weir, A. - EFN Spon Ltd., 1986.
5. "Non-Conventional Energy Resources - B.H.Khan - Tata Mc Graw Hill, 2nd Edn. 2009.
6. Solar Energy – Sukhatme S.P. Tata McGraw Hill,2008
7. Wind and Solar Powar Systems –Mukund R.Patel,CRC Press,1999.
8. Principles of Solar Engineering-Krieten,Krieder,-Mc Graw Hill Pub.Co.
9. Renewable Energy Resources –John W. Twidell and Anthony D. Weir (E.BS Pub)
10. Solar Energy of Thermal Processes-J.A.Duffy,W.A.Beckman –John Willey
11. Solar Powar Engineering-Mangal B.S.
12. Treatise on solar Energy vol.I,II,III-Grag H.P.