MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
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Circular Dated: 28/03/2015

Students belong to III-year B.Tech Computer Science and Engineering are hereby informed that a two-day Workshop on **"IBM Bluemix Day"** is going to be conducted from 30-03-2015 to 31-03-2015 in CSE Seminar Hall. Students should utilize the opportunity without fail.

Principal
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Madanapalle Institute of
Technology & Science
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Copy to:

1. CSE class rooms
2. Circular to Notice Board

Mandanapalle Institute of Technology & Science
(UGC - Autonomous)

Department of Computer Science & Engineering

Organize
Workshop on

"IBM Bluemix Day"

Resource Person: **Mr. R.S. Sachin kumar,**
IBM Academic Initiative, Community Manager,
IBM India Pvt. Ltd

Date: 30-03-2015 to 31-03-2015

Venue: CSE SEMINAR HALL

Chief Patron	Patron	Convenor
Dr. N. Vijaya Bhaskar Chowdary	**Dr. C. Yuvaraj**	**Dr. S. Murali Krishna**
Secretary & Correspondent	Principal	HOD, CSE

Coordinator

Ms. S. Kusuma,
Assistant Professor, CSE

IBM Bluemix

IBM® Bluemix™ is the IBM open cloud platform that provides mobile and web developers access to IBM software for integration, security, transaction, and other key functions, as well as software from business partners.

Built on the Cloud Foundry open source technology, Bluemix offers more control to application developers by using its Platform as a Service (PaaS) offering, and also provides pre-built Mobile Backend as a Service (MBaaS) capabilities. The goal is to simplify the delivery of an application by providing services that are ready for immediate use and hosting capabilities to enable internal scale development.

With the broad set of services and runtimes in Bluemix, the developer gains control and flexibility, and has access to various data options, from predictive analytics to big data.

Bluemix provides the following features:

- A range of services that enable you to build and extend web and mobile apps fast.
- Processing power for you to deliver app changes continuously.
- Fit-for-purpose programming models and services.
- Manageability of services and applications.
- Optimized and elastic workloads.
- Continuous availability.

Bluemix abstracts and hides most of the complexities that are associated with hosting and managing cloud-based applications. As an application developer, you can focus on developing your application without having to manage the infrastructure that is required to host it. For mobile apps, you can use the pre-built services that are provided by Bluemix. For web apps, you can upload your application toBluemix and indicate how many instances that you want running. Then, Bluemix takes care of the rest. After your apps are deployed, you can easily scale them up or down when the usage or load of the apps change.

You can use Bluemix to quickly develop applications in the most popular programming languages. You can develop mobile apps in iOS, Android, and HTML with JavaScript. For web apps, you can use languages such as Ruby, PHP, and Java™.

Bluemix also provides middleware services for your applications to use. Bluemix acts on the application's behalf when it provisions new service instances, and then binds those services to the application. This enables the app to perform its real job, leaving the management of the services to the infrastructure.

Bluemix Architecture

At its core, Bluemix is an environment for you to build applications and use services when you develop applications. Bluemixalso provides an environment to host application artifacts that run on an application server such as Liberty. By using SoftLayer, Bluemix deploys virtual containers that host each deployed application. In this environment the application can use pre-built services (including third-party services) to make application assembly easy.

As a developer, you can interact with the Bluemix infrastructure by using a browser-based user interface. You can also use a Cloud Foundry command line interface, called cf, to deploy web applications.

Clients, which can be mobile apps, applications that run externally, applications that are built onBluemix, or application developers that are using browsers, interact with the Bluemix-hosted applications. Clients use REST or HTTP APIs to route requests through Bluemix to one of the application instances or the composite services.

The following figure shows the high-level Bluemix architecture.Figure 1. Bluemix architecture

Bluemix concepts

Bluemix consists of applications, services, buildpacks, and other components.

Applications

In the context of Bluemix, an application, or app, represents the artifact that a developer is building.

Mobile apps

Mobile apps run outside of the Bluemix environment and use services that the mobile apps are exposed to. These services typically act in concert, and represent the back-end projection of that application. Bluemix can also host application code that the developer would rather run on a back-end server in a container-based environment.

Web apps

Web apps consist of all the code that is required to be run or referenced at run time. Web apps are uploaded to Bluemix to host the application.

For languages such as Java, where the source code is compiled into runtime binary files, only the binary files are required to be uploaded.

Services

A service is a cloud extension that is hosted by Bluemix. The service provides functionality that is ready-for-use by the app's running code. The predefined services provided by Bluemix include database, messaging, push notifications for mobile apps, and elastic caching for web apps.

You can create your own services in Bluemix. These services can vary in complexity. They can be simple utilities, such as the functions you might see in a runtime library. Alternatively, they can be complex business logic that you might see in a business process modeling service or a database.

Bluemix simplifies the use of services by provisioning new instances of the service, and binding those service instances to your application. The management of the service is handled automatically byBluemix. For all available services in Bluemix, see the catalog in the Bluemix user interface.

Add-ons

An add-on is a Bluemix extension that manages and monitors applications. Add-ons are not used by the running code, but provide functions to manage the application. You can use add-ons to provide many application management functions that you might otherwise have to code into an application yourself. Some of these functions include:

- Auto scaling to automatically increase or decrease the platform capacity by adding more application or service instances.
- Monitoring response time, performance, and availability.
- Agile application development planning.
- Secure integration with on-premises systems.
- Continuous delivery through automatic building, testing, and deployment.

Starters

A starter is a template that includes predefined services and application code that is configured with a particular buildpack. There are two types of starters: boilerplates and runtimes. A starter might be application code that is written in a specific programming language, or a combination of application code and a set of services.

Boilerplates

In Bluemix, a boilerplate is a container for an application and its associated runtime environment and predefined services for a particular domain. You can use a boilerplate to quickly get up and running. For example, you can select the Mobile Cloud boilerplate to host mobile and web applications and accelerate development time of server-side scripts by using the mobile app template and SDK.

Runtimes

A runtime is the set of resources that is used to run an application. Bluemix provides runtime environments as containers for different types of applications. The runtime environments are integrated as buildpacks into Bluemix, and are automatically configured for use.

Buildpacks

Built-in IBM buildpacks

The following table shows the list of built-in buildpacks that are created by IBM.

Table 1. Bluemix built-in buildpacks

Name	Git repository URL
Liberty for Java	Built-in
Node.js	Built-in

Built-in community buildpacks

In Bluemix, you can also use built-in buildpacks that are provided by the Cloud Foundry community. To list built-in community buildpacks run the cf buildpacks command.

External buildpacks

If you cannot find the runtime or framework you want in the built-in buildpacks provided by Bluemix, you can bring an external, existing buildpack to use for your app. External buildpacks are provided by the Cloud Foundry community for you to use as your own buildpacks. You specify the buildpack when you deploy your application by using the **cf push** command.

Note: External buildpacks are not supported by IBM; therefore, you might need to contact the Cloud Foundry community for support.

LIST OF BLUEMIX SERVICES AVAILABLE AT: https://ace.ng.bluemix.net/#/store

Commercials Details

#	Description	Months	Line Total (INR) Without Taxes
1	Bluemix Platform Access credit INR 30,100 per month	6	
	Total		**1,80,600/-**

SPECIAL DISCOUNT OF 10% CAN BE PROVIDED FOR ORDERS RECEIVED BEFORE DEC 15th 2014

Train The Trainer Training

Introduction:

Lesson 1: BlueMix Overview & Dashboard

Lab A: BlueMix – Build and Deploy an App

Lesson 2: BlueMix Architecture

Lesson 3: BlueMix DevOps Services Overview

Lab B: Node.js with BlueMix DevOps Services and BlueMix

Lesson 4: Registering Services in BlueMix

Lesson 5: Cloud Foundry

Lab C: Mobile Backend as a Service (MBaaS) with BlueMix

Lesson 6: Maximize BlueMix

Terms & Conditions

1. All prices in INR & without taxes.
2. T&C for Bluemix – Refer Cloud Services Agreement
3. Purchase Order on IBM for Bluemix.
4. College to assign a single point of contact (SPOC) to co-ordinate with IBM