Ministry of cooperatives
Labour and Social Welfare

Iran Technical and Vocational
Training Organization

Deputy of training
Plan and curriculums office

Competency Training standard

Title

Deploy And Manage OpenStack

Occupational group

INFORMATION TECHNOLOGY (IT)

Iran Technical and Vocational Training Organization

International code

2523-53-159-1

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National code: 2523-53-159-1

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Revision Process:
- Scientific content
- According to market
- Equipment
- Tools

Iran Technical and Vocational Training Organization

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5						
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Iran Technical and Vocational Training Organization

Definitions:

Job standard:

The characteristics ' required competencies and abilities for Efficient Performance in work environment is called "the Job standard", and sometimes “The Occupational standard”

Training standard:

The Training Map for achieving the Job’s subset Competencies.

Job title:

Is a set of Tasks and Abilities which is expected from an employed person in the defined level

Job description:

A statement covering the most important elements of a job, namely the position or title of the job, the duties, job’s relation with other jobs in a occupational field, the responsibilities, workplace conditions and required performance standards.

Course duration:

The minimum of time which is required to achieve the training objects.

Admission requirements:

The minimum of competencies and abilities which are obligatory for a potential admission.

Evaluation:

The process of collecting evidence and judgment about wetter a competency is achieved or not. Include: written examination, practical examination

Required Qualifications for Trainers:

The minimum of Trainer’s technical and vocational abilities which the trainer is required to have.

Competency:

The ability of efficient performing a duty in a variety of workplaces conditions

Knowledge:

The minimum set of facts and mental capacities which is necessary for achieving a competency. This can include science, (Mathematics, physics, chemistry or biology), technology or technical.

Skill:

The minimum coordination between mind and body for achieving an ability or competency. It normally applied to practical skills.

Attitude:

A set of emotional behaviors required for achieving a competency and can have non-technical skills and occupational ethics.

Safety:

The cases which doing or not doing something can cause harm or accident

Environmental Consideration:

A set of consideration about the act which should be done to minimize the environmental damage or pollution.

Iran Technical and Vocational Training Organization

Competency Title:

Deploy And Manage OpenStack

Competency Description:

The OpenStack Deploy and Manage OpenStack on Ubuntu course teaches you how to install an OpenStack cloud on Ubuntu Server Architecture. You are walked through installing, configuring, and managing a complete OpenStack cloud on ubuntu 14.04. This course uses the Icehouse OpenStack version.

Admission Requirements:

minimum degree of education: Post first year of high school

minimum physical and mental ability:-

Prerequisite skills: Comptia Network+ Certification

Course duration:

Course duration: 40 hours

-Theoretical :10 Hours

-Practical :30 Hours

-Apprenticeship:… Hours

-Project:… Hours

Evaluation :(%)

Exam Time for Native English speakers	**180 minutes**
Exam Time for Non-native English speakers	**210 minutes**
Number of Tasks	**30**
Exam Number	**MCA200**
Associate Certification	**OpenStack Professional**

IRANTVTO Evaluation :(%)

Written Examination:25%

Practical Examination:65%

Ethics:10%

Required Qualifications for Trainers:

Computer or IT or ART related Bachelor with 2 years' experience

Iran Technical and Vocational Training Organization

Competency Training Standard

Competencies

`	Title
1	OpenStack Introduction
2	OpenStack Architecture
3	OpenStack Messaging Server
4	Identity Service - Keystone
5	OpenStack Clients
6	Image Service - Glance
7	Compute Service - Nova
8	Networking Service - Neutron
9	OpenStack Dashboard - Horizon
10	Block Storage - Cinder
11	Object Storage - Swift
12	Orchestration Service - Heat
13	OpenStack Telemetry - Ceilometer
14	Launching Instances

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<table>
<tr><td rowspan="2">Title:
OpenStack Introduction</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td colspan="3">Determined by the instructor</td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- What is OpenStack?</td><td rowspan="5">From OpenStack</td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:

Compliance with safety protection in the workplace</td></tr>
<tr><td colspan="4">Environmental Consideration:
Compliance with environmental protection</td></tr>
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<table>
<tr><td rowspan="2">Title:
OpenStack Architecture</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td></td><td colspan="3">Determined by the instructor</td><td></td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td>Knowledge and Skill:
- Course Architecture Layout
- VirtualBox
- VirtualBox Network Setup
- Node Setup – Controller
- Node Setup – Network
- Node Setup – Compute
- Ubuntu Server Configs
- Ubuntu Server Configs
- OpenStack Packages</td><td colspan="3">Determined by the instructor</td><td rowspan="4">From OpenStack</td></tr>
<tr><td>Attitude:
Speed and accuracy in doing the right thing</td><td colspan="3"></td></tr>
<tr><td>Health & Safety:

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<tr><td rowspan="2">Title:
OpenStack Messaging</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td colspan="3">Determined by the instructor</td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- Messaging Queue Services
- Installing RabbitMQ</td><td rowspan="5">From OpenStack</td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:

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<tr><td rowspan="2">Title:
Identity Service - Keystone</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td colspan="3">Determined by the instructor</td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- Identity Service Concepts
- Installing the Identity Service
- Define Users, Tenants, and Roles
- Define services and API endpoints
- Verify the Identity Installation</td><td rowspan="5">From OpenStack</td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:
Compliance with safety protection in the workplace</td></tr>
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<table>
<tr><td rowspan="2">Title:
OpenStack Clients</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td></td><td colspan="3">Determined by the instructor</td><td></td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td>Knowledge and Skill:
- OpenStack Client Tools Overview
- Installing Client Tools on Mac OS
- Installing Client Tools on Linux
- Set Environment Variables</td><td colspan="3">Determined by the instructor</td><td rowspan="5">From OpenStack</td></tr>
<tr><td colspan="3">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="3">Health & Safety:

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<table>
<tr><td rowspan="2">Title:
Image Service - Glance</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td></td><td colspan="3">Determined by the instructor</td><td></td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td>Knowledge and Skill:
- Glance Overview
- Installing Glance Service
- Verify the Image Installation</td><td colspan="3">Determined by the instructor</td><td rowspan="5">From OpenStack</td></tr>
<tr><td>Attitude:
Speed and accuracy in doing the right thing</td><td colspan="3"></td></tr>
<tr><td>Health & Safety:

Compliance with safety protection in the workplace</td><td colspan="3"></td></tr>
<tr><td>Environmental Consideration:
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</table>

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<table>
<tr><td rowspan="2">Title:
Compute Service - Nova</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td></td><td colspan="3">Determined by the instructor</td><td></td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- Nova Overview
- Installing The Compute Services</td><td rowspan="5">From OpenStack</td></tr>
<tr><td></td><td colspan="3">Determined by the instructor</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:

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<table>
<tr><td rowspan="2">Title:
Networking Service - Neutron</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td></td><td colspan="3">Determined by the instructor</td><td></td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td>Knowledge and Skill:
- Neutron Overview
- Neutron Controller Node Setup
- Neutron Network Node Setup
- Neutron Compute Node Setup
- Creating your Initial Networks</td><td colspan="3">Determined by the instructor</td><td rowspan="4">From OpenStack</td></tr>
<tr><td>Attitude:
Speed and accuracy in doing the right thing</td><td colspan="3"></td></tr>
<tr><td>Health & Safety:
Compliance with safety protection in the workplace</td><td colspan="3"></td></tr>
<tr><td>Environmental Consideration:
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</table>

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<tr><td rowspan="2">Title:
OpenStack Dashboard - Horizon</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td colspan="4">Determined by the instructor</td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- Horizon Overview
- Horizon Installation</td><td rowspan="5">From OpenStack</td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:
Compliance with safety protection in the workplace</td></tr>
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<tr><td rowspan="2">Title:
Block Storage - Cinder</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td colspan="3">Determined by the instructor</td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- Cinder Overview
- Configure A Block Storage Service Controller
- Configure A Block Storage Service Node
-Verify the Cinder Environment</td><td rowspan="5">From OpenStack</td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:

Compliance with safety protection in the workplace</td></tr>
<tr><td colspan="4">Environmental Consideration:
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</table>

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<tr><td rowspan="2">Title:
Object Storage - Swift</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td colspan="3">Determined by the instructor</td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- Swift Overview
- General Installation Steps
- Configuring Storage Nodes
-Configuring Proxy Nodes
-Verifying the Object Storage Setup</td><td rowspan="5">From OpenStack</td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:

Compliance with safety protection in the workplace</td></tr>
<tr><td colspan="4">Environmental Consideration:
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<table>
<tr><td rowspan="2">Title:
Orchestration Service - Heat</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td colspan="3">Determined by the instructor</td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- Orchestration Overview
- Installing the Orchestration Service
- Verifying the Orchestration Services</td><td rowspan="5">From OpenStack</td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:

Compliance with safety protection in the workplace</td></tr>
<tr><td colspan="4">Environmental Consideration:
Compliance with environmental protection</td></tr>
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<table>
<tr><td rowspan="2">Title:
OpenStack Telemetry-Ceilometer</td><td colspan="3">time</td><td rowspan="2"></td></tr>
<tr><td>theoretical</td><td>practical</td><td>total</td></tr>
<tr><td colspan="3">Determined by the instructor</td></tr>
<tr><td colspan="4">Knowledge ,skill ,attitude ,safety, Environmental Consideration</td><td>Equipments ,tools, materials ,books</td></tr>
<tr><td colspan="4">Knowledge and Skill:
- Ceilometer Overview
- Installing the Ceilometer Module
- Installing the Compute Agent for Telemetry
-Installing the Image Service for Telemetry
-Installing the Block Storage Service for Telemetry
-Configure the Object Storage Service Agent for Telemetry
-Verifying the Telemetry Installations</td><td rowspan="4">From OpenStack</td></tr>
<tr><td colspan="4">Attitude:
Speed and accuracy in doing the right thing</td></tr>
<tr><td colspan="4">Health & Safety:
Compliance with safety protection in the workplace</td></tr>
<tr><td colspan="4">Environmental Consideration:
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Title: Launching Instances	time			
	theoretical	practical	total	
	Determined by the instructor			
Knowledge ,skill ,attitude ,safety, Environmental Consideration				Equipments ,tools, materials ,books
Knowledge and Skill: - Launching Virtual Machines the CLI	Determined by the instructor			From OpenStack
Attitude: Speed and accuracy in doing the right thing				
Health & Safety: Compliance with safety protection in the workplace				
Environmental Consideration: Compliance with environmental protection				

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