MICROSOFT: CONFIGURING ADVANCED WINDOWS SERVER 2012 SERVICES

STUDENT HANDBOOK
WELCOME!

Welcome to the Microsoft Configuring Advanced Windows Server 2012 Services: Exam 70-412.

Prince Georges Community College Mission Statement
Prince George’s Community College transforms students’ lives. The college exists to educate, train, and serve our diverse populations through accessible, affordable, and rigorous learning experiences.

Information Technology Entry Program Mission Statement
[ADD ITEP Mission Statement here].

Information Technology Entry Program Objective
The Information Technology Entry Program (ITEP) is a comprehensive multi-phase program of Prince George’s Community College that develops the skills needed to enter the demanding world of IT Support. Upon successful completion of the program, the student will be able to demonstrate practical knowledge and application of their skills, exceeding that of an Entry Level Desktop and Network IT Support Technician or Tier I Help Desk Support.

Through our comprehensive approach, the material is combined into an interconnected program, allowing the instructor and student adequate time on a specific subject such as: TCP/IP, DNS, DHCP, Wireless, IPv6 or troubleshooting.

Each student is treated and trained as an information technology support professional from day one. The student will design, build, administer and maintain a live network during the program. We can do this through the delivery method of the combined and interconnected nature of this dynamic multi-phase program.

Upon completion of the Information Technology Entry Program, and with adequate preparation in addition to the contact hours, the student should have developed the skills needed to sit for the following exams: CompTIA A+, CompTIA NET+, CompTIA SECURITY+, and Microsoft MCSA.

Microsoft: Configuring Advanced Windows Server 2012 Services Objective
This course is designed as a Hybrid Virtualization Training course. It blends in class instruction with a virtual lab environment. Students will learn to configure advanced Windows Server 2012
Services. Topics include: Network Load Balancing, Failover Clustering, Configuring Advanced File Services, Site-Level Fault Tolerance, Advanced DHCP Implementation, Advanced DNS, Configuring Sites and Trusts, AD Replication, AD Federation Services, AD Certificate Services and AD Rights Management. This course maps to a Microsoft Certification exam: 70-412.

**HOW TO USE THIS STUDENT GUIDE**

The student guide provides students with an overview of the course, the tools used and how the course maps to the Microsoft exam objectives.

The Student Guide is intended to be used in conjunction with the Course Syllabus and Course Schedule documents. All electronic copies of all three documents are posted in the “Syllabus & Schedule” area of the Blackboard course site for this course.

Throughout this course, you should have easy access to the Student Guide, Course Syllabus and Course Schedule documents.

The Table of Contents below provides links to all of the pertinent information found in this document.

*Let’s get started!*
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SECTION 1: COURSE INFORMATION

Course Description
This course is designed as a Hybrid Virtualization Training course. It blends in class instruction with a virtual lab environment. Students will learn to configure advanced Windows Server 2012 Services. Topics include: Network Load Balancing, Failover Clustering, Configuring Advanced File Services, Site-Level Fault Tolerance, Advanced DHCP Implementation, Advanced DNS, Configuring Sites and Trusts, AD Replication, AD Federation Services, AD Certificate Services and AD Rights Management.

Required Textbook
Book:
70-412 Configuring Advanced Windows Server 2012 Services
ISBN: 978-1-118-51159-6
Publisher: Wiley & Sons INC.
Author: Pat Regan

Other Required Course Materials
Online Labs:
70-412 Microsoft Online Academic Curriculum (MOAC)

Note: The book and the MOAC Online Reg Card Set will be bundled together. ISBN: 978-11118-66838-2

Required Technology Accounts
To be successful in this course, students must have access to the following technology accounts:
- Owl Mail Email Account
- Blackboard Account
- Testout Account
- 70-412 Microsoft Online Academic Curriculum (MOAC)

Details on how to setup and access the technology accounts for this course can be found in the Course Technology Setup section of this document.
Prerequisites
The prerequisites for this course are: IT Foundations, A+, Network+, Security+, 70-410 and 70-411.

Course Meeting Schedule
This course will meet on the PGCC Largo campus Monday through Friday. The class meeting times and room location for this course can be found on the Course Syllabus document found in the Syllabus & Schedule area of the Blackboard course site.

Course Length
This course meets for 5 days.

The course consists of:
- Lecture: 40%
- Laboratory: 40%
- E-Module: 20%

Course Contact Hours
The total number of contact hours for this course is: 40 hours

Course Structure
This course is designed to provide a hybrid experience, including a blend of face-to-face and online activities.

**Face-to-face sessions** will be held on the Largo campus location TBD. Face-to-face activities will consist of Lecture and online labs.

**Online sessions** will be a blend of self-paced and group activities using Blackboard and MOAC Labs Online. The instructor may add supplemental online activities as needed. (example testout)

Technology Requirements
Computer/internet access and mastery of basic computer skills are considered to be the student’s responsibility. To be successful in this course, students must have access to:
- Blackboard
- MOAC Online Labs (https://moac.microsoftlabsonline.com)
  - Note: Students must use Internet Explorer for MOAC
  - Students must be able to install ActiveX Controls
SECTION 2: COURSE OBJECTIVES

The below outcomes are the Microsoft exam objectives.

Students, upon completion of this course, should be able to show proficiency and/or knowledge in the following areas:

1. Configure and Manage High Availability
   a. Configure Network Load Balancing (NLB)
   b. Configure Failover Clustering
   c. Manage Failover Clustering Roles
   d. Manage VM Movement

2. Configure File and Storage Solutions
   a. Configure Advanced File Services
   b. Implement Dynamic Access Control (DAC)
   c. Configure and Optimize Storage

3. Implement Business Continuity and Disaster Recovery
   a. Configure and Manage Backups
   b. Recover Servers
   c. Configure Site-Level Fault-Tolerance

4. Configure Network Services
   a. Implement an advanced DHCP Solution
   b. Implement an advanced DNS Solution
   c. Deploy and Manage IP Address Management (IPAM)

5. Configure the Active Directory Infrastructure
   a. Configure a Forest or a Domain
   b. Configure Trusts
   c. Configure Sites
   d. Manage Active Directory and SYSVOL Replication

6. Configure Identity and Access Solutions
   a. Implement Active Directory Federation Services
   b. Install and Configure Active Directory Certificate Services
   c. Manage Certificates
   d. Install and Configure Active Directory Rights Management Services
### SECTION 3: COURSE SCHEDULE

#### Tentative Course Schedule:

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading Assignment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>Configuring Network Load Balancing</td>
<td>Chapters 1-4</td>
</tr>
<tr>
<td></td>
<td>Configuring Failover Clustering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Managing Failover Clustering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Managing Virtual Machine Movement</td>
<td></td>
</tr>
<tr>
<td>Day 2</td>
<td>Configuring Advanced File Services</td>
<td>Chapters 5-8</td>
</tr>
<tr>
<td></td>
<td>Implementing Dynamic Access Control</td>
<td></td>
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<td>Configuring and Optimizing Storage</td>
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</tr>
<tr>
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<td>Configuring and Managing Backups</td>
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</tr>
<tr>
<td>Day 3</td>
<td>Recovering Servers</td>
<td>Chapters 9-12</td>
</tr>
<tr>
<td></td>
<td>Configuring Site-Level Fault Tolerance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implementing an Advanced DHCP Solution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implementing an Advanced DNS Solution</td>
<td></td>
</tr>
<tr>
<td>Day 4</td>
<td>Deploying and Managing IPAM</td>
<td>Chapters 13-16</td>
</tr>
<tr>
<td></td>
<td>Configuring a Domain and Forest</td>
<td></td>
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<tr>
<td></td>
<td>Configuring Trusts</td>
<td></td>
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<tr>
<td></td>
<td>Configuring Sites</td>
<td></td>
</tr>
<tr>
<td>Day 5</td>
<td>Managing AD and SYSVOL Replication</td>
<td>Chapters 17-21</td>
</tr>
<tr>
<td></td>
<td>Implementing AD Federation Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Installing and Configuring AD Certificate Services</td>
<td></td>
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<tr>
<td></td>
<td>Managing Certificates</td>
<td></td>
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<tr>
<td></td>
<td>Installing and Configuring AD Rights Management Services</td>
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#### Labs:

<table>
<thead>
<tr>
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<th>Chapter:</th>
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<tbody>
<tr>
<td>Day 1</td>
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<tr>
<td></td>
<td>MOAC70412-Lab2</td>
<td>Chapter 2</td>
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<td></td>
<td>MOAC70412-Lab3</td>
<td>Chapter 3</td>
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<tr>
<td></td>
<td>MOAC70412-Lab4</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>Day 2</td>
<td>MOAC70412-Lab5</td>
<td>Chapter 5</td>
</tr>
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<td>MOAC70412-Lab6</td>
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<td>MOAC70412-Lab7</td>
<td>Chapter 7</td>
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<td></td>
<td>MOAC70412-Lab8</td>
<td>Chapter 8</td>
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<td>Day 3</td>
<td>MOAC70412-Lab9</td>
<td>Chapter 9</td>
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<td>MOAC70412-Lab10</td>
<td>Chapter 10</td>
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<td>MOAC70412-Lab11</td>
<td>Chapter 11</td>
</tr>
<tr>
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<td>MOAC70412-Lab11</td>
<td>Chapter 12</td>
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<tr>
<td>Day 4</td>
<td>MOAC70412-Lab13</td>
<td>Chapter 13</td>
</tr>
<tr>
<td></td>
<td>MOAC70412-Lab14</td>
<td>Chapter 14</td>
</tr>
<tr>
<td></td>
<td>MOAC70412-Lab15</td>
<td>Chapter 15</td>
</tr>
<tr>
<td></td>
<td>MOAC70412-Lab16</td>
<td>Chapter 16</td>
</tr>
<tr>
<td>Day 5</td>
<td>MOAC70412-Lab17</td>
<td>Chapter 17</td>
</tr>
<tr>
<td></td>
<td>MOAC70412-Lab18</td>
<td>Chapter 18</td>
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<td></td>
<td>MOAC70412-Lab19</td>
<td>Chapter 19</td>
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<td>MOAC70412-Lab20</td>
<td>Chapter 20</td>
</tr>
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<td></td>
<td>MOAC70412-Lab21</td>
<td>Chapter 21</td>
</tr>
</tbody>
</table>

The detailed Course Schedule can be found in the Syllabus & Schedule area of Blackboard.

Instructions to access Course Schedule in Blackboard:
1. Go to Blackboard course site for this course ([http://pgcconline.blackboard.com](http://pgcconline.blackboard.com))
2. Click on “Syllabus & Schedule” navigation button
3. Click on Course Schedule document link
## SECTION 4: COURSE MODULES

<table>
<thead>
<tr>
<th>Module #</th>
<th>Module Name</th>
<th>Course Objective(s) Covered</th>
<th># Hours</th>
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<tbody>
<tr>
<td>1</td>
<td>Configuring Network Load Balancing</td>
<td>Configuring Network Load Balancing</td>
<td>Day 1: 2 hours</td>
</tr>
<tr>
<td>2</td>
<td>Configuring Failover Clustering</td>
<td>Configuring Failover Clustering</td>
<td>Day 1: 2 hours</td>
</tr>
<tr>
<td>3</td>
<td>Managing Failover Clustering</td>
<td>Managing Failover Clustering</td>
<td>Day 1: 2 hours</td>
</tr>
<tr>
<td>4</td>
<td>Managing Virtual Machine Movement</td>
<td>Managing Virtual Machine Movement</td>
<td>Day 1: 2 hours</td>
</tr>
<tr>
<td>5</td>
<td>Configuring Advanced File Services</td>
<td>Configuring Advanced File Services</td>
<td>Day 2: 2 hours</td>
</tr>
<tr>
<td>6</td>
<td>Implementing Dynamic Access Control</td>
<td>Implementing Dynamic Access Control</td>
<td>Day 2: 2 hours</td>
</tr>
<tr>
<td>7</td>
<td>Configuring and Optimizing Storage</td>
<td>Configuring and Optimizing Storage</td>
<td>Day 2: 2 hours</td>
</tr>
<tr>
<td>8</td>
<td>Configuring and Managing Backups</td>
<td>Configuring and Managing Backups</td>
<td>Day 2: 2 hours</td>
</tr>
<tr>
<td>9</td>
<td>Recovering Servers</td>
<td>Recovering Servers</td>
<td>Day 3: 2 hours</td>
</tr>
<tr>
<td>10</td>
<td>Configuring Site-Level Fault Tolerance</td>
<td>Configuring Site-Level Fault Tolerance</td>
<td>Day 3: 2 hours</td>
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<tr>
<td>11</td>
<td>Implementing an Advanced DHCP Solution</td>
<td>Implementing an Advanced DHCP Solution</td>
<td>Day 3: 2 hours</td>
</tr>
<tr>
<td>12</td>
<td>Implementing an Advanced DNS Solution</td>
<td>Implementing an Advanced DNS Solution</td>
<td>Day 3: 2 hours</td>
</tr>
<tr>
<td>13</td>
<td>Deploying and Managing IPAM</td>
<td>Deploying and Managing IPAM</td>
<td>Day 4: 2 hours</td>
</tr>
<tr>
<td>14</td>
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<td>Configuring Trusts</td>
<td>Configuring Sites</td>
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<tr>
<td>15</td>
<td>Configuring Trusts</td>
<td>Configuring Trusts</td>
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<td>16</td>
<td>Configuring Sites</td>
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<tr>
<td>17</td>
<td>Managing AD and SYSVOL Replication</td>
<td>Managing AD and SYSVOL Replication</td>
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<tr>
<td>18</td>
<td>Implementing AD Federation Services</td>
<td>Implementing AD Federation Services</td>
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<tr>
<td>19</td>
<td>Installing and Configuring AD Certificate Services</td>
<td>Installing and Configuring AD Certificate Services</td>
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<tr>
<td>20</td>
<td>Managing Certificates</td>
<td>Managing Certificates</td>
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<tr>
<td>21</td>
<td>Installing and Configuring AD Rights Management Services</td>
<td>Installing and Configuring AD Rights Management Services</td>
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</tbody>
</table>
SECTION 5: ASSIGNMENT DESCRIPTIONS AND RUBRICS

Course Assignment Descriptions

**Grading Allocation:**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lab Assignments</td>
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<td>E-Modules</td>
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<tr>
<td>Class Participation</td>
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<tr>
<td>Practice Exam (70-412)</td>
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**Grading Scale:**

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<tr>
<td>A</td>
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<tr>
<td>A-</td>
<td>90 to 94</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>87 to 89</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>83 to 86</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>80 to 82</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>78 to 79</td>
<td>2.5</td>
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<tr>
<td>C</td>
<td>73 to 77</td>
<td>2.3</td>
</tr>
<tr>
<td>C-</td>
<td>70 to 72</td>
<td>2.0</td>
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<tr>
<td>F</td>
<td>Below 69</td>
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</table>

**Assignment Submission Instructions**

Assignments must be submitted by the stated deadline or special permission must be requested from instructor before the due date. Extensions will not be given beyond the next assignment except under extreme circumstances.
SECTION 6: COURSE POLICIES

Grading Policy
The detailed Grading Policy can be found on the Course Syllabus in Blackboard.

Instructions to access Course Syllabus in Blackboard:
1. Go to Blackboard course site for this course (http://pgcconline.blackboard.com)
2. Click on “Syllabus & Schedule” navigation button
3. Click on Course Syllabus document link

Attendance Policy
Students should plan to attend all scheduled classes. If a student has an issue that prevents him/her from attending class, please notify the instructor in advance. The instructor will make sure the student knows what material was covered in class.

Late Work Policy
It is important to complete all work as assigned in a timely manner. Topics in this course build on one another. If you start getting behind on work assigned, it will be difficult to successfully complete the course. **Late work is accepted at the discretion of the instructor.**

Participation Policy
Participation is required for this course. It’s 30% of your grade. Please take notes during lecture and ask questions. Please read the chapters before coming to class. Please do not use cell phone in class unless instructed to do so.

Extra Credit Policy
Extra Credit is at the discretion of the instructor.

Plagiarism Policy
At Prince George’s Community College, cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means.

Plagiarism is a form of cheating. At Prince George’s Community College, plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person’s contribution.
SECTION 7: COURSE TECHNOLOGY SETUP

Below are instructions to setup and access the technology tools used in this course.

**Owl Mail** ([http://mail.students.pgcc.edu](http://mail.students.pgcc.edu))

Owl Mail is the college’s student email system. Your instructor will use Owl Mail. To be successful in this course, you should check your Owl Mail account regularly.

To activate your Owl Mail account, follow the directions at [http://live.pgcc.edu/](http://live.pgcc.edu/).

If you already have an active Owl Mail account, you may access your Owl Mail account at [http://mail.students.pgcc.edu](http://mail.students.pgcc.edu).

**Blackboard** ([http://pgcconline.blackboard.com](http://pgcconline.blackboard.com))

Blackboard is a web based program that serves as the college's online classroom. In this course, you will use Blackboard to access the eModules.

Instructions to login to Blackboard:

- Go to the Prince George's Community College Blackboard web site, which is located at [http://pgcconline.blackboard.com](http://pgcconline.blackboard.com). NOTE: There is no "www" in the Blackboard address.
- **ALL STUDENTS** must log in to Blackboard using their **Owl Link** account (this includes students who have used Blackboard in the past).
- If you do not have a **Owl Link** account:
  1. Go to [Owl Link Website](http://www.pgcc.edu) --> click "Quicklinks" --> select "Owl Link" 
  2. Look up your **Owl Link** username (Under User Accounts, select "What's My User ID")
  3. Reset your **Owl Link** password (Under User Accounts, select "What's My Password")

Note: You MUST use your student PGCC student email address in ALL communication with faculty and staff at PGCC.
Once you have your Owl Link account information, type it in the Blackboard login box at the http://pgcconline.blackboard.com.

If your login is successful, you will see the Blackboard "Welcome" screen. In the box labeled "My Courses", you will see the course or a list of courses in which you are enrolled. Click on the course name to enter your Blackboard course.

**MOAC Labs Online** ([https://moac.microsoftlabsonline.com](https://moac.microsoftlabsonline.com))

Microsoft Official Academic Course Labs Online is a Lab environment in the cloud. Students will have access to the latest Microsoft software were they can test their skills in a Virtualized environment.

**Overview:** Microsoft Official Academic Curriculum Labs Online is built on Hyper-V technology. Students access Virtual Machines in a Microsoft Data Center located in the US. It allows students to get hands-on experience on the latest Microsoft technologies with without having to spend $$$ on hardware. Students can access the virtualized environment from anywhere in the world with a high speed internet connection.

**System Requirements:**
1. Microsoft Windows Operating System: Vista, Windows 7 or Windows 8
2. Internet Explorer with ActiveX enabled. (You must use IE. It doesn’t work in other browsers.)
3. Xtreme Consulting Group ActiveX RDP Client (This almost always installs when you launch the labs for the first time.)
4. Registration Code for one or more MOAC Online Labs
5. An email account. Please use your @students.pgcc.edu account.

**Access Online Labs:**
URL: [https://moac.microsoftlabsonline.com/Account/LogOn?returnUrl=%2fMyAccount](https://moac.microsoftlabsonline.com/Account/LogOn?returnUrl=%2fMyAccount)
1. Register for a new account.
2. Enter Your Name, Email and Password. Then click Register.
3. Click on My Code at the left. You should have received a code for each Microsoft course that you are enrolled. Enter the registration code under “Add a code to your account.” Then click Add Code.
4. Your Labs will appear below My codes.

5. Now click on My Labs. The interface will let you select which lab you want to access. For example the author selected MOAC70-410 R2. Now you may select from 19-20 different labs. The labs are mapped to the Microsoft Objectives for each exam and are also mapped to chapters in the respective MOAC books.

6. Select a Lab by clicking on “Take Lab”
7. The first time you launch a lab, it will install an ActiveX RDP Client. You must have the Admin Username and Password in order to install this ActiveX client. Sometimes the ActiveX client will NOT install correctly. You can get a copy of the executable from your instructor.

**NOTE:** These labs only work with Internet Explorer. (This is because of the ActiveX RDP Client.) **YOU MUST USE INTERNET EXPLORER TO DO THESE LABS.**

8. Now that you are in the lab, it functions like any other Virtual Machine. On the left, you can access the VM. On the right, you can select different Virtual Machines. Click Ctrl+Alt+Delete, copy information to the clipboard and click on the Windows Key on the Virtual Keyboard.

9. Note that you can access the Lab “Manual” on the right.
For questions and troubleshooting, please contact Xtreme Consulting Group.

**Support**

Email: mocsupp@xtremeconsulting.com

Telephone: 800-239-7051

12 am – 6 pm PST, Monday through Friday

9 am – 6 pm PST, Sunday

Text Support: Click [here](#) for chat support.

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**SECTION 8: TECHNOLOGY QUICKLINKS**

Below are URL links to the technology tools used in this course:

- **Owl Mail**: [http://mail.students.pgcc.edu](http://mail.students.pgcc.edu)
- **Blackboard**: [http://pgcconline.blackboard.com](http://pgcconline.blackboard.com)
- **TestOut**: [http://www.testout.com](http://www.testout.com)
- **NetLabs**: [https://moac.microsoftlabsonline.com](https://moac.microsoftlabsonline.com)

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**SECTION 9: STUDENT SUPPORT**
Technical Support
For technical support in this course, your first point of contact should be your instructor.

1. Blackboard: Please look to the following site:
   http://www.pgcconline.com/technicalSupport.html
2. MOAC Labs Online
   Email: mocsupp@xtremeconsulting.com
   Telephone: 800-239-7051
   Midnight – 6 pm PST, Monday through Friday
   9 am – 6 pm PST, Sunday
   Text Support: Click here for chat support.

Disability Support Services
Students requesting academic accommodations are required to contact the College’s Disability Support Services Office (B-124) or call (301) 546-0838 (voice) or (301) 546-0122 (TTY) to establish eligibility for services and accommodations. Students with documented disabilities should discuss the matter privately with their instructors at the beginning of the semester and provide a copy of the completed Student/Faculty Accommodation Form.