



# Academic Catalog 2012

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## **Mission and Objectives**

The primary mission of Brand College is to provide students with high quality, career oriented programs. Our goal is to ensure that students receive the highest possible standard of education in their field of study. At Brand College, we have made every effort to create the optimum environment in which students gain real-life experiences in the classroom. We aim to prepare our students to be fully capable to work "in the field". The education students receive at Brand College will greatly enhance their chances of securing the best possible employment in their field of study.

Students will benefit from our dedication to excellence in training, and our continuous efforts to provide the following:

- Personal, hands-on education.
- Ample class time, above and beyond the requirements, to ensure our students get a chance to absorb the material thoroughly, ask questions and practice through lab exercises.
- Small class sizes for individual attention.
- Instructors who have extensive real-life experience and a passion for training.

Now, more than ever, businesses have begun to demand industry certified employees who are qualified to plan, install, operate, maintain, and support today's complex computer environments. We believe that Microsoft and Cisco are the world's leading providers of system software/hardware for various businesses and demands are increasing for Microsoft and Cisco certified engineers with an emphasis on MCSE, CCNA, CCNP and CCSP.

As the computer market enters into a new era of automation, business needs are being re-evaluated to take advantage of the new technologies that are far more complex and sophisticated and require support personnel with advanced training and skills. With these changes, highly qualified individuals will be needed to allow organizations to improve their overall operations. With increased computerization and automation of the business environment, computer training has become a needed commodity in this ever-changing field. As technology rapidly advances, it is apparent that well-educated and highly trained personnel are in demand to manage and operate this growing computing platform.

The areas of need will range from training for basic software skills to highly technical training on how to develop and maintain computer systems for large and growing organizations and enterprises.

The above needs simply illustrate that there is a vast pool of candidates eligible for Brand College's programs. Candidates will range from individuals just starting in the field of technology to those experienced and technical personnel wanting to upgrade or update their skills.

## History

Brand College was established in 2004 in Glendale, California, as a Limited Liability Corporation. The primary focus of the organization is to provide quality training to its clients in the area of Information Technology and related studies. The organization currently has seven partners and will be operating out of its headquarters in Glendale, California. The company offers its customers a unique combination of expertise – comprehensive and practical Information Technology training in many of the sought-after programs in the industry.

The primary mission of the organization is to provide students with high quality, career oriented programs. Our goal is to ensure that students receive the highest possible standard of education in their field of study. At Brand College, we have made every effort to create the optimum environment in which students gain real-life experiences in the classroom. We aim to prepare our students to be fully capable to work “in the field”. The education students receive at Brand College will greatly enhance their chances of securing the best possible employment in their field of study.

Our educational services include:

1. Certification training programs including:
  - a. CompTIA A+ (PC Hardware Technician),
  - b. Microsoft Certified System Engineer (MCSE),
  - c. Linux+ (Linux Certified Professional),
  - d. Cisco Certified Network Associate (CCNA),
  - e. Cisco Certified Network Professional (CCNP)
  - f. and Cisco Certified Security Professional (CCSP);
2. Comprehensive programs including:
  - a. Certified Desktop & Network Specialist (CDNS),
  - b. Certified Multi-Platform Network Specialist (CMNS),
  - c. Certified LAN & WAN Specialist (CLWS),
  - d. Cisco Certified Network Expert (CCNE),
  - e. and Certified Network Technologies Expert (CNTE);
3. Skill and knowledge enhancement training not specifically linked to certifications including:
  - a. Security training for firewall and VPN solutions,
  - b. End-user and corporate training directed at updating employee/user skill set and knowledge base,
  - c. Certification preparation,
  - d. and certification testing.

## **Industry Affiliations**

Brand College is proud to honor affiliations with industry and educational leaders while it continues to expand its partnerships, certifications, and/or memberships:

### **Technic Affiliations**

- Microsoft IT Academy
- VMWare IT Academy
- Microsoft Small Business Specialist
- Cisco Premier Partner
- HP Authorized Business Partner
- Dell Solution Provider
- Ingram Micro

### **Educational Affiliations**

- Brand College is accredited by the Accrediting Commission of Career Schools and Colleges (ACCSC)
- Brand College is approved by BPPE (Bureau for Private Postsecondary Education)
- Brand College is approved for the training of veterans and eligible persons under the provisions of title 38, United States code
- Thomson/Prometric Testing Center
- Pearson VUE Testing Center
- CAPPS (The California Association of Private Postsecondary Schools)
- Dun and Bradstreet

## **Personnel Overview**

We believe a key element to the future success of Brand College will be the quality of its personnel. The team of individuals that is to become Brand College is comprised of a balanced blend of engineers, instructors, business managers, and administrators. Each member of the organization brings a high level of expertise and experience to the team. Additionally, the group has already attracted a number of highly regarded outside contractors and professional support personnel. Brand College is a cohesive group of talented, energetic, individuals fully prepared to build a highly successful, well regarded, IT company.

## **General Information**

### **Facilities**

Brand College is located in Glendale, California at 529 Hahn Avenue, near the heart of the Glendale business district. The facilities can be found on the first floor of a two-story building. The space occupied by school is approximately 1,340 square feet.

The space consists of two classrooms/labs, a student lounge area, administrative offices, Pearson VUE Testing Center, Thomson/Prometric Testing Center and a library/resource center.

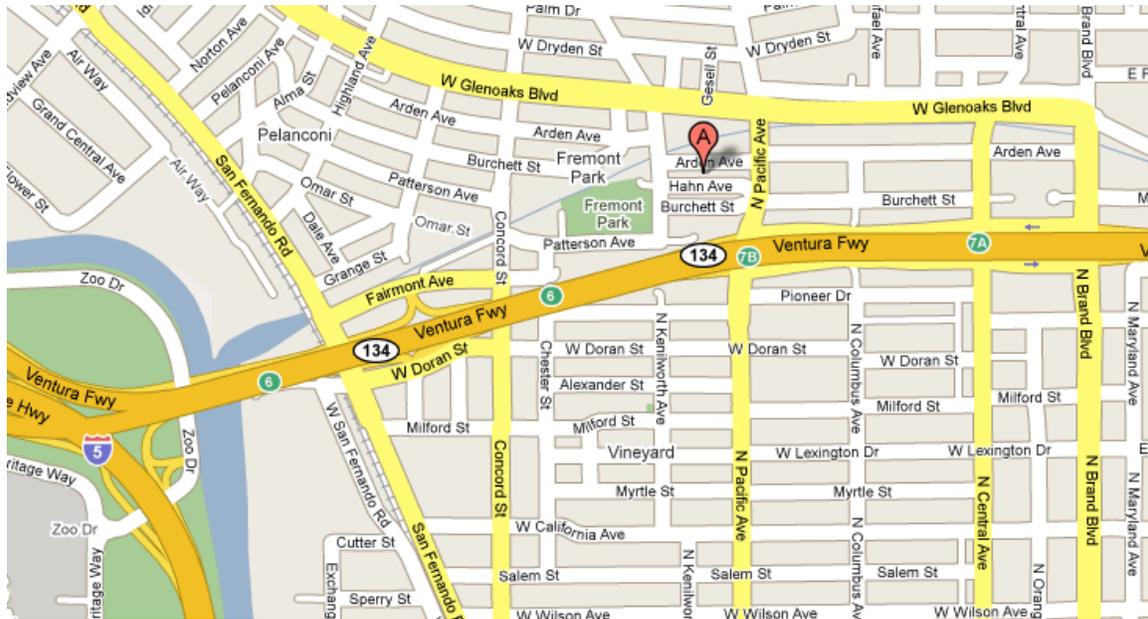
The classrooms/lab 1 accommodates up to 12 students while the classroom/lab 2 can accommodate up to 8 students. Both classroom/labs provide a student to computer ratio of 1:1, equipped with up-to-date computer equipment.

School's labs are equipped with IBM compatible computers, Cisco routers, and Pacific Bell data lines.

All areas of the facility are well lighted and well ventilated. Additionally, the west side of the building is banked by large windows allowing for pleasant, natural lighting into a significant portion of the suites. The second floor suite is quiet and tranquil and offers an extremely pleasant environment for students.

## Campus Information

The school is open from 8:00am to 10:00pm, Monday through Thursday, 8:00am to 5:00pm on Friday, Saturday and Sunday, excluding holidays.



## **Admissions Requirements**

To be admitted to any Brand College's program, all applicants must satisfy the following requirements:

1. All prospective students must have a high school diploma, or have the equivalent of a diploma, such as GED. This document must be submitted to the college before the start of class.
2. All applicants must pass an entrance exam given by the college before the start of class.

Brand College's programs entail rigorous computer-based training requiring basic computer knowledge, logic and reasoning abilities, mathematics aptitude, and writing skills. In order to accurately evaluate an applicant's ability to succeed in this training program, prospective students have to successfully pass school's entrance exam. The Wonderlic is a designated exam for Brand College. Score of at least 12 will be required for an applicant to be considered for admission to school.

Prospective students are encouraged to visit the school to audit a class/instructor and/or to view the facility prior to enrolling.

### **Procedures**

To apply for admissions, applicants should contact the admissions department to schedule an interview with one of our Admissions Representatives. The applicant will have an extensive interview with school's admissions personnel. In this session panel members will discuss the applicant's background, interest and future plans in the area of interest, and tour the facility. Current job market analysis will be included in determining the needs of the student in his/her specific field of study. If there is an interest in the school, an entrance exam will be administered.

Applicants should be prepared to present a copy of their diploma or GED along with the required registration fee.

Upon acceptance into the school, the applicant will complete an enrollment agreement along with the necessary paperwork. The school will then notify the student with the exact details of their program (cost, date/time, course, etc.).

If the school rejects the applicant, he/she will be notified immediately.

## Schedule of Total Charges

Program	Registration Fee	Tuition, Books, and Equipment	Total Charges
A+ (PC Hardware Technician)	\$0.00	\$1,500.00	<b>\$1,500.00</b>
Cisco Certified Network Associate	\$0.00	\$2,000.00	<b>\$2,000.00</b>
Cisco Certified Network Professional	\$50.00	\$4,500.00	<b>\$4,550.00</b>
Cisco Certified Security Professional	\$50.00	\$7,500.00	<b>\$7,550.00</b>
Certified Network Technologies Expert	\$50.00	\$24,000.00	<b>\$24,050.00</b>
Linux+ (Linux Certified Professional)	\$0.00	\$2,000.00	<b>\$2,000.00</b>
Microsoft Certified System Engineer	\$50.00	\$6,500.00	<b>\$6,550.00</b>
Certified Desktop & Network Specialist (CDNS)	\$50.00	\$8,000.00	<b>\$8,050.00</b>
Certified Multi-Platform Network Specialist (CMNS)	\$50.00	\$8,500.00	<b>\$8,550.00</b>
Certified LAN & WAN Specialist (CLWS)	\$50.00	\$8,500.00	<b>\$8,550.00</b>
Cisco Certified Network Expert (CCNE)	\$50.00	\$14,000.00	<b>\$14,050.00</b>

*The school reserves the right to adjust tuition rates. In no event will any such changes affect the students that already have signed an enrollment agreement with the school.*

**Clock Hour Conversion**

- Term- Quarter (12 weeks)
- Classroom/Laboratory Contact Hour – Fifty (50) minutes of class time
- One Quarter Credit Hour - Twelve (12) hours of classroom contact plus appropriate outside preparation
- One Quarter Clock Hour - Twenty-four (24) hours of supervised laboratory instruction plus appropriate outside preparation

**Language**

Brand College only offers classes in English. We do not offer ESL classes.

## Refund Policy

### Installment Contract

Student (and Co-buyer, if applicable) understands that payments are made to the School (Brand College). Payments 10 days delinquent may accrue a LATE CHARGE of the lesser of 5%, \$5 or maximum allowed by law. If account is delinquent for over 90 days, the entire amount may become due and payable. I/we Student (and Co-buyer, if applicable), agree to pay all funds owed under this agreement to the school on demand. I/we Student (and Co-buyer, if applicable), do not, I/we agree to pay all costs of collection, including attorney and collection agency costs in addition to what I/we owe. The Agreement is not binding until accepted by the School. Student may pay off balance in advance (within 90 days of start date) and receive partial refund of interest computed by the actuarial method. **NOTICE: Any holder of this consumer credit contract is subject to all claims and defenses which debtor (student) could assert against seller (school) services obtained hereunder. Recovery hereunder by the debtor (student) shall not exceed the amount paid by the debtor (student) hereunder.**

### “Buyer’s Right to Cancel”

#### Cancellation of Agreement

You have the right to cancel this agreement for a course of instruction including any equipment such as books or any other goods related to the instruction offered in this agreement, until midnight of the fifth business day after the first class you attended. Business day means a day on which you were scheduled to attend a class session.

Cancellation shall occur when you give written notice of cancellation at the address of the School shown on the top of the front and back page of this agreement. You can do this by mail, hand delivery, or telegram. The written notice of cancellation, if sent by mail, is effective when deposited in the mail properly addressed with postage prepaid. The written notice of cancellation need not take any particular form and, however expressed, it is effective if it shows that you no longer wish to be bound by agreement. You will be given two Notice of Cancellation forms to use at the first day of class, but you can use any written notice that you wish.

If the school has given you any equipment, including books or other materials, you shall return it to the school within 30 days following the date of your notice of cancellation. If you fail to return this equipment, including books, or other materials, in good condition within a 30-day period, the school may deduct its documented cost for the equipment from any refund that may be due to you. Once you pay for the equipment, it is yours to keep without further obligation. If you cancel this agreement, the school will refund any money that you paid, less any deduction for equipment not timely returned in good condition, within 30 days after your notice of cancellation is received.

#### Withdrawal From Course

You have the right to withdraw from a course of instruction at any time. If you withdraw from the course of instruction after the period allowed for cancellation of the agreement, which is until midnight of the fifth business day following the first class you attended, the school will remit a refund less a registration fee, if applicable, not to exceed \$75.00 within 30 days following your withdrawal. You are obligated to pay only for education services rendered and for unreturned equipment. The refund shall be the amount you paid for instruction, less a registration fee, multiplied by a fraction in which the numerator is the number of hours of instruction which you have not received but for which you have paid, and the denominator is the total number of hours of instruction for which you have paid. If you obtain equipment, as specified in the agreement as a separate charge, and return it in good condition within 30 days following the date of your withdrawal, the school shall refund the charge for equipment paid by you. If you fail to return the equipment in good condition, allowing for reasonable wear and tear, within 30 days period, the school

may offset against the refund the documented cost to the school of that equipment. You shall be liable for the amount, if any, by which the documented cost for equipment exceeds the prorated refund amount. The documented cost of the equipment may be less than the amount charged, and the amount the school has charged in the contract.

In any event, you will never be charged for more than the equipment charges stated in the contract. For a list of these charges, see the list on the front of this page. IF THE AMOUNT THAT YOU HAVE PAID IS MORE THAN THE AMOUNT THAT YOU OWE FOR THE TIME YOU ATTENDED, THEN REFUND WILL BE MADE WITHIN 30 DAYS OF WITHDRAWAL. IF THE AMOUNT THAT YOU OWE IS MORE THAN THE AMOUNT THAT YOU HAVE ALREADY PAID, THEN YOU WILL HAVE TO MAKE ARRANGEMENTS TO PAY IT.

An approved leave of absence (LOA) is not considered to be a withdrawal of the student which requires a refund. A LOA is approved if, (1) the student has made a written request for the LOA, (2) the leave of absence does not exceed sixty (60) days, (3) the school has granted only one LOA to the student in any 12-month period, and (4) the school does not charge the student for the LOA. If the LOA is not approved then the student is considered withdrawn from the school, and the refund requirements apply.

### **Hypothetical Refund Example**

Assume the student has paid in full the following charges for a 400-hour course:

Registration Fee:	\$75.00
Tuition:	\$2,025.00
Equipment:	\$150.00

(student has received all necessary equipment)

Student withdraws from the school after 100 hours of instruction. The pro rata refund for the student would be:

$$(2025 \times 300) / 400 = 1518.75 \text{ (refund of \$1,518.75)}$$

If the student returns the equipment in good condition within 10 days following his/her withdrawal, the school shall refund the charge for the equipment paid by the student. Thus the refund amount will be:

$$\$1,518.75 + \$150 = \$1,668.75$$

For the purpose of determining the amount you owe for the time you attended, you shall be deemed to have withdrawn from the course when any of the following occurs:

- (a) You notify the school of your withdrawal or the actual date of withdrawal.
- (b) The school terminates your enrollment. \*\*
- (c) You fail to attend classes for a three-week period. In this case, the date of withdrawal shall be the last date of recorded attendance.
- (d) You fail to submit three consecutive lessons or you fail to submit a completed lesson required for home study or correspondence within 60 days of its due date.

If any portion of your tuition was paid from the proceeds of a loan, then the refund will be sent to the lender or the agency that guaranteed the loan, if any. Any remaining amount of refund will first be used to repay any student financial aid programs from which you received benefits, in proportion to the amount of benefits received. Any remaining amount will be paid to you.

*\*\*Grounds for cancellation/termination by the school – failure to maintain satisfactory academic progress, excessive unexcused absences, violation of school Codes of Conduct, and/or failure to meet financial obligations to the school.*

### **Disclosure**

The school reserved the right to cancel a class start date due to insufficient enrollment. If this occurs, the student may request a full refund of all monies paid or apply all monies paid to the next scheduled class start date.

The school reserves the right to change or modify the program contents, equipment, staff or materials, as it deems necessary. Such changes may be necessary to keep pace with technological advances and to improve teaching methods or procedures. In no event will any such changes diminish the competency or content of any program or result in additional charges to the student.

While the school offers Placement Assistance, the school cannot, in any way; guarantee employment after the student has successfully completed the program of study.

## Academic Policies

### Satisfactory Academic Progress - Description

The following is a description of the school's process and activities supporting a consistent SAP analysis and reporting on regular intervals.

1. Director of Education and the School Director meet during the Administrative Week following the conclusion of each school term.
2. The student transcripts are then sent to students via postal mail and email.
3. Students who do not meet the required and satisfactory academic progress are placed on Probation I for one term.
4. Students who are on probation will be counseled by the school and a plan will be set to help the student to return to satisfactory standing with their academic progress. Students who are on probation are also on a limited enrollment plan. Full-time students can enroll for a maximum of 6 units while part-time students cannot take more than 3 units under this probationary period.

Example of Satisfactory Academic Progress requirements (CCNP Program):

Program Interval	Satisfactory Completion	Minimum GPA
Module 1	25% or higher	1.0
Module 2	50% or higher	1.5
By completion of program	100%	2.0

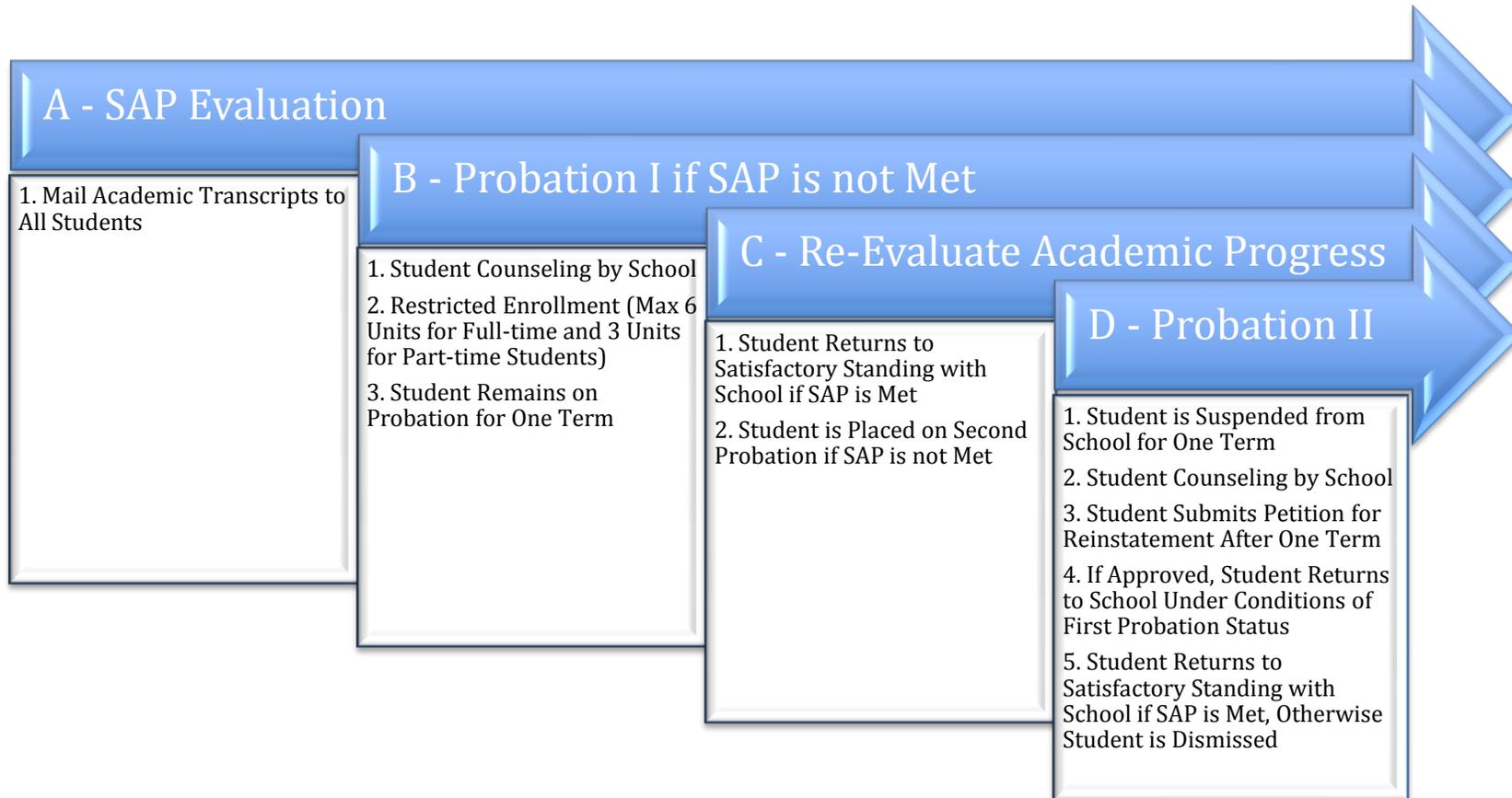
5. If by the end of the first term in the probationary period the student meets the required and satisfactory academic progress, the student's status is then restored to satisfactory academic standing with the school.
6. In the event the student still does not meet the satisfactory academic progress at the end of the first probationary period, the student is then placed on Probation II and is suspended from the school for one term. While suspended, the student will go through counseling with the school in order to set a plan and return to satisfactory standing with the school.
7. At the end of the suspension period, the student has the option to submit a Petition for Reinstatement on Probationary Status form to provide information that may be deemed justifiable for the student's academic difficulties.
8. The school will review the information provided by the student and will determine if the student should be allowed to return to school based on the information provided by the student and verified by the school.
9. Should the school approve the student's return, the student will resume school under the status of Probation I as described above.
10. Upon the completion of the term, if the student meets the required and satisfactory academic progress, the student's status is then restored to satisfactory academic standing with the school.

The student is dismissed from the school otherwise. After six months, the student has the option to submit a petition for reinstatement.

The maximum time limit for a student to complete a program is 1.5 times the program length in weeks. If students do not complete the training within the maximum time frame they will be dropped from the program.

<b>Program Name</b>	<b>Quarter (Clock Hrs)</b>	<b>Length (in weeks)</b>	<b>Max Time (in weeks)</b>
A+ (PC Hardware Technician)	96	12	18
Microsoft Certified System Engineer (MCSE)	480	60	90
Cisco Certified Network Associate (CCNA)	96	12	18
Cisco Certified Network Professional (CCNP)	192	24	36
Cisco Certified Security Professional (CCSP)	288	36	54
Linux+ (Linux Certified Professional)	96	12	18
Certified Desktop & Network Specialist (CDNS)	480	60	90
Certified Multiplatform Network Specialist (CMNS)	480	60	90
Certified LAN & WAN Specialist (CLWS)	480	60	90
Cisco Certified Network Expert (CCNE)	576	72	108
Certified Network Technologies Expert (CNTE)	1152	72	108

## Satisfactory Academic Progress – Process Flow



**Attendance**

A student in any class will be placed on attendance probation if she/he accumulates three consecutive or four cumulative unexcused absences. While on attendance probation, the student will be dismissed with an additional unexcused absence.

**Tardiness**

A student who is more than 15 minutes late to class, or who leave class more than one half hour early on four occasions will accrue one day of absence.

**Make-Up Works**

Students are required to make-up all assignments, exams, or other missed work as a result of an excused or unexcused absence. Arrangements to make up a missed exam must be made with the instructor.

## Student Code of Conducts

To maintain an environment of social, moral and intellectual excellence, the college expects each student to behave in a mature and professional manner.

In essence, students need to display the following:

- Conduct that is orderly at all times
- Honesty & professionalism
- Respect for college and/or other student's property
- Professional attire

## Disciplinary Dismissal

Any student who violates the following is liable for dismissal from her/his program:

- Student codes of conduct
- Cheating
- Drug/alcohol abuse
- Failure to meet financial obligations
- Failure to maintain satisfactory academic progress (SAP)
- Failure to comply with the School's policies (attendance, tardiness, etc.)

However, any student who has been dismissed may appeal the action, in writing, to the Director. The appeal must contain supporting, verifiable documentation that the unacceptable performance was the result of mitigating circumstances.

## Conditions for Re-Enrollment

A student will be eligible for re-admissions if the director is satisfied with the evidence shown and the conditions that cause the interruption have been rectified.

## Grading System

Grades are issued within two weeks after the end of each term. Designators indicate academic action, not grades, and are not included when computing academic averages. Grades and designators are assigned as follows:

**Grade of F-Failing:** A student, who receives an F in a required course, must repeat the course and receive a passing grade. Upon completion of a repeated course with a passing grade, the new grade will replace the failing grade in CGPA computation.

Index Grade	Percentage Equivalent	Grade Point
A	90-100	4
B	80-89	3
C	70-79	2
D	60-69	1
F	Below 60	0
I	Incomplete	0

## Designators

P = Proficiency Test

T = Transfer Credit

W = Withdrawal

**Grade of I-Incomplete:** A grade of I signifies not all the required course work was completed during the term of enrollment. All required work must be completed by the end of the first week of the following term. If course requirements are not satisfied by the deadline, the grade I will be converted to an F.

**Designator W-Course withdrawal:** Designator W indicates that the student withdrew from a course prior to the withdrawal deadline. Students may withdraw from any program module from Monday of week 2 through Sunday of week 4 of the program. The student will receive a grade of “W” for any module the student drops. No adjustments will be made to tuition and fees for the quarter unless the student is withdrawing from all modules in the program. As soon as the student retakes and completes any dropped modules the new grade for the module will take effect in student’s GPA and units will be added to the total units earned by the student.

**Designator P-Proficiency test:** Students may request a proficiency examination provided they have not previously taken the same class at Brand College.

**Designator T-Transfer credit:** An applicant wishing to transfer credit from another school must request a credit evaluation and provide an official transcript and a catalog from the transferring institution (grade must be ‘C’ or better). The Director will review the application and if the classes are determined to be equivalent to Brand College’s curriculum, credits will be transferred. School credits are transferable only at the discretion of the receiving institution. Credits earned at Brand College may or may not transfer to other institutions.

### **Student’s Records**

Brand College will be using specialized registrar software, which will organize the school’s student population alphabetically and by social security number. The aforementioned software program is designed to also maintain data regarding students' personal information, attendance records, academic records and grades. A hard copy of each student's academic and financial records will be kept in the school's administrative offices for 5 to 7 years. Academic and financial records will be kept separately for the purpose of monitoring.

Student academic files will contain the following items: student contract with school, personal data sheet, emergency medical form, entrance exam, and proof of most recent degree. (GED will be accepted in place of a high school diploma.

### **Complaint Policies and Procedure**

Any individual with a complaint or a concern with the school is encouraged to reach out to the school faculty or staff members. There is a complaint log sheet available at the school’s administrative desk. The complaint can be submitted either in writing or discussed verbally with the school faculty or staff. The recipient of the complaint shall report the complaint and any pertinent information to Debbie Ruiz (Academics) for further review and timely resolution. The complainant(s) will be kept informed as to the status of the complaint as well as the final resolution by the school.

### **Student Complaint Procedure**

Schools accredited by the Accrediting Commission of Career Schools and Colleges must have a procedure and operational plan for handling student complaints. If a student does not feel that the school has adequately addressed a complaint or concern, the student may consider contacting the Accrediting Commission. All complaints reviewed by the Commission must be in written form and should grant permission for the Commission to forward a copy of the complaint to the school for a response. This can be accomplished by filing the ACCSC Complaint Form. The complainant(s) will be kept informed as to the status of the complaint as well as the final resolution by the Commission.

Please direct all inquiries to:

**Accrediting Commission of Career Schools and Colleges (ACCSC)**

2101 Wilson Boulevard, Suite 302  
Arlington, VA 22201  
(703) 247-4212  
[www.accsc.org](http://www.accsc.org)

A copy of the ACCSC Compliant Form is available at the school and may be obtained by contacting Debbie Ruiz, Director or online at [www.accsc.org](http://www.accsc.org).

In addition to filing a complaint with the Accrediting Commission of Career Schools and Colleges (ACCSC), students may contact the Bureau of Private Postsecondary Education (BPPE). Please direct all inquiries to:

**Bureau of Private Postsecondary Education**

P.O. Box 980818  
West Sacramento, CA 95798  
(916) 574-7720  
[www.bppe.ca.gov](http://www.bppe.ca.gov)

**Graduation Requirements**

A student must achieve a cumulative grade point average (CGPA) of at least 2.00 and satisfactorily complete all current curriculum requirements to graduate. Graduation will not be permitted if the best recorded grade of a required course is F, I or the designator W. Transfer credit and proficiency examination credit fulfill graduation requirements. A candidate who transferred to Brand College must complete at least 35 percent of the required credit hours at the school. Prior to receiving a certificate of completion, a student must satisfy all financial obligations to the school.

## **Brand College Services**

### **Student Services**

School will provide a number of vital services to students. Each student will be continually monitored and counseled as to the best course selection for his/her specific background and goals. These course goals will be re-evaluated each term, and altered if necessary. This will afford each student with a training program designed to fit his/her specific academic and personal needs. We believe that this flexibility will engender a higher rate of success for each student. Students who feel the need for extra work and instruction will be evaluated by an academic advisor and offered tutoring at no extra cost. School is dedicated to facilitating in the success of all students working to develop their computing skills and knowledge.

**Tutoring Assistance** - Tutoring program is open to all students, at no cost. The program provides assistance on an individual basis or a group study when this format may be more appropriate. A tutor provides the tutoring with proficiency in the subject matter of the particular academic area. Tutoring is on an appointment basis. Students who wish to participate in the program or who are interested in becoming a tutor should contact the School Director.

**Learning Resources** - The school library/resource center contains wide array of carefully selected resources to support the needs of the students, faculty and staff. The library/resource center has an extensive collection of books, magazines, journals, newspapers, and internet access to assist those pursuing our training programs and prepare those planning a career in the IT industry. The library/resource center is used to obtain in-depth information on the subject matter, prepare students for classroom discussions, and prepare students for the certification exams. Resources are assigned to provide students with access to course related material, including additional readings, review and lab answers, lab files, multimedia presentations, and course related web sites.

**Assessment Assistance** - Assessment tests are given to identify the student's skill level in English and Math. Test scores are evaluated and measured in reference to the prerequisites of pertaining training courses. The objective is to assist admissions representative in recommending the most appropriate courses to meet the students' skill level and educational goals.

**Academic Advising** - Academic advising provides students with information about the requirements for the programs offered at the school. Students can obtain an academic plan that will include admission and general education requirements, as well as courses to best prepare them for their program of study.

**Placement Assistance** - Placement assistance is free of charge and is provided for certified graduates. Certified graduates are referred to various companies and consulting firms in the network of schools contacts. The placement advisor will assist students in determining where their interests lie, where their strengths are and what work would provide a sense of fulfillment. Students will find assistance in investigating different career possibilities.

**Testing Services** - Brand College is authorized center for tests administrated by Pearson Vue and Thomson Prometric. Students may take any exam administrated by these organizations in a professional and comfortable setting.

Students will also benefit from school's professional affiliation with various corporations such as Microsoft. Students will receive considerable discounts on computer products and will be able to place orders through school.

## Placement Services

Placement assistance provides career information and referrals for part time and full time employment, resume assistance, interview preparation, career planning, occupational information and academic counseling.

Organization's consulting wing has built a highly respected reputation in the computer industry, which will also greatly benefit students. School has established numerous contacts with various companies and consulting firms. This database of business contacts will be available to students, as well.

A staff member will be working (approximately 20 hours weekly) to develop and extend Brand College's relationship with various outlets. This staff member will also be working to place students on an as needed basis.

School will work diligently to establish a working relationship with the placement divisions of both Cisco Inc. and Microsoft Corporation - two industry giants. These affiliations will, undoubtedly, be very valuable resources for students involved in the network training programs.

While the school offers Placement Assistance, the school cannot, in any way; guarantee employment after the student has successfully completed the program of study.

### Instructors

Name	Qualifications
Andre Abed	MCP, MCSE, MCT, MCTS, MCITP
Wayne Khoo	A+, MCSE, CCNA, CCNP, Linux+
Alfons Manouk	A+, MCP, MCSE, CCNA, CCNP
Myrna Martin	MCSE, MCT, CCNA, CCNP, CCSP
Jong Cho	CCNA, CCNP, CCSP

<b>A+</b>	CompTIA A+ (PC Hardware Technician)
<b>MCP</b>	Microsoft Certified Professional
<b>MCSE</b>	Microsoft Certified Systems Engineer
<b>MCT</b>	Microsoft Certified Trainer
<b>MCTS</b>	Microsoft Certified Technology Specialist
<b>MCITP</b>	Microsoft Certified IT Professional
<b>CCNA</b>	Cisco Certified Network Associate
<b>CCNP</b>	Cisco Certified Network Professional
<b>CCSP</b>	Cisco Certified Security Professional
<b>Linux+</b>	Linux+ (Linux Certified Professional)

# Academic Programs

## A+ (PC Hardware Technician)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises is designed for the novice without prior computer experience. Students will be introduced to computer hardware concepts and learn to build a Personal Computer (PC) from the ground up. Software concepts will be delivered via training on the newest versions of Microsoft Windows. The primary goal of this course is to give students a basic understanding of every aspect of hardware and software relating to the PC. However, the final portion of this course will introduce the student to basic networking concepts and network implementation using Microsoft Windows operating systems – a must for any individual planning to enter the IT field.

- Certification program
- 96 Contact Hours, 6 Credit Hours, 12 Weeks

Course No.	Course Name	Quarter Credit Hours	Clock Hours
IPC100	PC I	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

### Prerequisites

There are no prerequisites required to attend this course.

### Type of Document Received Upon Graduation

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

### Certification Tests

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

### Career Development

Students who successfully complete this program will be prepared for entry to midlevel professional opportunities in the IT field with emphasis on client workstation or desktop hardware, software and operating system support. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Desktop Support Technician, PC Technician, Helpdesk Support, Computer Hardware Engineer or similar designations.

### Recommended Next Course

Candidates wishing to further their education are recommended to consider the Microsoft certifications in client/server technologies as the next step toward becoming a well rounded IT professional.

## A+ Program Details

### COURSE IPC100

Title: PC Hardware and Operating System

Exam: CompTIA Exams 220-701 and 220-702

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is designed to introduce the students to computer hardware concepts and the skills required to build a Personal Computer (PC) from the ground up. In addition, students will learn software concepts with the newest versions of Microsoft Windows. The primary goal of this course is to give students a basic understanding of every aspect of hardware and software relating to the PC. However, the final portion of this course will introduce the student to basic networking concepts and network implementation using Microsoft Windows operating systems.

### **Course Objectives**

This course will cover the following subjects:

- Personal Computer Components
- System Unit Components
- Storage Devices
- Personal Computer Connection Methods
- Personal Computer Operating Systems
- Windows User Interface Components
- Windows File System Management
- Windows System Management Tools
- Tools of the Trade
- Electronic Safety
- Environmental Safety and Materials Handling
- Perform Preventive Maintenance
- Diagnostics and Troubleshooting
- Professionalism and Communication
- Install and Configure Display Devices
- Install and Configure Input Devices
- Install and Configure Adapter Cards
- Install and Configure Multimedia Devices
- Install and Configure Storage Devices
- Install and Configure Power Supplies
- Install and Configure Memory
- Install and Configure CPUs
- Install and Configure System Boards
- Troubleshoot Display Devices
- Maintain and Troubleshoot Input Devices
- Troubleshoot Adapter Cards, Multimedia Devices, Storage Devices, Power Supplies, Memory, CPUs, and System Boards
- Install, Upgrade, and Optimize Microsoft Windows
- Add Devices to Windows
- Operating System Utilities
- Maintain and Troubleshoot Microsoft Windows
- Recover Microsoft Windows
- Network Concepts and Communications
- Network Connectivity

- Internet Technologies
- Create Network Connections
- Install and Configure Web Browser
- Maintain and Troubleshoot Network Connections
- Laptop and Portable Computing Device Components
- Install and Configure Laptops and Portable Computing Devices
- Maintain and Troubleshoot Laptops and Portable Computing Devices
- Printer and Scanner Technologies
- Printer and Scanner Components
- Printer and Scanner Processes
- Install and Configure Printers and Scanners
- Maintain and Troubleshoot Printers and Scanners
- Security Fundamentals
- Security Protection Measures
- Data and Physical Security
- Wireless Security
- Social Engineering
- Install and Configure Security Measures
- Maintain and Troubleshoot Security Measures

## Microsoft Certified System Engineer (MCSE)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises is designed to provide students with the knowledge required for a career in computer networking, with an emphasis on Microsoft operating systems including Windows 7 and Windows Server 2008. Students will be guided through the features of the Microsoft operating systems and will learn how to implement, manage and maintain both workstations and servers in a Microsoft Windows networking environment. Additional topics include network infrastructure services that are required to support a Windows network including Active Directory, Name Resolution, TCP/IP and IP assignment, Windows Security, Remote Access, and Microsoft Exchange 2010. This program will provide students with the skills and knowledge necessary to complete the Microsoft certification exams required to become a Microsoft Certified IT Professional (MCITP).

- Certification program
- 480 Contact Hours, 30 Credit Hours, 60 Weeks

### TERM 1

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS100	Windows I	3	48
MCS110	Windows II	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 2

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS120	Windows III	3	48
MCS130	Windows IV	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 3

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS140	Windows V	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 4

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS150	Windows VI	3	48
MCS160	Windows VII	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 5**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS170	Windows VIII	6	96
	<b>Total</b>	<b>6</b>	<b>96</b>

**Prerequisites**

Candidates wishing to enter this course should have completed the A+ PC Hardware Technician coursework or have commensurate experience with PC hardware and basic operating system concepts.

**Type of Document Received Upon Graduation**

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

**Certification Tests**

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

**Career Development**

Students who successfully complete this program will be prepared for entry to midlevel professional opportunities in the IT field with emphasis on planning, installation, and maintenance of client workstation as well as server operating system, applications and network infrastructure services using Microsoft technologies. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Desktop and Server Support Technician, Server Administrator, Network Administrator, Windows Server Administrator or similar designations.

**Recommended Next Course**

Candidates wishing to further their education are recommended to consider the Cisco Certified Network Associate (CCNA) program or the Linux+ certification course as the next logical step towards becoming a well rounded IT professional.

## **MCSE Program Details**

### COURSE MCS100

Title: Planning and Administering Windows Server 2008 Servers

Exam: Microsoft Exam 70-646

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to plan, manage, and maintain Windows Server 2008 servers. This course is intended for Windows Server 2008 Technology Specialists, in Network Infrastructure and Active Directory, who are interested in learning professional level Server Administrator skills to plan, manage, and maintain Windows Server 2008 servers.

### **Course Objectives**

This course will cover the following subjects:

- Plan a Windows Server 2008 deployment
- Plan and implement server commissioning and decommissioning for Windows Server 2008
- Plan the installation of server roles for Windows Server 2008
- Create a configuration change plan for Windows Server 2008
- Plan and implement Windows Server 2008 security
- Manage application versioning in Windows Server 2008
- Plan for a high-availability Windows Server 2008 deployment
- Plan a server update maintenance schedule for Windows Server 2008
- Maintain a Distributed File System (DFS) in Windows Server 2008
- Define server backup requirements and policies for Windows Server Backup
- Plan and implement a Windows Server 2008 restore
- Plan Windows Server 2008 monitoring
- Troubleshoot hardware issues
- Troubleshoot software issues
- Troubleshoot network issues

## COURSE MCS110

Title: Configuring and Troubleshooting a Windows Server 2008 Network Infrastructure

Exam: Microsoft Exam 70-642

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to configure and troubleshoot a Windows Server 2008 network infrastructure. Students will learn to implement and configure secure network access and implement fault tolerant storage technologies. Students will gain an understanding of the network technologies most commonly used with Windows Server 2008 and IP-enabled networks. Students will also learn how to secure servers and maintain update compliance.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring IP Addressing and Services*

- Configure IPv4 and IPv6 addressing. May include but is not limited to: configure IP options, subnetting, supernetting, alternative configuration
- Configure Dynamic Host Configuration Protocol (DHCP). May include but is not limited to: DHCP options, creating new options, PXE boot, default user profiles, DHCP relay agents, exclusions, authorize server in Active Directory, scopes, server core, and Windows Server Hyper-V
- Configure routing. May include but is not limited to: static routing, persistent routing, Routing Internet Protocol (RIP), Open Shortest Path First (OSPF)
- Configure IPsec. May include but is not limited to: create IPsec policy, IPsec Authentication Header (AH), IPsec Encapsulating Security Payload (ESP)

#### *Configuring Name Resolution*

- Configure a Domain Name System (DNS) server. May include but is not limited to: conditional forwarding, external forwarders, root hints, cache-only, server core, WINS and DNS integration, Windows Server virtualization
- Configure DNS zones. May include but is not limited to: DNS Refresh no-refresh, intervals, DNS listserv address (NSLOOKUP), primary/secondary zones, Active Directory integration, Dynamic Domain Name System (DDNS), GlobalNames, SOA refresh
- Configure DNS records. May include but is not limited to: record types, host, pointer, MX, SRV, NS, dynamic updates, Time to Live (TTL)
- Configure DNS replication. May include but is not limited to: DNS secondary zones, DNS stub zones, DNS scavenging interval, replication scope
- Configure name resolution for client computers. May include but is not limited to: DNS and WINS integration, configuring HOSTS file, LMHOSTS, node type, Link-Local Multicast Name Resolution (LLMNR), broadcasting, resolver cache, DNS Server list, Suffix Search order, manage client settings by using group policy

#### *Configuring Network Access*

- Configure remote access. May include but is not limited to: dial-up, Remote Access Policy, Network Address Translation (NAT), Internet Connection Sharing (ICS), VPN, Routing and Remote Access Services (RRAS), inbound/outbound filters, configure Remote Authentication Dial-In User Service (RADIUS) server, configure RADIUS proxy, remote access protocols, Connection Manager
- Configure Network Access Protection (NAP). May include but is not limited to: network layer protection, DHCP enforcement, VPN enforcement, configure NAP health policies, IPsec enforcement, 802.1x enforcement, flexible host isolation

- Configure network authentication. May include but is not limited to: LAN authentication by using NTLMv2 and Kerberos, WLAN authentication by using 802.1x, RAS authentication by using MS-CHAP, MS-CHAP v2, and EAP
- Configure wireless access. May include but is not limited to: Set Service Identifier (SSID), Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA), Wi-Fi Protected Access 2 (WPA2), ad hoc versus infrastructure mode, group policy for wireless
- Configure firewall settings. May include but is not limited to: incoming and outgoing traffic filtering, Active Directory account integration, identify ports and protocols, Microsoft Windows Firewall versus Windows Firewall with Advanced Security, configure firewall by using group policy, isolation policy

#### *Configuring File and Print Services*

- Configure a file server. May include but is not limited to: file share publishing, Offline Files, share permissions, NTFS permissions, encrypting file system (EFS)
- Configure Distributed File System (DFS). May include but is not limited to: DFS namespace, DFS configuration and application, creating and configuring targets, DFS replication
- Configure shadow copy services. May include but is not limited to: recover previous versions, set schedule, set storage locations
- Configure backup and restore. May include but is not limited to: backup types, backup schedules, managing remotely, restoring data
- Manage disk quotas. May include but is not limited to: quota by volume or quota by user, quota entries, quota templates
- Configure and monitor print services. May include but is not limited to: printer share, publish printers to Active Directory, printer permissions, deploy printer connections, install printer drivers, export and import print queues and printer settings, add counters to Reliability and Performance Monitor to monitor print servers, print pooling, print priority

#### *Monitoring and Managing a Network Infrastructure*

- Configure Windows Server Update Services (WSUS) server settings. May include but is not limited to: update type selection, client settings, Group Policy object (GPO), client targeting, software updates, test and approval, disconnected networks
- Capture performance data. May include but is not limited to: Data Collector Sets, Performance Monitor, Reliability Monitor, monitoring System Stability Index
- Monitor event logs. May include but is not limited to: custom views, application and services logs, subscriptions, DNS log
- Gather network data. May include but is not limited to: Simple Network Management Protocol (SNMP), Baseline Security Analyzer, Network Monitor

## COURSE MCS120

Title: Configuring and Troubleshooting Windows Server 2008 Active Directory Domain Services & Configuring and Troubleshooting Identity and Access Solutions with Windows Server 2008 Active Directory

Exam: Microsoft Exam 70-640

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides to teach Active Directory Technology Specialists with the knowledge and skills to configure Active Directory Domain Services in a distributed environment, implement Group Policies, perform backup and restore, and monitor and troubleshoot Active Directory related issues. This course also provides the knowledge and skills that IT Professionals need to configure identity and access solutions with Windows Server 2008 Active Directory.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring Domain Name System (DNS) for Active Directory*

- Configure zones. May include but is not limited to: Dynamic DNS (DDNS), Non-dynamic DNS (NDDNS), and Secure Dynamic DNS (SDDNS), Time to Live (TTL), GlobalNames, Primary, Secondary, Active Directory Integrated, Stub, SOA, zone scavenging, forward lookup, reverse lookup
- Configure DNS server settings. May include but is not limited to: forwarding, root hints, configure zone delegation, round robin, disable recursion, debug logging, server scavenging
- Configure zone transfers and replication. May include but is not limited to: configure replication scope (forestDNSzone, domainDNSzone), incremental zone transfers, DNS Notify, secure zone transfers, configure name servers, application directory partitions

#### *Configuring the Active Directory infrastructure*

- Configure a forest or a domain. May include but is not limited to: remove a domain, perform an unattended installation, Active Directory Migration Tool (ADMT) v3 (pruning and grafting), raise forest and domain functional levels, interoperability with previous versions of Active Directory, alternate user principal name (UPN) suffix, forestprep, domainprep
- Configure trusts. May include but is not limited to: forest trust, selective authentication versus forest-wide authentication, transitive trust, external trust, shortcut trust, SID filtering
- Configure sites. May include but is not limited to: create Active Directory subnets, configure site links, configure site link costing, configure sites infrastructure
- Configure Active Directory replication. May include but is not limited to: Distributed File System, one-way replication, bridgehead server, replication scheduling, configure replication protocols, force intersite replication
- Configure the global catalog. May include but is not limited to: Universal Group Membership Caching (UGMC), partial attribute set, promote to global catalog
- Configure operations masters. May include but is not limited to: seize and transfer, backup operations master, operations master placement, Schema Master, extending the schema, time service

#### *Configuring additional Active Directory server roles*

- Configure Active Directory Lightweight Directory Service (AD LDS). May include but is not limited to: migration to AD LDS, configure data within AD LDS, configure an authentication server, server core, Windows Server 2008 Hyper-V
- Configure Active Directory Rights Management Service (AD RMS). May include but is not limited to: certificate request and installation, self-enrollments, delegation, Active Directory Metadirectory Services (AD MDS), Windows Server virtualization

- Configure the read-only domain controller (RODC). May include but is not limited to: unidirectional replication, Administrator role separation, read-only DNS, BitLocker, credential caching, password replication, syskey, Windows Server virtualization
- Configure Active Directory Federation Services (AD FS). May include but is not limited to: install AD FS server role, exchange certificate with AD FS agents, configure trust policies, configure user and group claim mapping, Windows Server virtualization

#### *Creating and maintaining Active Directory objects*

- Automate creation of Active Directory accounts. May include but is not limited to: bulk import, configure the UPN, create computer, user, and group accounts (scripts, import, migration), template accounts, contacts, distribution lists
- Maintain Active Directory accounts. May include but is not limited to: configure group membership, account resets, delegation, AGDLP/AGGUDLP, deny domain local group, local versus domain, Protected Admin, disabling accounts versus deleting accounts, deprovisioning, contacts, creating organizational units (OUs), delegation of control
- Create and apply Group Policy objects (GPOs). May include but is not limited to: enforce, OU hierarchy, block inheritance, and enabling user objects, Group Policy processing priority, WMI, Group Policy filtering, Group Policy loopback
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure software deployment GPOs. May include but is not limited to: publishing to users, assigning software to users, assigning to computers, software removal
- Configure account policies. May include but is not limited to: domain password policy, account lockout policy, fine-grain password policies
- Configure audit policy by using GPOs. May include but is not limited to: audit logon events, audit account logon events, audit policy change, audit access privilege use, audit directory service access, audit object access

#### *Maintaining the Active Directory environment*

- Configure backup and recovery. May include but is not limited to: using Windows Server Backup, backup files and system state data to media, backup and restore by using removable media, perform an authoritative or non-authoritative Active Directory restore, linked value replication, Directory Services Recovery Mode (DSRM) (reset admin password), back up and restore GPOs
- Perform offline maintenance. May include but is not limited to: offline defragmentation and compaction, Restartable Active Directory, Active Directory database storage allocation
- Monitor Active Directory. May include but is not limited to: Network Monitor, Task Manager, Event Viewer, ReplMon, RepAdmin, Windows System Resource Manager, Reliability and Performance Monitor, Server Performance Advisor, RSOP

#### *Configuring Active Directory Certificate Services*

- Install Active Directory Certificate Services. May include but is not limited to: standalone versus enterprise, CA hierarchies—root versus subordinate, certificate requests, certificate practice statement
- Configure CA server settings. May include but is not limited to: key archival, certificate database backup and restore, assigning administration roles
- Manage certificate templates. May include but is not limited to: certificate template types, securing template permissions, managing different certificate template versions, key recovery agent
- Manage enrollments. May include but is not limited to: network device enrollment service (NDES), autoenrollment, Web enrollment, smart card enrollment, creating enrollment agents

- Manage certificate revocations. May include but is not limited to: configure Online Responders, Certificate Revocation List (CRL), CRL Distribution Point (CDP), Authority Information Access (AIA)

## COURSE MCS130

Title: Installing & Configuring Windows 7 Client

Exam: Microsoft Exam 70-680

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is intended for students who are interested in expanding their knowledge base and technical skills about Windows 7 Client. In this course, students learn how to install, upgrade, and migrate to Windows 7 client. Students then configure Windows 7 client for network connectivity, security, maintenance, and mobile computing. In addition students will be able to students will learn how to configure pre-installation and post-installation system settings, Windows security features, network connectivity applications included with Windows 7, and mobile computing. The course also covers system maintenance, including monitoring for and resolving performance and reliability issues.

### **Course Objectives**

This course will cover the following subjects:

#### *Installing, Upgrading, and Migrating to Windows 7*

- Perform a clean installation
- Upgrade to Windows 7 from previous versions of Windows
- Migrate user profiles

#### *Deploying Windows 7*

- Capture a system image
- Prepare a system image for deployment
- Deploy a system image
- Configure a VHD

#### *Configuring Hardware and Applications*

- Configure devices
- Configure application compatibility
- Configure application restrictions
- Configure Internet Explorer

#### *Configuring Network Connectivity*

- Configure IPv4 network settings
- Configure IPv6 network settings
- Configure networking settings
- Configure Windows Firewall
- Configure remote management

#### *Configuring Access to Resources*

- Configure shared resources
- Configure file and folder access
- Configure user account control (UAC)
- Configure authentication and authorization
- Configure BranchCache

#### *Configuring Mobile Computing*

- Configure BitLocker and BitLocker To Go
- Configure DirectAccess
- Configure mobility options

- Configure remote connections

*Monitoring and Maintaining Systems that Run Windows 7*

- Configure updates to Windows 7
- Manage disks
- Monitor systems
- Configure performance settings

*Configuring Backup and Recovery Options*

- Configure backup
- Configure system recovery options
- Configure file recovery options

## COURSE MCS140

Title: Designing a Windows Server 2008 Network Infrastructure & Designing a Windows Server 2008 Active Directory Infrastructure and Services & Designing a Windows Server 2008 Application Infrastructure

Exam: Microsoft Exam 70-647

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of how to design a Windows Server 2008 Network Infrastructure that meets business and technical requirements for network services. At the end of this course, students will learn how to design an Active Directory Infrastructure in Windows Server 2008. Students will also learn how to design Active Directory forests, domain infrastructure, sites and replication, administrative structures, group policies, and Public Key Infrastructures. In addition students will also learn how to design for security, high availability, disaster recovery, and migrations. Students will learn how to design application infrastructure solutions based on Windows Server 2008 to meet varying business and technical requirements.

### **Course Objectives**

This course will cover the following subjects:

#### *Planning network and application services*

- Plan for name resolution and IP addressing. May include but is not limited to: internal and external naming strategy, naming resolution support for legacy clients, naming resolution for directory services, IP addressing scheme, TCP/IP version coexistence
- Design for network access. May include but is not limited to: network access policies, remote access strategy, perimeter networks, server and domain isolation
- Plan for application delivery. May include but is not limited to: application virtualization, presentation virtualization, locally installed software, Web-based applications
- Plan for Terminal Services. May include but is not limited to: Terminal Services licensing, Terminal Services infrastructure

#### *Designing core identity and access management components*

- Design Active Directory forests and domains. May include but is not limited to: forest structure, forest and domain functional levels, intra-organizational authorization and authentication, schema modifications
- Design the Active Directory physical topology. May include but is not limited to: placement of servers, site and replication topology, printer location policies
- Design the Active Directory administrative model. May include but is not limited to: delegation, group strategy, compliance auditing, group administration, organizational structure
- Design the enterprise-level group policy strategy. May include but is not limited to: group policy hierarchy and scope filtering, control device installation, authentication and authorization

#### *Designing support identity and access management components*

- Plan for domain or forest migration, upgrade, and restructuring. May include but is not limited to: cross-forest authentication, backward compatibility, object migration, migration planning, implementation planning, environment preparation
- Design the branch office deployment. May include but is not limited to: authentication strategy, server security
- Design and implement public key infrastructure. May include but is not limited to: certificate services, PKI operations and maintenance, certificate life cycle management
- Plan for interoperability. May include but is not limited to: inter-organizational authorization and authentication, application authentication interoperability, cross-platform interoperability

*Designing for business continuity and data availability*

- Plan for business continuity. May include but is not limited to: service availability, directory service recovery
- Design for software updates and compliance management. May include but is not limited to: patch management and patch management compliance, Microsoft Update and Windows Update, security baselines, system health models
- Design the operating system virtualization strategy. May include but is not limited to: server consolidation, application compatibility, virtualization management, placement of servers
- Design for data management and data access. May include but is not limited to: data security, data accessibility and redundancy, data collaboration

## COURSE MCS150

Title: Deploying Windows Server 2008 & Configuring & Troubleshooting IIS In Windows Server 2008 & Configuring & Troubleshooting Windows Server 2008 Terminal Services

Exam: Microsoft Exam 70-643

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of migrating and deploying Windows Server 2008 including installation, configuration, and upgrading. Special emphasis is given to upgrading common server configurations and using the Microsoft Deployment Toolkit. In this course, the students will learn to install, configure, maintain, and troubleshoot an Internet Information Services (IIS) 7.0 Web Server in Windows Server 2008. In addition this course provides students with the knowledge and skills to configure, manage, monitor, and troubleshoot a Terminal Services (TS) environment. The course focuses on configuring of TS core functionality, licensing, Gateway, and Web Access.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Servers*

- Deploy images by using Windows Deployment Services. May include but is not limited to: Install from media (IFM), configure Windows Deployment Services, capture Windows Deployment Services images, deploy Windows Deployment Services images, server core
- Configure Microsoft Windows activation. May include but is not limited to: install a KMS server, create a DNS SRV record, replicate volume license data
- Configure Windows Server Hyper-V and virtual machines. May include but is not limited to: virtual networking, virtualization hardware requirements, Virtual Hard Disks, migrate from physical to virtual, VM additions, backup, optimization, server core
- Configure high availability. May include but is not limited to: failover clustering, Network Load Balancing, hardware redundancy
- Configure storage. May include but is not limited to: RAID types, Virtual Disk Specification (VDS) API, Network Attached Storage, iSCSI and Fiber Channel storage area networks, mount points

#### *Configuring Terminal Services*

- Configure Windows Server 2008 Terminal Services RemoteApp (TS RemoteApp). May include but is not limited to: Configuring Terminal Services Web Access, configuring Terminal Services Remote Desktop Web Connection
- Configure Terminal Services Gateway. May include but is not limited to: certificate configuration, Terminal Services Gateway Manager (TS Gateway Manager), specifying resources that users can access through TS Gateway by using Terminal Services resource authorization policy (TS RAP) and Terminal Services connection authorization policy (TS CAP), Terminal Services group policy
- Configure Terminal Services load balancing. May include but is not limited to: Terminal Services Session Broker redirection modes, DNS registration, setting through group policy
- Configure and monitor Terminal Services resources. May include but is not limited to: allocate resources by using Windows Server Resource Manager, configure application logging
- Configure Terminal Services licensing. May include but is not limited to: deploy licensing server, connectivity between terminal servers and Terminal Services licensing server, recovering Terminal Services licensing server, managing Terminal Services client access licenses (TS CALs)
- Configure Terminal Services client connections. May include but is not limited to: connecting local devices and resources to a session, Terminal Services profiles, Terminal Services home folders, Remote Desktop Connection (RDC), single sign-on, Remote Desktop Snap-In, MSTSC.exe
- Configure Terminal Services server options. May include but is not limited to: logoff, disconnect, reset, remote control, monitor, Remote Desktop Protocol (RDP) permissions, connection limits,

session time limits, managing by using GPOs, viewing processes, session permissions, display data prioritization

#### *Configuring a Web Services Infrastructure*

- Configure Web applications. May include but is not limited to: directory-dependent, publishing, URL-specified configuration, Microsoft .NET components, for example, .NET and .aspx, configure application pools
- Manage Web sites. May include but is not limited to: migrate sites and Web applications, publish IIS Web sites, configure virtual directories
- Configure a File Transfer Protocol (FTP) server. May include but is not limited to: configure for extranet users, configure permissions
- Configure Simple Mail Transfer Protocol (SMTP). May include but is not limited to: setting up smart hosts, configuring size limitations, setting up security and authentication to the delivering server, creating proper service accounts, authentication, SMTP relay
- Manage Internet Information Services (IIS). May include but is not limited to: Web site content backup and restore, IIS configuration backup, monitor IIS, configure logging, delegation of administrative rights
- Configure SSL security. May include but is not limited to: configure certificates, requesting SSL certificate, renewing SSL certificate, exporting and importing certificates
- Configure Web site authentication and permissions. May include but is not limited to: configure site permissions and authentication, configure application permissions, client certificate mappings

#### *Configuring Network Application Services*

- Configure Windows Media server. May include but is not limited to: on-demand replication, configure time-sensitive content, caching and proxy
- Configure Digital Rights Management (DRM). May include but is not limited to: encryption, sharing business rules, configuring license delivery, configuring policy templates
- Configure Microsoft Windows SharePoint Services server options. May include but is not limited to: site permissions, backup, antivirus, configuring Windows SharePoint Services service accounts
- Configure Windows SharePoint Services e-mail integration. May include but is not limited to: configuring a document library to receive e-mail, configuring incoming versus outgoing e-mail

## COURSE MCS160

Title: Configuring Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-662

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises teaches students with the knowledge and skills to configure and manage an Exchange Server 2010 messaging environment. This course does not require previous Exchange Server experience, but does require that students have significant experience in managing Windows Server and Active Directory directory services or Active Directory Domain Services (AD DS). This course will teach the students how to configure Exchange Server 2010, as well as provide guidelines, best practices, and considerations that will help the student optimize the Exchange Server deployment.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Microsoft Exchange Server 2010*

- Overview of Exchange Server 2010 Requirements
- Installing Exchange Server 2010 Server Roles
- Completing an Exchange Server 2010 Installation

#### *Configuring Mailbox Servers*

- Overview of Exchange Server 2010 Administrative Tools
- Configuring Mailbox Server Roles
- Configuring Public Folders

#### *Managing Recipient Objects*

- Managing Mailboxes
- Managing Other Recipients
- Configuring E-Mail Address Policies
- Configuring Address Lists
- Performing Bulk Recipient Management Tasks

#### *Managing Client Access*

- Configuring the Client Access Server Role
- Configuring Client Access Services for Outlook Clients
- Configuring Outlook Web App
- Configuring Mobile Messaging

#### *Managing Message Transport*

- Overview of Message Transport
- Configuring Message Transport

#### *Implementing Messaging Security*

- Deploying Edge Transport Servers
- Deploying an Antivirus Solution
- Configuring an Anti-Spam Solution
- Configuring Secure SMTP Messaging

#### *Implementing High Availability*

- Overview of High Availability Options
- Configuring Highly Available Mailbox Databases

- Deploying Highly Available Non-Mailbox Servers

*Implementing Backup and Recovery*

- Planning Backup and Recovery
- Backing Up Exchange Server 2010
- Restoring Exchange Server 2010

*Configuring Messaging Policy and Compliance*

- Introducing Messaging Policy and Compliance
- Configuring Transport Rules
- Configuring Journaling and Multi-Mailbox Search
- Configuring Messaging Records Management
- Configuring Personal Archives

*Securing Microsoft Exchange Server 2010*

- Configuring Role Based Access Control
- Configuring Security for Server Roles in Exchange Server 2010
- Configuring Secure Internet Access

*Maintaining Microsoft Exchange Server 2010*

- Monitoring Exchange Server 2010
- Maintaining Exchange Server 2010
- Troubleshooting Exchange Server 2010

*Upgrading from Exchange Server 2003 or Exchange Server 2007 to Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Upgrading from Exchange Server 2003 to Exchange Server 2010
- Upgrading from Exchange Server 2007 to Exchange Server 2010

## COURSE MCS170

Title: Designing and Deploying Messaging Solutions with Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-663

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to design and deploy messaging solutions with Microsoft Exchange Server 2010. This course describes how to gather requirements for a messaging solution and then design the integration of Exchange Server 2010 with the current infrastructure. The course then covers how to plan and deploy the various server roles in Exchange Server 2010. Students will explore the various options for implementing messaging security, policies, and compliance. The course also examines the high availability and disaster recovery options and how to develop a troubleshooting plan. Finally, the course describes how to plan the upgrade from earlier versions of Exchange Server to Exchange Server 2010 and the integration of Exchange Server 2010 with other messaging systems.

### **Course Objectives**

This course will cover the following subjects:

#### *Introduction to Designing a Microsoft Exchange Server 2010 Deployment*

- Gathering Business Requirements
- Identifying Additional Requirements
- Introduction to Service Level Management
- Analyzing the Current Messaging Environment

#### *Designing Microsoft Exchange Server 2010 Integration with the Current Infrastructure*

- Designing the Network Infrastructure
- Designing the Active Directory Infrastructure
- Designing the DNS Infrastructure
- Planning Exchange Server Administration

#### *Planning and Deploying Mailbox Services*

- Overview of Mailbox Services in Exchange Server 2010
- Designing Mailbox Servers
- Designing Recipient Management
- Designing Public Folder Architecture

#### *Planning and Deploying Client Access Services in Exchange Server 2010*

- Overview of the Client Access Server Role
- Designing the Client Access Server Deployment
- Designing Client Access
- Designing Client Access Policies

#### *Planning and Deploying Message Transport in Exchange Server 2010*

- Designing Hub Transport Servers
- Designing the Message Routing Perimeter

#### *Planning and Deploying Messaging Security*

- Designing Message Security
- Designing Antivirus and Anti-Spam Solutions

*Planning and Deploying Messaging Compliance*

- Designing Transport Compliance
- Designing AD RMS Integration with Exchange Server 2010
- Designing Message Journaling and Archiving
- Designing Messaging Records Management

*Planning and Deploying High Availability*

- Introduction to High Availability Planning in Exchange Server 2010
- Designing High Availability for Mailbox Databases
- Designing High Availability for Other Server Roles
- Designing Site Resilience

*Planning a Disaster Recovery Solution*

- Planning for Disaster Mitigation
- Planning Exchange Server Backup
- Planning Exchange Server Recovery

*Planning Microsoft Exchange Server 2010 Monitoring and Troubleshooting*

- Planning Exchange Server Monitoring
- Planning Exchange Server Troubleshooting

*Upgrading to Microsoft Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2003 to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2007 to Exchange Server 2010

*Integrating Microsoft Exchange Server 2010 with Other Messaging Systems*

- Designing Exchange Server 2010 Integration with Other Messaging Systems
- Designing Exchange Server 2010 Integration with Federated Partners
- Designing Exchange Server 2010 Integration with Exchange Online

## Cisco Certified Network Associate (CCNA)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises validates the ability to install, configure, operate, and troubleshoot medium-size route and switched networks, including implementation and verification of connections to remote sites in a WAN. CCNA curriculum includes basic mitigation of security threats, introduction to wireless networking concepts and terminology, and performance-based skills. This new curriculum also includes (but is not limited to) the use of these protocols: IP, Enhanced Interior Gateway Routing Protocol (EIGRP), Serial Line Interface Protocol Frame Relay, Routing Information Protocol Version 2 (RIPv2), VLANs, Ethernet, access control lists (ACLs).

- Certification program
- 96 Contact Hours, 6 Credit Hours, 12 Weeks

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA100	CISCO I	6	96
	<b>Total</b>	<b>6</b>	<b>96</b>

### Prerequisites

Candidates wishing to enter this course should have completed either a Microsoft or Linux+ networking program or have commensurate experience with PC networking and TCP/IP.

### Type of Document Received Upon Graduation

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

### Certification Tests

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

### Career Development

Students who successfully complete this program will be prepared for entry to midlevel professional opportunities in the IT field with emphasis on installation, configuration and maintenance of Local Area Network (LAN) infrastructure. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Network Engineer, Network Support Specialist, Local Area Network Engineer, Network Systems Engineer or similar designations.

### Recommended Next Course

Candidates wishing to further their education are recommended to consider the Cisco Certified Network Professional (CCNP) program as the next logical step towards becoming a well rounded IT professional.

## CCNA Program Details

### COURSE CCA100

Title: Cisco Certified Network Associate

Exam: 640-802

### Course Description

This instructor-led program with a combination of lecture and hands-on laboratory exercises covers basic networking concepts implemented on Cisco routers. Students will be introduced to the Cisco Internetworking Operating System (IOS) and its command structure. TCP/IP addressing and implementation, including subnetting, will be covered thoroughly. Wide Area Networking (WAN) implementations including ISDN, frame relay, and serial point-to-point (including T1), will be emphasized. This is an advanced course providing the skills and knowledge necessary to pass the Cisco certification exam (one exam) necessary to become a Cisco Certified Network Associate (CCNA).

### Course Objectives

This course will cover the following subjects:

#### *Describe how a network works*

- Describe the purpose and functions of various network devices
- Select the components required to meet a network specification
- Use the OSI and TCP/IP models and their associated protocols to explain how data flows in a network
- Describe common networked applications including web applications
- Describe the purpose and basic operation of the protocols in the OSI and TCP models
- Describe the impact of applications (Voice Over IP and Video Over IP) on a network
- Interpret network diagrams
- Determine the path between two hosts across a network
- Describe the components required for network and Internet communications
- Identify and correct common network problems at layers 1, 2, 3 and 7 using a layered model approach
- Differentiate between LAN/WAN operation and features

#### *Configure, verify and troubleshoot a switch with VLANs and interswitch communications*

- Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts
- Explain the technology and media access control method for Ethernet networks
- Explain network segmentation and basic traffic management concepts
- Explain basic switching concepts and the operation of Cisco switches
- Perform and verify initial switch configuration tasks including remote access management
- Verify network status and switch operation using basic utilities (including: ping, traceroute, telnet, SSH, arp, ipconfig), SHOW & DEBUG commands
- Identify, prescribe, and resolve common switched network media issues, configuration issues, auto negotiation, and switch hardware failures
- Describe enhanced switching technologies (including: VTP, RSTP, VLAN, PVSTP, 802.1q)
- Describe how VLANs create logically separate networks and the need for routing between them
- Configure, verify, and troubleshoot VLANs
- Configure, verify, and troubleshoot trunking on Cisco switches
- Configure, verify, and troubleshoot interVLAN routing
- Configure, verify, and troubleshoot VTP
- Configure, verify, and troubleshoot RSTP operation

- Interpret the output of various show and debug commands to verify the operational status of a Cisco switched network.
- Implement basic switch security (including: port security, trunk access, management vlan other than vlan1, etc.)

*Implement an IP addressing scheme and IP Services to meet network requirements in a medium-size Enterprise branch office network*

- Describe the operation and benefits of using private and public IP addressing
- Explain the operation and benefits of using DHCP and DNS
- Configure, verify and troubleshoot DHCP and DNS operation on a router.(including: CLI/SDM)
- Implement static and dynamic addressing services for hosts in a LAN environment
- Calculate and apply an addressing scheme including VLSM IP addressing design to a network
- Determine the appropriate classless addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment
- Describe the technological requirements for running IPv6 in conjunction with IPv4 (including: protocols, dual stack, tunneling, etc).
- Describe IPv6 addresses
- Identify and correct common problems associated with IP addressing and host configurations

*Configure, verify, and troubleshoot basic router operation and routing on Cisco devices*

- Describe basic routing concepts (including: packet forwarding, router lookup process)
- Describe the operation of Cisco routers (including: router bootup process, POST, router components)
- Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts
- Configure, verify, and troubleshoot RIPv2
- Access and utilize the router to set basic parameters.(including: CLI/SDM)
- Connect, configure, and verify operation status of a device interface
- Verify device configuration and network connectivity using ping, traceroute, telnet, SSH or other utilities
- Perform and verify routing configuration tasks for a static or default route given specific routing requirements
- Manage IOS configuration files. (including: save, edit, upgrade, restore)
- Manage Cisco IOS.
- Compare and contrast methods of routing and routing protocols
- Configure, verify, and troubleshoot OSPF
- Configure, verify, and troubleshoot EIGRP
- Verify network connectivity (including: using ping, traceroute, and telnet or SSH)
- Troubleshoot routing issues
- Verify router hardware and software operation using SHOW & DEBUG commands.
- Implement basic router security

*Explain and select the appropriate administrative tasks required for a WLAN*

- Describe standards associated with wireless media (including: IEEE WI-FI Alliance, ITU/FCC)
- Identify and describe the purpose of the components in a small wireless network. (Including: SSID, BSS, ESS)
- Identify the basic parameters to configure on a wireless network to ensure that devices connect to the correct access point
- Compare and contrast wireless security features and capabilities of WPA security (including: open, WEP, WPA-1/2)
- Identify common issues with implementing wireless networks. (Including: Interface, misconfiguration)

*Identify security threats to a network and describe general methods to mitigate those threats*

- Describe today's increasing network security threats and explain the need to implement a comprehensive security policy to mitigate the threats
- Explain general methods to mitigate common security threats to network devices, hosts, and applications
- Describe the functions of common security appliances and applications
- Describe security recommended practices including initial steps to secure network devices

*Implement, verify, and troubleshoot NAT and ACLs in a medium-size Enterprise branch office network*

- Describe the purpose and types of ACLs
- Configure and apply ACLs based on network filtering requirements.(including: CLI/SDM)
- Configure and apply an ACLs to limit telnet and SSH access to the router using (including: SDM/CLI)
- Verify and monitor ACLs in a network environment
- Troubleshoot ACL issues
- Explain the basic operation of NAT
- Configure NAT for given network requirements using (including: CLI/SDM)
- Troubleshoot NAT issues

*Implement and verify WAN links*

- Describe different methods for connecting to a WAN
- Configure and verify a basic WAN serial connection
- Configure and verify Frame Relay on Cisco routers
- Troubleshoot WAN implementation issues
- Describe VPN technology (including: importance, benefits, role, impact, components)
- Configure and verify a PPP connection between Cisco routers

## Cisco Certified Network Professional (CCNP)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises is designed to build advanced or journeyman knowledge of both LAN and WAN infrastructure implementations in a Cisco environment. This set of courses builds on the concepts introduced in the CCNA program. Students will be exposed to more in-depth concepts relating to routing implementation and design; TCP/IP design strategies; switching concepts; WAN optimization and performance issues; as well as, basic troubleshooting/support techniques and approaches. Some of the many protocols that will be studied include: TCP/IP, RIP, EIGRP, OSPF, IS-IS, BGP. Other topics include: VLAN implementation and management; spanning-tree protocol; multicast management; remote access implementation; Cisco security features including AAA; subnet concepts, design considerations, and implementation; VLSM; CIDR and more. These are advanced courses providing the skills and knowledge necessary to pass the Cisco certification exams (three exams) necessary to become a Cisco Certified Network Professional (CCNP).

- Certification program
- 192 Contact Hours, 12 Credit Hours, 24 Weeks

#### TERM 1

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA110	CISCO II	3	48
CCA120	CISCO III	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

#### TERM 2

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA130	CISCO IV	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

### Prerequisites

Candidates wishing to enter this course should have completed the Cisco Certified Network Associate program or have commensurate experience WAN technologies in a Cisco environment.

### Type of Document Received Upon Graduation

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

### Certification Tests

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

### Career Development

Students who successfully complete this program will be prepared for midlevel professional opportunities in the IT field with emphasis on design, installation, and configuration of Local Area Network (LAN) and Wide Area Network (WAN) infrastructure. Although titles may vary by hiring organizations, students with

these credentials are qualified to meet the requirements of positions such as Sr. Network Engineer, Sr. Network Support Specialist, SR. WAN Engineer, Sr. LAN/WAN Engineer or similar designations.

**Recommended Next Course**

Candidates wishing to further their education are recommended to consider the Cisco Certified Security Professional (CCSP) program as the next logical step towards becoming a well rounded IT professional.

## **CCNP Program Details**

### COURSE CCA110

Title: Implementing Cisco IP Routing

Exam: 642-902

#### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to use advanced IP addressing and routing in implementing scalability for Cisco ISR routers connected to LANs and WANs. The exam covers topics on Advanced IP Addressing, Routing Principles, Multicast Routing, IPv6, Manipulating Routing Updates, Configuring basic BGP, Configuring EIGRP, OSPF, and IS-IS.

#### **Course Objectives**

This course will cover the following subjects:

- List the Key Information Routers Needs to Route Data
- Describe Classful & Classless Routing Protocols
- Describe Link-State Router Protocol Operation
- Compare Classful & Classless Routing Protocols
- Compare Distance Vector & Link State Routing Protocols
- Describe Concepts to Extending IP Addresses & the Use of VLSMs to Extend IP addresses
- Describe the Features & Operation of EIGRP
- Describe the Features & Operation of Single Area OSPF
- Describe the Hierarchical Structure of IS-IS Areas
- Describe the Features & Operation of BGP

## COURSE CCA120

Title: Implementing Cisco Switched Network

Exam: 642-813

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to implement scalable multilayer switched networks. The exam includes topics on Campus Networks, describing and implementing advanced Spanning Tree concepts, VLANs and Inter-VLAN routing, High Availability, Wireless Client Access, Access Layer Voice concepts, and minimizing service Loss and Data Theft in a Campus Network.

### **Course Objectives**

This course will cover the following subjects:

- Describe the Enterprise Composite Model used for designing networks and explain how it addresses enterprise network needs for performance, scalability and availability
- Describe the physical, data-link and network layer technologies used in a switched network, and identify when to use each
- Explain the role of switches in the various modules of the Enterprise Composite Model (Campus Infrastructure, Server Farm, Enterprise Edge, Network Management)
- Explain the function of the Switching Database Manager [specifically Content Addressable Memory (CAM) and Ternary Content Addressable Memory (TCAM)] within a Catalyst switch
- Describe the features and operation of VLANs on a switched network
- Describe the features of the VLAN trunking protocols including 802.1Q, ISL (emphasis on 802.1Q) and dynamic trunking protocol
- Describe the features and operation of 802.1Q Tunneling (802.1QinQ) within a service provider network
- Describe the operation and purpose of managed VLAN services
- Describe how VTP versions 1 and 2 operate including domains, modes, advertisements, and pruning
- Explain the function of the Switching Database Manager [specifically Content Addressable Memory (CAM) and Ternary Content Addressable Memory (TCAM)] within a Catalyst switch

### COURSE CCA130

Title: Troubleshooting and Maintaining Cisco IP Networks

Exam: 642-832

#### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to secure and expand the reach of an enterprise network to (1) plan and perform regular maintenance on complex enterprise routed and switched networks and (2) use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting.

#### **Course Objectives**

This course will cover the following subjects:

- Plan and document the most commonly performed maintenance functions in complex enterprise networks
- Develop a troubleshooting process to identify and resolve problems in complex enterprise networks
- Select tools that best support specific troubleshooting and maintenance processes in large, complex enterprise networks
- Practice maintenance procedures and fault resolution in switching-based environments
- Practice maintenance procedures and fault resolution in routing-based environments
- Practice maintenance procedures and fault resolution in a secure infrastructure
- Troubleshoot and maintain integrated, complex enterprise networks

## Cisco Certified Security Professional (CCSP)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises covers advanced topics and concepts related to securing Cisco networks. This course covers a wide array of security topics including: Cisco IOS firewall implementation; PIX firewall technology and features; VPN concepts and implementation; IPSec; implementation and design of intrusion detection systems; Cisco's SAFE implementation; AAA; protocol monitoring and management and much more. The goal of this course is to give the student the tools and knowledge necessary to secure and manage complex network infrastructures – protecting data and productivity, as well as, reducing costs. These are advanced courses providing the skills and knowledge necessary to pass the Cisco certification exams necessary to become a Cisco Certified Network Professional (CCNP) Security.

- Certification program
- 288 Contact Hours, 18 Credit Hours, 36 Weeks

### TERM 1

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CSP100	Security I	3	48
CSP110	Security II	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 2

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CSP120	Security III	3	48
CSP130	Security IV	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 3

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CSP140	Security V	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

### Prerequisites

Candidates wishing to enter this course should have completed the Cisco Certified Network Professional program, the Cisco Certified Network Associate program or have commensurate experience in with Cisco routers and network infrastructure implementation.

### Type of Document Received Upon Graduation

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

### Certification Tests

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

**Career Development**

Students who successfully complete this program will be prepared for midlevel to advanced level professional opportunities in the IT field with emphasis on network security including installation, configuration and maintenance security components supported in a Local Area Network (LAN) and Wide Area Network (WAN) infrastructure. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Network Security Engineer, Network Security Support Specialist, Network Security Administrator, Sr. Network Security Engineer or similar designations.

**Recommended Next Course**

Candidates wishing to further their education are recommended to consider the CCIE program as the next logical step towards becoming an expert IT professional.

## CCSP Program Details

### COURSE CSP100

Title: Implementing Cisco IOS Network Security

Exam: 640-553

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the CCNA Security certification. This exam tests a candidate's knowledge of securing Cisco routers and switches and their associated networks. It leads to validated skills for installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data and devices and develops competency in the technologies that Cisco uses in its security infrastructure.

### **Course Objectives**

This course will cover the following subjects:

- Describe and list mitigation methods for common network attacks
- Describe and list mitigation methods for Worm, Virus, and Trojan Horse attacks
- Describe the Cisco Self Defending Network architecture
- Secure Cisco routers using the SDM Security Audit feature
- Use the One-Step Lockdown feature in SDM to secure a Cisco router
- Secure administrative access to Cisco routers by setting strong encrypted passwords, exec timeout, login failure rate and using IOS login enhancements
- Secure administrative access to Cisco routers by configuring multiple privilege levels
- Secure administrative access to Cisco routers by configuring role based CLI
- Secure the Cisco IOS image and configuration file
- Explain the functions and importance of AAA
- Describe the features of TACACS+ and RADIUS AAA protocols
- Configure AAA authentication
- Configure AAA authorization
- Configure AAA accounting
- Explain the functionality of standard, extended, and named IP ACLs used by routers to filter packets
- Configure and verify IP ACLs to mitigate given threats (filter IP traffic destined for Telnet, SNMP, and DDoS attacks) in a network using CLI
- Configure IP ACLs to prevent IP address spoofing using CLI
- Discuss the caveats to be considered when building ACLs
- Use CLI and SDM to configure SSH on Cisco routers to enable secured management access
- Use CLI and SDM to configure Cisco routers to send Syslog messages to a Syslog server
- Describe how to prevent layer 2 attacks by configuring basic Catalyst switch security features
- Describe the operational strengths and weaknesses of the different firewall technologies
- Explain stateful firewall operations and the function of the state table
- Implement Zone Based Firewall using SDM
- Define network based vs. host based intrusion detection and prevention
- Explain IPS technologies, attack responses, and monitoring options
- Enable and verify Cisco IOS IPS operations using SDM
- Explain the different methods used in cryptography
- Explain IKE protocol functionality and phases
- Describe the building blocks of IPSec and the security functions it provides
- Configure and verify an IPSec site-to-site VPN with pre-shared key authentication using SDM

## COURSE CSP110

Title: Securing Networks with Cisco Routers & Switches (Secure v1.0)

Exam: 642-637

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is one of the exams associated with the Cisco Certified Security Professional certification. Candidates can prepare for this exam by taking the SNRS course. This exam includes simulations and tests a candidate's knowledge and ability to secure networks using Cisco routers and switches.

### **Course Objectives**

This course will cover the following subjects:

- Deploying Network Foundation Protection Controls
- Deploying Advanced Switched Data Plane Security Controls
- Implementing Cisco Identity-Based Network Services
- Deploying Basic 802.1X Features
- Deploying Advanced Routed Data Plane Security Controls
- Deploying Advanced Control Plane Security Controls
- Deploying Advanced Management Plane Security Controls
- Deploying Cisco IOS Software Network Address Translation
- Deploying Basic Zone-Based Policy Firewalls
- Deploying Advanced Zone-Based Policy Firewalls
- Deploying Cisco IOS Software IPS
- Site-to-Site VPN Architectures and Technologies
- Deploying VTI-Based Site-to-Site IPsec VPNs
- Deploying Scalable Authentication in Site-to-Site IPsec VPNs
- Deploying DMVPNs
- Deploying High Availability in Tunnel-Based IPsec VPNs
- Deploying GET VPN
- Remote Access VPN Architectures and Technologies
- Deploying Remote Access Solutions Using SSL VPN
- Deploying Remote Access Solutions Using Cisco Easy VPN

## COURSE CSP120

Title: Deploying Cisco ASA Firewall Solutions (Firewall v1.0)

Exam: 642-617

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is one of the exams associated with the Cisco Certified Security Professional and the Cisco Firewall Specialist certifications. Candidates can prepare for this exam by taking the SNAF course. This exam includes simulations and tests a candidate's knowledge and ability to describe, configure, verify and manage the Cisco ASA Security Appliance product.

### **Course Objectives**

This course will cover the following subjects:

- Evaluate the basic technology, features, and hardware models of the Cisco ASA adaptive security appliance product line.
- Implement and maintain basic Cisco ASA adaptive security appliance connectivity and device management plane features.
- Implement and maintain data plane access control features of the Cisco ASA adaptive security appliance product family.
- Implement and maintain Cisco ASA adaptive security appliance features that integrate it with the local and global routing and switching infrastructure.
- Implement and maintain Cisco ASA adaptive security appliance virtualization and high availability features.
- Evaluate Cisco ASA adaptive security appliance SSM modules, their major features, and integrate them with the Cisco ASA adaptive security appliance.
- Introduction to the Cisco ASA Adaptive Security Appliance
- Implementation of Basic Connectivity and Device Management
- Deployment of Cisco ASA Adaptive Security Appliance Access Control Features
- Deployment of Cisco ASA Adaptive Security Appliance Network Integration Features
- Deployment of Cisco ASA Adaptive Security Appliance Virtualization and High-Availability Features
- Integration of Cisco ASA Adaptive Security Appliance Security Service Modules
- Configuring Routing on the Cisco ASA Adaptive Security Appliance
- Configuring Dynamic Routing

### COURSE CSP130

Title: Implementing Cisco Intrusion Prevention System v1.0 (IPS v7.0)

Exam: 642-647

#### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the Cisco Certified Security Professional and the Cisco IPS Specialist certifications. This exam tests a candidate's knowledge of implementing the Cisco IPS product. Candidates can prepare for this exam by taking the IPS Implementing Cisco Intrusion Prevention Systems v7.0 course.

#### **Course Objectives**

This course will cover the following subjects:

- Evaluate products and deployment architectures for the Cisco IPS product line.
- Perform an initial implementation of a Cisco IPS sensor.
- Implement an initial security policy using a Cisco IPS sensor according to local policies and environmental requirements.
- Deploy customized policies to adapt Cisco IPS traffic analysis and response to the target environment.
- Implement a basic Cisco IPS data management and analysis solution.
- Implement complex Cisco IPS policy virtualization, high availability, and high performance solutions according to policy and environmental requirements.
- Perform the initial setup of, and maintain specific Cisco IPS hardware.
- Introduction to Intrusion Prevention and Detection, Cisco IPS Software, and Supporting Devices
- Installing and Maintaining Cisco IPS Sensors
- Applying Cisco IPS Security Policies
- Adapting Traffic Analysis and Response to the Environment
- Managing and Analyzing Events
- Deploying Virtualization, High Availability, and High Performance Solutions
- Configuring and Maintaining Specific Cisco IPS Hardware

## COURSE CSP140

Title: Deploying Cisco ASA VPN (VPN v1.0)

Exam: 642-627

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the Cisco Certified Security Professional certification. Candidates can prepare for this exam by taking the Implementing Cisco Security Monitoring, Analysis and Response System course. This exam tests a candidate's knowledge of the Cisco Security Monitoring, Analysis and Response System.

### **Course Objectives**

This course will cover the following subjects:

- Evaluate the Cisco ASA adaptive security appliance VPN subsystem
- Deploy Cisco ASA adaptive security appliance IPsec VPN solutions
- Deploy Cisco ASA adaptive security appliance Cisco AnyConnect remote access VPN solutions
- Deploy Cisco ASA adaptive security appliance clientless remote access VPN solutions
- Deploy advanced Cisco ASA adaptive security appliance VPN solutions
- Evaluate the Cisco ASA adaptive security appliance VPN subsystem
- Deploy Cisco ASA adaptive security appliance IPsec VPN solutions
- Deploy Cisco ASA adaptive security appliance Cisco AnyConnect remote access VPN solutions
- Deploy Cisco ASA adaptive security appliance clientless remote access VPN solutions
- Deploy advanced Cisco ASA adaptive security appliance VPN

## Linux+ (Linux Certified Professional)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises is designed to enhance the competencies of the Linux professional. Students will be introduced to multiple Linux distributions and perform installations of three or more distributions, including Red Hat Linux. Basic operational concepts will be taught and practiced. Students will implement security features provided by the Linux operating system. Upon completion of this course, students will have a solid understanding of the Linux operating system and be able to perform basic troubleshooting tasks. Both workstation and server implementations will be covered. This program will provide students with the skills and knowledge necessary to pass the CompTIA Linux+ certification exam.

- Certification program
- 96 Contact Hours, 6 Credit Hours, 12 Weeks

Course No.	Course Name	Quarter Credit Hours	Clock Hours
LIN100	Linux I	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

### Prerequisites

Candidates wishing to enter this course should have completed the Microsoft Certified Technology Specialist (MCTS) program or have commensurate experience with PC operating systems and networking.

### Type of Document Received Upon Graduation

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

### Certification Tests

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

### Career Development

Students who successfully complete this program will be prepared for entry to midlevel professional opportunities in the IT field with emphasis on planning, installation, and maintenance of client workstation as well as server operating system, applications and network infrastructure services using the Linux platform and technologies. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Server Support Technician, Server Administrator, Network Administrator, Linux Server Administrator or similar designations.

### Recommended Next Course

Candidates wishing to further their education are recommended to consider the Microsoft certifications in client/server technologies or the Cisco Certified Network Associate (CCNA) programs as the next logical step towards becoming a well rounded IT professional.

## Linux+ Program Details

### COURSE LIN100

Title: Linux+

Exam: CompTIA Exam XK0-002

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is designed to teach students multiple Linux distributions and perform installations of three or more distributions, including Red Hat Linux. Basic operational concepts will be taught and practiced. Students will implement security features provided by the Linux operating system. Both workstation and server implementations will be covered.

### **Course Objectives**

This course will cover the following subjects:

- Identify all System Hardware Requirement
- Install Multimedia Options
- Determine what Software & Services should be Installed
- Configure File Systems
- Configure a Boot Manager
- Assign Users, Groups, Passwords, and Permissions Based on Company's Security Policy
- Manage Local Storage Devices & File systems
- Mount & Unmount Varied file systems
- Create Linked Files Using CLI Commands
- Perform & Verify Backups and Restores
- Access & Write Data to Recordable Media
- Identify, Execute, Manage and Kill Process
- Perform Remote Management
- Configure Client Network Services & Settings
- Configure Basic Server Network Services
- Configure a Network Interface Card form a Command Line
- Configure Linux Printing
- Setup Environment Variables
- Configure Security Environment Files
- Use Appropriate Access Level for Login
- Set Daemon & Process Permissions
- Implement Security Auditing for Files & Authentication
- Establish System Performance Baseline
- Troubleshoot errors Using System Logs
- Access System Documentation & Help Files
- Identify & Configure Mass Storage Devices & RAID

## Certified Desktop & Network Specialist (CDNS)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises is designed for the novice with no computer experience. Students will be introduced to computer hardware concepts and learn to build a Personal Computer (PC) from the ground up. Software concepts will be delivered via training on the newest versions of Microsoft Windows. Additionally, students will be given training and experience on the DOS operating system – an older operating system providing a venue to study concepts that still hold relevance, even in today’s advanced computing environments. The primary goal of this course is to give students a basic understanding of every aspect of hardware and software relating to the PC. However, the final portion of this course will introduce the student to basic networking concepts and network implementation using Microsoft Windows Operating System – a must for any individual planning to enter the IT field.

This program is also designed to provide students with the knowledge required for entry-level careers in computer networking, with an emphasis on Microsoft operating systems including Windows Vista and Windows Server 2008. Students will be guided through the features of the Microsoft operating systems will learn how implement, manage and maintain both workstations and servers in a Microsoft Windows networking environment. Additional topics include network infrastructure services that are required to support a Windows network including Active Directory, Name Resolution, TCP/IP and IP assignment, Windows Security, Remote Access, and Microsoft Exchange 2010. This program will provide students with the skills and knowledge necessary to complete the CompTIA A+ and Microsoft Certified IT Professional (MCITP) certification exams.

- Certification program
- 576 Contact Hours, 36 Credit Hours, 72 Weeks

### TERM 1

Course No.	Course Name	Quarter Credit Hours	Clock Hours
IPC100	PC I	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 2

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS100	Windows I	3	48
MCS110	Windows II	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 3

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS120	Windows III	3	48
MCS130	Windows IV	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 4**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS140	Windows V	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 5**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS150	Windows VI	3	48
MCS160	Windows VII	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 6**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS170	Windows VIII	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**Prerequisites**

There are no prerequisites required to attend this course.

**Type of Document Received Upon Graduation**

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

**Certification Tests**

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

**Career Development**

Students who successfully complete this program will be prepared for entry to midlevel professional opportunities in the IT field with emphasis on planning, installation, and maintenance of client workstation hardware and software as well as server operating system, applications and network infrastructure services using Microsoft technologies. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Desktop and Server Support Technician, Server Administrator, Network Administrator, Windows Server Administrator or similar designations.

## CDNS Program Details

### COURSE IPC100

Title: PC Hardware and Operating System

Exam: CompTIA Exams 220-701 and 220-702

#### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is designed to introduce the students to computer hardware concepts and the skills required to build a Personal Computer (PC) from the ground up. In addition, students will learn software concepts with the newest versions of Microsoft Windows. The primary goal of this course is to give students a basic understanding of every aspect of hardware and software relating to the PC. However, the final portion of this course will introduce the student to basic networking concepts and network implementation using Microsoft Windows operating systems.

#### **Course Objectives**

- Personal Computer Components
- System Unit Components
- Storage Devices
- Personal Computer Connection Methods
- Personal Computer Operating Systems
- Windows User Interface Components
- Windows File System Management
- Windows System Management Tools
- Tools of the Trade
- Electronic Safety
- Environmental Safety and Materials Handling
- Perform Preventive Maintenance
- Diagnostics and Troubleshooting
- Professionalism and Communication
- Install and Configure Display Devices
- Install and Configure Input Devices
- Install and Configure Adapter Cards
- Install and Configure Multimedia Devices
- Install and Configure Storage Devices
- Install and Configure Power Supplies
- Install and Configure Memory
- Install and Configure CPUs
- Install and Configure System Boards
- Troubleshoot Display Devices
- Maintain and Troubleshoot Input Devices
- Troubleshoot Adapter Cards, Multimedia Devices, Storage Devices, Power Supplies, Memory, CPUs, and System Boards
- Install, Upgrade, and Optimize Microsoft Windows
- Add Devices to Windows
- Operating System Utilities
- Maintain and Troubleshoot Microsoft Windows
- Recover Microsoft Windows
- Network Concepts and Communications
- Network Connectivity
- Internet Technologies

- Create Network Connections
- Install and Configure Web Browser
- Maintain and Troubleshoot Network Connections
- Laptop and Portable Computing Device Components
- Install and Configure Laptops and Portable Computing Devices
- Maintain and Troubleshoot Laptops and Portable Computing Devices
- Printer and Scanner Technologies
- Printer and Scanner Components
- Printer and Scanner Processes
- Install and Configure Printers and Scanners
- Maintain and Troubleshoot Printers and Scanners
- Security Fundamentals
- Security Protection Measures
- Data and Physical Security
- Wireless Security
- Social Engineering
- Install and Configure Security Measures
- Maintain and Troubleshoot Security Measures

## COURSE MCS100

Title: Planning and Administering Windows Server 2008 Servers

Exam: Microsoft Exam 70-646

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to plan, manage, and maintain Windows Server 2008 servers. This course is intended for Windows Server 2008 Technology Specialists, in Network Infrastructure and Active Directory, who are interested in learning professional level Server Administrator skills to plan, manage, and maintain Windows Server 2008 servers.

### **Course Objectives**

This course will cover the following subjects:

- Plan a Windows Server 2008 deployment
- Plan and implement server commissioning and decommissioning for Windows Server 2008
- Plan the installation of server roles for Windows Server 2008
- Create a configuration change plan for Windows Server 2008
- Plan and implement Windows Server 2008 security
- Manage application versioning in Windows Server 2008
- Plan for a high-availability Windows Server 2008 deployment
- Plan a server update maintenance schedule for Windows Server 2008
- Maintain a Distributed File System (DFS) in Windows Server 2008
- Define server backup requirements and policies for Windows Server Backup
- Plan and implement a Windows Server 2008 restore
- Plan Windows Server 2008 monitoring
- Troubleshoot hardware issues
- Troubleshoot software issues
- Troubleshoot network issues

## COURSE MCS110

Title: Configuring and Troubleshooting a Windows Sever 2008 Network Infrastructure

Exam: Microsoft Exam 70-642

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to configure and troubleshoot a Windows Sever 2008 network infrastructure. Students will learn to implement and configure secure network access and implement fault tolerant storage technologies. Students will gain an understanding of the network technologies most commonly used with Windows Server 2008 and IP-enabled networks. Students will also learn how to secure servers and maintain update compliance.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring IP Addressing and Services*

- Configure IPv4 and IPv6 addressing. May include but is not limited to: configure IP options, subnetting, supernetting, alternative configuration
- Configure Dynamic Host Configuration Protocol (DHCP). May include but is not limited to: DHCP options, creating new options, PXE boot, default user profiles, DHCP relay agents, exclusions, authorize server in Active Directory, scopes, server core, and Windows Server Hyper-V
- Configure routing. May include but is not limited to: static routing, persistent routing, Routing Internet Protocol (RIP), Open Shortest Path First (OSPF)
- Configure IPsec. May include but is not limited to: create IPsec policy, IPsec Authentication Header (AH), IPsec Encapsulating Security Payload (ESP)

#### *Configuring Name Resolution*

- Configure a Domain Name System (DNS) server. May include but is not limited to: conditional forwarding, external forwarders, root hints, cache-only, server core, WINS and DNS integration, Windows Server virtualization
- Configure DNS zones. May include but is not limited to: DNS Refresh no-refresh, intervals, DNS listserv address (NSLOOKUP), primary/secondary zones, Active Directory integration, Dynamic Domain Name System (DDNS), GlobalNames, SOA refresh
- Configure DNS records. May include but is not limited to: record types, host, pointer, MX, SRV, NS, dynamic updates, Time to Live (TTL)
- Configure DNS replication. May include but is not limited to: DNS secondary zones, DNS stub zones, DNS scavenging interval, replication scope
- Configure name resolution for client computers. May include but is not limited to: DNS and WINS integration, configuring HOSTS file, LMHOSTS, node type, Link-Local Multicast Name Resolution (LLMNR), broadcasting, resolver cache, DNS Server list, Suffix Search order, manage client settings by using group policy

#### *Configuring Network Access*

- Configure remote access. May include but is not limited to: dial-up, Remote Access Policy, Network Address Translation (NAT), Internet Connection Sharing (ICS), VPN, Routing and Remote Access Services (RRAS), inbound/outbound filters, configure Remote Authentication Dial-In User Service (RADIUS) server, configure RADIUS proxy, remote access protocols, Connection Manager
- Configure Network Access Protection (NAP). May include but is not limited to: network layer protection, DHCP enforcement, VPN enforcement, configure NAP health policies, IPsec enforcement, 802.1x enforcement, flexible host isolation

- Configure network authentication. May include but is not limited to: LAN authentication by using NTLMv2 and Kerberos, WLAN authentication by using 802.1x, RAS authentication by using MS-CHAP, MS-CHAP v2, and EAP
- Configure wireless access. May include but is not limited to: Set Service Identifier (SSID), Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA), Wi-Fi Protected Access 2 (WPA2), ad hoc versus infrastructure mode, group policy for wireless
- Configure firewall settings. May include but is not limited to: incoming and outgoing traffic filtering, Active Directory account integration, identify ports and protocols, Microsoft Windows Firewall versus Windows Firewall with Advanced Security, configure firewall by using group policy, isolation policy

#### *Configuring File and Print Services*

- Configure a file server. May include but is not limited to: file share publishing, Offline Files, share permissions, NTFS permissions, encrypting file system (EFS)
- Configure Distributed File System (DFS). May include but is not limited to: DFS namespace, DFS configuration and application, creating and configuring targets, DFS replication
- Configure shadow copy services. May include but is not limited to: recover previous versions, set schedule, set storage locations
- Configure backup and restore. May include but is not limited to: backup types, backup schedules, managing remotely, restoring data
- Manage disk quotas. May include but is not limited to: quota by volume or quota by user, quota entries, quota templates
- Configure and monitor print services. May include but is not limited to: printer share, publish printers to Active Directory, printer permissions, deploy printer connections, install printer drivers, export and import print queues and printer settings, add counters to Reliability and Performance Monitor to monitor print servers, print pooling, print priority

#### *Monitoring and Managing a Network Infrastructure*

- Configure Windows Server Update Services (WSUS) server settings. May include but is not limited to: update type selection, client settings, Group Policy object (GPO), client targeting, software updates, test and approval, disconnected networks
- Capture performance data. May include but is not limited to: Data Collector Sets, Performance Monitor, Reliability Monitor, monitoring System Stability Index
- Monitor event logs. May include but is not limited to: custom views, application and services logs, subscriptions, DNS log
- Gather network data. May include but is not limited to: Simple Network Management Protocol (SNMP), Baseline Security Analyzer, Network Monitor

## COURSE MCS120

Title: Configuring and Troubleshooting Windows Server 2008 Active Directory Domain Services & Configuring and Troubleshooting Identity and Access Solutions with Windows Server 2008 Active Directory

Exam: Microsoft Exam 70-640

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides to teach Active Directory Technology Specialists with the knowledge and skills to configure Active Directory Domain Services in a distributed environment, implement Group Policies, perform backup and restore, and monitor and troubleshoot Active Directory related issues. This course also provides the knowledge and skills that IT Professionals need to configure identity and access solutions with Windows Server 2008 Active Directory.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring Domain Name System (DNS) for Active Directory*

- Configure zones. May include but is not limited to: Dynamic DNS (DDNS), Non-dynamic DNS (NDDNS), and Secure Dynamic DNS (SDDNS), Time to Live (TTL), GlobalNames, Primary, Secondary, Active Directory Integrated, Stub, SOA, zone scavenging, forward lookup, reverse lookup
- Configure DNS server settings. May include but is not limited to: forwarding, root hints, configure zone delegation, round robin, disable recursion, debug logging, server scavenging
- Configure zone transfers and replication. May include but is not limited to: configure replication scope (forestDNSzone, domainDNSzone), incremental zone transfers, DNS Notify, secure zone transfers, configure name servers, application directory partitions

#### *Configuring the Active Directory infrastructure*

- Configure a forest or a domain. May include but is not limited to: remove a domain, perform an unattended installation, Active Directory Migration Tool (ADMT) v3 (pruning and grafting), raise forest and domain functional levels, interoperability with previous versions of Active Directory, alternate user principal name (UPN) suffix, forestprep, domainprep
- Configure trusts. May include but is not limited to: forest trust, selective authentication versus forest-wide authentication, transitive trust, external trust, shortcut trust, SID filtering
- Configure sites. May include but is not limited to: create Active Directory subnets, configure site links, configure site link costing, configure sites infrastructure
- Configure Active Directory replication. May include but is not limited to: Distributed File System, one-way replication, bridgehead server, replication scheduling, configure replication protocols, force intersite replication
- Configure the global catalog. May include but is not limited to: Universal Group Membership Caching (UGMC), partial attribute set, promote to global catalog
- Configure operations masters. May include but is not limited to: seize and transfer, backup operations master, operations master placement, Schema Master, extending the schema, time service

#### *Configuring additional Active Directory server roles*

- Configure Active Directory Lightweight Directory Service (AD LDS). May include but is not limited to: migration to AD LDS, configure data within AD LDS, configure an authentication server, server core, Windows Server 2008 Hyper-V
- Configure Active Directory Rights Management Service (AD RMS). May include but is not limited to: certificate request and installation, self-enrollments, delegation, Active Directory Metadirectory Services (AD MDS), Windows Server virtualization

- Configure the read-only domain controller (RODC). May include but is not limited to: unidirectional replication, Administrator role separation, read-only DNS, BitLocker, credential caching, password replication, syskey, Windows Server virtualization
- Configure Active Directory Federation Services (AD FS). May include but is not limited to: install AD FS server role, exchange certificate with AD FS agents, configure trust policies, configure user and group claim mapping, Windows Server virtualization

#### *Creating and maintaining Active Directory objects*

- Automate creation of Active Directory accounts. May include but is not limited to: bulk import, configure the UPN, create computer, user, and group accounts (scripts, import, migration), template accounts, contacts, distribution lists
- Maintain Active Directory accounts. May include but is not limited to: configure group membership, account resets, delegation, AGDLP/AGGUDLP, deny domain local group, local versus domain, Protected Admin, disabling accounts versus deleting accounts, deprovisioning, contacts, creating organizational units (OUs), delegation of control
- Create and apply Group Policy objects (GPOs). May include but is not limited to: enforce, OU hierarchy, block inheritance, and enabling user objects, Group Policy processing priority, WMI, Group Policy filtering, Group Policy loopback
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure software deployment GPOs. May include but is not limited to: publishing to users, assigning software to users, assigning to computers, software removal
- Configure account policies. May include but is not limited to: domain password policy, account lockout policy, fine-grain password policies
- Configure audit policy by using GPOs. May include but is not limited to: audit logon events, audit account logon events, audit policy change, audit access privilege use, audit directory service access, audit object access

#### *Maintaining the Active Directory environment*

- Configure backup and recovery. May include but is not limited to: using Windows Server Backup, backup files and system state data to media, backup and restore by using removable media, perform an authoritative or non-authoritative Active Directory restore, linked value replication, Directory Services Recovery Mode (DSRM) (reset admin password), back up and restore GPOs
- Perform offline maintenance. May include but is not limited to: offline defragmentation and compaction, Restartable Active Directory, Active Directory database storage allocation
- Monitor Active Directory. May include but is not limited to: Network Monitor, Task Manager, Event Viewer, ReplMon, RepAdmin, Windows System Resource Manager, Reliability and Performance Monitor, Server Performance Advisor, RSOP

#### *Configuring Active Directory Certificate Services*

- Install Active Directory Certificate Services. May include but is not limited to: standalone versus enterprise, CA hierarchies—root versus subordinate, certificate requests, certificate practice statement
- Configure CA server settings. May include but is not limited to: key archival, certificate database backup and restore, assigning administration roles
- Manage certificate templates. May include but is not limited to: certificate template types, securing template permissions, managing different certificate template versions, key recovery agent
- Manage enrollments. May include but is not limited to: network device enrollment service (NDES), autoenrollment, Web enrollment, smart card enrollment, creating enrollment agents

- Manage certificate revocations. May include but is not limited to: configure Online Responders, Certificate Revocation List (CRL), CRL Distribution Point (CDP), Authority Information Access (AIA)

## COURSE MCS130

Title: Installing & Configuring Windows 7 Client

Exam: Microsoft Exam 70-680

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is intended for students who are interested in expanding their knowledge base and technical skills about Windows 7 Client. In this course, students learn how to install, upgrade, and migrate to Windows 7 client. Students then configure Windows 7 client for network connectivity, security, maintenance, and mobile computing. In addition students will be able to students will learn how to configure pre-installation and post-installation system settings, Windows security features, network connectivity applications included with Windows 7, and mobile computing. The course also covers system maintenance, including monitoring for and resolving performance and reliability issues.

### **Course Objectives**

This course will cover the following subjects:

#### *Installing, Upgrading, and Migrating to Windows 7*

- Perform a clean installation
- Upgrade to Windows 7 from previous versions of Windows
- Migrate user profiles

#### *Deploying Windows 7*

- Capture a system image
- Prepare a system image for deployment
- Deploy a system image
- Configure a VHD

#### *Configuring Hardware and Applications*

- Configure devices
- Configure application compatibility
- Configure application restrictions
- Configure Internet Explorer

#### *Configuring Network Connectivity*

- Configure IPv4 network settings
- Configure IPv6 network settings
- Configure networking settings
- Configure Windows Firewall
- Configure remote management

#### *Configuring Access to Resources*

- Configure shared resources
- Configure file and folder access
- Configure user account control (UAC)
- Configure authentication and authorization
- Configure BranchCache

#### *Configuring Mobile Computing*

- Configure BitLocker and BitLocker To Go
- Configure DirectAccess
- Configure mobility options

- Configure remote connections

*Monitoring and Maintaining Systems that Run Windows 7*

- Configure updates to Windows 7
- Manage disks
- Monitor systems
- Configure performance settings

*Configuring Backup and Recovery Options*

- Configure backup
- Configure system recovery options
- Configure file recovery options

## COURSE MCS140

Title: Designing a Windows Server 2008 Network Infrastructure & Designing a Windows Server 2008 Active Directory Infrastructure and Services & Designing a Windows Server 2008 Application Infrastructure

Exam: Microsoft Exam 70-647

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of how to design a Windows Server 2008 Network Infrastructure that meets business and technical requirements for network services. At the end of this course, students will learn how to design an Active Directory Infrastructure in Windows Server 2008. Students will also learn how to design Active Directory forests, domain infrastructure, sites and replication, administrative structures, group policies, and Public Key Infrastructures. In addition students will also learn how to design for security, high availability, disaster recovery, and migrations. Students will learn how to design application infrastructure solutions based on Windows Server 2008 to meet varying business and technical requirements.

### **Course Objectives**

This course will cover the following subjects:

#### *Planning network and application services*

- Plan for name resolution and IP addressing. May include but is not limited to: internal and external naming strategy, naming resolution support for legacy clients, naming resolution for directory services, IP addressing scheme, TCP/IP version coexistence
- Design for network access. May include but is not limited to: network access policies, remote access strategy, perimeter networks, server and domain isolation
- Plan for application delivery. May include but is not limited to: application virtualization, presentation virtualization, locally installed software, Web-based applications
- Plan for Terminal Services. May include but is not limited to: Terminal Services licensing, Terminal Services infrastructure

#### *Designing core identity and access management components*

- Design Active Directory forests and domains. May include but is not limited to: forest structure, forest and domain functional levels, intra-organizational authorization and authentication, schema modifications
- Design the Active Directory physical topology. May include but is not limited to: placement of servers, site and replication topology, printer location policies
- Design the Active Directory administrative model. May include but is not limited to: delegation, group strategy, compliance auditing, group administration, organizational structure
- Design the enterprise-level group policy strategy. May include but is not limited to: group policy hierarchy and scope filtering, control device installation, authentication and authorization

#### *Designing support identity and access management components*

- Plan for domain or forest migration, upgrade, and restructuring. May include but is not limited to: cross-forest authentication, backward compatibility, object migration, migration planning, implementation planning, environment preparation
- Design the branch office deployment. May include but is not limited to: authentication strategy, server security
- Design and implement public key infrastructure. May include but is not limited to: certificate services, PKI operations and maintenance, certificate life cycle management
- Plan for interoperability. May include but is not limited to: inter-organizational authorization and authentication, application authentication interoperability, cross-platform interoperability

*Designing for business continuity and data availability*

- Plan for business continuity. May include but is not limited to: service availability, directory service recovery
- Design for software updates and compliance management. May include but is not limited to: patch management and patch management compliance, Microsoft Update and Windows Update, security baselines, system health models
- Design the operating system virtualization strategy. May include but is not limited to: server consolidation, application compatibility, virtualization management, placement of servers
- Design for data management and data access. May include but is not limited to: data security, data accessibility and redundancy, data collaboration

## COURSE MCS150

Title: Deploying Windows Server 2008 & Configuring & Troubleshooting IIS In Windows Server 2008 & Configuring & Troubleshooting Windows Server 2008 Terminal Services

Exam: Microsoft Exam 70-643

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of migrating and deploying Windows Server 2008 including installation, configuration, and upgrading. Special emphasis is given to upgrading common server configurations and using the Microsoft Deployment Toolkit. In this course, the students will learn to install, configure, maintain, and troubleshoot an Internet Information Services (IIS) 7.0 Web Server in Windows Server 2008. In addition this course provides students with the knowledge and skills to configure, manage, monitor, and troubleshoot a Terminal Services (TS) environment. The course focuses on configuring of TS core functionality, licensing, Gateway, and Web Access.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Servers*

- Deploy images by using Windows Deployment Services. May include but is not limited to: Install from media (IFM), configure Windows Deployment Services, capture Windows Deployment Services images, deploy Windows Deployment Services images, server core
- Configure Microsoft Windows activation. May include but is not limited to: install a KMS server, create a DNS SRV record, replicate volume license data
- Configure Windows Server Hyper-V and virtual machines. May include but is not limited to: virtual networking, virtualization hardware requirements, Virtual Hard Disks, migrate from physical to virtual, VM additions, backup, optimization, server core
- Configure high availability. May include but is not limited to: failover clustering, Network Load Balancing, hardware redundancy
- Configure storage. May include but is not limited to: RAID types, Virtual Disk Specification (VDS) API, Network Attached Storage, iSCSI and Fiber Channel storage area networks, mount points

#### *Configuring Terminal Services*

- Configure Windows Server 2008 Terminal Services RemoteApp (TS RemoteApp). May include but is not limited to: Configuring Terminal Services Web Access, configuring Terminal Services Remote Desktop Web Connection
- Configure Terminal Services Gateway. May include but is not limited to: certificate configuration, Terminal Services Gateway Manager (TS Gateway Manager), specifying resources that users can access through TS Gateway by using Terminal Services resource authorization policy (TS RAP) and Terminal Services connection authorization policy (TS CAP), Terminal Services group policy
- Configure Terminal Services load balancing. May include but is not limited to: Terminal Services Session Broker redirection modes, DNS registration, setting through group policy
- Configure and monitor Terminal Services resources. May include but is not limited to: allocate resources by using Windows Server Resource Manager, configure application logging
- Configure Terminal Services licensing. May include but is not limited to: deploy licensing server, connectivity between terminal servers and Terminal Services licensing server, recovering Terminal Services licensing server, managing Terminal Services client access licenses (TS CALs)
- Configure Terminal Services client connections. May include but is not limited to: connecting local devices and resources to a session, Terminal Services profiles, Terminal Services home folders, Remote Desktop Connection (RDC), single sign-on, Remote Desktop Snap-In, MSTSC.exe
- Configure Terminal Services server options. May include but is not limited to: logoff, disconnect, reset, remote control, monitor, Remote Desktop Protocol (RDP) permissions, connection limits,

session time limits, managing by using GPOs, viewing processes, session permissions, display data prioritization

#### *Configuring a Web Services Infrastructure*

- Configure Web applications. May include but is not limited to: directory-dependent, publishing, URL-specified configuration, Microsoft .NET components, for example, .NET and .aspx, configure application pools
- Manage Web sites. May include but is not limited to: migrate sites and Web applications, publish IIS Web sites, configure virtual directories
- Configure a File Transfer Protocol (FTP) server. May include but is not limited to: configure for extranet users, configure permissions
- Configure Simple Mail Transfer Protocol (SMTP). May include but is not limited to: setting up smart hosts, configuring size limitations, setting up security and authentication to the delivering server, creating proper service accounts, authentication, SMTP relay
- Manage Internet Information Services (IIS). May include but is not limited to: Web site content backup and restore, IIS configuration backup, monitor IIS, configure logging, delegation of administrative rights
- Configure SSL security. May include but is not limited to: configure certificates, requesting SSL certificate, renewing SSL certificate, exporting and importing certificates
- Configure Web site authentication and permissions. May include but is not limited to: configure site permissions and authentication, configure application permissions, client certificate mappings

#### *Configuring Network Application Services*

- Configure Windows Media server. May include but is not limited to: on-demand replication, configure time-sensitive content, caching and proxy
- Configure Digital Rights Management (DRM). May include but is not limited to: encryption, sharing business rules, configuring license delivery, configuring policy templates
- Configure Microsoft Windows SharePoint Services server options. May include but is not limited to: site permissions, backup, antivirus, configuring Windows SharePoint Services service accounts
- Configure Windows SharePoint Services e-mail integration. May include but is not limited to: configuring a document library to receive e-mail, configuring incoming versus outgoing e-mail

## COURSE MCS160

Title: Configuring Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-662

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises teaches students with the knowledge and skills to configure and manage an Exchange Server 2010 messaging environment. This course does not require previous Exchange Server experience, but does require that students have significant experience in managing Windows Server and Active Directory directory services or Active Directory Domain Services (AD DS). This course will teach the students how to configure Exchange Server 2010, as well as provide guidelines, best practices, and considerations that will help the student optimize the Exchange Server deployment.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Microsoft Exchange Server 2010*

- Overview of Exchange Server 2010 Requirements
- Installing Exchange Server 2010 Server Roles
- Completing an Exchange Server 2010 Installation

#### *Configuring Mailbox Servers*

- Overview of Exchange Server 2010 Administrative Tools
- Configuring Mailbox Server Roles
- Configuring Public Folders

#### *Managing Recipient Objects*

- Managing Mailboxes
- Managing Other Recipients
- Configuring E-Mail Address Policies
- Configuring Address Lists
- Performing Bulk Recipient Management Tasks

#### *Managing Client Access*

- Configuring the Client Access Server Role
- Configuring Client Access Services for Outlook Clients
- Configuring Outlook Web App
- Configuring Mobile Messaging

#### *Managing Message Transport*

- Overview of Message Transport
- Configuring Message Transport

#### *Implementing Messaging Security*

- Deploying Edge Transport Servers
- Deploying an Antivirus Solution
- Configuring an Anti-Spam Solution
- Configuring Secure SMTP Messaging

#### *Implementing High Availability*

- Overview of High Availability Options
- Configuring Highly Available Mailbox Databases

- Deploying Highly Available Non-Mailbox Servers

*Implementing Backup and Recovery*

- Planning Backup and Recovery
- Backing Up Exchange Server 2010
- Restoring Exchange Server 2010

*Configuring Messaging Policy and Compliance*

- Introducing Messaging Policy and Compliance
- Configuring Transport Rules
- Configuring Journaling and Multi-Mailbox Search
- Configuring Messaging Records Management
- Configuring Personal Archives

*Securing Microsoft Exchange Server 2010*

- Configuring Role Based Access Control
- Configuring Security for Server Roles in Exchange Server 2010
- Configuring Secure Internet Access

*Maintaining Microsoft Exchange Server 2010*

- Monitoring Exchange Server 2010
- Maintaining Exchange Server 2010
- Troubleshooting Exchange Server 2010

*Upgrading from Exchange Server 2003 or Exchange Server 2007 to Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Upgrading from Exchange Server 2003 to Exchange Server 2010
- Upgrading from Exchange Server 2007 to Exchange Server 2010

## COURSE MCS170

Title: Designing and Deploying Messaging Solutions with Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-663

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to design and deploy messaging solutions with Microsoft Exchange Server 2010. This course describes how to gather requirements for a messaging solution and then design the integration of Exchange Server 2010 with the current infrastructure. The course then covers how to plan and deploy the various server roles in Exchange Server 2010. Students will explore the various options for implementing messaging security, policies, and compliance. The course also examines the high availability and disaster recovery options and how to develop a troubleshooting plan. Finally, the course describes how to plan the upgrade from earlier versions of Exchange Server to Exchange Server 2010 and the integration of Exchange Server 2010 with other messaging systems.

### **Course Objectives**

This course will cover the following subjects:

#### *Introduction to Designing a Microsoft Exchange Server 2010 Deployment*

- Gathering Business Requirements
- Identifying Additional Requirements
- Introduction to Service Level Management
- Analyzing the Current Messaging Environment

#### *Designing Microsoft Exchange Server 2010 Integration with the Current Infrastructure*

- Designing the Network Infrastructure
- Designing the Active Directory Infrastructure
- Designing the DNS Infrastructure
- Planning Exchange Server Administration

#### *Planning and Deploying Mailbox Services*

- Overview of Mailbox Services in Exchange Server 2010
- Designing Mailbox Servers
- Designing Recipient Management
- Designing Public Folder Architecture

#### *Planning and Deploying Client Access Services in Exchange Server 2010*

- Overview of the Client Access Server Role
- Designing the Client Access Server Deployment
- Designing Client Access
- Designing Client Access Policies

#### *Planning and Deploying Message Transport in Exchange Server 2010*

- Designing Hub Transport Servers
- Designing the Message Routing Perimeter

#### *Planning and Deploying Messaging Security*

- Designing Message Security
- Designing Antivirus and Anti-Spam Solutions

*Planning and Deploying Messaging Compliance*

- Designing Transport Compliance
- Designing AD RMS Integration with Exchange Server 2010
- Designing Message Journaling and Archiving
- Designing Messaging Records Management

*Planning and Deploying High Availability*

- Introduction to High Availability Planning in Exchange Server 2010
- Designing High Availability for Mailbox Databases
- Designing High Availability for Other Server Roles
- Designing Site Resilience

*Planning a Disaster Recovery Solution*

- Planning for Disaster Mitigation
- Planning Exchange Server Backup
- Planning Exchange Server Recovery

*Planning Microsoft Exchange Server 2010 Monitoring and Troubleshooting*

- Planning Exchange Server Monitoring
- Planning Exchange Server Troubleshooting

*Upgrading to Microsoft Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2003 to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2007 to Exchange Server 2010

*Integrating Microsoft Exchange Server 2010 with Other Messaging Systems*

- Designing Exchange Server 2010 Integration with Other Messaging Systems
- Designing Exchange Server 2010 Integration with Federated Partners
- Designing Exchange Server 2010 Integration with Exchange Online

## Certified Multi-Platform Network Specialist (CMNS)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises is designed to provide students with the knowledge required for entry-level careers in computer networking, with an emphasis on Microsoft operating systems including Windows Vista and Windows Server 2008. Students will be guided through the features of the Microsoft operating systems will learn how implement, manage and maintain both workstations and servers in a Microsoft Windows networking environment. Additional topics include network infrastructure services that are required to support a Windows network including Active Directory, Name Resolution, TCP/IP and IP assignment, Windows Security, Remote Access, and Microsoft Exchange 2010.

This program is also designed to enhance the competencies of the Linux professional. Students will be introduced to multiple Linux distributions and perform installations of three or more distributions, including Red Hat Linux. Basic operational concepts will be taught and practiced. Students will implement security features provided by the Linux operating system. Upon completion of this course, students will have a solid understanding of the Linux operating system and be able to perform basic troubleshooting tasks. Both workstation and server implementations will be covered. This program will provide students with the skills and knowledge necessary to pass the CompTIA Linux+ certification exam.

This program will provide students with the skills and knowledge necessary to complete the Microsoft Certified IT Professional (MCITP) and the CompTIA Linux+ certification exams.

- Certification program
- 576 Contact Hours, 36 Credit Hours, 72 Weeks

### TERM 1

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS100	Windows I	3	48
MCS110	Windows II	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 2

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS120	Windows III	3	48
MCS130	Windows IV	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 3

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS140	Windows V	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 4**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS150	Windows VI	3	48
MCS160	Windows VII	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 5**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS170	Windows VIII	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 6**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
LIN100	Linux I	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**Prerequisites**

Candidates wishing to enter this course should have completed the A+ PC Hardware Technician coursework or have commensurate experience with PC hardware and basic operating system concepts.

**Type of Document Received Upon Graduation**

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

**Certification Tests**

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

**Career Development**

Students who successfully complete this program will be prepared for entry to midlevel professional opportunities in the IT field with emphasis on planning, installation, and maintenance of client workstation as well as server operating system, applications and network infrastructure services using Microsoft and Linux technologies. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Desktop and Server Support Technician, Server Administrator, Network Administrator, Windows and Linux Server Administrator or similar designations.

## **CMNS Program Details**

### COURSE MCS100

Title: Planning and Administering Windows Server 2008 Servers

Exam: Microsoft Exam 70-646

#### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to plan, manage, and maintain Windows Server 2008 servers. This course is intended for Windows Server 2008 Technology Specialists, in Network Infrastructure and Active Directory, who are interested in learning professional level Server Administrator skills to plan, manage, and maintain Windows Server 2008 servers.

#### **Course Objectives**

This course will cover the following subjects:

- Plan a Windows Server 2008 deployment
- Plan and implement server commissioning and decommissioning for Windows Server 2008
- Plan the installation of server roles for Windows Server 2008
- Create a configuration change plan for Windows Server 2008
- Plan and implement Windows Server 2008 security
- Manage application versioning in Windows Server 2008
- Plan for a high-availability Windows Server 2008 deployment
- Plan a server update maintenance schedule for Windows Server 2008
- Maintain a Distributed File System (DFS) in Windows Server 2008
- Define server backup requirements and policies for Windows Server Backup
- Plan and implement a Windows Server 2008 restore
- Plan Windows Server 2008 monitoring
- Troubleshoot hardware issues
- Troubleshoot software issues
- Troubleshoot network issues

## COURSE MCS110

Title: Configuring and Troubleshooting a Windows Server 2008 Network Infrastructure

Exam: Microsoft Exam 70-642

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to configure and troubleshoot a Windows Server 2008 network infrastructure. Students will learn to implement and configure secure network access and implement fault tolerant storage technologies. Students will gain an understanding of the network technologies most commonly used with Windows Server 2008 and IP-enabled networks. Students will also learn how to secure servers and maintain update compliance.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring IP Addressing and Services*

- Configure IPv4 and IPv6 addressing. May include but is not limited to: configure IP options, subnetting, supernetting, alternative configuration
- Configure Dynamic Host Configuration Protocol (DHCP). May include but is not limited to: DHCP options, creating new options, PXE boot, default user profiles, DHCP relay agents, exclusions, authorize server in Active Directory, scopes, server core, and Windows Server Hyper-V
- Configure routing. May include but is not limited to: static routing, persistent routing, Routing Internet Protocol (RIP), Open Shortest Path First (OSPF)
- Configure IPsec. May include but is not limited to: create IPsec policy, IPsec Authentication Header (AH), IPsec Encapsulating Security Payload (ESP)

#### *Configuring Name Resolution*

- Configure a Domain Name System (DNS) server. May include but is not limited to: conditional forwarding, external forwarders, root hints, cache-only, server core, WINS and DNS integration, Windows Server virtualization
- Configure DNS zones. May include but is not limited to: DNS Refresh no-refresh, intervals, DNS listserv address (NSLOOKUP), primary/secondary zones, Active Directory integration, Dynamic Domain Name System (DDNS), GlobalNames, SOA refresh
- Configure DNS records. May include but is not limited to: record types, host, pointer, MX, SRV, NS, dynamic updates, Time to Live (TTL)
- Configure DNS replication. May include but is not limited to: DNS secondary zones, DNS stub zones, DNS scavenging interval, replication scope
- Configure name resolution for client computers. May include but is not limited to: DNS and WINS integration, configuring HOSTS file, LMHOSTS, node type, Link-Local Multicast Name Resolution (LLMNR), broadcasting, resolver cache, DNS Server list, Suffix Search order, manage client settings by using group policy

#### *Configuring Network Access*

- Configure remote access. May include but is not limited to: dial-up, Remote Access Policy, Network Address Translation (NAT), Internet Connection Sharing (ICS), VPN, Routing and Remote Access Services (RRAS), inbound/outbound filters, configure Remote Authentication Dial-In User Service (RADIUS) server, configure RADIUS proxy, remote access protocols, Connection Manager
- Configure Network Access Protection (NAP). May include but is not limited to: network layer protection, DHCP enforcement, VPN enforcement, configure NAP health policies, IPsec enforcement, 802.1x enforcement, flexible host isolation

- Configure network authentication. May include but is not limited to: LAN authentication by using NTLMv2 and Kerberos, WLAN authentication by using 802.1x, RAS authentication by using MS-CHAP, MS-CHAP v2, and EAP
- Configure wireless access. May include but is not limited to: Set Service Identifier (SSID), Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA), Wi-Fi Protected Access 2 (WPA2), ad hoc versus infrastructure mode, group policy for wireless
- Configure firewall settings. May include but is not limited to: incoming and outgoing traffic filtering, Active Directory account integration, identify ports and protocols, Microsoft Windows Firewall versus Windows Firewall with Advanced Security, configure firewall by using group policy, isolation policy

#### *Configuring File and Print Services*

- Configure a file server. May include but is not limited to: file share publishing, Offline Files, share permissions, NTFS permissions, encrypting file system (EFS)
- Configure Distributed File System (DFS). May include but is not limited to: DFS namespace, DFS configuration and application, creating and configuring targets, DFS replication
- Configure shadow copy services. May include but is not limited to: recover previous versions, set schedule, set storage locations
- Configure backup and restore. May include but is not limited to: backup types, backup schedules, managing remotely, restoring data
- Manage disk quotas. May include but is not limited to: quota by volume or quota by user, quota entries, quota templates
- Configure and monitor print services. May include but is not limited to: printer share, publish printers to Active Directory, printer permissions, deploy printer connections, install printer drivers, export and import print queues and printer settings, add counters to Reliability and Performance Monitor to monitor print servers, print pooling, print priority

#### *Monitoring and Managing a Network Infrastructure*

- Configure Windows Server Update Services (WSUS) server settings. May include but is not limited to: update type selection, client settings, Group Policy object (GPO), client targeting, software updates, test and approval, disconnected networks
- Capture performance data. May include but is not limited to: Data Collector Sets, Performance Monitor, Reliability Monitor, monitoring System Stability Index
- Monitor event logs. May include but is not limited to: custom views, application and services logs, subscriptions, DNS log
- Gather network data. May include but is not limited to: Simple Network Management Protocol (SNMP), Baseline Security Analyzer, Network Monitor

## COURSE MCS120

Title: Configuring and Troubleshooting Windows Server 2008 Active Directory Domain Services & Configuring and Troubleshooting Identity and Access Solutions with Windows Server 2008 Active Directory

Exam: Microsoft Exam 70-640

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides to teach Active Directory Technology Specialists with the knowledge and skills to configure Active Directory Domain Services in a distributed environment, implement Group Policies, perform backup and restore, and monitor and troubleshoot Active Directory related issues. This course also provides the knowledge and skills that IT Professionals need to configure identity and access solutions with Windows Server 2008 Active Directory.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring Domain Name System (DNS) for Active Directory*

- Configure zones. May include but is not limited to: Dynamic DNS (DDNS), Non-dynamic DNS (NDDNS), and Secure Dynamic DNS (SDDNS), Time to Live (TTL), GlobalNames, Primary, Secondary, Active Directory Integrated, Stub, SOA, zone scavenging, forward lookup, reverse lookup
- Configure DNS server settings. May include but is not limited to: forwarding, root hints, configure zone delegation, round robin, disable recursion, debug logging, server scavenging
- Configure zone transfers and replication. May include but is not limited to: configure replication scope (forestDNSzone, domainDNSzone), incremental zone transfers, DNS Notify, secure zone transfers, configure name servers, application directory partitions

#### *Configuring the Active Directory infrastructure*

- Configure a forest or a domain. May include but is not limited to: remove a domain, perform an unattended installation, Active Directory Migration Tool (ADMT) v3 (pruning and grafting), raise forest and domain functional levels, interoperability with previous versions of Active Directory, alternate user principal name (UPN) suffix, forestprep, domainprep
- Configure trusts. May include but is not limited to: forest trust, selective authentication versus forest-wide authentication, transitive trust, external trust, shortcut trust, SID filtering
- Configure sites. May include but is not limited to: create Active Directory subnets, configure site links, configure site link costing, configure sites infrastructure
- Configure Active Directory replication. May include but is not limited to: Distributed File System, one-way replication, bridgehead server, replication scheduling, configure replication protocols, force intersite replication
- Configure the global catalog. May include but is not limited to: Universal Group Membership Caching (UGMC), partial attribute set, promote to global catalog
- Configure operations masters. May include but is not limited to: seize and transfer, backup operations master, operations master placement, Schema Master, extending the schema, time service

#### *Configuring additional Active Directory server roles*

- Configure Active Directory Lightweight Directory Service (AD LDS). May include but is not limited to: migration to AD LDS, configure data within AD LDS, configure an authentication server, server core, Windows Server 2008 Hyper-V
- Configure Active Directory Rights Management Service (AD RMS). May include but is not limited to: certificate request and installation, self-enrollments, delegation, Active Directory Metadirectory Services (AD MDS), Windows Server virtualization

- Configure the read-only domain controller (RODC). May include but is not limited to: unidirectional replication, Administrator role separation, read-only DNS, BitLocker, credential caching, password replication, syskey, Windows Server virtualization
- Configure Active Directory Federation Services (AD FS). May include but is not limited to: install AD FS server role, exchange certificate with AD FS agents, configure trust policies, configure user and group claim mapping, Windows Server virtualization

#### *Creating and maintaining Active Directory objects*

- Automate creation of Active Directory accounts. May include but is not limited to: bulk import, configure the UPN, create computer, user, and group accounts (scripts, import, migration), template accounts, contacts, distribution lists
- Maintain Active Directory accounts. May include but is not limited to: configure group membership, account resets, delegation, AGDLP/AGGUDLP, deny domain local group, local versus domain, Protected Admin, disabling accounts versus deleting accounts, deprovisioning, contacts, creating organizational units (OUs), delegation of control
- Create and apply Group Policy objects (GPOs). May include but is not limited to: enforce, OU hierarchy, block inheritance, and enabling user objects, Group Policy processing priority, WMI, Group Policy filtering, Group Policy loopback
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure software deployment GPOs. May include but is not limited to: publishing to users, assigning software to users, assigning to computers, software removal
- Configure account policies. May include but is not limited to: domain password policy, account lockout policy, fine-grain password policies
- Configure audit policy by using GPOs. May include but is not limited to: audit logon events, audit account logon events, audit policy change, audit access privilege use, audit directory service access, audit object access

#### *Maintaining the Active Directory environment*

- Configure backup and recovery. May include but is not limited to: using Windows Server Backup, backup files and system state data to media, backup and restore by using removable media, perform an authoritative or non-authoritative Active Directory restore, linked value replication, Directory Services Recovery Mode (DSRM) (reset admin password), back up and restore GPOs
- Perform offline maintenance. May include but is not limited to: offline defragmentation and compaction, Restartable Active Directory, Active Directory database storage allocation
- Monitor Active Directory. May include but is not limited to: Network Monitor, Task Manager, Event Viewer, ReplMon, RepAdmin, Windows System Resource Manager, Reliability and Performance Monitor, Server Performance Advisor, RSOP

#### *Configuring Active Directory Certificate Services*

- Install Active Directory Certificate Services. May include but is not limited to: standalone versus enterprise, CA hierarchies—root versus subordinate, certificate requests, certificate practice statement
- Configure CA server settings. May include but is not limited to: key archival, certificate database backup and restore, assigning administration roles
- Manage certificate templates. May include but is not limited to: certificate template types, securing template permissions, managing different certificate template versions, key recovery agent
- Manage enrollments. May include but is not limited to: network device enrollment service (NDES), autoenrollment, Web enrollment, smart card enrollment, creating enrollment agents

- Manage certificate revocations. May include but is not limited to: configure Online Responders, Certificate Revocation List (CRL), CRL Distribution Point (CDP), Authority Information Access (AIA)

## COURSE MCS130

Title: Installing & Configuring Windows 7 Client

Exam: Microsoft Exam 70-680

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is intended for students who are interested in expanding their knowledge base and technical skills about Windows 7 Client. In this course, students learn how to install, upgrade, and migrate to Windows 7 client. Students then configure Windows 7 client for network connectivity, security, maintenance, and mobile computing. In addition students will be able to students will learn how to configure pre-installation and post-installation system settings, Windows security features, network connectivity applications included with Windows 7, and mobile computing. The course also covers system maintenance, including monitoring for and resolving performance and reliability issues.

### **Course Objectives**

This course will cover the following subjects:

#### *Installing, Upgrading, and Migrating to Windows 7*

- Perform a clean installation
- Upgrade to Windows 7 from previous versions of Windows
- Migrate user profiles

#### *Deploying Windows 7*

- Capture a system image
- Prepare a system image for deployment
- Deploy a system image
- Configure a VHD

#### *Configuring Hardware and Applications*

- Configure devices
- Configure application compatibility
- Configure application restrictions
- Configure Internet Explorer

#### *Configuring Network Connectivity*

- Configure IPv4 network settings
- Configure IPv6 network settings
- Configure networking settings
- Configure Windows Firewall
- Configure remote management

#### *Configuring Access to Resources*

- Configure shared resources
- Configure file and folder access
- Configure user account control (UAC)
- Configure authentication and authorization
- Configure BranchCache

#### *Configuring Mobile Computing*

- Configure BitLocker and BitLocker To Go
- Configure DirectAccess
- Configure mobility options

- Configure remote connections

*Monitoring and Maintaining Systems that Run Windows 7*

- Configure updates to Windows 7
- Manage disks
- Monitor systems
- Configure performance settings

*Configuring Backup and Recovery Options*

- Configure backup
- Configure system recovery options
- Configure file recovery options

## COURSE MCS140

Title: Designing a Windows Server 2008 Network Infrastructure & Designing a Windows Server 2008 Active Directory Infrastructure and Services & Designing a Windows Server 2008 Application Infrastructure

Exam: Microsoft Exam 70-647

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of how to design a Windows Server 2008 Network Infrastructure that meets business and technical requirements for network services. At the end of this course, students will learn how to design an Active Directory Infrastructure in Windows Server 2008. Students will also learn how to design Active Directory forests, domain infrastructure, sites and replication, administrative structures, group policies, and Public Key Infrastructures. In addition students will also learn how to design for security, high availability, disaster recovery, and migrations. Students will learn how to design application infrastructure solutions based on Windows Server 2008 to meet varying business and technical requirements.

### **Course Objectives**

This course will cover the following subjects:

#### *Planning network and application services*

- Plan for name resolution and IP addressing. May include but is not limited to: internal and external naming strategy, naming resolution support for legacy clients, naming resolution for directory services, IP addressing scheme, TCP/IP version coexistence
- Design for network access. May include but is not limited to: network access policies, remote access strategy, perimeter networks, server and domain isolation
- Plan for application delivery. May include but is not limited to: application virtualization, presentation virtualization, locally installed software, Web-based applications
- Plan for Terminal Services. May include but is not limited to: Terminal Services licensing, Terminal Services infrastructure

#### *Designing core identity and access management components*

- Design Active Directory forests and domains. May include but is not limited to: forest structure, forest and domain functional levels, intra-organizational authorization and authentication, schema modifications
- Design the Active Directory physical topology. May include but is not limited to: placement of servers, site and replication topology, printer location policies
- Design the Active Directory administrative model. May include but is not limited to: delegation, group strategy, compliance auditing, group administration, organizational structure
- Design the enterprise-level group policy strategy. May include but is not limited to: group policy hierarchy and scope filtering, control device installation, authentication and authorization

#### *Designing support identity and access management components*

- Plan for domain or forest migration, upgrade, and restructuring. May include but is not limited to: cross-forest authentication, backward compatibility, object migration, migration planning, implementation planning, environment preparation
- Design the branch office deployment. May include but is not limited to: authentication strategy, server security
- Design and implement public key infrastructure. May include but is not limited to: certificate services, PKI operations and maintenance, certificate life cycle management
- Plan for interoperability. May include but is not limited to: inter-organizational authorization and authentication, application authentication interoperability, cross-platform interoperability

*Designing for business continuity and data availability*

- Plan for business continuity. May include but is not limited to: service availability, directory service recovery
- Design for software updates and compliance management. May include but is not limited to: patch management and patch management compliance, Microsoft Update and Windows Update, security baselines, system health models
- Design the operating system virtualization strategy. May include but is not limited to: server consolidation, application compatibility, virtualization management, placement of servers
- Design for data management and data access. May include but is not limited to: data security, data accessibility and redundancy, data collaboration

## COURSE MCS150

Title: Deploying Windows Server 2008 & Configuring & Troubleshooting IIS In Windows Server 2008 & Configuring & Troubleshooting Windows Server 2008 Terminal Services

Exam: Microsoft Exam 70-643

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of migrating and deploying Windows Server 2008 including installation, configuration, and upgrading. Special emphasis is given to upgrading common server configurations and using the Microsoft Deployment Toolkit. In this course, the students will learn to install, configure, maintain, and troubleshoot an Internet Information Services (IIS) 7.0 Web Server in Windows Server 2008. In addition this course provides students with the knowledge and skills to configure, manage, monitor, and troubleshoot a Terminal Services (TS) environment. The course focuses on configuring of TS core functionality, licensing, Gateway, and Web Access.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Servers*

- Deploy images by using Windows Deployment Services. May include but is not limited to: Install from media (IFM), configure Windows Deployment Services, capture Windows Deployment Services images, deploy Windows Deployment Services images, server core
- Configure Microsoft Windows activation. May include but is not limited to: install a KMS server, create a DNS SRV record, replicate volume license data
- Configure Windows Server Hyper-V and virtual machines. May include but is not limited to: virtual networking, virtualization hardware requirements, Virtual Hard Disks, migrate from physical to virtual, VM additions, backup, optimization, server core
- Configure high availability. May include but is not limited to: failover clustering, Network Load Balancing, hardware redundancy
- Configure storage. May include but is not limited to: RAID types, Virtual Disk Specification (VDS) API, Network Attached Storage, iSCSI and Fiber Channel storage area networks, mount points

#### *Configuring Terminal Services*

- Configure Windows Server 2008 Terminal Services RemoteApp (TS RemoteApp). May include but is not limited to: Configuring Terminal Services Web Access, configuring Terminal Services Remote Desktop Web Connection
- Configure Terminal Services Gateway. May include but is not limited to: certificate configuration, Terminal Services Gateway Manager (TS Gateway Manager), specifying resources that users can access through TS Gateway by using Terminal Services resource authorization policy (TS RAP) and Terminal Services connection authorization policy (TS CAP), Terminal Services group policy
- Configure Terminal Services load balancing. May include but is not limited to: Terminal Services Session Broker redirection modes, DNS registration, setting through group policy
- Configure and monitor Terminal Services resources. May include but is not limited to: allocate resources by using Windows Server Resource Manager, configure application logging
- Configure Terminal Services licensing. May include but is not limited to: deploy licensing server, connectivity between terminal servers and Terminal Services licensing server, recovering Terminal Services licensing server, managing Terminal Services client access licenses (TS CALs)
- Configure Terminal Services client connections. May include but is not limited to: connecting local devices and resources to a session, Terminal Services profiles, Terminal Services home folders, Remote Desktop Connection (RDC), single sign-on, Remote Desktop Snap-In, MSTSC.exe
- Configure Terminal Services server options. May include but is not limited to: logoff, disconnect, reset, remote control, monitor, Remote Desktop Protocol (RDP) permissions, connection limits,

session time limits, managing by using GPOs, viewing processes, session permissions, display data prioritization

#### *Configuring a Web Services Infrastructure*

- Configure Web applications. May include but is not limited to: directory-dependent, publishing, URL-specified configuration, Microsoft .NET components, for example, .NET and .aspx, configure application pools
- Manage Web sites. May include but is not limited to: migrate sites and Web applications, publish IIS Web sites, configure virtual directories
- Configure a File Transfer Protocol (FTP) server. May include but is not limited to: configure for extranet users, configure permissions
- Configure Simple Mail Transfer Protocol (SMTP). May include but is not limited to: setting up smart hosts, configuring size limitations, setting up security and authentication to the delivering server, creating proper service accounts, authentication, SMTP relay
- Manage Internet Information Services (IIS). May include but is not limited to: Web site content backup and restore, IIS configuration backup, monitor IIS, configure logging, delegation of administrative rights
- Configure SSL security. May include but is not limited to: configure certificates, requesting SSL certificate, renewing SSL certificate, exporting and importing certificates
- Configure Web site authentication and permissions. May include but is not limited to: configure site permissions and authentication, configure application permissions, client certificate mappings

#### *Configuring Network Application Services*

- Configure Windows Media server. May include but is not limited to: on-demand replication, configure time-sensitive content, caching and proxy
- Configure Digital Rights Management (DRM). May include but is not limited to: encryption, sharing business rules, configuring license delivery, configuring policy templates
- Configure Microsoft Windows SharePoint Services server options. May include but is not limited to: site permissions, backup, antivirus, configuring Windows SharePoint Services service accounts
- Configure Windows SharePoint Services e-mail integration. May include but is not limited to: configuring a document library to receive e-mail, configuring incoming versus outgoing e-mail

## COURSE MCS160

Title: Configuring Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-662

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises teaches students with the knowledge and skills to configure and manage an Exchange Server 2010 messaging environment. This course does not require previous Exchange Server experience, but does require that students have significant experience in managing Windows Server and Active Directory directory services or Active Directory Domain Services (AD DS). This course will teach the students how to configure Exchange Server 2010, as well as provide guidelines, best practices, and considerations that will help the student optimize the Exchange Server deployment.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Microsoft Exchange Server 2010*

- Overview of Exchange Server 2010 Requirements
- Installing Exchange Server 2010 Server Roles
- Completing an Exchange Server 2010 Installation

#### *Configuring Mailbox Servers*

- Overview of Exchange Server 2010 Administrative Tools
- Configuring Mailbox Server Roles
- Configuring Public Folders

#### *Managing Recipient Objects*

- Managing Mailboxes
- Managing Other Recipients
- Configuring E-Mail Address Policies
- Configuring Address Lists
- Performing Bulk Recipient Management Tasks

#### *Managing Client Access*

- Configuring the Client Access Server Role
- Configuring Client Access Services for Outlook Clients
- Configuring Outlook Web App
- Configuring Mobile Messaging

#### *Managing Message Transport*

- Overview of Message Transport
- Configuring Message Transport

#### *Implementing Messaging Security*

- Deploying Edge Transport Servers
- Deploying an Antivirus Solution
- Configuring an Anti-Spam Solution
- Configuring Secure SMTP Messaging

#### *Implementing High Availability*

- Overview of High Availability Options
- Configuring Highly Available Mailbox Databases

- Deploying Highly Available Non-Mailbox Servers

*Implementing Backup and Recovery*

- Planning Backup and Recovery
- Backing Up Exchange Server 2010
- Restoring Exchange Server 2010

*Configuring Messaging Policy and Compliance*

- Introducing Messaging Policy and Compliance
- Configuring Transport Rules
- Configuring Journaling and Multi-Mailbox Search
- Configuring Messaging Records Management
- Configuring Personal Archives

*Securing Microsoft Exchange Server 2010*

- Configuring Role Based Access Control
- Configuring Security for Server Roles in Exchange Server 2010
- Configuring Secure Internet Access

*Maintaining Microsoft Exchange Server 2010*

- Monitoring Exchange Server 2010
- Maintaining Exchange Server 2010
- Troubleshooting Exchange Server 2010

*Upgrading from Exchange Server 2003 or Exchange Server 2007 to Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Upgrading from Exchange Server 2003 to Exchange Server 2010
- Upgrading from Exchange Server 2007 to Exchange Server 2010

## COURSE MCS170

Title: Designing and Deploying Messaging Solutions with Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-663

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to design and deploy messaging solutions with Microsoft Exchange Server 2010. This course describes how to gather requirements for a messaging solution and then design the integration of Exchange Server 2010 with the current infrastructure. The course then covers how to plan and deploy the various server roles in Exchange Server 2010. Students will explore the various options for implementing messaging security, policies, and compliance. The course also examines the high availability and disaster recovery options and how to develop a troubleshooting plan. Finally, the course describes how to plan the upgrade from earlier versions of Exchange Server to Exchange Server 2010 and the integration of Exchange Server 2010 with other messaging systems.

### **Course Objectives**

This course will cover the following subjects:

#### *Introduction to Designing a Microsoft Exchange Server 2010 Deployment*

- Gathering Business Requirements
- Identifying Additional Requirements
- Introduction to Service Level Management
- Analyzing the Current Messaging Environment

#### *Designing Microsoft Exchange Server 2010 Integration with the Current Infrastructure*

- Designing the Network Infrastructure
- Designing the Active Directory Infrastructure
- Designing the DNS Infrastructure
- Planning Exchange Server Administration

#### *Planning and Deploying Mailbox Services*

- Overview of Mailbox Services in Exchange Server 2010
- Designing Mailbox Servers
- Designing Recipient Management
- Designing Public Folder Architecture

#### *Planning and Deploying Client Access Services in Exchange Server 2010*

- Overview of the Client Access Server Role
- Designing the Client Access Server Deployment
- Designing Client Access
- Designing Client Access Policies

#### *Planning and Deploying Message Transport in Exchange Server 2010*

- Designing Hub Transport Servers
- Designing the Message Routing Perimeter

#### *Planning and Deploying Messaging Security*

- Designing Message Security
- Designing Antivirus and Anti-Spam Solutions

*Planning and Deploying Messaging Compliance*

- Designing Transport Compliance
- Designing AD RMS Integration with Exchange Server 2010
- Designing Message Journaling and Archiving
- Designing Messaging Records Management

*Planning and Deploying High Availability*

- Introduction to High Availability Planning in Exchange Server 2010
- Designing High Availability for Mailbox Databases
- Designing High Availability for Other Server Roles
- Designing Site Resilience

*Planning a Disaster Recovery Solution*

- Planning for Disaster Mitigation
- Planning Exchange Server Backup
- Planning Exchange Server Recovery

*Planning Microsoft Exchange Server 2010 Monitoring and Troubleshooting*

- Planning Exchange Server Monitoring
- Planning Exchange Server Troubleshooting

*Upgrading to Microsoft Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2003 to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2007 to Exchange Server 2010

*Integrating Microsoft Exchange Server 2010 with Other Messaging Systems*

- Designing Exchange Server 2010 Integration with Other Messaging Systems
- Designing Exchange Server 2010 Integration with Federated Partners
- Designing Exchange Server 2010 Integration with Exchange Online

## COURSE LIN100

Title: Linux+

Exam: CompTIA Exam XK0-002

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is designed to teach students multiple Linux distributions and perform installations of three or more distributions, including Red Hat Linux. Basic operational concepts will be taught and practiced. Students will implement security features provided by the Linux operating system. Both workstation and server implementations will be covered.

### **Course Objectives**

This course will cover the following subjects:

- Identify all System Hardware Requirement
- Install Multimedia Options
- Determine what Software & Services should be Installed
- Configure File Systems
- Configure a Boot Manager
- Assign Users, Groups, Passwords, and Permissions Based on Company's Security Policy
- Manage Local Storage Devices & File systems
- Mount & Unmount Varied file systems
- Create Linked Files Using CLI Commands
- Perform & Verify Backups and Restores
- Access & Write Data to Recordable Media
- Identify, Execute, Manage and Kill Process
- Perform Remote Management
- Configure Client Network Services & Settings
- Configure Basic Server Network Services
- Configure a Network Interface Card form a Command Line
- Configure Linux Printing
- Setup Environment Variables
- Configure Security Environment Files
- Use Appropriate Access Level for Login
- Set Daemon & Process Permissions
- Implement Security Auditing for Files & Authentication
- Establish System Performance Baseline
- Troubleshoot errors Using System Logs
- Access System Documentation & Help Files
- Identify & Configure Mass Storage Devices & RAID

## Certified LAN & WAN Specialist (CLWS)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises is designed to provide students with the knowledge required for entry-level careers in computer networking, with an emphasis on Microsoft operating systems including Windows Vista and Windows Server 2008. Students will be guided through the features of the Microsoft operating systems will learn how implement, manage and maintain both workstations and servers in a Microsoft Windows networking environment. Additional topics include network infrastructure services that are required to support a Windows network including Active Directory, Name Resolution, TCP/IP and IP assignment, Windows Security, Remote Access, and Microsoft Exchange 2010.

This program also covers basic networking concepts implemented on Cisco routers. Students will be introduced to the Cisco Internetworking Operating System (IOS) and its command structure. TCP/IP addressing and implementation, including subnetting, will be covered thoroughly. Wide Area Networking (WAN) implementations including ISDN, frame relay, and serial point-to-point (including T1), will be emphasized.

This program will provide students with the skills and knowledge necessary to complete the Microsoft Certified IT Professional (MCITP) and Cisco Certified Network Associate (CCNA) certification exams.

- Certification program
- 576 Contact Hours, 36 Credit Hours, 72 Weeks

### TERM 1

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS100	Windows I	3	48
MCS110	Windows II	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 2

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS120	Windows III	3	48
MCS130	Windows IV	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 3

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS140	Windows V	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 4**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS150	Windows VI	3	48
MCS160	Windows VII	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 5**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS170	Windows VIII	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 6**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA100	CISCO I	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**Prerequisites**

Candidates wishing to enter this course should have completed the A+ PC Hardware Technician coursework or have commensurate experience with PC hardware and basic operating system concepts.

**Type of Document Received Upon Graduation**

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

**Certification Tests**

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

**Career Development**

Students who successfully complete this program will be prepared for midlevel professional opportunities in the IT field with emphasis on planning, installation, configuration and maintenance of client workstation and server operating system, applications and network infrastructure services using Microsoft technologies as well as internetworking components to support a Local Area Network (LAN) infrastructure. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Network Engineer, Network Support Specialist, Local Area Network Engineer, Network Systems Engineer, Server Administrator, Network Administrator, Windows Server Administrator or similar designations.

## **CLWS Program Details**

### COURSE MCS100

Title: Planning and Administering Windows Server 2008 Servers

Exam: Microsoft Exam 70-646

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to plan, manage, and maintain Windows Server 2008 servers. This course is intended for Windows Server 2008 Technology Specialists, in Network Infrastructure and Active Directory, who are interested in learning professional level Server Administrator skills to plan, manage, and maintain Windows Server 2008 servers.

### **Course Objectives**

This course will cover the following subjects:

- Plan a Windows Server 2008 deployment
- Plan and implement server commissioning and decommissioning for Windows Server 2008
- Plan the installation of server roles for Windows Server 2008
- Create a configuration change plan for Windows Server 2008
- Plan and implement Windows Server 2008 security
- Manage application versioning in Windows Server 2008
- Plan for a high-availability Windows Server 2008 deployment
- Plan a server update maintenance schedule for Windows Server 2008
- Maintain a Distributed File System (DFS) in Windows Server 2008
- Define server backup requirements and policies for Windows Server Backup
- Plan and implement a Windows Server 2008 restore
- Plan Windows Server 2008 monitoring
- Troubleshoot hardware issues
- Troubleshoot software issues
- Troubleshoot network issues

## COURSE MCS110

Title: Configuring and Troubleshooting a Windows Sever 2008 Network Infrastructure

Exam: Microsoft Exam 70-642

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to configure and troubleshoot a Windows Sever 2008 network infrastructure. Students will learn to implement and configure secure network access and implement fault tolerant storage technologies. Students will gain an understanding of the network technologies most commonly used with Windows Server 2008 and IP-enabled networks. Students will also learn how to secure servers and maintain update compliance.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring IP Addressing and Services*

- Configure IPv4 and IPv6 addressing. May include but is not limited to: configure IP options, subnetting, supernetting, alternative configuration
- Configure Dynamic Host Configuration Protocol (DHCP). May include but is not limited to: DHCP options, creating new options, PXE boot, default user profiles, DHCP relay agents, exclusions, authorize server in Active Directory, scopes, server core, and Windows Server Hyper-V
- Configure routing. May include but is not limited to: static routing, persistent routing, Routing Internet Protocol (RIP), Open Shortest Path First (OSPF)
- Configure IPsec. May include but is not limited to: create IPsec policy, IPsec Authentication Header (AH), IPsec Encapsulating Security Payload (ESP)

#### *Configuring Name Resolution*

- Configure a Domain Name System (DNS) server. May include but is not limited to: conditional forwarding, external forwarders, root hints, cache-only, server core, WINS and DNS integration, Windows Server virtualization
- Configure DNS zones. May include but is not limited to: DNS Refresh no-refresh, intervals, DNS listserv address (NSLOOKUP), primary/secondary zones, Active Directory integration, Dynamic Domain Name System (DDNS), GlobalNames, SOA refresh
- Configure DNS records. May include but is not limited to: record types, host, pointer, MX, SRV, NS, dynamic updates, Time to Live (TTL)
- Configure DNS replication. May include but is not limited to: DNS secondary zones, DNS stub zones, DNS scavenging interval, replication scope
- Configure name resolution for client computers. May include but is not limited to: DNS and WINS integration, configuring HOSTS file, LMHOSTS, node type, Link-Local Multicast Name Resolution (LLMNR), broadcasting, resolver cache, DNS Server list, Suffix Search order, manage client settings by using group policy

#### *Configuring Network Access*

- Configure remote access. May include but is not limited to: dial-up, Remote Access Policy, Network Address Translation (NAT), Internet Connection Sharing (ICS), VPN, Routing and Remote Access Services (RRAS), inbound/outbound filters, configure Remote Authentication Dial-In User Service (RADIUS) server, configure RADIUS proxy, remote access protocols, Connection Manager
- Configure Network Access Protection (NAP). May include but is not limited to: network layer protection, DHCP enforcement, VPN enforcement, configure NAP health policies, IPsec enforcement, 802.1x enforcement, flexible host isolation

- Configure network authentication. May include but is not limited to: LAN authentication by using NTLMv2 and Kerberos, WLAN authentication by using 802.1x, RAS authentication by using MS-CHAP, MS-CHAP v2, and EAP
- Configure wireless access. May include but is not limited to: Set Service Identifier (SSID), Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA), Wi-Fi Protected Access 2 (WPA2), ad hoc versus infrastructure mode, group policy for wireless
- Configure firewall settings. May include but is not limited to: incoming and outgoing traffic filtering, Active Directory account integration, identify ports and protocols, Microsoft Windows Firewall versus Windows Firewall with Advanced Security, configure firewall by using group policy, isolation policy

#### *Configuring File and Print Services*

- Configure a file server. May include but is not limited to: file share publishing, Offline Files, share permissions, NTFS permissions, encrypting file system (EFS)
- Configure Distributed File System (DFS). May include but is not limited to: DFS namespace, DFS configuration and application, creating and configuring targets, DFS replication
- Configure shadow copy services. May include but is not limited to: recover previous versions, set schedule, set storage locations
- Configure backup and restore. May include but is not limited to: backup types, backup schedules, managing remotely, restoring data
- Manage disk quotas. May include but is not limited to: quota by volume or quota by user, quota entries, quota templates
- Configure and monitor print services. May include but is not limited to: printer share, publish printers to Active Directory, printer permissions, deploy printer connections, install printer drivers, export and import print queues and printer settings, add counters to Reliability and Performance Monitor to monitor print servers, print pooling, print priority

#### *Monitoring and Managing a Network Infrastructure*

- Configure Windows Server Update Services (WSUS) server settings. May include but is not limited to: update type selection, client settings, Group Policy object (GPO), client targeting, software updates, test and approval, disconnected networks
- Capture performance data. May include but is not limited to: Data Collector Sets, Performance Monitor, Reliability Monitor, monitoring System Stability Index
- Monitor event logs. May include but is not limited to: custom views, application and services logs, subscriptions, DNS log
- Gather network data. May include but is not limited to: Simple Network Management Protocol (SNMP), Baseline Security Analyzer, Network Monitor

## COURSE MCS120

Title: Configuring and Troubleshooting Windows Server 2008 Active Directory Domain Services & Configuring and Troubleshooting Identity and Access Solutions with Windows Server 2008 Active Directory

Exam: Microsoft Exam 70-640

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides to teach Active Directory Technology Specialists with the knowledge and skills to configure Active Directory Domain Services in a distributed environment, implement Group Policies, perform backup and restore, and monitor and troubleshoot Active Directory related issues. This course also provides the knowledge and skills that IT Professionals need to configure identity and access solutions with Windows Server 2008 Active Directory.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring Domain Name System (DNS) for Active Directory*

- Configure zones. May include but is not limited to: Dynamic DNS (DDNS), Non-dynamic DNS (NDDNS), and Secure Dynamic DNS (SDDNS), Time to Live (TTL), GlobalNames, Primary, Secondary, Active Directory Integrated, Stub, SOA, zone scavenging, forward lookup, reverse lookup
- Configure DNS server settings. May include but is not limited to: forwarding, root hints, configure zone delegation, round robin, disable recursion, debug logging, server scavenging
- Configure zone transfers and replication. May include but is not limited to: configure replication scope (forestDNSzone, domainDNSzone), incremental zone transfers, DNS Notify, secure zone transfers, configure name servers, application directory partitions

#### *Configuring the Active Directory infrastructure*

- Configure a forest or a domain. May include but is not limited to: remove a domain, perform an unattended installation, Active Directory Migration Tool (ADMT) v3 (pruning and grafting), raise forest and domain functional levels, interoperability with previous versions of Active Directory, alternate user principal name (UPN) suffix, forestprep, domainprep
- Configure trusts. May include but is not limited to: forest trust, selective authentication versus forest-wide authentication, transitive trust, external trust, shortcut trust, SID filtering
- Configure sites. May include but is not limited to: create Active Directory subnets, configure site links, configure site link costing, configure sites infrastructure
- Configure Active Directory replication. May include but is not limited to: Distributed File System, one-way replication, bridgehead server, replication scheduling, configure replication protocols, force intersite replication
- Configure the global catalog. May include but is not limited to: Universal Group Membership Caching (UGMC), partial attribute set, promote to global catalog
- Configure operations masters. May include but is not limited to: seize and transfer, backup operations master, operations master placement, Schema Master, extending the schema, time service

#### *Configuring additional Active Directory server roles*

- Configure Active Directory Lightweight Directory Service (AD LDS). May include but is not limited to: migration to AD LDS, configure data within AD LDS, configure an authentication server, server core, Windows Server 2008 Hyper-V
- Configure Active Directory Rights Management Service (AD RMS). May include but is not limited to: certificate request and installation, self-enrollments, delegation, Active Directory Metadirectory Services (AD MDS), Windows Server virtualization

- Configure the read-only domain controller (RODC). May include but is not limited to: unidirectional replication, Administrator role separation, read-only DNS, BitLocker, credential caching, password replication, syskey, Windows Server virtualization
- Configure Active Directory Federation Services (AD FS). May include but is not limited to: install AD FS server role, exchange certificate with AD FS agents, configure trust policies, configure user and group claim mapping, Windows Server virtualization

#### *Creating and maintaining Active Directory objects*

- Automate creation of Active Directory accounts. May include but is not limited to: bulk import, configure the UPN, create computer, user, and group accounts (scripts, import, migration), template accounts, contacts, distribution lists
- Maintain Active Directory accounts. May include but is not limited to: configure group membership, account resets, delegation, AGDLP/AGGUDLP, deny domain local group, local versus domain, Protected Admin, disabling accounts versus deleting accounts, deprovisioning, contacts, creating organizational units (OUs), delegation of control
- Create and apply Group Policy objects (GPOs). May include but is not limited to: enforce, OU hierarchy, block inheritance, and enabling user objects, Group Policy processing priority, WMI, Group Policy filtering, Group Policy loopback
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure software deployment GPOs. May include but is not limited to: publishing to users, assigning software to users, assigning to computers, software removal
- Configure account policies. May include but is not limited to: domain password policy, account lockout policy, fine-grain password policies
- Configure audit policy by using GPOs. May include but is not limited to: audit logon events, audit account logon events, audit policy change, audit access privilege use, audit directory service access, audit object access

#### *Maintaining the Active Directory environment*

- Configure backup and recovery. May include but is not limited to: using Windows Server Backup, backup files and system state data to media, backup and restore by using removable media, perform an authoritative or non-authoritative Active Directory restore, linked value replication, Directory Services Recovery Mode (DSRM) (reset admin password), back up and restore GPOs
- Perform offline maintenance. May include but is not limited to: offline defragmentation and compaction, Restartable Active Directory, Active Directory database storage allocation
- Monitor Active Directory. May include but is not limited to: Network Monitor, Task Manager, Event Viewer, ReplMon, RepAdmin, Windows System Resource Manager, Reliability and Performance Monitor, Server Performance Advisor, RSOP

#### *Configuring Active Directory Certificate Services*

- Install Active Directory Certificate Services. May include but is not limited to: standalone versus enterprise, CA hierarchies—root versus subordinate, certificate requests, certificate practice statement
- Configure CA server settings. May include but is not limited to: key archival, certificate database backup and restore, assigning administration roles
- Manage certificate templates. May include but is not limited to: certificate template types, securing template permissions, managing different certificate template versions, key recovery agent
- Manage enrollments. May include but is not limited to: network device enrollment service (NDES), autoenrollment, Web enrollment, smart card enrollment, creating enrollment agents

- Manage certificate revocations. May include but is not limited to: configure Online Responders, Certificate Revocation List (CRL), CRL Distribution Point (CDP), Authority Information Access (AIA)

## COURSE MCS130

Title: Installing & Configuring Windows 7 Client

Exam: Microsoft Exam 70-680

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is intended for students who are interested in expanding their knowledge base and technical skills about Windows 7 Client. In this course, students learn how to install, upgrade, and migrate to Windows 7 client. Students then configure Windows 7 client for network connectivity, security, maintenance, and mobile computing. In addition students will be able to students will learn how to configure pre-installation and post-installation system settings, Windows security features, network connectivity applications included with Windows 7, and mobile computing. The course also covers system maintenance, including monitoring for and resolving performance and reliability issues.

### **Course Objectives**

This course will cover the following subjects:

#### *Installing, Upgrading, and Migrating to Windows 7*

- Perform a clean installation
- Upgrade to Windows 7 from previous versions of Windows
- Migrate user profiles

#### *Deploying Windows 7*

- Capture a system image
- Prepare a system image for deployment
- Deploy a system image
- Configure a VHD

#### *Configuring Hardware and Applications*

- Configure devices
- Configure application compatibility
- Configure application restrictions
- Configure Internet Explorer

#### *Configuring Network Connectivity*

- Configure IPv4 network settings
- Configure IPv6 network settings
- Configure networking settings
- Configure Windows Firewall
- Configure remote management

#### *Configuring Access to Resources*

- Configure shared resources
- Configure file and folder access
- Configure user account control (UAC)
- Configure authentication and authorization
- Configure BranchCache

#### *Configuring Mobile Computing*

- Configure BitLocker and BitLocker To Go
- Configure DirectAccess
- Configure mobility options

- Configure remote connections

*Monitoring and Maintaining Systems that Run Windows 7*

- Configure updates to Windows 7
- Manage disks
- Monitor systems
- Configure performance settings

*Configuring Backup and Recovery Options*

- Configure backup
- Configure system recovery options
- Configure file recovery options

## COURSE MCS140

Title: Designing a Windows Server 2008 Network Infrastructure & Designing a Windows Server 2008 Active Directory Infrastructure and Services & Designing a Windows Server 2008 Application Infrastructure

Exam: Microsoft Exam 70-647

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of how to design a Windows Server 2008 Network Infrastructure that meets business and technical requirements for network services. At the end of this course, students will learn how to design an Active Directory Infrastructure in Windows Server 2008. Students will also learn how to design Active Directory forests, domain infrastructure, sites and replication, administrative structures, group policies, and Public Key Infrastructures. In addition students will also learn how to design for security, high availability, disaster recovery, and migrations. Students will learn how to design application infrastructure solutions based on Windows Server 2008 to meet varying business and technical requirements.

### **Course Objectives**

This course will cover the following subjects:

#### *Planning network and application services*

- Plan for name resolution and IP addressing. May include but is not limited to: internal and external naming strategy, naming resolution support for legacy clients, naming resolution for directory services, IP addressing scheme, TCP/IP version coexistence
- Design for network access. May include but is not limited to: network access policies, remote access strategy, perimeter networks, server and domain isolation
- Plan for application delivery. May include but is not limited to: application virtualization, presentation virtualization, locally installed software, Web-based applications
- Plan for Terminal Services. May include but is not limited to: Terminal Services licensing, Terminal Services infrastructure

#### *Designing core identity and access management components*

- Design Active Directory forests and domains. May include but is not limited to: forest structure, forest and domain functional levels, intra-organizational authorization and authentication, schema modifications
- Design the Active Directory physical topology. May include but is not limited to: placement of servers, site and replication topology, printer location policies
- Design the Active Directory administrative model. May include but is not limited to: delegation, group strategy, compliance auditing, group administration, organizational structure
- Design the enterprise-level group policy strategy. May include but is not limited to: group policy hierarchy and scope filtering, control device installation, authentication and authorization

#### *Designing support identity and access management components*

- Plan for domain or forest migration, upgrade, and restructuring. May include but is not limited to: cross-forest authentication, backward compatibility, object migration, migration planning, implementation planning, environment preparation
- Design the branch office deployment. May include but is not limited to: authentication strategy, server security
- Design and implement public key infrastructure. May include but is not limited to: certificate services, PKI operations and maintenance, certificate life cycle management
- Plan for interoperability. May include but is not limited to: inter-organizational authorization and authentication, application authentication interoperability, cross-platform interoperability

*Designing for business continuity and data availability*

- Plan for business continuity. May include but is not limited to: service availability, directory service recovery
- Design for software updates and compliance management. May include but is not limited to: patch management and patch management compliance, Microsoft Update and Windows Update, security baselines, system health models
- Design the operating system virtualization strategy. May include but is not limited to: server consolidation, application compatibility, virtualization management, placement of servers
- Design for data management and data access. May include but is not limited to: data security, data accessibility and redundancy, data collaboration

## COURSE MCS150

Title: Deploying Windows Server 2008 & Configuring & Troubleshooting IIS In Windows Server 2008 & Configuring & Troubleshooting Windows Server 2008 Terminal Services

Exam: Microsoft Exam 70-643

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of migrating and deploying Windows Server 2008 including installation, configuration, and upgrading. Special emphasis is given to upgrading common server configurations and using the Microsoft Deployment Toolkit. In this course, the students will learn to install, configure, maintain, and troubleshoot an Internet Information Services (IIS) 7.0 Web Server in Windows Server 2008. In addition this course provides students with the knowledge and skills to configure, manage, monitor, and troubleshoot a Terminal Services (TS) environment. The course focuses on configuring of TS core functionality, licensing, Gateway, and Web Access.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Servers*

- Deploy images by using Windows Deployment Services. May include but is not limited to: Install from media (IFM), configure Windows Deployment Services, capture Windows Deployment Services images, deploy Windows Deployment Services images, server core
- Configure Microsoft Windows activation. May include but is not limited to: install a KMS server, create a DNS SRV record, replicate volume license data
- Configure Windows Server Hyper-V and virtual machines. May include but is not limited to: virtual networking, virtualization hardware requirements, Virtual Hard Disks, migrate from physical to virtual, VM additions, backup, optimization, server core
- Configure high availability. May include but is not limited to: failover clustering, Network Load Balancing, hardware redundancy
- Configure storage. May include but is not limited to: RAID types, Virtual Disk Specification (VDS) API, Network Attached Storage, iSCSI and Fiber Channel storage area networks, mount points

#### *Configuring Terminal Services*

- Configure Windows Server 2008 Terminal Services RemoteApp (TS RemoteApp). May include but is not limited to: Configuring Terminal Services Web Access, configuring Terminal Services Remote Desktop Web Connection
- Configure Terminal Services Gateway. May include but is not limited to: certificate configuration, Terminal Services Gateway Manager (TS Gateway Manager), specifying resources that users can access through TS Gateway by using Terminal Services resource authorization policy (TS RAP) and Terminal Services connection authorization policy (TS CAP), Terminal Services group policy
- Configure Terminal Services load balancing. May include but is not limited to: Terminal Services Session Broker redirection modes, DNS registration, setting through group policy
- Configure and monitor Terminal Services resources. May include but is not limited to: allocate resources by using Windows Server Resource Manager, configure application logging
- Configure Terminal Services licensing. May include but is not limited to: deploy licensing server, connectivity between terminal servers and Terminal Services licensing server, recovering Terminal Services licensing server, managing Terminal Services client access licenses (TS CALs)
- Configure Terminal Services client connections. May include but is not limited to: connecting local devices and resources to a session, Terminal Services profiles, Terminal Services home folders, Remote Desktop Connection (RDC), single sign-on, Remote Desktop Snap-In, MSTSC.exe
- Configure Terminal Services server options. May include but is not limited to: logoff, disconnect, reset, remote control, monitor, Remote Desktop Protocol (RDP) permissions, connection limits,

session time limits, managing by using GPOs, viewing processes, session permissions, display data prioritization

#### *Configuring a Web Services Infrastructure*

- Configure Web applications. May include but is not limited to: directory-dependent, publishing, URL-specified configuration, Microsoft .NET components, for example, .NET and .aspx, configure application pools
- Manage Web sites. May include but is not limited to: migrate sites and Web applications, publish IIS Web sites, configure virtual directories
- Configure a File Transfer Protocol (FTP) server. May include but is not limited to: configure for extranet users, configure permissions
- Configure Simple Mail Transfer Protocol (SMTP). May include but is not limited to: setting up smart hosts, configuring size limitations, setting up security and authentication to the delivering server, creating proper service accounts, authentication, SMTP relay
- Manage Internet Information Services (IIS). May include but is not limited to: Web site content backup and restore, IIS configuration backup, monitor IIS, configure logging, delegation of administrative rights
- Configure SSL security. May include but is not limited to: configure certificates, requesting SSL certificate, renewing SSL certificate, exporting and importing certificates
- Configure Web site authentication and permissions. May include but is not limited to: configure site permissions and authentication, configure application permissions, client certificate mappings

#### *Configuring Network Application Services*

- Configure Windows Media server. May include but is not limited to: on-demand replication, configure time-sensitive content, caching and proxy
- Configure Digital Rights Management (DRM). May include but is not limited to: encryption, sharing business rules, configuring license delivery, configuring policy templates
- Configure Microsoft Windows SharePoint Services server options. May include but is not limited to: site permissions, backup, antivirus, configuring Windows SharePoint Services service accounts
- Configure Windows SharePoint Services e-mail integration. May include but is not limited to: configuring a document library to receive e-mail, configuring incoming versus outgoing e-mail

## COURSE MCS160

Title: Configuring Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-662

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises teaches students with the knowledge and skills to configure and manage an Exchange Server 2010 messaging environment. This course does not require previous Exchange Server experience, but does require that students have significant experience in managing Windows Server and Active Directory directory services or Active Directory Domain Services (AD DS). This course will teach the students how to configure Exchange Server 2010, as well as provide guidelines, best practices, and considerations that will help the student optimize the Exchange Server deployment.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Microsoft Exchange Server 2010*

- Overview of Exchange Server 2010 Requirements
- Installing Exchange Server 2010 Server Roles
- Completing an Exchange Server 2010 Installation

#### *Configuring Mailbox Servers*

- Overview of Exchange Server 2010 Administrative Tools
- Configuring Mailbox Server Roles
- Configuring Public Folders

#### *Managing Recipient Objects*

- Managing Mailboxes
- Managing Other Recipients
- Configuring E-Mail Address Policies
- Configuring Address Lists
- Performing Bulk Recipient Management Tasks

#### *Managing Client Access*

- Configuring the Client Access Server Role
- Configuring Client Access Services for Outlook Clients
- Configuring Outlook Web App
- Configuring Mobile Messaging

#### *Managing Message Transport*

- Overview of Message Transport
- Configuring Message Transport

#### *Implementing Messaging Security*

- Deploying Edge Transport Servers
- Deploying an Antivirus Solution
- Configuring an Anti-Spam Solution
- Configuring Secure SMTP Messaging

#### *Implementing High Availability*

- Overview of High Availability Options
- Configuring Highly Available Mailbox Databases

- Deploying Highly Available Non-Mailbox Servers

*Implementing Backup and Recovery*

- Planning Backup and Recovery
- Backing Up Exchange Server 2010
- Restoring Exchange Server 2010

*Configuring Messaging Policy and Compliance*

- Introducing Messaging Policy and Compliance
- Configuring Transport Rules
- Configuring Journaling and Multi-Mailbox Search
- Configuring Messaging Records Management
- Configuring Personal Archives

*Securing Microsoft Exchange Server 2010*

- Configuring Role Based Access Control
- Configuring Security for Server Roles in Exchange Server 2010
- Configuring Secure Internet Access

*Maintaining Microsoft Exchange Server 2010*

- Monitoring Exchange Server 2010
- Maintaining Exchange Server 2010
- Troubleshooting Exchange Server 2010

*Upgrading from Exchange Server 2003 or Exchange Server 2007 to Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Upgrading from Exchange Server 2003 to Exchange Server 2010
- Upgrading from Exchange Server 2007 to Exchange Server 2010

## COURSE MCS170

Title: Designing and Deploying Messaging Solutions with Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-663

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to design and deploy messaging solutions with Microsoft Exchange Server 2010. This course describes how to gather requirements for a messaging solution and then design the integration of Exchange Server 2010 with the current infrastructure. The course then covers how to plan and deploy the various server roles in Exchange Server 2010. Students will explore the various options for implementing messaging security, policies, and compliance. The course also examines the high availability and disaster recovery options and how to develop a troubleshooting plan. Finally, the course describes how to plan the upgrade from earlier versions of Exchange Server to Exchange Server 2010 and the integration of Exchange Server 2010 with other messaging systems.

### **Course Objectives**

This course will cover the following subjects:

#### *Introduction to Designing a Microsoft Exchange Server 2010 Deployment*

- Gathering Business Requirements
- Identifying Additional Requirements
- Introduction to Service Level Management
- Analyzing the Current Messaging Environment

#### *Designing Microsoft Exchange Server 2010 Integration with the Current Infrastructure*

- Designing the Network Infrastructure
- Designing the Active Directory Infrastructure
- Designing the DNS Infrastructure
- Planning Exchange Server Administration

#### *Planning and Deploying Mailbox Services*

- Overview of Mailbox Services in Exchange Server 2010
- Designing Mailbox Servers
- Designing Recipient Management
- Designing Public Folder Architecture

#### *Planning and Deploying Client Access Services in Exchange Server 2010*

- Overview of the Client Access Server Role
- Designing the Client Access Server Deployment
- Designing Client Access
- Designing Client Access Policies

#### *Planning and Deploying Message Transport in Exchange Server 2010*

- Designing Hub Transport Servers
- Designing the Message Routing Perimeter

#### *Planning and Deploying Messaging Security*

- Designing Message Security
- Designing Antivirus and Anti-Spam Solutions

*Planning and Deploying Messaging Compliance*

- Designing Transport Compliance
- Designing AD RMS Integration with Exchange Server 2010
- Designing Message Journaling and Archiving
- Designing Messaging Records Management

*Planning and Deploying High Availability*

- Introduction to High Availability Planning in Exchange Server 2010
- Designing High Availability for Mailbox Databases
- Designing High Availability for Other Server Roles
- Designing Site Resilience

*Planning a Disaster Recovery Solution*

- Planning for Disaster Mitigation
- Planning Exchange Server Backup
- Planning Exchange Server Recovery

*Planning Microsoft Exchange Server 2010 Monitoring and Troubleshooting*

- Planning Exchange Server Monitoring
- Planning Exchange Server Troubleshooting

*Upgrading to Microsoft Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2003 to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2007 to Exchange Server 2010

*Integrating Microsoft Exchange Server 2010 with Other Messaging Systems*

- Designing Exchange Server 2010 Integration with Other Messaging Systems
- Designing Exchange Server 2010 Integration with Federated Partners
- Designing Exchange Server 2010 Integration with Exchange Online

## COURSE CCA100

Title: Cisco Certified Network Associate

Exam: 640-802

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises covers basic networking concepts implemented on Cisco routers. Students will be introduced to the Cisco Internetworking Operating System (IOS) and its command structure. TCP/IP addressing and implementation, including subnetting, will be covered thoroughly. Wide Area Networking (WAN) implementations including ISDN, frame relay, and serial point-to-point (including T1), will be emphasized. This is an advanced course providing the skills and knowledge necessary to pass the Cisco certification exam (one exam) necessary to become a Cisco Certified Network Associate (CCNA).

### **Course Objectives**

This course will cover the following subjects:

#### *Describe how a network works*

- Describe the purpose and functions of various network devices
- Select the components required to meet a network specification
- Use the OSI and TCP/IP models and their associated protocols to explain how data flows in a network
- Describe common networked applications including web applications
- Describe the purpose and basic operation of the protocols in the OSI and TCP models
- Describe the impact of applications (Voice Over IP and Video Over IP) on a network
- Interpret network diagrams
- Determine the path between two hosts across a network
- Describe the components required for network and Internet communications
- Identify and correct common network problems at layers 1, 2, 3 and 7 using a layered model approach
- Differentiate between LAN/WAN operation and features

#### *Configure, verify and troubleshoot a switch with VLANs and interswitch communications*

- Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts
- Explain the technology and media access control method for Ethernet networks
- Explain network segmentation and basic traffic management concepts
- Explain basic switching concepts and the operation of Cisco switches
- Perform and verify initial switch configuration tasks including remote access management
- Verify network status and switch operation using basic utilities (including: ping, traceroute, telnet, SSH, arp, ipconfig), SHOW & DEBUG commands
- Identify, prescribe, and resolve common switched network media issues, configuration issues, auto negotiation, and switch hardware failures
- Describe enhanced switching technologies (including: VTP, RSTP, VLAN, PVSTP, 802.1q)
- Describe how VLANs create logically separate networks and the need for routing between them
- Configure, verify, and troubleshoot VLANs
- Configure, verify, and troubleshoot trunking on Cisco switches
- Configure, verify, and troubleshoot interVLAN routing
- Configure, verify, and troubleshoot VTP
- Configure, verify, and troubleshoot RSTP operation
- Interpret the output of various show and debug commands to verify the operational status of a Cisco switched network.
- Implement basic switch security (including: port security, trunk access, management vlan other than vlan1, etc.)

*Implement an IP addressing scheme and IP Services to meet network requirements in a medium-size Enterprise branch office network*

- Describe the operation and benefits of using private and public IP addressing
- Explain the operation and benefits of using DHCP and DNS
- Configure, verify and troubleshoot DHCP and DNS operation on a router.(including: CLI/SDM)
- Implement static and dynamic addressing services for hosts in a LAN environment
- Calculate and apply an addressing scheme including VLSM IP addressing design to a network
- Determine the appropriate classless addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment
- Describe the technological requirements for running IPv6 in conjunction with IPv4 (including: protocols, dual stack, tunneling, etc).
- Describe IPv6 addresses
- Identify and correct common problems associated with IP addressing and host configurations

*Configure, verify, and troubleshoot basic router operation and routing on Cisco devices*

- Describe basic routing concepts (including: packet forwarding, router lookup process)
- Describe the operation of Cisco routers (including: router bootup process, POST, router components)
- Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts
- Configure, verify, and troubleshoot RIPv2
- Access and utilize the router to set basic parameters.(including: CLI/SDM)
- Connect, configure, and verify operation status of a device interface
- Verify device configuration and network connectivity using ping, traceroute, telnet, SSH or other utilities
- Perform and verify routing configuration tasks for a static or default route given specific routing requirements
- Manage IOS configuration files. (including: save, edit, upgrade, restore)
- Manage Cisco IOS.
- Compare and contrast methods of routing and routing protocols
- Configure, verify, and troubleshoot OSPF
- Configure, verify, and troubleshoot EIGRP
- Verify network connectivity (including: using ping, traceroute, and telnet or SSH)
- Troubleshoot routing issues
- Verify router hardware and software operation using SHOW & DEBUG commands.
- Implement basic router security

*Explain and select the appropriate administrative tasks required for a WLAN*

- Describe standards associated with wireless media (including: IEEE WI-FI Alliance, ITU/FCC)
- Identify and describe the purpose of the components in a small wireless network. (Including: SSID, BSS, ESS)
- Identify the basic parameters to configure on a wireless network to ensure that devices connect to the correct access point
- Compare and contrast wireless security features and capabilities of WPA security (including: open, WEP, WPA-1/2)
- Identify common issues with implementing wireless networks. (Including: Interface, misconfiguration)

*Identify security threats to a network and describe general methods to mitigate those threats*

- Describe today's increasing network security threats and explain the need to implement a comprehensive security policy to mitigate the threats
- Explain general methods to mitigate common security threats to network devices, hosts, and applications
- Describe the functions of common security appliances and applications

- Describe security recommended practices including initial steps to secure network devices

*Implement, verify, and troubleshoot NAT and ACLs in a medium-size Enterprise branch office network*

- Describe the purpose and types of ACLs
- Configure and apply ACLs based on network filtering requirements.(including: CLI/SDM)
- Configure and apply an ACLs to limit telnet and SSH access to the router using (including: SDM/CLI)
- Verify and monitor ACLs in a network environment
- Troubleshoot ACL issues
- Explain the basic operation of NAT
- Configure NAT for given network requirements using (including: CLI/SDM)
- Troubleshoot NAT issues

*Implement and verify WAN links*

- Describe different methods for connecting to a WAN
- Configure and verify a basic WAN serial connection
- Configure and verify Frame Relay on Cisco routers
- Troubleshoot WAN implementation issues
- Describe VPN technology (including: importance, benefits, role, impact, components)
- Configure and verify a PPP connection between Cisco routers

## Cisco Certified Network Expert (CCNE)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises covers networking concepts implemented on Cisco routers. Students will be introduced to the Cisco Internetworking Operating System (IOS) and its command structure. TCP/IP addressing and implementation, including subnetting, will be covered thoroughly. Wide Area Networking (WAN) implementations including ISDN, frame relay, and serial point-to-point (including T1), will be emphasized.

This program is also designed to build advanced or journeyman knowledge of both LAN and WAN infrastructure implementations in a Cisco environment. This set of courses builds on the concepts introduced in the CCNA program. Students will be exposed to more in-depth concepts relating to routing implementation and design; TCP/IP design strategies; switching concepts; WAN optimization and performance issues; as well as, basic troubleshooting/support techniques and approaches. Some of the many protocols that will be studied include: TCP/IP, RIP, EIGRP, OSPF, IS-IS, BGP. Other topics include: VLAN implementation and management; spanning-tree protocol; multicast management; remote access implementation; Cisco security features including AAA; subnet concepts, design considerations, and implementation; VLSM; CIDR and more.

In addition, this program covers advanced topics and concepts related to securing Cisco networks. This course covers a wide array of security topics including: Cisco IOS firewall implementation; PIX firewall technology and features; VPN concepts and implementation; IPSec; implementation and design of intrusion detection systems; Cisco's SAFE implementation; AAA; protocol monitoring and management and much more. The goal of this course is to give the student the tools and knowledge necessary to secure and manage complex network infrastructures – protecting data and productivity, as well as, reducing costs.

This program provides the skills and knowledge necessary to pass the Cisco certifications including Cisco Certified Network Associate (CCNA), Cisco Certified Network Professional (CCNP), and Cisco Certified Security Professional (CCSP).

- Certification program
- 576 Contact Hours, 36 Credit Hours, 72 Weeks

### TERM 1

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA100	CISCO I	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

### TERM 2

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA110	CISCO II	3	48
CCA120	CISCO III	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 3**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA130	CISCO IV	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 4**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CSP100	Security I	3	48
CSP110	Security II	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 5**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CSP120	Security III	3	48
CSP130	Security IV	3	48
<b>Total</b>		<b>6</b>	<b>96</b>

**TERM 6**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CSP140	Security V	6	96
<b>Total</b>		<b>6</b>	<b>96</b>

**Prerequisites**

Candidates wishing to enter this course should have completed either a Microsoft or Linux+ networking program or have commensurate experience with PC networking and TCP/IP.

**Type of Document Received Upon Graduation**

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

**Certification Tests**

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

**Career Development**

Students who successfully complete this program will be prepared for midlevel to advanced professional opportunities in the IT field with emphasis on installation, configuration and maintenance of Local Area Network (LAN) and Wide Area Network (WAN) infrastructure. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Sr. Network Design Engineer, Sr. Network Security Engineer, Sr. Network Design Specialist, Sr. Network Systems Manager, Network Support or similar designations.

## CCNE Program Details

### COURSE CCA100

Title: Cisco Certified Network Associate

Exam: 640-802

#### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises covers basic networking concepts implemented on Cisco routers. Students will be introduced to the Cisco Internetworking Operating System (IOS) and its command structure. TCP/IP addressing and implementation, including subnetting, will be covered thoroughly. Wide Area Networking (WAN) implementations including ISDN, frame relay, and serial point-to-point (including T1), will be emphasized. This is an advanced course providing the skills and knowledge necessary to pass the Cisco certification exam (one exam) necessary to become a Cisco Certified Network Associate (CCNA).

#### **Course Objectives**

This course will cover the following subjects:

##### *Describe how a network works*

- Describe the purpose and functions of various network devices
- Select the components required to meet a network specification
- Use the OSI and TCP/IP models and their associated protocols to explain how data flows in a network
- Describe common networked applications including web applications
- Describe the purpose and basic operation of the protocols in the OSI and TCP models
- Describe the impact of applications (Voice Over IP and Video Over IP) on a network
- Interpret network diagrams
- Determine the path between two hosts across a network
- Describe the components required for network and Internet communications
- Identify and correct common network problems at layers 1, 2, 3 and 7 using a layered model approach
- Differentiate between LAN/WAN operation and features

##### *Configure, verify and troubleshoot a switch with VLANs and interswitch communications*

- Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts
- Explain the technology and media access control method for Ethernet networks
- Explain network segmentation and basic traffic management concepts
- Explain basic switching concepts and the operation of Cisco switches
- Perform and verify initial switch configuration tasks including remote access management
- Verify network status and switch operation using basic utilities (including: ping, traceroute, telnet, SSH, arp, ipconfig), SHOW & DEBUG commands
- Identify, prescribe, and resolve common switched network media issues, configuration issues, auto negotiation, and switch hardware failures
- Describe enhanced switching technologies (including: VTP, RSTP, VLAN, PVSTP, 802.1q)
- Describe how VLANs create logically separate networks and the need for routing between them
- Configure, verify, and troubleshoot VLANs
- Configure, verify, and troubleshoot trunking on Cisco switches
- Configure, verify, and troubleshoot interVLAN routing
- Configure, verify, and troubleshoot VTP
- Configure, verify, and troubleshoot RSTP operation

- Interpret the output of various show and debug commands to verify the operational status of a Cisco switched network.
- Implement basic switch security (including: port security, trunk access, management vlan other than vlan1, etc.)

*Implement an IP addressing scheme and IP Services to meet network requirements in a medium-size Enterprise branch office network*

- Describe the operation and benefits of using private and public IP addressing
- Explain the operation and benefits of using DHCP and DNS
- Configure, verify and troubleshoot DHCP and DNS operation on a router.(including: CLI/SDM)
- Implement static and dynamic addressing services for hosts in a LAN environment
- Calculate and apply an addressing scheme including VLSM IP addressing design to a network
- Determine the appropriate classless addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment
- Describe the technological requirements for running IPv6 in conjunction with IPv4 (including: protocols, dual stack, tunneling, etc).
- Describe IPv6 addresses
- Identify and correct common problems associated with IP addressing and host configurations

*Configure, verify, and troubleshoot basic router operation and routing on Cisco devices*

- Describe basic routing concepts (including: packet forwarding, router lookup process)
- Describe the operation of Cisco routers (including: router bootup process, POST, router components)
- Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts
- Configure, verify, and troubleshoot RIPv2
- Access and utilize the router to set basic parameters.(including: CLI/SDM)
- Connect, configure, and verify operation status of a device interface
- Verify device configuration and network connectivity using ping, traceroute, telnet, SSH or other utilities
- Perform and verify routing configuration tasks for a static or default route given specific routing requirements
- Manage IOS configuration files. (including: save, edit, upgrade, restore)
- Manage Cisco IOS.
- Compare and contrast methods of routing and routing protocols
- Configure, verify, and troubleshoot OSPF
- Configure, verify, and troubleshoot EIGRP
- Verify network connectivity (including: using ping, traceroute, and telnet or SSH)
- Troubleshoot routing issues
- Verify router hardware and software operation using SHOW & DEBUG commands.
- Implement basic router security

*Explain and select the appropriate administrative tasks required for a WLAN*

- Describe standards associated with wireless media (including: IEEE WI-FI Alliance, ITU/FCC)
- Identify and describe the purpose of the components in a small wireless network. (Including: SSID, BSS, ESS)
- Identify the basic parameters to configure on a wireless network to ensure that devices connect to the correct access point
- Compare and contrast wireless security features and capabilities of WPA security (including: open, WEP, WPA-1/2)
- Identify common issues with implementing wireless networks. (Including: Interface, misconfiguration)

*Identify security threats to a network and describe general methods to mitigate those threats*

- Describe today's increasing network security threats and explain the need to implement a comprehensive security policy to mitigate the threats
- Explain general methods to mitigate common security threats to network devices, hosts, and applications
- Describe the functions of common security appliances and applications
- Describe security recommended practices including initial steps to secure network devices

*Implement, verify, and troubleshoot NAT and ACLs in a medium-size Enterprise branch office network*

- Describe the purpose and types of ACLs
- Configure and apply ACLs based on network filtering requirements.(including: CLI/SDM)
- Configure and apply an ACLs to limit telnet and SSH access to the router using (including: SDM/CLI)
- Verify and monitor ACLs in a network environment
- Troubleshoot ACL issues
- Explain the basic operation of NAT
- Configure NAT for given network requirements using (including: CLI/SDM)
- Troubleshoot NAT issues

*Implement and verify WAN links*

- Describe different methods for connecting to a WAN
- Configure and verify a basic WAN serial connection
- Configure and verify Frame Relay on Cisco routers
- Troubleshoot WAN implementation issues
- Describe VPN technology (including: importance, benefits, role, impact, components)
- Configure and verify a PPP connection between Cisco routers

## COURSE CCA110

Title: Implementing Cisco IP Routing

Exam: 642-902

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to use advanced IP addressing and routing in implementing scalability for Cisco ISR routers connected to LANs and WANs. The exam covers topics on Advanced IP Addressing, Routing Principles, Multicast Routing, IPv6, Manipulating Routing Updates, Configuring basic BGP, Configuring EIGRP, OSPF, and IS-IS.

### **Course Objectives**

This course will cover the following subjects:

- List the Key Information Routers Needs to Route Data
- Describe Classful & Classless Routing Protocols
- Describe Link-State Router Protocol Operation
- Compare Classful & Classless Routing Protocols
- Compare Distance Vector & Link State Routing Protocols
- Describe Concepts to Extending IP Addresses & the Use of VLSMs to Extend IP addresses
- Describe the Features & Operation of EIGRP
- Describe the Features & Operation of Single Area OSPF
- Describe the Hierarchical Structure of IS-IS Areas
- Describe the Features & Operation of BGP

## COURSE CCA120

Title: Implementing Cisco Switched Network

Exam: 642-813

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to implement scalable multilayer switched networks. The exam includes topics on Campus Networks, describing and implementing advanced Spanning Tree concepts, VLANs and Inter-VLAN routing, High Availability, Wireless Client Access, Access Layer Voice concepts, and minimizing service Loss and Data Theft in a Campus Network.

### **Course Objectives**

This course will cover the following subjects:

- Describe the Enterprise Composite Model used for designing networks and explain how it addresses enterprise network needs for performance, scalability and availability
- Describe the physical, data-link and network layer technologies used in a switched network, and identify when to use each
- Explain the role of switches in the various modules of the Enterprise Composite Model (Campus Infrastructure, Server Farm, Enterprise Edge, Network Management)
- Explain the function of the Switching Database Manager [specifically Content Addressable Memory (CAM) and Ternary Content Addressable Memory (TCAM)] within a Catalyst switch
- Describe the features and operation of VLANs on a switched network
- Describe the features of the VLAN trunking protocols including 802.1Q, ISL (emphasis on 802.1Q) and dynamic trunking protocol
- Describe the features and operation of 802.1Q Tunneling (802.1QinQ) within a service provider network
- Describe the operation and purpose of managed VLAN services
- Describe how VTP versions 1 and 2 operate including domains, modes, advertisements, and pruning
- Explain the function of the Switching Database Manager [specifically Content Addressable Memory (CAM) and Ternary Content Addressable Memory (TCAM)] within a Catalyst switch

### COURSE CCA130

Title: Troubleshooting and Maintaining Cisco IP Networks

Exam: 642-832

#### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to secure and expand the reach of an enterprise network to (1) plan and perform regular maintenance on complex enterprise routed and switched networks and (2) use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting.

#### **Course Objectives**

This course will cover the following subjects:

- Plan and document the most commonly performed maintenance functions in complex enterprise networks
- Develop a troubleshooting process to identify and resolve problems in complex enterprise networks
- Select tools that best support specific troubleshooting and maintenance processes in large, complex enterprise networks
- Practice maintenance procedures and fault resolution in switching-based environments
- Practice maintenance procedures and fault resolution in routing-based environments
- Practice maintenance procedures and fault resolution in a secure infrastructure
- Troubleshoot and maintain integrated, complex enterprise networks

## COURSE CSP100

Title: Implementing Cisco IOS Network Security

Exam: 640-553

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the CCNA Security certification. This exam tests a candidate's knowledge of securing Cisco routers and switches and their associated networks. It leads to validated skills for installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data and devices and develops competency in the technologies that Cisco uses in its security infrastructure.

### **Course Objectives**

This course will cover the following subjects:

- Describe and list mitigation methods for common network attacks
- Describe and list mitigation methods for Worm, Virus, and Trojan Horse attacks
- Describe the Cisco Self Defending Network architecture
- Secure Cisco routers using the SDM Security Audit feature
- Use the One-Step Lockdown feature in SDM to secure a Cisco router
- Secure administrative access to Cisco routers by setting strong encrypted passwords, exec timeout, login failure rate and using IOS login enhancements
- Secure administrative access to Cisco routers by configuring multiple privilege levels
- Secure administrative access to Cisco routers by configuring role based CLI
- Secure the Cisco IOS image and configuration file
- Explain the functions and importance of AAA
- Describe the features of TACACS+ and RADIUS AAA protocols
- Configure AAA authentication
- Configure AAA authorization
- Configure AAA accounting
- Explain the functionality of standard, extended, and named IP ACLs used by routers to filter packets
- Configure and verify IP ACLs to mitigate given threats (filter IP traffic destined for Telnet, SNMP, and DDoS attacks) in a network using CLI
- Configure IP ACLs to prevent IP address spoofing using CLI
- Discuss the caveats to be considered when building ACLs
- Use CLI and SDM to configure SSH on Cisco routers to enable secured management access
- Use CLI and SDM to configure Cisco routers to send Syslog messages to a Syslog server
- Describe how to prevent layer 2 attacks by configuring basic Catalyst switch security features
- Describe the operational strengths and weaknesses of the different firewall technologies
- Explain stateful firewall operations and the function of the state table
- Implement Zone Based Firewall using SDM
- Define network based vs. host based intrusion detection and prevention
- Explain IPS technologies, attack responses, and monitoring options
- Enable and verify Cisco IOS IPS operations using SDM
- Explain the different methods used in cryptography
- Explain IKE protocol functionality and phases
- Describe the building blocks of IPSec and the security functions it provides
- Configure and verify an IPSec site-to-site VPN with pre-shared key authentication using SDM

## COURSE CSP110

Title: Securing Networks with Cisco Routers & Switches (Secure v1.0)

Exam: 642-637

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is one of the exams associated with the Cisco Certified Security Professional certification. Candidates can prepare for this exam by taking the SNRS course. This exam includes simulations and tests a candidate's knowledge and ability to secure networks using Cisco routers and switches.

### **Course Objectives**

This course will cover the following subjects:

- Deploying Network Foundation Protection Controls
- Deploying Advanced Switched Data Plane Security Controls
- Implementing Cisco Identity-Based Network Services
- Deploying Basic 802.1X Features
- Deploying Advanced Routed Data Plane Security Controls
- Deploying Advanced Control Plane Security Controls
- Deploying Advanced Management Plane Security Controls
- Deploying Cisco IOS Software Network Address Translation
- Deploying Basic Zone-Based Policy Firewalls
- Deploying Advanced Zone-Based Policy Firewalls
- Deploying Cisco IOS Software IPS
- Site-to-Site VPN Architectures and Technologies
- Deploying VTI-Based Site-to-Site IPsec VPNs
- Deploying Scalable Authentication in Site-to-Site IPsec VPNs
- Deploying DMVPNs
- Deploying High Availability in Tunnel-Based IPsec VPNs
- Deploying GET VPN
- Remote Access VPN Architectures and Technologies
- Deploying Remote Access Solutions Using SSL VPN
- Deploying Remote Access Solutions Using Cisco Easy VPN

## COURSE CSP120

Title: Deploying Cisco ASA Firewall Solutions (Firewall v1.0)

Exam: 642-617

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is one of the exams associated with the Cisco Certified Security Professional and the Cisco Firewall Specialist certifications. Candidates can prepare for this exam by taking the SNAF course. This exam includes simulations and tests a candidate's knowledge and ability to describe, configure, verify and manage the Cisco ASA Security Appliance product.

### **Course Objectives**

This course will cover the following subjects:

- Evaluate the basic technology, features, and hardware models of the Cisco ASA adaptive security appliance product line.
- Implement and maintain basic Cisco ASA adaptive security appliance connectivity and device management plane features.
- Implement and maintain data plane access control features of the Cisco ASA adaptive security appliance product family.
- Implement and maintain Cisco ASA adaptive security appliance features that integrate it with the local and global routing and switching infrastructure.
- Implement and maintain Cisco ASA adaptive security appliance virtualization and high availability features.
- Evaluate Cisco ASA adaptive security appliance SSM modules, their major features, and integrate them with the Cisco ASA adaptive security appliance.
- Introduction to the Cisco ASA Adaptive Security Appliance
- Implementation of Basic Connectivity and Device Management
- Deployment of Cisco ASA Adaptive Security Appliance Access Control Features
- Deployment of Cisco ASA Adaptive Security Appliance Network Integration Features
- Deployment of Cisco ASA Adaptive Security Appliance Virtualization and High-Availability Features
- Integration of Cisco ASA Adaptive Security Appliance Security Service Modules
- Configuring Routing on the Cisco ASA Adaptive Security Appliance
- Configuring Dynamic Routing

### COURSE CSP130

Title: Implementing Cisco Intrusion Prevention System v1.0 (IPS v7.0)

Exam: 642-647

#### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the Cisco Certified Security Professional and the Cisco IPS Specialist certifications. This exam tests a candidate's knowledge of implementing the Cisco IPS product. Candidates can prepare for this exam by taking the IPS Implementing Cisco Intrusion Prevention Systems v7.0 course.

#### **Course Objectives**

This course will cover the following subjects:

- Evaluate products and deployment architectures for the Cisco IPS product line.
- Perform an initial implementation of a Cisco IPS sensor.
- Implement an initial security policy using a Cisco IPS sensor according to local policies and environmental requirements.
- Deploy customized policies to adapt Cisco IPS traffic analysis and response to the target environment.
- Implement a basic Cisco IPS data management and analysis solution.
- Implement complex Cisco IPS policy virtualization, high availability, and high performance solutions according to policy and environmental requirements.
- Perform the initial setup of, and maintain specific Cisco IPS hardware.
- Introduction to Intrusion Prevention and Detection, Cisco IPS Software, and Supporting Devices
- Installing and Maintaining Cisco IPS Sensors
- Applying Cisco IPS Security Policies
- Adapting Traffic Analysis and Response to the Environment
- Managing and Analyzing Events
- Deploying Virtualization, High Availability, and High Performance Solutions
- Configuring and Maintaining Specific Cisco IPS Hardware

## COURSE CSP140

Title: Deploying Cisco ASA VPN (VPN v1.0)

Exam: 642-627

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the Cisco Certified Security Professional certification. Candidates can prepare for this exam by taking the Implementing Cisco Security Monitoring, Analysis and Response System course. This exam tests a candidate's knowledge of the Cisco Security Monitoring, Analysis and Response System.

### **Course Objectives**

This course will cover the following subjects:

- Evaluate the Cisco ASA adaptive security appliance VPN subsystem
- Deploy Cisco ASA adaptive security appliance IPsec VPN solutions
- Deploy Cisco ASA adaptive security appliance Cisco AnyConnect remote access VPN solutions
- Deploy Cisco ASA adaptive security appliance clientless remote access VPN solutions
- Deploy advanced Cisco ASA adaptive security appliance VPN solutions
- Evaluate the Cisco ASA adaptive security appliance VPN subsystem
- Deploy Cisco ASA adaptive security appliance IPsec VPN solutions
- Deploy Cisco ASA adaptive security appliance Cisco AnyConnect remote access VPN solutions
- Deploy Cisco ASA adaptive security appliance clientless remote access VPN solutions
- Deploy advanced Cisco ASA adaptive security appliance VPN

## Certified Network Technologies Expert (CNTE)

### Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises is our most comprehensive and diverse program combining the coursework of multiple disciplines. This program begins with a PC hardware and software course, provides in-depth coursework on the Microsoft operation systems, offers an introduction to the Linux operating system, and guides the student through multiple levels of network infrastructure study for both Cisco and Microsoft environments. The goal of this program is to offer the student a single program to build the knowledge, skills, and certifications necessary to become a well-respected and well-trained professional poised to become a success in today's information technology environment.

- Certification program
- 1152 Contact Hours, 72 Credit Hours, 72 Weeks

### TERM 1

Course No.	Course Name	Quarter Credit Hours	Clock Hours
IPC100	PC I	6	96
MCS100	Windows I	3	48
MCS110	Windows II	3	48
<b>Total</b>		<b>12</b>	<b>192</b>

### TERM 2

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS120	Windows III	3	48
MCS130	Windows IV	3	48
MCS140	Windows V	6	96
<b>Total</b>		<b>12</b>	<b>192</b>

### TERM 3

Course No.	Course Name	Quarter Credit Hours	Clock Hours
MCS150	Windows VI	3	48
MCS160	Windows VII	3	48
MCS170	Windows VIII	6	96
<b>Total</b>		<b>12</b>	<b>192</b>

**TERM 4**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA100	Cisco I	6	96
CCA110	Cisco II	3	48
CCA120	Cisco III	3	48
<b>Total</b>		<b>12</b>	<b>192</b>

**TERM 5**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA130	Cisco IV	6	96
CSP100	Security I	3	48
CSP110	Security II	3	48
<b>Total</b>		<b>12</b>	<b>192</b>

**TERM 6**

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CSP120	Security III	3	48
CSP130	Security IV	3	48
CSP140	Security V	6	96
<b>Total</b>		<b>12</b>	<b>192</b>

**Type of Document Received Upon Graduation**

Upon successfully completing all requirements of the programs offered at Brand College, the student will be awarded a Certificate of Completion.

**Certification Tests**

Performance on a certification test is based on a pass or fail. You must receive between 75% and 80%, depending on the test, to pass. It is encouraged to take each test as soon as you complete the corresponding course.

**Career Development**

Students who successfully complete this program will be prepared for midlevel to advanced professional opportunities in the IT field with emphasis on installation, configuration and maintenance of Local Area Network (LAN) and Wide Area Network (WAN) infrastructure. In addition, the students are qualified for positions involving the planning, installation, and maintenance of client workstation as well as server operating system, applications and network infrastructure services using Microsoft and Linux technologies. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Sr. Network Design Engineer, Sr. Network Systems Manager, Manager of Network Systems or similar designations.

## CNTE Program Details

### COURSE IPC100

Title: PC Hardware and Operating System

Exam: CompTIA Exams 220-701 and 220-702

#### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is designed to introduce the students to computer hardware concepts and the skills required to build a Personal Computer (PC) from the ground up. In addition, students will learn software concepts with the newest versions of Microsoft Windows. The primary goal of this course is to give students a basic understanding of every aspect of hardware and software relating to the PC. However, the final portion of this course will introduce the student to basic networking concepts and network implementation using Microsoft Windows operating systems.

#### **Course Objectives**

This course will cover the following subjects:

- Personal Computer Components
- System Unit Components
- Storage Devices
- Personal Computer Connection Methods
- Personal Computer Operating Systems
- Windows User Interface Components
- Windows File System Management
- Windows System Management Tools
- Tools of the Trade
- Electronic Safety
- Environmental Safety and Materials Handling
- Perform Preventive Maintenance
- Diagnostics and Troubleshooting
- Professionalism and Communication
- Install and Configure Display Devices
- Install and Configure Input Devices
- Install and Configure Adapter Cards
- Install and Configure Multimedia Devices
- Install and Configure Storage Devices
- Install and Configure Power Supplies
- Install and Configure Memory
- Install and Configure CPUs
- Install and Configure System Boards
- Troubleshoot Display Devices
- Maintain and Troubleshoot Input Devices
- Troubleshoot Adapter Cards, Multimedia Devices, Storage Devices, Power Supplies, Memory, CPUs, and System Boards
- Install, Upgrade, and Optimize Microsoft Windows
- Add Devices to Windows
- Operating System Utilities
- Maintain and Troubleshoot Microsoft Windows
- Recover Microsoft Windows
- Network Concepts and Communications
- Network Connectivity

- Internet Technologies
- Create Network Connections
- Install and Configure Web Browser
- Maintain and Troubleshoot Network Connections
- Laptop and Portable Computing Device Components
- Install and Configure Laptops and Portable Computing Devices
- Maintain and Troubleshoot Laptops and Portable Computing Devices
- Printer and Scanner Technologies
- Printer and Scanner Components
- Printer and Scanner Processes
- Install and Configure Printers and Scanners
- Maintain and Troubleshoot Printers and Scanners
- Security Fundamentals
- Security Protection Measures
- Data and Physical Security
- Wireless Security
- Social Engineering
- Install and Configure Security Measures
- Maintain and Troubleshoot Security Measures

## COURSE MCS100

Title: Planning and Administering Windows Server 2008 Servers

Exam: Microsoft Exam 70-646

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to plan, manage, and maintain Windows Server 2008 servers. This course is intended for Windows Server 2008 Technology Specialists, in Network Infrastructure and Active Directory, who are interested in learning professional level Server Administrator skills to plan, manage, and maintain Windows Server 2008 servers.

### **Course Objectives**

This course will cover the following subjects:

- Plan a Windows Server 2008 deployment
- Plan and implement server commissioning and decommissioning for Windows Server 2008
- Plan the installation of server roles for Windows Server 2008
- Create a configuration change plan for Windows Server 2008
- Plan and implement Windows Server 2008 security
- Manage application versioning in Windows Server 2008
- Plan for a high-availability Windows Server 2008 deployment
- Plan a server update maintenance schedule for Windows Server 2008
- Maintain a Distributed File System (DFS) in Windows Server 2008
- Define server backup requirements and policies for Windows Server Backup
- Plan and implement a Windows Server 2008 restore
- Plan Windows Server 2008 monitoring
- Troubleshoot hardware issues
- Troubleshoot software issues
- Troubleshoot network issues

## COURSE MCS110

Title: Configuring and Troubleshooting a Windows Sever 2008 Network Infrastructure

Exam: Microsoft Exam 70-642

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to configure and troubleshoot a Windows Sever 2008 network infrastructure. Students will learn to implement and configure secure network access and implement fault tolerant storage technologies. Students will gain an understanding of the network technologies most commonly used with Windows Server 2008 and IP-enabled networks. Students will also learn how to secure servers and maintain update compliance.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring IP Addressing and Services*

- Configure IPv4 and IPv6 addressing. May include but is not limited to: configure IP options, subnetting, supernetting, alternative configuration
- Configure Dynamic Host Configuration Protocol (DHCP). May include but is not limited to: DHCP options, creating new options, PXE boot, default user profiles, DHCP relay agents, exclusions, authorize server in Active Directory, scopes, server core, and Windows Server Hyper-V
- Configure routing. May include but is not limited to: static routing, persistent routing, Routing Internet Protocol (RIP), Open Shortest Path First (OSPF)
- Configure IPsec. May include but is not limited to: create IPsec policy, IPsec Authentication Header (AH), IPsec Encapsulating Security Payload (ESP)

#### *Configuring Name Resolution*

- Configure a Domain Name System (DNS) server. May include but is not limited to: conditional forwarding, external forwarders, root hints, cache-only, server core, WINS and DNS integration, Windows Server virtualization
- Configure DNS zones. May include but is not limited to: DNS Refresh no-refresh, intervals, DNS listserv address (NSLOOKUP), primary/secondary zones, Active Directory integration, Dynamic Domain Name System (DDNS), GlobalNames, SOA refresh
- Configure DNS records. May include but is not limited to: record types, host, pointer, MX, SRV, NS, dynamic updates, Time to Live (TTL)
- Configure DNS replication. May include but is not limited to: DNS secondary zones, DNS stub zones, DNS scavenging interval, replication scope
- Configure name resolution for client computers. May include but is not limited to: DNS and WINS integration, configuring HOSTS file, LMHOSTS, node type, Link-Local Multicast Name Resolution (LLMNR), broadcasting, resolver cache, DNS Server list, Suffix Search order, manage client settings by using group policy

#### *Configuring Network Access*

- Configure remote access. May include but is not limited to: dial-up, Remote Access Policy, Network Address Translation (NAT), Internet Connection Sharing (ICS), VPN, Routing and Remote Access Services (RRAS), inbound/outbound filters, configure Remote Authentication Dial-In User Service (RADIUS) server, configure RADIUS proxy, remote access protocols, Connection Manager
- Configure Network Access Protection (NAP). May include but is not limited to: network layer protection, DHCP enforcement, VPN enforcement, configure NAP health policies, IPsec enforcement, 802.1x enforcement, flexible host isolation

- Configure network authentication. May include but is not limited to: LAN authentication by using NTLMv2 and Kerberos, WLAN authentication by using 802.1x, RAS authentication by using MS-CHAP, MS-CHAP v2, and EAP
- Configure wireless access. May include but is not limited to: Set Service Identifier (SSID), Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA), Wi-Fi Protected Access 2 (WPA2), ad hoc versus infrastructure mode, group policy for wireless
- Configure firewall settings. May include but is not limited to: incoming and outgoing traffic filtering, Active Directory account integration, identify ports and protocols, Microsoft Windows Firewall versus Windows Firewall with Advanced Security, configure firewall by using group policy, isolation policy

#### *Configuring File and Print Services*

- Configure a file server. May include but is not limited to: file share publishing, Offline Files, share permissions, NTFS permissions, encrypting file system (EFS)
- Configure Distributed File System (DFS). May include but is not limited to: DFS namespace, DFS configuration and application, creating and configuring targets, DFS replication
- Configure shadow copy services. May include but is not limited to: recover previous versions, set schedule, set storage locations
- Configure backup and restore. May include but is not limited to: backup types, backup schedules, managing remotely, restoring data
- Manage disk quotas. May include but is not limited to: quota by volume or quota by user, quota entries, quota templates
- Configure and monitor print services. May include but is not limited to: printer share, publish printers to Active Directory, printer permissions, deploy printer connections, install printer drivers, export and import print queues and printer settings, add counters to Reliability and Performance Monitor to monitor print servers, print pooling, print priority

#### *Monitoring and Managing a Network Infrastructure*

- Configure Windows Server Update Services (WSUS) server settings. May include but is not limited to: update type selection, client settings, Group Policy object (GPO), client targeting, software updates, test and approval, disconnected networks
- Capture performance data. May include but is not limited to: Data Collector Sets, Performance Monitor, Reliability Monitor, monitoring System Stability Index
- Monitor event logs. May include but is not limited to: custom views, application and services logs, subscriptions, DNS log
- Gather network data. May include but is not limited to: Simple Network Management Protocol (SNMP), Baseline Security Analyzer, Network Monitor

## COURSE MCS120

Title: Configuring and Troubleshooting Windows Server 2008 Active Directory Domain Services & Configuring and Troubleshooting Identity and Access Solutions with Windows Server 2008 Active Directory

Exam: Microsoft Exam 70-640

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides to teach Active Directory Technology Specialists with the knowledge and skills to configure Active Directory Domain Services in a distributed environment, implement Group Policies, perform backup and restore, and monitor and troubleshoot Active Directory related issues. This course also provides the knowledge and skills that IT Professionals need to configure identity and access solutions with Windows Server 2008 Active Directory.

### **Course Objectives**

This course will cover the following subjects:

#### *Configuring Domain Name System (DNS) for Active Directory*

- Configure zones. May include but is not limited to: Dynamic DNS (DDNS), Non-dynamic DNS (NDDNS), and Secure Dynamic DNS (SDDNS), Time to Live (TTL), GlobalNames, Primary, Secondary, Active Directory Integrated, Stub, SOA, zone scavenging, forward lookup, reverse lookup
- Configure DNS server settings. May include but is not limited to: forwarding, root hints, configure zone delegation, round robin, disable recursion, debug logging, server scavenging
- Configure zone transfers and replication. May include but is not limited to: configure replication scope (forestDNSzone, domainDNSzone), incremental zone transfers, DNS Notify, secure zone transfers, configure name servers, application directory partitions

#### *Configuring the Active Directory infrastructure*

- Configure a forest or a domain. May include but is not limited to: remove a domain, perform an unattended installation, Active Directory Migration Tool (ADMT) v3 (pruning and grafting), raise forest and domain functional levels, interoperability with previous versions of Active Directory, alternate user principal name (UPN) suffix, forestprep, domainprep
- Configure trusts. May include but is not limited to: forest trust, selective authentication versus forest-wide authentication, transitive trust, external trust, shortcut trust, SID filtering
- Configure sites. May include but is not limited to: create Active Directory subnets, configure site links, configure site link costing, configure sites infrastructure
- Configure Active Directory replication. May include but is not limited to: Distributed File System, one-way replication, bridgehead server, replication scheduling, configure replication protocols, force intersite replication
- Configure the global catalog. May include but is not limited to: Universal Group Membership Caching (UGMC), partial attribute set, promote to global catalog
- Configure operations masters. May include but is not limited to: seize and transfer, backup operations master, operations master placement, Schema Master, extending the schema, time service

#### *Configuring additional Active Directory server roles*

- Configure Active Directory Lightweight Directory Service (AD LDS). May include but is not limited to: migration to AD LDS, configure data within AD LDS, configure an authentication server, server core, Windows Server 2008 Hyper-V
- Configure Active Directory Rights Management Service (AD RMS). May include but is not limited to: certificate request and installation, self-enrollments, delegation, Active Directory Metadirectory Services (AD MDS), Windows Server virtualization

- Configure the read-only domain controller (RODC). May include but is not limited to: unidirectional replication, Administrator role separation, read-only DNS, BitLocker, credential caching, password replication, syskey, Windows Server virtualization
- Configure Active Directory Federation Services (AD FS). May include but is not limited to: install AD FS server role, exchange certificate with AD FS agents, configure trust policies, configure user and group claim mapping, Windows Server virtualization

#### *Creating and maintaining Active Directory objects*

- Automate creation of Active Directory accounts. May include but is not limited to: bulk import, configure the UPN, create computer, user, and group accounts (scripts, import, migration), template accounts, contacts, distribution lists
- Maintain Active Directory accounts. May include but is not limited to: configure group membership, account resets, delegation, AGDLP/AGGUDLP, deny domain local group, local versus domain, Protected Admin, disabling accounts versus deleting accounts, deprovisioning, contacts, creating organizational units (OUs), delegation of control
- Create and apply Group Policy objects (GPOs). May include but is not limited to: enforce, OU hierarchy, block inheritance, and enabling user objects, Group Policy processing priority, WMI, Group Policy filtering, Group Policy loopback
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure GPO templates. May include but is not limited to: user rights, ADMX Central Store, administrative templates, security templates, restricted groups, security options, starter GPOs, shell access policies
- Configure software deployment GPOs. May include but is not limited to: publishing to users, assigning software to users, assigning to computers, software removal
- Configure account policies. May include but is not limited to: domain password policy, account lockout policy, fine-grain password policies
- Configure audit policy by using GPOs. May include but is not limited to: audit logon events, audit account logon events, audit policy change, audit access privilege use, audit directory service access, audit object access

#### *Maintaining the Active Directory environment*

- Configure backup and recovery. May include but is not limited to: using Windows Server Backup, backup files and system state data to media, backup and restore by using removable media, perform an authoritative or non-authoritative Active Directory restore, linked value replication, Directory Services Recovery Mode (DSRM) (reset admin password), back up and restore GPOs
- Perform offline maintenance. May include but is not limited to: offline defragmentation and compaction, Restartable Active Directory, Active Directory database storage allocation
- Monitor Active Directory. May include but is not limited to: Network Monitor, Task Manager, Event Viewer, ReplMon, RepAdmin, Windows System Resource Manager, Reliability and Performance Monitor, Server Performance Advisor, RSOP

#### *Configuring Active Directory Certificate Services*

- Install Active Directory Certificate Services. May include but is not limited to: standalone versus enterprise, CA hierarchies—root versus subordinate, certificate requests, certificate practice statement
- Configure CA server settings. May include but is not limited to: key archival, certificate database backup and restore, assigning administration roles
- Manage certificate templates. May include but is not limited to: certificate template types, securing template permissions, managing different certificate template versions, key recovery agent
- Manage enrollments. May include but is not limited to: network device enrollment service (NDES), autoenrollment, Web enrollment, smart card enrollment, creating enrollment agents

- Manage certificate revocations. May include but is not limited to: configure Online Responders, Certificate Revocation List (CRL), CRL Distribution Point (CDP), Authority Information Access (AIA)

## COURSE MCS130

Title: Installing & Configuring Windows 7 Client

Exam: Microsoft Exam 70-680

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises is intended for students who are interested in expanding their knowledge base and technical skills about Windows 7 Client. In this course, students learn how to install, upgrade, and migrate to Windows 7 client. Students then configure Windows 7 client for network connectivity, security, maintenance, and mobile computing. In addition students will be able to students will learn how to configure pre-installation and post-installation system settings, Windows security features, network connectivity applications included with Windows 7, and mobile computing. The course also covers system maintenance, including monitoring for and resolving performance and reliability issues.

### **Course Objectives**

This course will cover the following subjects:

#### *Installing, Upgrading, and Migrating to Windows 7*

- Perform a clean installation
- Upgrade to Windows 7 from previous versions of Windows
- Migrate user profiles

#### *Deploying Windows 7*

- Capture a system image
- Prepare a system image for deployment
- Deploy a system image
- Configure a VHD

#### *Configuring Hardware and Applications*

- Configure devices
- Configure application compatibility
- Configure application restrictions
- Configure Internet Explorer

#### *Configuring Network Connectivity*

- Configure IPv4 network settings
- Configure IPv6 network settings
- Configure networking settings
- Configure Windows Firewall
- Configure remote management

#### *Configuring Access to Resources*

- Configure shared resources
- Configure file and folder access
- Configure user account control (UAC)
- Configure authentication and authorization
- Configure BranchCache

#### *Configuring Mobile Computing*

- Configure BitLocker and BitLocker To Go
- Configure DirectAccess
- Configure mobility options

- Configure remote connections

*Monitoring and Maintaining Systems that Run Windows 7*

- Configure updates to Windows 7
- Manage disks
- Monitor systems
- Configure performance settings

*Configuring Backup and Recovery Options*

- Configure backup
- Configure system recovery options
- Configure file recovery options

## COURSE MCS140

Title: Designing a Windows Server 2008 Network Infrastructure & Designing a Windows Server 2008 Active Directory Infrastructure and Services & Designing a Windows Server 2008 Application Infrastructure

Exam: Microsoft Exam 70-647

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of how to design a Windows Server 2008 Network Infrastructure that meets business and technical requirements for network services. At the end of this course, students will learn how to design an Active Directory Infrastructure in Windows Server 2008. Students will also learn how to design Active Directory forests, domain infrastructure, sites and replication, administrative structures, group policies, and Public Key Infrastructures. In addition students will also learn how to design for security, high availability, disaster recovery, and migrations. Students will learn how to design application infrastructure solutions based on Windows Server 2008 to meet varying business and technical requirements.

### **Course Objectives**

This course will cover the following subjects:

#### *Planning network and application services*

- Plan for name resolution and IP addressing. May include but is not limited to: internal and external naming strategy, naming resolution support for legacy clients, naming resolution for directory services, IP addressing scheme, TCP/IP version coexistence
- Design for network access. May include but is not limited to: network access policies, remote access strategy, perimeter networks, server and domain isolation
- Plan for application delivery. May include but is not limited to: application virtualization, presentation virtualization, locally installed software, Web-based applications
- Plan for Terminal Services. May include but is not limited to: Terminal Services licensing, Terminal Services infrastructure

#### *Designing core identity and access management components*

- Design Active Directory forests and domains. May include but is not limited to: forest structure, forest and domain functional levels, intra-organizational authorization and authentication, schema modifications
- Design the Active Directory physical topology. May include but is not limited to: placement of servers, site and replication topology, printer location policies
- Design the Active Directory administrative model. May include but is not limited to: delegation, group strategy, compliance auditing, group administration, organizational structure
- Design the enterprise-level group policy strategy. May include but is not limited to: group policy hierarchy and scope filtering, control device installation, authentication and authorization

#### *Designing support identity and access management components*

- Plan for domain or forest migration, upgrade, and restructuring. May include but is not limited to: cross-forest authentication, backward compatibility, object migration, migration planning, implementation planning, environment preparation
- Design the branch office deployment. May include but is not limited to: authentication strategy, server security
- Design and implement public key infrastructure. May include but is not limited to: certificate services, PKI operations and maintenance, certificate life cycle management
- Plan for interoperability. May include but is not limited to: inter-organizational authorization and authentication, application authentication interoperability, cross-platform interoperability

*Designing for business continuity and data availability*

- Plan for business continuity. May include but is not limited to: service availability, directory service recovery
- Design for software updates and compliance management. May include but is not limited to: patch management and patch management compliance, Microsoft Update and Windows Update, security baselines, system health models
- Design the operating system virtualization strategy. May include but is not limited to: server consolidation, application compatibility, virtualization management, placement of servers
- Design for data management and data access. May include but is not limited to: data security, data accessibility and redundancy, data collaboration

## COURSE MCS150

Title: Deploying Windows Server 2008 & Configuring & Troubleshooting IIS In Windows Server 2008 & Configuring & Troubleshooting Windows Server 2008 Terminal Services

Exam: Microsoft Exam 70-643

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with an understanding of migrating and deploying Windows Server 2008 including installation, configuration, and upgrading. Special emphasis is given to upgrading common server configurations and using the Microsoft Deployment Toolkit. In this course, the students will learn to install, configure, maintain, and troubleshoot an Internet Information Services (IIS) 7.0 Web Server in Windows Server 2008. In addition this course provides students with the knowledge and skills to configure, manage, monitor, and troubleshoot a Terminal Services (TS) environment. The course focuses on configuring of TS core functionality, licensing, Gateway, and Web Access.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Servers*

- Deploy images by using Windows Deployment Services. May include but is not limited to: Install from media (IFM), configure Windows Deployment Services, capture Windows Deployment Services images, deploy Windows Deployment Services images, server core
- Configure Microsoft Windows activation. May include but is not limited to: install a KMS server, create a DNS SRV record, replicate volume license data
- Configure Windows Server Hyper-V and virtual machines. May include but is not limited to: virtual networking, virtualization hardware requirements, Virtual Hard Disks, migrate from physical to virtual, VM additions, backup, optimization, server core
- Configure high availability. May include but is not limited to: failover clustering, Network Load Balancing, hardware redundancy
- Configure storage. May include but is not limited to: RAID types, Virtual Disk Specification (VDS) API, Network Attached Storage, iSCSI and Fiber Channel storage area networks, mount points

#### *Configuring Terminal Services*

- Configure Windows Server 2008 Terminal Services RemoteApp (TS RemoteApp). May include but is not limited to: Configuring Terminal Services Web Access, configuring Terminal Services Remote Desktop Web Connection
- Configure Terminal Services Gateway. May include but is not limited to: certificate configuration, Terminal Services Gateway Manager (TS Gateway Manager), specifying resources that users can access through TS Gateway by using Terminal Services resource authorization policy (TS RAP) and Terminal Services connection authorization policy (TS CAP), Terminal Services group policy
- Configure Terminal Services load balancing. May include but is not limited to: Terminal Services Session Broker redirection modes, DNS registration, setting through group policy
- Configure and monitor Terminal Services resources. May include but is not limited to: allocate resources by using Windows Server Resource Manager, configure application logging
- Configure Terminal Services licensing. May include but is not limited to: deploy licensing server, connectivity between terminal servers and Terminal Services licensing server, recovering Terminal Services licensing server, managing Terminal Services client access licenses (TS CALs)
- Configure Terminal Services client connections. May include but is not limited to: connecting local devices and resources to a session, Terminal Services profiles, Terminal Services home folders, Remote Desktop Connection (RDC), single sign-on, Remote Desktop Snap-In, MSTSC.exe
- Configure Terminal Services server options. May include but is not limited to: logoff, disconnect, reset, remote control, monitor, Remote Desktop Protocol (RDP) permissions, connection limits,

session time limits, managing by using GPOs, viewing processes, session permissions, display data prioritization

#### *Configuring a Web Services Infrastructure*

- Configure Web applications. May include but is not limited to: directory-dependent, publishing, URL-specified configuration, Microsoft .NET components, for example, .NET and .aspx, configure application pools
- Manage Web sites. May include but is not limited to: migrate sites and Web applications, publish IIS Web sites, configure virtual directories
- Configure a File Transfer Protocol (FTP) server. May include but is not limited to: configure for extranet users, configure permissions
- Configure Simple Mail Transfer Protocol (SMTP). May include but is not limited to: setting up smart hosts, configuring size limitations, setting up security and authentication to the delivering server, creating proper service accounts, authentication, SMTP relay
- Manage Internet Information Services (IIS). May include but is not limited to: Web site content backup and restore, IIS configuration backup, monitor IIS, configure logging, delegation of administrative rights
- Configure SSL security. May include but is not limited to: configure certificates, requesting SSL certificate, renewing SSL certificate, exporting and importing certificates
- Configure Web site authentication and permissions. May include but is not limited to: configure site permissions and authentication, configure application permissions, client certificate mappings

#### *Configuring Network Application Services*

- Configure Windows Media server. May include but is not limited to: on-demand replication, configure time-sensitive content, caching and proxy
- Configure Digital Rights Management (DRM). May include but is not limited to: encryption, sharing business rules, configuring license delivery, configuring policy templates
- Configure Microsoft Windows SharePoint Services server options. May include but is not limited to: site permissions, backup, antivirus, configuring Windows SharePoint Services service accounts
- Configure Windows SharePoint Services e-mail integration. May include but is not limited to: configuring a document library to receive e-mail, configuring incoming versus outgoing e-mail

## COURSE MCS160

Title: Configuring Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-662

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises teaches students with the knowledge and skills to configure and manage an Exchange Server 2010 messaging environment. This course does not require previous Exchange Server experience, but does require that students have significant experience in managing Windows Server and Active Directory directory services or Active Directory Domain Services (AD DS). This course will teach the students how to configure Exchange Server 2010, as well as provide guidelines, best practices, and considerations that will help the student optimize the Exchange Server deployment.

### **Course Objectives**

This course will cover the following subjects:

#### *Deploying Microsoft Exchange Server 2010*

- Overview of Exchange Server 2010 Requirements
- Installing Exchange Server 2010 Server Roles
- Completing an Exchange Server 2010 Installation

#### *Configuring Mailbox Servers*

- Overview of Exchange Server 2010 Administrative Tools
- Configuring Mailbox Server Roles
- Configuring Public Folders

#### *Managing Recipient Objects*

- Managing Mailboxes
- Managing Other Recipients
- Configuring E-Mail Address Policies
- Configuring Address Lists
- Performing Bulk Recipient Management Tasks

#### *Managing Client Access*

- Configuring the Client Access Server Role
- Configuring Client Access Services for Outlook Clients
- Configuring Outlook Web App
- Configuring Mobile Messaging

#### *Managing Message Transport*

- Overview of Message Transport
- Configuring Message Transport

#### *Implementing Messaging Security*

- Deploying Edge Transport Servers
- Deploying an Antivirus Solution
- Configuring an Anti-Spam Solution
- Configuring Secure SMTP Messaging

#### *Implementing High Availability*

- Overview of High Availability Options
- Configuring Highly Available Mailbox Databases

- Deploying Highly Available Non-Mailbox Servers

*Implementing Backup and Recovery*

- Planning Backup and Recovery
- Backing Up Exchange Server 2010
- Restoring Exchange Server 2010

*Configuring Messaging Policy and Compliance*

- Introducing Messaging Policy and Compliance
- Configuring Transport Rules
- Configuring Journaling and Multi-Mailbox Search
- Configuring Messaging Records Management
- Configuring Personal Archives

*Securing Microsoft Exchange Server 2010*

- Configuring Role Based Access Control
- Configuring Security for Server Roles in Exchange Server 2010
- Configuring Secure Internet Access

*Maintaining Microsoft Exchange Server 2010*

- Monitoring Exchange Server 2010
- Maintaining Exchange Server 2010
- Troubleshooting Exchange Server 2010

*Upgrading from Exchange Server 2003 or Exchange Server 2007 to Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Upgrading from Exchange Server 2003 to Exchange Server 2010
- Upgrading from Exchange Server 2007 to Exchange Server 2010

## COURSE MCS170

Title: Designing and Deploying Messaging Solutions with Microsoft Exchange Server 2010

Exam: Microsoft Exam 70-663

### **Course Description**

This instructor-led course with a combination of lecture and hands-on laboratory exercises provides students with the knowledge and skills to design and deploy messaging solutions with Microsoft Exchange Server 2010. This course describes how to gather requirements for a messaging solution and then design the integration of Exchange Server 2010 with the current infrastructure. The course then covers how to plan and deploy the various server roles in Exchange Server 2010. Students will explore the various options for implementing messaging security, policies, and compliance. The course also examines the high availability and disaster recovery options and how to develop a troubleshooting plan. Finally, the course describes how to plan the upgrade from earlier versions of Exchange Server to Exchange Server 2010 and the integration of Exchange Server 2010 with other messaging systems.

### **Course Objectives**

This course will cover the following subjects:

#### *Introduction to Designing a Microsoft Exchange Server 2010 Deployment*

- Gathering Business Requirements
- Identifying Additional Requirements
- Introduction to Service Level Management
- Analyzing the Current Messaging Environment

#### *Designing Microsoft Exchange Server 2010 Integration with the Current Infrastructure*

- Designing the Network Infrastructure
- Designing the Active Directory Infrastructure
- Designing the DNS Infrastructure
- Planning Exchange Server Administration

#### *Planning and Deploying Mailbox Services*

- Overview of Mailbox Services in Exchange Server 2010
- Designing Mailbox Servers
- Designing Recipient Management
- Designing Public Folder Architecture

#### *Planning and Deploying Client Access Services in Exchange Server 2010*

- Overview of the Client Access Server Role
- Designing the Client Access Server Deployment
- Designing Client Access
- Designing Client Access Policies

#### *Planning and Deploying Message Transport in Exchange Server 2010*

- Designing Hub Transport Servers
- Designing the Message Routing Perimeter

#### *Planning and Deploying Messaging Security*

- Designing Message Security
- Designing Antivirus and Anti-Spam Solutions

*Planning and Deploying Messaging Compliance*

- Designing Transport Compliance
- Designing AD RMS Integration with Exchange Server 2010
- Designing Message Journaling and Archiving
- Designing Messaging Records Management

*Planning and Deploying High Availability*

- Introduction to High Availability Planning in Exchange Server 2010
- Designing High Availability for Mailbox Databases
- Designing High Availability for Other Server Roles
- Designing Site Resilience

*Planning a Disaster Recovery Solution*

- Planning for Disaster Mitigation
- Planning Exchange Server Backup
- Planning Exchange Server Recovery

*Planning Microsoft Exchange Server 2010 Monitoring and Troubleshooting*

- Planning Exchange Server Monitoring
- Planning Exchange Server Troubleshooting

*Upgrading to Microsoft Exchange Server 2010*

- Overview of Upgrading to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2003 to Exchange Server 2010
- Planning the Upgrade from Exchange Server 2007 to Exchange Server 2010

*Integrating Microsoft Exchange Server 2010 with Other Messaging Systems*

- Designing Exchange Server 2010 Integration with Other Messaging Systems
- Designing Exchange Server 2010 Integration with Federated Partners
- Designing Exchange Server 2010 Integration with Exchange Online

## COURSE CCA100

Title: Cisco Certified Network Associate

Exam: 640-802

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises covers basic networking concepts implemented on Cisco routers. Students will be introduced to the Cisco Internetworking Operating System (IOS) and its command structure. TCP/IP addressing and implementation, including subnetting, will be covered thoroughly. Wide Area Networking (WAN) implementations including ISDN, frame relay, and serial point-to-point (including T1), will be emphasized. This is an advanced course providing the skills and knowledge necessary to pass the Cisco certification exam (one exam) necessary to become a Cisco Certified Network Associate (CCNA).

### **Course Objectives**

This course will cover the following subjects:

#### *Describe how a network works*

- Describe the purpose and functions of various network devices
- Select the components required to meet a network specification
- Use the OSI and TCP/IP models and their associated protocols to explain how data flows in a network
- Describe common networked applications including web applications
- Describe the purpose and basic operation of the protocols in the OSI and TCP models
- Describe the impact of applications (Voice Over IP and Video Over IP) on a network
- Interpret network diagrams
- Determine the path between two hosts across a network
- Describe the components required for network and Internet communications
- Identify and correct common network problems at layers 1, 2, 3 and 7 using a layered model approach
- Differentiate between LAN/WAN operation and features

#### *Configure, verify and troubleshoot a switch with VLANs and interswitch communications*

- Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts
- Explain the technology and media access control method for Ethernet networks
- Explain network segmentation and basic traffic management concepts
- Explain basic switching concepts and the operation of Cisco switches
- Perform and verify initial switch configuration tasks including remote access management
- Verify network status and switch operation using basic utilities (including: ping, traceroute, telnet, SSH, arp, ipconfig), SHOW & DEBUG commands
- Identify, prescribe, and resolve common switched network media issues, configuration issues, auto negotiation, and switch hardware failures
- Describe enhanced switching technologies (including: VTP, RSTP, VLAN, PVSTP, 802.1q)
- Describe how VLANs create logically separate networks and the need for routing between them
- Configure, verify, and troubleshoot VLANs
- Configure, verify, and troubleshoot trunking on Cisco switches
- Configure, verify, and troubleshoot interVLAN routing
- Configure, verify, and troubleshoot VTP
- Configure, verify, and troubleshoot RSTP operation
- Interpret the output of various show and debug commands to verify the operational status of a Cisco switched network.
- Implement basic switch security (including: port security, trunk access, management vlan other than vlan1, etc.)

*Implement an IP addressing scheme and IP Services to meet network requirements in a medium-size Enterprise branch office network*

- Describe the operation and benefits of using private and public IP addressing
- Explain the operation and benefits of using DHCP and DNS
- Configure, verify and troubleshoot DHCP and DNS operation on a router.(including: CLI/SDM)
- Implement static and dynamic addressing services for hosts in a LAN environment
- Calculate and apply an addressing scheme including VLSM IP addressing design to a network
- Determine the appropriate classless addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment
- Describe the technological requirements for running IPv6 in conjunction with IPv4 (including: protocols, dual stack, tunneling, etc).
- Describe IPv6 addresses
- Identify and correct common problems associated with IP addressing and host configurations

*Configure, verify, and troubleshoot basic router operation and routing on Cisco devices*

- Describe basic routing concepts (including: packet forwarding, router lookup process)
- Describe the operation of Cisco routers (including: router bootup process, POST, router components)
- Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts
- Configure, verify, and troubleshoot RIPv2
- Access and utilize the router to set basic parameters.(including: CLI/SDM)
- Connect, configure, and verify operation status of a device interface
- Verify device configuration and network connectivity using ping, traceroute, telnet, SSH or other utilities
- Perform and verify routing configuration tasks for a static or default route given specific routing requirements
- Manage IOS configuration files. (including: save, edit, upgrade, restore)
- Manage Cisco IOS.
- Compare and contrast methods of routing and routing protocols
- Configure, verify, and troubleshoot OSPF
- Configure, verify, and troubleshoot EIGRP
- Verify network connectivity (including: using ping, traceroute, and telnet or SSH)
- Troubleshoot routing issues
- Verify router hardware and software operation using SHOW & DEBUG commands.
- Implement basic router security

*Explain and select the appropriate administrative tasks required for a WLAN*

- Describe standards associated with wireless media (including: IEEE WI-FI Alliance, ITU/FCC)
- Identify and describe the purpose of the components in a small wireless network. (Including: SSID, BSS, ESS)
- Identify the basic parameters to configure on a wireless network to ensure that devices connect to the correct access point
- Compare and contrast wireless security features and capabilities of WPA security (including: open, WEP, WPA-1/2)
- Identify common issues with implementing wireless networks. (Including: Interface, misconfiguration)

*Identify security threats to a network and describe general methods to mitigate those threats*

- Describe today's increasing network security threats and explain the need to implement a comprehensive security policy to mitigate the threats
- Explain general methods to mitigate common security threats to network devices, hosts, and applications
- Describe the functions of common security appliances and applications

- Describe security recommended practices including initial steps to secure network devices

*Implement, verify, and troubleshoot NAT and ACLs in a medium-size Enterprise branch office network*

- Describe the purpose and types of ACLs
- Configure and apply ACLs based on network filtering requirements.(including: CLI/SDM)
- Configure and apply an ACLs to limit telnet and SSH access to the router using (including: SDM/CLI)
- Verify and monitor ACLs in a network environment
- Troubleshoot ACL issues
- Explain the basic operation of NAT
- Configure NAT for given network requirements using (including: CLI/SDM)
- Troubleshoot NAT issues

*Implement and verify WAN links*

- Describe different methods for connecting to a WAN
- Configure and verify a basic WAN serial connection
- Configure and verify Frame Relay on Cisco routers
- Troubleshoot WAN implementation issues
- Describe VPN technology (including: importance, benefits, role, impact, components)
- Configure and verify a PPP connection between Cisco routers

## COURSE CCA110

Title: Implementing Cisco IP Routing

Exam: 642-902

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to use advanced IP addressing and routing in implementing scalability for Cisco ISR routers connected to LANs and WANs. The exam covers topics on Advanced IP Addressing, Routing Principles, Multicast Routing, IPv6, Manipulating Routing Updates, Configuring basic BGP, Configuring EIGRP, OSPF, and IS-IS.

### **Course Objectives**

This course will cover the following subjects:

- List the Key Information Routers Needs to Route Data
- Describe Classful & Classless Routing Protocols
- Describe Link-State Router Protocol Operation
- Compare Classful & Classless Routing Protocols
- Compare Distance Vector & Link State Routing Protocols
- Describe Concepts to Extending IP Addresses & the Use of VLSMs to Extend IP addresses
- Describe the Features & Operation of EIGRP
- Describe the Features & Operation of Single Area OSPF
- Describe the Hierarchical Structure of IS-IS Areas
- Describe the Features & Operation of BGP

## COURSE CCA120

Title: Implementing Cisco Switched Network

Exam: 642-813

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to implement scalable multilayer switched networks. The exam includes topics on Campus Networks, describing and implementing advanced Spanning Tree concepts, VLANs and Inter-VLAN routing, High Availability, Wireless Client Access, Access Layer Voice concepts, and minimizing service Loss and Data Theft in a Campus Network.

### **Course Objectives**

This course will cover the following subjects:

- Describe the Enterprise Composite Model used for designing networks and explain how it addresses enterprise network needs for performance, scalability and availability
- Describe the physical, data-link and network layer technologies used in a switched network, and identify when to use each
- Explain the role of switches in the various modules of the Enterprise Composite Model (Campus Infrastructure, Server Farm, Enterprise Edge, Network Management)
- Explain the function of the Switching Database Manager [specifically Content Addressable Memory (CAM) and Ternary Content Addressable Memory (TCAM)] within a Catalyst switch
- Describe the features and operation of VLANs on a switched network
- Describe the features of the VLAN trunking protocols including 802.1Q, ISL (emphasis on 802.1Q) and dynamic trunking protocol
- Describe the features and operation of 802.1Q Tunneling (802.1QinQ) within a service provider network
- Describe the operation and purpose of managed VLAN services
- Describe how VTP versions 1 and 2 operate including domains, modes, advertisements, and pruning
- Explain the function of the Switching Database Manager [specifically Content Addressable Memory (CAM) and Ternary Content Addressable Memory (TCAM)] within a Catalyst switch

### COURSE CCA130

Title: Troubleshooting and Maintaining Cisco IP Networks

Exam: 642-832

#### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises will certify that the successful candidate has important knowledge and skills necessary to secure and expand the reach of an enterprise network to (1) plan and perform regular maintenance on complex enterprise routed and switched networks and (2) use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting.

#### **Course Objectives**

This course will cover the following subjects:

- Plan and document the most commonly performed maintenance functions in complex enterprise networks
- Develop a troubleshooting process to identify and resolve problems in complex enterprise networks
- Select tools that best support specific troubleshooting and maintenance processes in large, complex enterprise networks
- Practice maintenance procedures and fault resolution in switching-based environments
- Practice maintenance procedures and fault resolution in routing-based environments
- Practice maintenance procedures and fault resolution in a secure infrastructure
- Troubleshoot and maintain integrated, complex enterprise networks

## COURSE CSP100

Title: Implementing Cisco IOS Network Security

Exam: 640-553

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the CCNA Security certification. This exam tests a candidate's knowledge of securing Cisco routers and switches and their associated networks. It leads to validated skills for installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data and devices and develops competency in the technologies that Cisco uses in its security infrastructure.

### **Course Objectives**

This course will cover the following subjects:

- Describe and list mitigation methods for common network attacks
- Describe and list mitigation methods for Worm, Virus, and Trojan Horse attacks
- Describe the Cisco Self Defending Network architecture
- Secure Cisco routers using the SDM Security Audit feature
- Use the One-Step Lockdown feature in SDM to secure a Cisco router
- Secure administrative access to Cisco routers by setting strong encrypted passwords, exec timeout, login failure rate and using IOS login enhancements
- Secure administrative access to Cisco routers by configuring multiple privilege levels
- Secure administrative access to Cisco routers by configuring role based CLI
- Secure the Cisco IOS image and configuration file
- Explain the functions and importance of AAA
- Describe the features of TACACS+ and RADIUS AAA protocols
- Configure AAA authentication
- Configure AAA authorization
- Configure AAA accounting
- Explain the functionality of standard, extended, and named IP ACLs used by routers to filter packets
- Configure and verify IP ACLs to mitigate given threats (filter IP traffic destined for Telnet, SNMP, and DDoS attacks) in a network using CLI
- Configure IP ACLs to prevent IP address spoofing using CLI
- Discuss the caveats to be considered when building ACLs
- Use CLI and SDM to configure SSH on Cisco routers to enable secured management access
- Use CLI and SDM to configure Cisco routers to send Syslog messages to a Syslog server
- Describe how to prevent layer 2 attacks by configuring basic Catalyst switch security features
- Describe the operational strengths and weaknesses of the different firewall technologies
- Explain stateful firewall operations and the function of the state table
- Implement Zone Based Firewall using SDM
- Define network based vs. host based intrusion detection and prevention
- Explain IPS technologies, attack responses, and monitoring options
- Enable and verify Cisco IOS IPS operations using SDM
- Explain the different methods used in cryptography
- Explain IKE protocol functionality and phases
- Describe the building blocks of IPSec and the security functions it provides
- Configure and verify an IPSec site-to-site VPN with pre-shared key authentication using SDM

## COURSE CSP110

Title: Securing Networks with Cisco Routers & Switches (Secure v1.0)

Exam: 642-637

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is one of the exams associated with the Cisco Certified Security Professional certification. Candidates can prepare for this exam by taking the SNRS course. This exam includes simulations and tests a candidate's knowledge and ability to secure networks using Cisco routers and switches.

### **Course Objectives**

This course will cover the following subjects:

- Deploying Network Foundation Protection Controls
- Deploying Advanced Switched Data Plane Security Controls
- Implementing Cisco Identity-Based Network Services
- Deploying Basic 802.1X Features
- Deploying Advanced Routed Data Plane Security Controls
- Deploying Advanced Control Plane Security Controls
- Deploying Advanced Management Plane Security Controls
- Deploying Cisco IOS Software Network Address Translation
- Deploying Basic Zone-Based Policy Firewalls
- Deploying Advanced Zone-Based Policy Firewalls
- Deploying Cisco IOS Software IPS
- Site-to-Site VPN Architectures and Technologies
- Deploying VTI-Based Site-to-Site IPsec VPNs
- Deploying Scalable Authentication in Site-to-Site IPsec VPNs
- Deploying DMVPNs
- Deploying High Availability in Tunnel-Based IPsec VPNs
- Deploying GET VPN
- Remote Access VPN Architectures and Technologies
- Deploying Remote Access Solutions Using SSL VPN
- Deploying Remote Access Solutions Using Cisco Easy VPN

## COURSE CSP120

Title: Deploying Cisco ASA Firewall Solutions (Firewall v1.0)

Exam: 642-617

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is one of the exams associated with the Cisco Certified Security Professional and the Cisco Firewall Specialist certifications. Candidates can prepare for this exam by taking the SNAF course. This exam includes simulations and tests a candidate's knowledge and ability to describe, configure, verify and manage the Cisco ASA Security Appliance product.

### **Course Objectives**

This course will cover the following subjects:

- Evaluate the basic technology, features, and hardware models of the Cisco ASA adaptive security appliance product line.
- Implement and maintain basic Cisco ASA adaptive security appliance connectivity and device management plane features.
- Implement and maintain data plane access control features of the Cisco ASA adaptive security appliance product family.
- Implement and maintain Cisco ASA adaptive security appliance features that integrate it with the local and global routing and switching infrastructure.
- Implement and maintain Cisco ASA adaptive security appliance virtualization and high availability features.
- Evaluate Cisco ASA adaptive security appliance SSM modules, their major features, and integrate them with the Cisco ASA adaptive security appliance.
- Introduction to the Cisco ASA Adaptive Security Appliance
- Implementation of Basic Connectivity and Device Management
- Deployment of Cisco ASA Adaptive Security Appliance Access Control Features
- Deployment of Cisco ASA Adaptive Security Appliance Network Integration Features
- Deployment of Cisco ASA Adaptive Security Appliance Virtualization and High-Availability Features
- Integration of Cisco ASA Adaptive Security Appliance Security Service Modules
- Configuring Routing on the Cisco ASA Adaptive Security Appliance
- Configuring Dynamic Routing

### COURSE CSP130

Title: Implementing Cisco Intrusion Prevention System v1.0 (IPS v7.0)

Exam: 642-647

#### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the Cisco Certified Security Professional and the Cisco IPS Specialist certifications. This exam tests a candidate's knowledge of implementing the Cisco IPS product. Candidates can prepare for this exam by taking the IPS Implementing Cisco Intrusion Prevention Systems v7.0 course.

#### **Course Objectives**

This course will cover the following subjects:

- Evaluate products and deployment architectures for the Cisco IPS product line.
- Perform an initial implementation of a Cisco IPS sensor.
- Implement an initial security policy using a Cisco IPS sensor according to local policies and environmental requirements.
- Deploy customized policies to adapt Cisco IPS traffic analysis and response to the target environment.
- Implement a basic Cisco IPS data management and analysis solution.
- Implement complex Cisco IPS policy virtualization, high availability, and high performance solutions according to policy and environmental requirements.
- Perform the initial setup of, and maintain specific Cisco IPS hardware.
- Introduction to Intrusion Prevention and Detection, Cisco IPS Software, and Supporting Devices
- Installing and Maintaining Cisco IPS Sensors
- Applying Cisco IPS Security Policies
- Adapting Traffic Analysis and Response to the Environment
- Managing and Analyzing Events
- Deploying Virtualization, High Availability, and High Performance Solutions
- Configuring and Maintaining Specific Cisco IPS Hardware

## COURSE CSP140

Title: Deploying Cisco ASA VPN (VPN v1.0)

Exam: 642-627

### **Course Description**

This instructor-led program with a combination of lecture and hands-on laboratory exercises is associated with the Cisco Certified Security Professional certification. Candidates can prepare for this exam by taking the Implementing Cisco Security Monitoring, Analysis and Response System course. This exam tests a candidate's knowledge of the Cisco Security Monitoring, Analysis and Response System.

### **Course Objectives**

This course will cover the following subjects:

- Evaluate the Cisco ASA adaptive security appliance VPN subsystem
- Deploy Cisco ASA adaptive security appliance IPsec VPN solutions
- Deploy Cisco ASA adaptive security appliance Cisco AnyConnect remote access VPN solutions
- Deploy Cisco ASA adaptive security appliance clientless remote access VPN solutions
- Deploy advanced Cisco ASA adaptive security appliance VPN solutions
- Evaluate the Cisco ASA adaptive security appliance VPN subsystem
- Deploy Cisco ASA adaptive security appliance IPsec VPN solutions
- Deploy Cisco ASA adaptive security appliance Cisco AnyConnect remote access VPN solutions
- Deploy Cisco ASA adaptive security appliance clientless remote access VPN solutions
- Deploy advanced Cisco ASA adaptive security appliance VPN

## 2012 – 2013 Academic Calendar

**Training Hours** Monday – Thursday 8:00AM -12:00PM; 1:00PM - 5:00PM; 6:30PM -10:30PM  
Saturday – Sunday 8:00AM -12:00PM; 1:00PM - 5:00PM

### **2012 Winter Quarter:**

Monday January 09 Term Begins  
Sunday April 01 Term Ends  
*April 02 - April 08 Administrative Week (School Closed)*

### **2012 Spring Quarter:**

Monday April 09 Term Begins  
Monday May 28 Memorial Day  
Sunday July 01 Term Ends  
*July 02 - July 08 Administrative Week (School Closed)*

### **2012 Summer Quarter:**

Monday July 09 Term Begins  
Monday September 03 Labor Day  
Sunday September 30 Term Ends  
*Oct. 01 - Oct. 07 Administrative Week (School Closed)*

### **2012 Fall Quarter:**

Monday October 08 Term Begins  
Thursday November 22 Thanksgiving  
Sunday December 30 Term Ends  
*Dec. 31 - Jan.06 Holidays (School Closed)*

### **2013 Winter Quarter:**

Monday January 07 Term Begins  
Sunday March 31 Term Ends  
*April 01 - April 07 Administrative Week (School Closed)*

### **2013 Spring Quarter:**

Monday April 08 Term Begins  
Monday May 27 Memorial Day  
Sunday June 30 Term Ends  
*July 01 - July 07 Administrative Week (School Closed)*

### **2013 Summer Quarter:**

Monday July 08 Term Begins  
Monday September 02 Labor Day  
Sunday September 29 Term Ends  
*Sep.30 - Oct. 06 Administrative Week (School Closed)*

### **2013 Fall Quarter:**

Monday October 07 Term Begins  
Thursday November 28 Thanksgiving  
Sunday December 29 Term Ends  
*Dec. 30 - Jan.05 Holidays (School Closed)*

*The school reserves the right to cancel a class due to insufficient enrollment.*