

Government of Pakistan

National Vocational and Technical Training Commission

Prime Minister's Hunarmand Pakistan Program

"Skills for All"



Course Contents / Lesson Plan

Course Title: ADVANCED PROGRAMMING / CODING (MACHINE LEARNING/DATA MINING)

Duration: 3 Months

Revised Edition

Trainer Name	
Course Title	ADVANCED PROGRAMMING / CODING (MACHINE LEARNING/DATA MINING)
Objectives and Expectations	<p>The aim for the team of staff responsible for delivery of the advanced IT curriculum is to provide knowledge and develop skills related to the IT. The course will allow participants to gain a comprehensive understanding of all the aspects. It will also develop the participant's ability to act in a professional and responsible manner.</p> <p>Teaching staff will provide the technical knowledge and abilities required to solve tasks and problems that are goal-oriented. They will use participant-centered, practically oriented methods. They will also develop a program of practical assessment that reflects the learning outcomes stated in the curriculum. Trainees of the IT curriculum will also develop their willingness and ability as individuals to clarify issues, as well as think through and assess development opportunities.</p> <p>Teaching staff will also support trainees in developing characteristics such as self-reliance, reliability, responsibility, a sense of duty and a willingness and ability to criticize and accept criticism well and to adapt their future behavior accordingly. Teaching staff also use the IT curriculum to address the development of professional competence. Trainees will acquire the ability to work in a professional environment.</p> <p>By the end of this course, the trainees should gain the following competencies:</p> <ul style="list-style-type: none"> • Understanding of core concepts of artificial intelligence and machine learning • State of the art machine learning techniques • Hands-on exposure to exploratory data analysis • Practical exposure to model design, evaluation • Familiarity with tools and libraries such as scikit learn, pandas numpy, tensorflow, pytorch and keras
Entry-level of trainees	Bachelors in IT/CS/SE/DS/AI or any other related field
Learning Outcomes of the course	After taking this course, you will be familiar with the fundamentals of Machine learning. You will gain practical experience in applying machine learning for problem solving, and will develop a deep understanding of the core concepts by implementing solutions to real world problems.
Course Execution Plan	<p>The total duration of the course: 3 months (12 Weeks) Class hours: 4 hours per day Theory: 20% Practical: 80% Weekly hours: 20 hours per week (5 days a week) Total contact hours: 240 hours</p>

Companies offering jobs in the respective trade	<ul style="list-style-type: none"> • Healthcare • Manufacturing • Finance • Agriculture <p>Every company nowadays has huge amounts of Data, and they are in need of good analyst that can help them shape their business future.</p>
Job Opportunities	<ul style="list-style-type: none"> • AI Associate Engineer • Machine Learning associate analyst • Assistant Data Analyst • Research Assistant
No of Students	20-25
Learning Place	Classroom / Lab
Instructional Resources	<p>Development Platform:</p> <ul style="list-style-type: none"> • https://github.com/ • https://www.anaconda.com/distribution/ • https://www.jetbrains.com/pycharm/ • https://jupyter.org/ <p>Frameworks and Libraries:</p> <ul style="list-style-type: none"> • https://www.tensorflow.org/ • http://keras.io/ • https://pytorch.org/ • https://caffe.berkeleyvision.org/ <p>Learning Material:</p> <ul style="list-style-type: none"> • https://www.kaggle.com/ • https://www.youtube.com/watch?v=UzxYIbK2c7E • https://www.youtube.com/watch?v=UzxYIbK2c7E&list=PLA89DCFA6ADACE599

MODULES

Schedu led Weeks	Module Title	Days	Hours	Learning Units	Home Assignment
Week 1	<ul style="list-style-type: none"> • Introduction • Basic Programming in Python 	Day 1	Hour 1	Course Introduction	<ul style="list-style-type: none"> •Task 1 •Task 2 •Task 3 <p><i><u>Details may be seen at Annexure-I</u></i></p>
			Hour 2	Job market	
			Hour 3	Course Applications	
			Hour 4	<ul style="list-style-type: none"> • Institute/work ethics • Success stories 	
		Day 2	Hour 1	Setup	
			Hour 2	Syntax	
			Hour 3	Variables	
			Hour 4	String	
		Day 3	Hour 1	List and Arrays	
			Hour 2	Logical operators	
			Hour 3	Conditions	
			Hour 4	Exercises	
		Day 4	Hour 1	Motivational Lecture <i>(For further detail please see Annexure: II)</i>	
			Hour 2		
			Hour 3	Loops	
			Hour 4	Functions	

			Hour 1	Dictionary	
		Day 5	Hour 2	Sets and Tuples	
			Hour 3	Casting	
			Hour 4	Lambda	
Week 2	<ul style="list-style-type: none"> • Basic Programming in Python • Intermediate Programming in Python (Flavor) • Advanced Microsoft Excel 	Day 1	Hour 1	Success stories (For further detail please see Annexure: III)	<ul style="list-style-type: none"> • Task 4 • Task 5 • Task 6 <p><i>Details may be seen at Annexure-I</i></p>
			Hour 2		
			Hour 3	Objects and Classes	
			Hour 4		
		Day 2	Hour 1	Files i/o	
			Hour 2		
			Hour 3	Modules Json	
			Hour 4		
		Day 3	Hour 1	Modules Json	
			Hour 2		
			Hour 3	Intro to Excel Charting	

			Hour 4	PIVOT Tables	
		Day 4	Hour 1	VLookup	
			Hour 2	Assignment on Excel	
			Hour 3		
			Hour 4	Hands-on Practice with Excel	
		Day 5	Hour 1	Case study/visit to a software house/data setup etc.	
			Hour 2		
			Hour 3		
			Hour 4		
Week 3	<ul style="list-style-type: none"> • Data types and its Differences • Introduction to NumPy Library 	Day 1	Hour 1	Success stories (For further detail please see Annexure: III)	<ul style="list-style-type: none"> • Task 7 <i>Details may be seen at Annexure-I</i>
			Hour 2	Develop program using list	
			Hour 3	Hands on	
			Hour 4	Develop program using tuple	
		Day 2	Hour 1	Develop program using dictionaries	
			Hour 2	Hands on	

			Hour 3	Develop program using sets				
			Hour 4	Hands on				
		Day 3	Hour 1	Motivational Lecture (For further detail please see Annexure: II)				
			Hour 2					
			Hour 3	Python exception handling				
			Hour 4	Hands on				
		Day 4	Hour 1	Import and install Numpy				
			Hour 2	Creating Arrays				
			Hour 3	Numpy- Data types				
			Hour 4	Array Attributes				
		Day 5	Hour 1	Indexing and slicing				
			Hour 2	Arithmetic operations				
			Hour 3	Comparison operations				
			Hour 4	Hands-on Practice Numpy				
		Week 4	<ul style="list-style-type: none"> • Introduction to Pandas Library • Graphical interpretation of data 	Day 1		Hour 1	Success Stories	<ul style="list-style-type: none"> • Task 7 • Task 8
						Hour 2	Pandas data structures (series & data frame)	

			Hour 3	Input & output operations using pandas
			Hour 4	
		Day 2	Hour 1	Hands on with pandas
			Hour 2	Retrieving series/ dataframe information
			Hour 3	Applying functions
			Hour 4	Data alignment
		Day 3	Hour 1	Data pre-processing using pandas
			Hour 2	
			Hour 3	
			Hour 4	
		Day 4	Hour 1	Import and install Matplotlib
			Hour 2	Preparing the data
			Hour 3	Creating the plot
			Hour 4	Plotting routines
		Day 5	Hour 1	Working with plot
			Hour 2	

			Hour 3	Problem Representation using (state space, vector)	
			Hour 4		
Week 5	Introduction to Machine learning	Day 1	Hour 1	Graphs	<ul style="list-style-type: none"> •Task 9 •Task 10 <p><i><u>Details may be seen at Annexure-I</u></i></p>
			Hour 2		
			Hour 3	Search Strategies	
			Hour 4		
		Day 2	Hour 1	Data and Machine Learning	
			Hour 2	Mean, Median & Mode	
			Hour 3	Standard Deviation	
			Hour 4	Variance	
		Day 3	Hour 1	Percentile	
			Hour 2	Data distribution	
			Hour 3	Probability using python	
			Hour 4	Association Rule	
		Day 4	Hour 1	Difference between classification and	

			Hour 2	regression				
			Hour 3	Supervised vs. Unsupervised learning				
			Hour 4					
		Day 5	Hour 1	Univariate linear regression				
			Hour 2					
			Hour 3	Multivariate regression				
			Hour 4					
		Week 6	Supervised Learning	Day 1		Hour 1	Polynomial regression	<ul style="list-style-type: none"> • Task 11 • Task 12 • Task 13 <p><i>Details may be seen at Annexure-I</i></p>
						Hour 2		
						Hour 3	Train-Test split	
Hour 4	Validation							
Day 2	Hour 1			Logistic Regression				
	Hour 2			KNN Algorithm				
	Hour 3							
	Hour 4							
Day 3	Hour 1							

			Hour 2	Naïve Bayes Algorithm	
			Hour 3		
			Hour 4		
		Day 4	Hour 1	Decision Trees	
			Hour 2		
			Hour 3	SVM Algorithm	
			Hour 4		
		Day 5	Hour 1	Classification vs. Clustering	
			Hour 2		
			Hour 3	K-means Clustering	
			Hour 4		
		Week 7	Introduction to Neural network-I	Day 1	
Hour 2					
Hour 3	Introduction to Neural Networks				
Hour 4					
Day 2	Hour 1			Multilayer perceptron	

			Hour 2		
			Hour 3	Feed Forward neural networks	
			Hour 4		
		Day 3	Hour 1		Backpropagation
			Hour 2		
			Hour 3	Activation Functions	
			Hour 4		
		Day 4	Hour 1	Linguistics () <ul style="list-style-type: none"> • NLP • Syntax • Semantics • Pragmatics • Discourse 	
			Hour 2		
			Hour 3		
			Hour 4		
		Day 5	Hour 1	Pandas, NLTK, WordNet	
			Hour 2		
			Hour 3		
			Hour 4		
Week 8	<ul style="list-style-type: none"> • Introduction to OpenCV • Introduction to 	Day 1	Hour 1	Introduction to OpenCV	<ul style="list-style-type: none"> • Task 17 • Task 18

	Deep Learning		Hour 2		•Task 30 <u>Details may be seen at Annexure-I</u>
			Hour 3	Image installation and importing basic functions of OpenCV	
			Hour 4		
		Day 2	Hour 1	Display images in multiple modes	
			Hour 2		
			Hour 3	Capture videos using openCV	
			Hour 4		
		Day 3	Hour 1	Basic operations on images using openCV	
			Hour 2		
			Hour 3		
			Hour 4		
		Day 4	Hour 1	Browse the following website and create an account on each website	
			Hour 2	<ul style="list-style-type: none"> • Bayt.com – The Middle East Leading Job Site • Monster Gulf – The International Job Portal • Gulf Talent – Jobs in Dubai and the Middle East 	
			Hour 3		
			Hour 4		

				<p>skills.</p> <ul style="list-style-type: none"> • Select the job type from the first 'Job Type' drop-down menu, next, select the location from the second drop- down menu. • Enter any keywords you want to use to find suitable job vacancies. • On the results page you can search for part-time jobs only, full-time jobs only, employers only, or agencies only. Tick the boxes as appropriate to your search. • Search for jobs by: <ul style="list-style-type: none"> • Company • Category • Location • All jobs • Agency • Industry 	
		Day 5	Hour 1	Motivational Lecture	
			Hour 2		
			Hour 3		
			Hour 4		
Week 9	Unsupervised Learning	Day 1	Hour 1	Case study/visit to a software house/data setup etc.	<p>• Task 9</p> <p><i><u>Details may be seen at Annexure-I</u></i></p>
			Hour 2		
			Hour 3		

			Hour 4	
		Day 2	Hour 1	Introduction to Unsupervised learning
			Hour 2	
			Hour 3	
			Hour 4	
		Day 3	Hour 1	K-means / K-medoids
			Hour 2	
			Hour 3	
			Hour 4	
		Day 4	Hour 1	Gaussian Mixture Models
			Hour 2	
			Hour 3	
			Hour 4	
		Day 5	Hour 1	Dimensionality Reduction
			Hour 2	
			Hour 3	

			Hour 4		
Week 10	Final Project	Day 1	Hour 1	Convolution Neural Network Final Project Selection	<ul style="list-style-type: none"> • Task 19 • Task 20 • Task 21 • Task 22 <p><i><u>Details may be seen at Annexure-I</u></i></p>
			Hour 2		
			Hour 3		
			Hour 4		
		Day 2	Hour 1	<ul style="list-style-type: none"> • Convolution Neural Network • Final Project Selection – Presentation and Discussion 	
			Hour 2		
			Hour 3		
			Hour 4		
		Day 3	Hour 1	<ul style="list-style-type: none"> • Perform CNN using Keras in Python on MNIST data set (https://www.datacamp.com/community/tutorials/convolutional-neural-networks-python) • Final Project Selection – Presentation and Discussion 	
			Hour 2		
			Hour 3		
			Hour 4		
		Day 4	Hour 1	<ul style="list-style-type: none"> • Perform CNN on CIFAR-10 Dataset (https://www.analyticsvidhya.com/blog/2020/02/learn-image-classification-cnn-convolutional- 	
			Hour 2		

			Hour 3	euralnetworks-3-datasets/) • Working on Final Project Implementation		
			Hour 4			
		Day 5	Hour 1	Working on Final Project Implementation		
			Hour 2			
			Hour 3			
			Hour 4			
Week 11	<ul style="list-style-type: none"> • Deep Reinforcement Learning • Final Project 	Day 1	Hour 1	Progress of Final Project	<ul style="list-style-type: none"> • Task 23 • Task 24 • Task 25 <i>Details may be seen at Annexure-I</i>	
			Hour 2			
			Hour 3			
			Hour 4			
		Day 2	Hour 1	Progress of Final Project		
			Hour 2			
			Hour 3			
			Hour 4			
		Day 3	Hour 1	Progress of Final Project		
			Hour 2			

			Hour 3	Progress of Final Project	
			Hour 4		
		Day 4	Hour 1		
			Hour 2		
			Hour 3		
			Hour 4		
		Day 5	Hour 1		
			Hour 2		
			Hour 3		
			Hour 4		
Week 12	Final Project Presentation	Day 1	Hour 1	Final Project Implementation	<ul style="list-style-type: none"> • Task 26 • Task 27 • Task 28 • Task 29 <i>Details may be seen at Annexure-1</i> Final Project
			Hour 2		
			Hour 3		
			Hour 4		
		Day 2	Hour 1		
			Hour 2		

			Hour 3	Final Project Implementation
			Hour 4	
		Day 3	Hour 1	
			Hour 2	
			Hour 3	
			Hour 4	
		Day 4	Hour 1	
			Hour 2	
			Hour 3	
			Hour 4	
		Day 5	Hour 1	
			Hour 2	
			Hour 3	
			Hour 4	

Annexure-I

Tasks for Certificate in Advanced Programming / Coding (Machine Learning/Data Mining)

Task No.	Task	Description	Week
1.	Install Python and its libraries	How to download and install Anaconda package.	Week 1
2.	Jupyter notebook	Installation of Jupyter notebook	Week 1
3.	Basic Python Programs	Basic programming in Python	Week 1
4.	Loops in Python	Exercise on for loops in Python: https://www.geeksforgeeks.org/python-for-loops/ Exercise on While loops in Python: https://www.geeksforgeeks.org/python-while-loops/ Exercise on Break statement in Python: https://www.geeksforgeeks.org/python-breakstatement/	Week 2
5.	<ul style="list-style-type: none">• Data Types in Python• Tuple data type in Python• String data type in Python• Set data type in Python• Dictionary data type in Python	Exercise on List data type in Python: https://www.programiz.com/python-programming/list Exercise on Tuple data type in Python: https://www.programiz.com/pythonprogramming/tuple Exercise on String data type in Python: https://www.programiz.com/pythonprogramming/string Exercise on Set data type in Python: https://www.programiz.com/python-programming/set Exercise on Dictionary data type in Python: https://www.programiz.com/pythonprogramming/dictionary	Week 2
6.	<ul style="list-style-type: none">• Creating Arrays in Numpy• Numpy Indexing in Array• Numpy Slicing in Array	Exercise on Numpy create Array Using Python: https://www.w3schools.com/python/numpy_creating_arrays.asp Exercise on Numpy Indexing in Array Using Python: https://www.w3schools.com/python/numpy_array_indexing.asp Exercise on Numpy Slicing in Array Using Python: https://www.w3schools.com/python/numpy_array_slicing.asp	Week 2

7.	Pandas basics and Installation	<p>Exercise on Pandas basics: https://www.w3schools.com/python/pandas_tutorial.Asp</p> <p>Exercise on Pandas installation: https://www.w3schools.com/python/pandas_getting_started.asp</p> <p>Exercise on Pandas Series data https://www.w3schools.com/python/pandas_series.asp</p>	Week 3 & 4
8.	Use Pandas Exercises Matplotlib Basic functions	<p>Exercise on Pandas Open CSV files: https://www.w3schools.com/python/pandas_csv.asp</p> <p>Exercise on Pandas Data analyzation: https://www.w3schools.com/python/pandas_analyzing.asp</p> <p>Exercise on Pandas Data Cleaning techniques: https://www.w3schools.com/python/pandas_cleaning.Asp</p> <p>Exercise on Pandas Data Correlation: https://www.w3schools.com/python/pandas_correlations.asp</p> <p>Exercise on Matplotlib Basic introduction: https://www.w3schools.com/python/matplotlib_intro.asp</p> <p>Exercise on Matplotlib Basic functions and installation: https://www.w3schools.com/python/matplotlib_getting_started.asp</p>	Week 4
9.	Search Techniques	<p>Perform search Techniques: (https://www.programiz.com/dsa/graph-dfs)</p> <p>Perform search Techniques: (https://www.programiz.com/dsa/graph-bfs)</p>	Week 5
10.	Steps In Machine Learning	<p>Basic steps for Machine learning: https://www.w3schools.com/python/python_ml_getting_started.asp</p> <p>Perform Mean, Midian and mode: https://www.w3schools.com/python/python_ml_mean_median_mode.asp</p>	Week 5
11.	Supervised vs Unsupervised Learning	<p>Develop concept of difference b/w supervised and unsupervised ML: https://www.guru99.com/supervised-vs-unsupervised-learning.html</p>	Week 6
12.	Supervised Machine Learning	<p>Develop concept on supervised ML: https://www.upgrad.com/blog/types-of-supervised-learning/</p>	Week 6
13.	Use KNN	<p>Exercise on KNN: https://www.geeksforgeeks.org/k-nearest-neighbor-algorithm-inpython/</p>	Week 6

14.	Apply Probabilistic Models	Perform Basic probability in python: https://www.datacamp.com/community/tutorials/statistics-pythontutorial-probability-1	Week 7
15.	Demonstrate Neural Networks	Demonstration of Neural Networks: https://www.analyticsvidhya.com/blog/2020/07/neural-networks-from-scratch-in-python-and-r/	Week 7
16.	Apply Naïve bayes Algorithm	Exercise on Naïve Bayes: https://towardsdatascience.com/implementing-naive-bayes-in-2-minutes-with-python-3ecd788803fe)	Week 7
17.	Perform basic operations on images using OpenCV	Basic operation on images using OpenCV: https://opencv-pythontutroals.readthedocs.io/en/latest/py_tutorials/py_gui/py_image_display/py_image_display.html#display-image	Week 8
18.	Perform basic operations on images using OpenCV	Basic operation on images using OpenCV: https://opencv-pythontutroals.readthedocs.io/en/latest/py_tutorials/py_gui/py_image_display/py_image_display.html#display-image	Week 8
19.	Understand Different Data Distributions	Building a program to map a room using LiDAR and SLAM Develop concept of various data distributions https://www.datacamp.com/community/tutorials/probabilitydistributions-python	Week 9
20.	Use Decision Tree	Exercise on Decision Tree: https://www.datacamp.com/community/tutorials/decision-treeclassification-python	Week 9
21.	Perform SVM	Exercise on SVM: https://stackabuse.com/implementing-svm-and-kernel-svmwith-pythons-scikit-learn/	Week 9
22.	Classification vs Clustering	Differentiate between Clustering and Classification https://techdifferences.com/difference-betweenclassification-and-clustering.html	Week 9
23.	Perform Hierarchical Clustering	Exercise on Time Series Analysis: https://www.dataquest.io/blog/tutorial-time-series-analysiswith-pandas	Week 10
24.	Perform an Example on Neural Networks	Exercise on Neural Network: https://www.analyticsvidhya.com/blog/2019/08/detail-edguide-7-loss-functions-machine-learning-python-code/	Week 10
25.	Perform an Example on Linguistics	Exercise on Linguistics using Machine learning in python: https://medium.com/towards-artificial-intelligence/naturallanguage-processing-nlp-with-python-tutorial-for-beginners-1f54e610a1a0	Week 10
26.	Perform basic operations on videos using OpenCV	Basic operations on videos using OpenCV: https://opencv-pythontutroals.readthedocs.io/en/latest/py_tutorials/py_gui/py_video_display/py_video_display.html	Week 11

27.	Introduction to Deep Learning	Intro to Deep Learning: https://www.youtube.com/watch?v=6M5VXKLf4D4	Week 11
28.	Introduction to Neural Network	Intro to Neural network: https://towardsdatascience.com/a-gentle-introduction-to-neural-networks-series-part-1-2b90b87795bc#:~:text=A%20feedforward%20neural%20network%20is,or%20loops%20in%20the%20net%20work.	Week 11
29.	Use Tensor Flow Library	Exercise on Introduction to TensorFlow Library: https://www.edureka.co/blog/tensorflow-tutorial/	Week 11
30.	Introduction to Convolution Neural Network	Demonstrate Convolution Neural Network: https://towardsdatascience.com/a-comprehensive-guide-to-convolutional-neural-networks-the-eli5-way-3bd2b1164a53	Week 11
31.	Build your CV	Download professional CV template from any good site (https://www.coolfreecv.com or relevant) <ul style="list-style-type: none"> • Add Personal Information • Add Educational details • Add Experience/Portfolio • Add contact details/profile links 	Week 8
32.	Final Project	Depends on Trainer	Week 10-12

Motivational Lectures
Advanced Programming / Coding (Machine Learning/Data Mining)

The Rise of AI: <https://www.youtube.com/watch?v=5J5bDQHQR1g>

This video provides an overview of the impact that AI is having on various industries and highlights some of the breakthroughs that have been made in recent years.

How Robotics Will Change the World: <https://www.youtube.com/watch?v=UwsrzCVZAb8>

This video provides an overview of the impact that robotics is having on society, including in fields such as healthcare, manufacturing, and agriculture.

What is Deep Learning and How Does it Work? :
<https://www.youtube.com/watch?v=aircAruvnKk>

This video provides a motivational introduction to deep learning, explaining what it is and how it works, as well as some of the applications of deep learning.

The Promise and Peril of Our Machine Learning Future:
<https://www.youtube.com/watch?v=I-JfN9HNmV4>

This video provides an overview of the potential benefits and risks of machine learning, and how it will impact the future of society.

Workplace/Institute Ethics Guide

Work ethic is a standard of conduct and values for job performance. The modern definition of what constitutes good work ethics often varies. Different businesses have different expectations. Work ethic is a belief that hard work and diligence have a moral benefit and an inherent ability, virtue, or value to strengthen character and individual abilities. It is a set of values-centered on the importance of work and manifested by determination or desire to work hard.

The following ten work ethics are defined as essential for student success:

1. Attendance:

Be at work every day possible, plan your absences don't abuse leave time. Be punctual every day.

2. Character:

Honesty is the single most important factor having a direct bearing on the final success of an individual, corporation, or product. Complete assigned tasks correctly and promptly. Look to improve your skills.

3. Team Work:

The ability to get along with others including those you don't necessarily like. The ability to carry your weight and help others who are struggling. Recognize when to speak up with an idea and when to compromise by blend ideas together.

4. Appearance:

Dress for success set your best foot forward, personal hygiene, good manner, remember that the first impression of who you are can last a lifetime

5. Attitude:

Listen to suggestions and be positive, accept responsibility. If you make a mistake, admit it. Values workplace safety rules and precautions for personal and co-worker safety. Avoids unnecessary risks. Willing to learn new processes, systems, and procedures in light of changing responsibilities.

6. Productivity:

Do the work correctly, quality and timelines are prized. Get along with fellows, cooperation is the key to productivity. Help out whenever asked, do extra without being asked. Take pride in your work, do things the best you know-how. Eagerly focuses energy on accomplishing tasks, also referred to as demonstrating ownership. Takes pride in work.

7. Organizational Skills:

Make an effort to improve, learn ways to better yourself. Time management; utilize time and resources to get the most out of both. Take an appropriate approach to social interactions at work. Maintains focus on work responsibilities.

8. Communication:

Written communication, being able to correctly write reports and memos. Verbal communications, being able to communicate one on one or to a group.

9. Cooperation:

Follow institute rules and regulations, learn and follow expectations. Get along with fellows, cooperation is the key to productivity. Able to welcome and adapt to changing work situations and the application of new or different skills.

10. Respect:

Work hard, work to the best of your ability. Carry out orders, do what's asked the first time. Show respect, accept, and acknowledge an individual's talents and knowledge. Respects diversity in the workplace, including showing due respect for different perspectives, opinions, and suggestions.