

### Value Added Courses (VAC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
241PE001	Sports &Yoga	FC			1	1	100	-	100	-
241UC010	Indian Cultural Heritage & Fine Arts	FC			1	1	100	-	100	-
241UC011	Employability Skills - I	FC			3	0	100	-	100	-
241UC013	Employability Skills – II	FC			3	0	100	-	100	ES-I
241UC014	Employability Skills – III	IC			3	0	100	-	100	ES-II
241UC015	Employability Skills – IV	IC			3	0	100	-	100	ES-III
241UC016	Employability Skills - V	AC			3	1	100	-	100	ES-IV
241CS002	Data Analysis using Python	IC			2	2	50	50	100	-
<b>Total</b>					<b>19</b>	<b>5</b>				

**Sports & Yoga**  
(CE, EEE, ME, ECE, CSE, IT, AIML, CSE (DS), PT, Min. E)

<b>Course Code: 241PE001</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

**Course Objectives:**

The main objective of introducing this course is to make the students understand the importance of sound health and fitness principles as they relate to better health.

**Course Outcomes:**

**After completion of the course the student will be able to:**

**CO1:** Identify their physical and mental health, including their concentration, motivation, and productivity

**CO2:** Demonstrate the need for health-related fitness requirements.

**CO3:** Develop an appreciation of physical activity as a lifetime pursuit and a means to better health.

**CO4:** Apply current personal fitness levels in their day-to-day lifestyle.

**CO5:** Recall specific facts about safety measurements, and efficiently use the techniques to minimize the risk of injury

**Mapping of Course Outcomes with Program Outcomes**

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	-	-	-	-	-	-	-	-	-	-	1
<b>CO2</b>	-	-	-	-	-	-	-	-	-	-	1
<b>CO3</b>	-	-	-	-	-	-	-	-	-	-	1
<b>CO4</b>	-	-	-	-	-	-	-	-	-	-	1
<b>CO5</b>	-	-	-	-	-	-	-	-	-	-	1

**Practice:**

**1. a) B.M.I (Measurement and BMI Chart Preparation)**

- Height
- Weight
- Age

**Activities:**

- Students are informed to find out BMI for any 5 members of different age groups.

**b) AAHPER Fitness Test (American Alliance for Health, Physical Education and Recreation)**

Category 1	Category 2
50mts	Pull Ups
Standing Broad Jump	Sit-ups
Shuttle Run	600 Mts

**Activities:**

- Students are informed to find out BMI for any 5 members of different age groups.
- Students are instructed to perform all activities under Category-I (or) II

**2. Surya Namaskar**

- **Pranamasana (Prayer Pose)**
- **Hasta Uttanasana (Raised Arms Pose)**
- **Hasta Padasana (Hand to Foot Pose)**
- **Ashwa Sanchalanasana (Equestrian Pose)**
- **Dandasana (Stick Pose)**
- **Ashtanga Namaskara (Salute with Eight Parts or Points)**
- **Bhujangasana (Cobra Pose)**
- **Parvatasana (Mountain Pose)**
- **Ashwa Sanchalanasana (Equestrian Pose)**
- **Hasta Padasana (Hand to Foot Pose)**
- **Hasta Uttanasana (Raised Arms Pose)**
- **Pranamasana (Prayer Pose)**

**Activities:**

- Students are given practice on all Surya Namaskar Asanas.
- Students must participate and perform any 2 or 3 Surya Namaskar Asanas

**3. Asanas**

- Standing Asanas
- Sitting Asanas
- Supine Postures
- Prone Asanas

**Activities:**

- Students are given practice on all above Asanas.
- Students must participate and perform any 2 Asanas.

**4. CPR (Cardiopulmonary resuscitation)****Activities:**

- Practical demo session on CPR by a healthcare professional.
- Quiz is conducted on the above topic.

**5. Games Activities**

- Kabaddi
- Volleyball
- Basketball
- Tennikoit
- Badminton
- Hand ball
- Kho Kho

**Activities:**

- Practice is given in all the above major games.
- Students must participate and perform in any one major game.

**6. JCR Test (Jumping, Chinning, Running)**

- 100mts-(Shuttle Run)
- Vertical Jump
- Chin up

**Activities:**

- Practice is given in all the above.
- Students must participate and perform in anyone activity.

**7. Kriyas**

- Dhouti,
- Bastirika
- Neti,
- Navali
- Kapalabati
- Trataka
- Nauli

**Activities:**

- Practice is given in all the above Kriyas.
- Students must participate and perform in any two Kriya's.

**8. Sports Activities: (Athletics Throws & Jumps)**

- Shotput
- Discuss
- Long jump

**Activities:**

- Practice is given in all the above Sports activities.
- Students must participate and perform in any one activity.

**9. Pranayama**

- **Nadi Shodhana (Alternate Nostril Breathing)**
- **Ujjayi Pranayama (Victorious Breath)**
- **Kapalabhati (Skull Shining Breath)**
- **Bhastrika Pranayama (Bellows Breath)**
- **Sheetali Pranayama (Cooling Breath)**
- **Sheetkari Pranayama (Hissing Breath)**
- **Bhramari Pranayama (Bee Breath)**
- **Sitali Pranayama (Cooling Breath)**

**Activities:**

- Practice is given in all the above Pranayama's.
- Students must practice and perform any 2 Pranayama's.

**10. Sports Activities :( Athletics-Runs)**

- 100Mts
- 400Mts
- 5000Mts

**Activities:**

- Practice is given in all the above activities.
- Students must practice and perform any 1 activity.

**Reference Books:**

1. Health & Wellness, Yoga Education, Sports and Fitness-S.Chand Publication-2024. ISBN: 9789358704372
2. Health and Wellness, Gordon Edlin, Eric Golanty. 14th Edn. Jones & Bartlett Learning 2022 ISBN: 978-1284235197
3. First Aid- Dr.Rajeev Sharma. ISBN: 9788171826933
4. Health and Fitness-Bharani Publications. ISBN: 978-0880115995
5. The Sports Rules Gordon Edlin, Eric Golanty. / Human Kinetics with Thomas Hanlon. -- 3rd ed. HumanKinetics, Inc.
6. A Text book Yoga-Dr.Guneet Monga Bhargava Richa Talreja

**General Guidelines:**

- Participation in all activities is mandatory.
- Students should carry proper sports dress to carry out Yoga Practice and regular Sports activities.

**Evaluation Guidelines:**

- The Continuous Internal Evaluation for this course is 100 marks.
- Each activity shall be evaluated by the concerned teacher for 10 marks as day-to-day performance. For 10 activities the students will be evaluated for 100 marks.

## INDIAN CULTURAL HERITAGE AND FINE ARTS (Common to all branches Except Ag. E)

<b>I Semester</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 241UC010</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

Course Outcomes: At the end of the course, students will be able to:

CO1: Apply Communication Skills by participating in various language learning activities on Indian Cultural Heritage.

CO2: Develop cultural understanding and prepare for intercultural citizenship by different activities like role play, drawing, painting etc.

CO3: Describe the different horizons in the field of art and design, skilful use of elements and principles of graphic design.

CO4: Demonstrate their talent using instruments, dance, singing, seminar etc., related to Indian culture

CO5: Recall facts and basic concepts of Indian culture through article writing.

### Mapping of Course Outcomes with Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	-	-	-	-	-	1	1	2	-	-
CO2	-	-	-	-	-	-	1	1	2	-	-
CO3	-	-	-	-	-	-	1	1	1	-	-
CO4	-	-	-	-	-	-	1	1	1	-	1
CO5	-	-	-	-	-	-	1	1	1	-	1

### Practice:

#### 1. JAM(Just a Minute) Sessions on Indian Cultural Heritage (Speaking):

Explain the importance of JAM sessions and their format.

##### Activities:

**Just a Minute:** Each student gets 1 minute to speak on a randomly assigned topic related to Indian cultural heritage.

**Topics: Ancient Indian civilization, Indus Valley, Mauryan empires, Gupta empires**

#### 2. Role-plays on Indian Itihasas and Puranas:

Overview of Indian Itihasas (Ramayana, Mahabharata) and Puranas

##### Activities:

**Preparation:** Assign roles and prepare short scripts.

**Role-plays:** Students perform their role-plays

**Topics: Ramayana, Mahabharata, Vishnu Purana, Shiva Purana, Skanda Purana**

#### 3. Painting: Competition on ancient Indian Architectures and civilizations:

Brief on ancient Indian architectures and civilizations

##### Activities:

**Painting Activity:** Students create paintings based on the theme.

**Topics: Temple Architecture (Nagara, Dravidian, Vesara), Mughal Architecture (TajMahal, Fatehpur Sikhri, Humayun's Tomb)**

**Exhibition:** Display paintings related to ancient Indian architectures and civilizations.

**4. Talent shows in singing** patriotic songs

Explain the format and purpose of the talent show on patriotic songs.

**Activities:**

**Talent Performances:** Students present their talent (Singing).

**Topics: Patriotic songs**

**5. Story Narration** about Ancient Historical Issues.

Importance of storytelling in preserving history

**Activities:**

**Story Narration:** Students narrate stories on assigned ancient historical issues.

**Topics: Hinduism (Festivals and Temples), Buddhism Spread and Impact in Asia, Jainism (Philosophy of Non-violence, Sikhism (Teaching of the Gurus)**

**6. Poster Presentations** on Epics, Puranas and Architecture of the Indian Temple.

Guidelines for creating effective posters on Epics, Puranas and Architecture of the Indian Temple

**Activities:**

**Preparation:** Students create posters on assigned topics.

**Presentations:** Students present their posters.

**Topics: Temple Architecture and Sculpture (Iconography, Dravidian, Nagara, Vesara)**

**7. Seminars** on the importance and significance of our Indian Culture. (Speaking)

Importance of seminars and public speaking tips on our Indian Culture

**Activities:**

**Seminars:** Students deliver seminars on assigned topics.

**Topics: Indian Classical Dance, Indian Music traditions, Indian festivals and Fine arts, Indian Handicrafts**

**8. A. Craft works-** Displaying different models of architectures, Overview of different Indian architectural styles

**B. Musical instruments:** Performance of the talent in playing different musical instruments, Introduction to various Indian musical instruments

**C. Dancing:** Performance on various dance forms of Indian culture, Brief on various Indian dance forms of Indian culture

**Activities:**

**Craft Activity:** Students create and display models of architectures.

**Exhibition:** Display and discuss the craft works.

**Performances:** Students performs using different instruments.

**Appreciation & Discussion:** Acknowledge performances and discuss instruments.

**Performances:** Students perform different dance forms.

**Topics: Indian Handicrafts, Musical Instruments (Veena, Sitar, Tabla, Mridangam), Indian Classical Dance (Bharathanatyam, Kuchipudi, Kathakhali, Khathak, Odissi)**  
(Note: Students can choose either Craft works, Musical instruments or dancing activities)

**9. Drawing:** Theme based art on Indian Religious Traditions.

Overview of drawing techniques and themes on Indian Religious Traditions

**Activities:**

**Drawing Activity:** Students create drawings based on historical themes.

**Topics: Rituals, Festivals and Temples (Hinduism, Buddhism, Jainism, Sikhism etc.)**

**Exhibition:** Display drawings and provide feedback.

**10. Article Writing:** On Indian Ancient Period/Heritage and Culture.(Writing)

Guidelines for writing informative articles on Indian Ancient Period / Heritage and Culture

**Activities:**

**Topics: Indian Culture, Indian art architecture and monuments, Indian Civilization, Indian Philosophy, Indian religious Traditions**

**Writing Activity:** Students write articles on assigned topics.

**Reference Books:**

1. History of India and Culture (Upto 1964)-Telugu Academy, ISBN-13: 978-8181804341/ISBN-10: 8181804341
2. R.S. Sharma., Ancient India, New Delhi, 1996, ISBN-13: 978-0-19-568785-9/ISBN-10: 0-19-568785-X
3. D.D. Kosambi, the Culture and Civilization of Ancient India in Historical Outline, Vikas Publishing, 1965, ISBN-1000653471, ISBN-9781000653472
4. V. Rama Krishna, Social Reform Moment Andhra, Vikas Publications, ISBN-0706923499, ISBN-9780706923490
5. Romila Thaper., History of India, Penguin, 1965, ISBN: 978-0-14-194976-5

**Evaluation Guidelines:**

- Each activity carries 10 marks for day to day assessment.
- The Continuous evaluation will be awarded based on day to day performances.

## Employability Skills- I

(Common to CE,EEE, ME, ECE,CSE, IT, AIML, CSE(DS), PT, Min.E & Agri.E)

<b>Course Code:</b> 241UC016	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>

### **Aptitude:**

Number System, LCM& HCF, Ratio and Proportion, Averages

### **Reasoning:**

Number Series, Letter Series, Number Analogy, Letter Analogy, Odd Man Out, Logical Sequence of Words.

### **Verbal:**

Introduction to soft skills, how to improve communication? Parts of Speech, Mind your language towards better English, Vocabulary Expansion

### **Text Books:**

1. Quantitative Aptitude –Dr. R. S. Aggarwal, S CHAND.
2. A Modern Approach to Verbal and Non-Verbal Reasoning – Dr. R. S. Aggarwal.
3. Quick Learning Objective General English – Dr. R. S. Aggarwal, S CHAND.

### **Reference Books:**

1. Quantitative Aptitude – Abhijit Guha Mc Graw Hill Publications.
2. Analytical Reasoning – Jaikishan and PremkishanArihant Publications.
3. A New Approach to Objective English – R. S. Dhillon DGP Publications.

### **Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
2. [www.bankersadda.com](http://www.bankersadda.com)

## Employability Skills- II

(Common to CE,EEE, ME, ECE,CSE, IT, AIML, CSE(DS), PT, Min.E & Agri.E)

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 241UC013</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>

### **Aptitude:**

Problems on Ages, Partnership, Percentages, Profit and Loss

### **Reasoning:**

Coding and Decoding, Ranking Test, Alphabet Test, Direction Test

### **Verbal:**

Written communication skill practice, Grammatical use, Concept of 4 step method for presentation, Present Tense

### **Text Books:**

1. Quantitative Aptitude –Dr. R. S. Aggarwal, S CHAND.
2. A Modern Approach to Verbal and Non-Verbal Reasoning – Dr. R. S. Aggarwal.
3. Quick Learning Objective General English – Dr. R. S. Aggarwal, S CHAND.

### **Reference Books:**

1. Quantitative Aptitude – Abhijit Guha Mc Graw Hill Publications.
2. Analytical Reasoning – Jaikishan and PremkishanArihant Publications.
3. A New Approach to Objective English – R. S. Dhillon DGP Publications.

### **Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
2. [www.bankersadda.com](http://www.bankersadda.com)

### **Employability Skills- III**

(Common to CE,EEE, ME, ECE,CSE, IT, AIML, CSE(DS), PT, Min.E & Agri.E)

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 241UC014</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>

#### **Aptitude:**

Simple Interest, Compound Interest, Time and Work, Pipes and Cisterns

#### **Reasoning:**

Blood Relations, Calendar, Clocks, Cubes and Dice, Coded Inequalities

#### **Verbal:**

Grammar in use, Group discussion, Reading Comprehension, Past Tense, Future Tense

#### **Text Books:**

1. Quantitative Aptitude –Dr. R. S. Aggarwal, S CHAND.
2. A Modern Approach to Verbal and Non-Verbal Reasoning – Dr. R. S. Aggarwal.
3. Quick Learning Objective General English – Dr. R. S. Aggarwal, S CHAND.

#### **Reference Books:**

1. Quantitative Aptitude – Abhijit Guha Mc Graw Hill Publications.
2. Analytical Reasoning – Jaikishan and PremkishanArihant Publications.
3. A New Approach to Objective English – R. S. Dhillon DGP Publications.

#### **Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
2. [www.bankersadda.com](http://www.bankersadda.com)

## Employability Skills- IV

(Common to CE,EEE, ME, ECE,CSE, IT, AIML, CSE(DS), PT, Min.E & Agri.E)

**Course Code: 241UC015**

L	T	P	C
0	0	3	0

### **Aptitude:**

Time, Speed and Distance, Problems on Trains, Boats and Streams, Mensuration - I, Mensuration - II

### **Reasoning:**

Venn Diagrams, Syllogisms, Non - Verbal Reasoning, Seating Arrangement

### **Verbal:**

Grammatical use, Self-introduction, Letters, E-Mail & Report writing, Error correction, Effective Communication

### **Text Books:**

1. Quantitative Aptitude –Dr. R. S. Aggarwal, S CHAND.
2. A Modern Approach to Verbal and Non-Verbal Reasoning – Dr. R. S. Aggarwal.
3. Quick Learning Objective General English – Dr. R. S. Aggarwal, S CHAND.

### **Reference Books:**

1. Quantitative Aptitude – Abhijit Guha Mc Graw Hill Publications.
2. Analytical Reasoning – Jaikishan and PremkishanArihant Publications.
3. A New Approach to Objective English – R. S. Dhillon DGP Publications.

### **Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
2. [www.bankersadda.com](http://www.bankersadda.com)

## Employability Skills- 5

(Common to CE,EEE, ME, ECE,CSE, IT, AIML, CSE(DS), PT&Min.E)

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code: 241UC016</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>

### **Aptitude:**

Permutations and Combinations, Probability, Data Interpretation, Logarithms, Statistics

### **Reasoning:**

Puzzle Tests, Eligibility Test, Data Sufficiency, Statements – Arguments, Statements – Assumptions, Statements - Course of Action, Statements - Conclusions

### **Verbal:**

Interview skills, Grammar in use, Interpersonal Skills, Negotiation Skills, Social Skills, Problem-Solving Skills, Time Management Skills

### **Text Books:**

1. Quantitative Aptitude –Dr. R. S. Aggarwal, S CHAND.
2. A Modern Approach to Verbal and Non-Verbal Reasoning – Dr. R. S. Aggarwal.
3. Quick Learning Objective General English – Dr. R. S. Aggarwal, S CHAND.

### **Reference Books:**

1. Quantitative Aptitude – Abhijit Guha Mc Graw Hill Publications.
2. Analytical Reasoning – Jaikishan and PremkishanArihant Publications.
3. A New Approach to Objective English – R. S. Dhillon DGP Publications.

### **Web Links:**

1. [www.indiabix.com](http://www.indiabix.com)
2. [www.bankersadda.com](http://www.bankersadda.com)

## Data Analysis using Python

(Common to CE,EEE, ME, ECE,CSE, IT, AIML, CSE(DS), PT&Min.E)

<b>Course Code:241CS002</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>

### Course Outcomes:

**At the end of the course, student will be able to:**

- CO1:** Make use of control statements and data structures to solve problems
- CO2:** Apply OOPs concepts and files to develop applications.
- CO3:** Explain the data collection, management and storage for processing using Numpy
- CO4:** Make use of Pandas to create and manipulate data structures like Series and DataFrames.
- CO5:** Create plots using Matplotlib library for better visualization.

### Mapping of Course Outcomes with Program Outcomes:

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11
<b>CO1</b>	2	2	1	-	2	-	-	-	1	1	2
<b>CO2</b>	1	2	3	-	2	-	-	-	1	1	2
<b>CO3</b>	1	3	2	-	2	-	-	-	1	1	2
<b>CO4</b>	1	2	3	-	2	-	-	-	1	1	2
<b>CO5</b>	1	2	3	-	2	-	-	1	1	1	2

### UNIT-I

Introduction: History of Python, Applications of Python,Running Python Scripts, Variables, Assignment, Keywords, Input-Output, Indentation, Operators and Expressions, Control Flow- if, if-elif-else, for, while, break, continue, Data Structures Lists - Operations, Slicing, Methods; Tuples, Sets, Dictionaries, Sequences. Comprehensions, Defining Functions, Calling Functions, Passing Arguments.

- 1.1) Write a program that asks the user for a weight in kilograms and converts it to pounds. There are 2.2 pounds in a kilogram.
- 1.2) Write a program that uses a for loop to print the numbers 8, 11, 14, 17, 20, . . . , 83, 86, 89.
- 1.3) Split a string into array of characters in Python.
- 1.4) write a Python program to get the largest number from a list.
- 1.5) Write a Python program to calculate the nth Fibonacci number using a function.

## UNIT-II

Object Oriented Programming: Concept of class, object and instances, Constructor, class attributes and destructors, Real time use of class in live projects, Inheritance , overlapping and overloading operators, Adding and retrieving dynamic attributes of classes, Programming using OOps support Design with Classes: Objects and Classes, Data modeling Examples, Errors and Exceptions: Syntax Errors, Exceptions, Handling Exceptions, Raising Exceptions, Userdefined Exceptions.

- 2.1) Write a Python program that defines a Car class with attributes like make, model, and year, and methods like start() to start the car and stop() to stop it.
- 2.2) Write a Python program that demonstrates inheritance by creating a base class Animal and derived classes like Dog, Cat, etc., each with their specific behaviors.
- 2.3) Define a base class called Animal with a method make\_sound(). Implement derived classes like Dog, Cat, and Bird that override the make\_sound() method to produce different sounds. Demonstrate polymorphism by calling the method on objects of different classes.
- 2.4) Write a Python program that demonstrates error handling using the try-except block to handle division by zero.

## UNIT-III

Numpy: Introduction to numpy, creating arrays, using arrays and scalars, Indexing Arrays, Array transposition, Universal array function, Array Processing, Array Input and Output, Examples.

- 3.1) Write a NumPy program using methods – info, add, array, all, greater, greater\_equal, less and less\_equal, equal, allclose, zeros, ones, linspace, tolist.
  - a. To get help on the add function
  - b. To test whether none of the elements of a given array is zero.
  - c. To create an element-wise comparison (greater, greater\_equal, less and less\_equal, equal, equal within a tolerance) of two given arrays.
- 3.2) Write a NumPy program using NumPy methods - max, min, argmax, argmin, argmax, repr, count, bincount, unique.
  - a. To extract all numbers from a given array which are less and greater than a specified number.
  - b. To find the indices of the maximum and minimum numbers along the given axis of an array.

## UNIT-IV

Pandas: Exploring Data using Series, Exploring Data using DataFrames, Index objects, Re index, Drop Entry, Selecting Entries, Data Alignment, Rank and Sort, Summary Statistics, Data Munging in Python using Pandas, Index Hierarchy, Example Problem.

- 4.1) Pandas DataSeries:
  - i) Write a Pandas program to create and display a one-dimensional array-like object

containing an array of data using Pandas module.

ii) Write a Pandas program to convert a Panda module Series to Python list and its type.

4.2) Pandas DataFrames:

Consider Sample Python dictionary data and list labels:

```
exam_data = {'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew',  
'Laura', 'Kevin', 'Jonas'],
```

```
'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],
```

```
'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],
```

```
'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']}
```

```
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
```

i) Write a Pandas program to create and display a DataFrame from a specified dictionary data which has the index labels.

ii) Write a Pandas program to change the name 'James' to 'Suresh' in name column of the DataFrame.

iii) Write a Pandas program to insert a new column in existing DataFrame. iv) Write a Pandas program to get list from DataFrame column headers. v) Write a Pandas program to get list from DataFrame column headers.

## UNIT-V

Introduction to Matplotlib: Introduction to Matplotlib Library, Plotting Data: Line Plots, Scatter Plots, Customizing Plots, Common Types of Plots Bar Charts: Simple Bar Plot, Horizontal Bar Plot, Advanced Plot Customizations.

5.1) Create a series of plots to analyze a given dataset.

5.2) Generate a subplot layout with various plot types (scatter, line, bar).

5.3) Visualize time-series data and customize axis labels and date formats.

5.4) Create a 3D plot.

### Additional Practice:

1. Write a program to find the greatest number that can be formed by using given set of numbers.

2. Write a Python program to develop a GUI based Calculator application.

3. Write a Python program to develop a GUI based todo list application for adding, deleting and updating tasks.

**Reference Books:**

1. Python for Everybody Exploring Data in Python 3, Charles Russell Severance, SueBlumenberg. ISBN:978-1530051120.
2. Code with Python: Suresh Sundaradasu,S.Rama Sree ISBN: 978-9355017574.
3. Python Programming, Dr.Maganti Venkatesh,Monelli Ayyavaraiah,Niveditha Ravindra Pandey, NeethumolSabu,Charulatha Publications ISBN:978-93-5577-695-6
4. Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython, Wes McKinney, O'Reilly Media,ISBN: 978-1491957660.

**Web Links:**

1. <https://www.hackerrank.com/>
2. <https://www.codechef.com/>
3. <https://www.topcoder.com/>
4. <https://code-cracker.github.io/>