Bansilal Ramnath Agarwal Charitable Trust's

Vishwakarma Institute of Information Technology, Pune-48

(An Autonomous Institute affiliated to Savitribai Phule Pune University)

Syllabus for

S.Y. M.Tech.

(Computer Engineering)

(Pattern 2020)

Department of Computer Engineering

Second Year M. Tech. Computer Engineering (SYMT) - Semester III (Pattern 2020)

Module I

Course Code	Course	Course Type	Teaching Scheme		Examination Scheme					Total	Credits
			L	P	CIE	ISE	SCE	ESE	TW/ OR		
CSPA21201A	INDUSTRY INTERNSHIP PROJECT – I /RESEARCH INTERNSHIP PROJECT -1	CE-OR	-	20	100	-	-	-	100	200	10
	Total		-	20	100	-	-	-	100	200	10

Module II

Course Code	Course		Teaching Scheme		Examination Scheme					Total	Credits
			L	P	CIE	ISE	SCE	ESE	TW/ OR		
CSPA21201B/ MEPA21201B	VALUE ADDED COURSE	CE-OR	4	4	-	-	50	-	50	100	6
CSPA21201C	DISSERTATION PHASE – I	CE-OR	-	8	50	-	-	-	50	100	4
	Total		4	12	50	-	50	-	100	200	10

VALUE ADDED COURSE	
CSPA21201B	PYTHON PROGRAMMING
MEPA21201B	CAE USING ANSYS

BoS Chairman **Dean Academics** **Director**

Second Year M. Tech. Computer Engineering (SYMT) - Semester IV (Pattern 2020)

Module I

Course Code	Course		Teaching Scheme		Examination Scheme					Total	Credits
			L	P	CIE	ISE	SCE	ESE	TW/ OR		
CSPA22201A	INDUSTRY INTERNSHIP PROJECT - II /RESEARCH INTERNSHIP PROJECT-II	CE-OR	-	32	100	-	-	-	100	200	16
	Total		-	32	100	-	-	-	100	200	16

Module II

Course Code	Course		Teaching Scheme		Examination Scheme					Total	Credits
			L	P	CIE	ISE	SCE	ESE	TW/ OR		
CSPA22201B	DISSERTATION PHASE – II	CE-OR	-	32	100	-	-	-	100	200	16
	Total		-	32	100	-	-	-	100	200	16

BoS Chairman **Dean Academics** **Director**

Semester – III

MODULE I

CSPA21201A: Industry Internship Project – I

Teaching Scheme
Credits : 10
Practical : 20 Hrs/week

Examination Scheme
Formative Assessment: 200 Marks
Summative Assessment : 100 Marks

Course Objective:
1. Apply existing knowledge in similar or new situations
2. Acquire new engineering knowledge and skill
3. Understand importance of life learning processes through internship experiences.

Course Outcomes:
After completion of the course, student will be able to
1. Apply the existing engineering knowledge in similar or new situations
2. Have ability to identify when new engineering knowledge is required, and apply it
3. Understand the lifelong learning processes through critical reflection of internship experiences.

The preferred duration of an Engineering internship is 3 months, full-time placement with an related industry/organization/consultancy work etc.

Continuous Assessment of Performance During Internship:

During the internship semester, the organization with whom the student is undertaking the internship programme conducts periodic assessments of the intern's progress, performance and achievements.

Students are required to submit progress report of internship as per schedule and being in constant touch with the respective Guide. Atleast two presentations and report should be submitted to VIIT, Pune.

In order to ensure that the internship remains meaningful, Guide of the respective student from VIIT, Pune will maintains close contact with organizations/ Industry/Consultancy etc.

Summative Assessment :

After completion of the program, the student submits a detailed report of his internship experience and makes a presentation of the same at VIIT, Pune.

A viva –voce for Industry Internship Project –I will be the SA Guidelines for Internship report are mentioned in Annexure I.

MODULE II

CSPA21201B/MEPA21201B : Value added course

Teaching Scheme
Credits : 6
Practical : 12 Hrs/week

Examination Scheme
Formative Assessment: 100 Marks
Summative Assessment : 50 Marks

Course Objectives:

1. Study of new technology in the field of course
2. Understand importance of life learning processes through internship experiences.

Course Outcomes:
After completion of the course, student will be able to

1. Exposure to state of art technology in the respective field of course
2. Have an in-depth knowledge about the subject chosen as value added course.

Following are the list of Value Added Courses offered by VIIT. The duration of Value Added Course is 3 months.

1. **Python Programming Course:** The course aims to teach students the basics of programming computers using Python. The major focus is on basics of how one constructs a program from a series of simple instructions in python.

Continuous Assessment(CE):

Periodic assessment of the student progress, performance and achievements will be done through periodic presentations, Assignments, Tests etc. as instructed by the course teacher.

Summative Assessment (SA) :

After completion of the program, the student submits a detailed report of the value added course and its application in the chosen field and makes a presentation.

A viva –voce for Value added course will be the SA. Guidelines for the report are as suggested in ANNEXURE I

Python Programming Course

Prerequisites :

- Basic Programming Knowledge

Course Objectives :

- In-depth knowledge of the various libraries and packages required to perform data analysis, data visualization, web scraping, machine learning and natural language processing using Python.

Course Outcomes :

After completion of the course, student will be able to

1. Install the required Python environment and other auxiliary tools and libraries
2. Create and manipulate regular Python lists
3. Use functions and import packages
4. Build Numpy arrays, and perform interesting calculations
5. Create and customize plots on real data
6. Supercharge your scripts with control flow,
7. Use Pandas DataFrame for EDA
8. Develop full stack web application using django framework

Unit I : Python Fundamentals

Introduction to Python Language: History, Features Installing python on Linux, Setting up path, Working with Python. Basic Syntax, Variable and Data Types , Operator, Conditional, Loop, Control statements, String manipulations, Lists, Tuple, Dictionaries, Sets Functions, Modules, Input-Ouput, Exception Handling

4H Theory and 8H Practical

Unit II : Object Oriented Programming using Python

OOP basics, class, objects, constructor, class diagram, encapsulation, reference variables, pass by reference, self, collection objects, static attribute, static method, relationships, inheritance, abstract class, abstract method

Unit III : Data Structures & Algorithms using Python

Introduction to data structures, Linked List, Stack, Queue, Trees, Graphs, Hashing & Hash Tables, Linear & binary search algorithm, Sorting Algorithms, Selection Sort, Bubble Sort, Merge Sort, Quick Sort, Greedy Approach, Dynamic Programing

Unit IV : Python Libraries for Data Cleaning, Preparation, and Wrangling

Understanding the N-dimensional data structure, Creating arrays, Indexing arrays by slicing or more generally with indices or masks, Basic operations and manipulations on N-dimensional arrays, **NumPy and 2D Plotting,** Plotting with matplotlib

Pandas: Working with Pandas data structures: Series and DataFrames, Accessing your data:

indexing, slicing, fancy indexing, boolean indexing, Data wrangling, including dealing with dates and times and missing datas, Adding, dropping, selecting, creating, and combining rows and columns

Unit V : Database access

Python Database Integration – Pre-requisites and Installation, SELECT Operation, CREATE and INSERT Operation, UPDATE Operation, DELETE Operation

Executing SQL commands from Pandas, Loading database data into a DataFrame, Combining and manipulating DataFrames: merge, join, concatenate

Unit VI : Data Analysis using Python

Split-apply-combine with DataFrames, Data summarization and aggregation methods Pandas powerful groupby method , Reshaping, pivoting, and transforming your data, Simple and rolling statistics

Data visualization: scatter plots, line plots, box plots, bar charts,and histograms with matplotlib, Customizing plots: important attributes and arguments, Scikit library for ML: Regression, Classification and Clustering, Text processing using nltk library

Text Books :

1 Learning Python: Powerful Object-Oriented Programming

2 Kenneth A Lambert and B L Juneja, "Fundamentals of PYTHON", CENGAGE Learning, ISBN:978-81-315-2903-4

3 Zed A. Shaw, "Learn PYTHON The Hard Way", Pearson, ISBN: 978-93-325-8210-1

Reference Books :

1 Allen B Downey, "Think PYTHON", O'Rielly, ISBN: 13:978-93-5023-863-9, 4th Indian Reprint 2015

Assignment List :

1. Perform assignments on List, Set, Dictionary, and Tuple in Python.

2. Perform String operations using Python

3. Practice Following NumPy Skills: –

i. Array creation and It's Attributes, numeric ranges in numPy, Slicing, and indexing of NumPy Array.

ii. Array manipulation, Searching, Sorting and splitting.

iii. Array Mathematical functions, broadcasting and Plotting NumPy arrays

4. Practice Following Pandas Skills: – Pandas is a handy and useful data-structure tool for analyzing large and complex data.

Practice DataFrame, Data Selection, Group-By, Series, Sorting, Searching, statistics. Practice Data analysis using Pandas. For this exercise, we are using Automobile Dataset. This Automobile Dataset has a different characteristic of an auto such as body-style, wheel-base, engine-type, price, mileage and horsepower.

5. Assume that there are the top 5 performers. Write a Python program to decide the player with the highest points. Develop separate functions to compute batting and bowling points and save them in a module. The performance of each player is stored in a dictionary object. These functions should be imported into the main code. (Case Study: - The 'Man of the Match' award of a 50-over cricket match is decided by computing points earned by players. The points are calculated on the basis of the following rules:

Batting
• 1 point for 2 runs scored
• Additional 5 points for half century
• Additional 10 points for century
• 2 points for strike rate (runs/balls faced) of 80-100
• Additional 4 points for strike rate>100
• 1 point for hitting a boundary (four) and 2 points for over boundary (six)
Bowling
• 10 points for each wicket
• Additional 5 points for three wickets per innings
• Additional 10 points for 5 wickets or more in innings
• 4 points for economy rate (runs given per over) between 3.5 and 4.5
• 7 points for economy rate between 2 and 3.5
• 10 points for economy rate less than 2
Fielding
• 10 points each for catch/stumping/run out

6. Design a 'book' class with title, author, publisher, price and author's royalty as instance variables. Provide getter and setter properties for all variables. Also define a method royalty() to calculate royalty amount author can expect to receive the following royalties:10% of the retail price on the first 500 copies; 12.5% for the next 1,000 copies sold, then 15% for all further copies sold.
Then design a new 'ebook' class inherited from 'book' class. Add ebook format (EPUB, PDF, MOBI etc) as additional instance variable in inherited class. Override royalty() method to deduct GST @12% on ebooks

7. Write a python program to perform operations on stack

8. Write a python program to perform operations on queue.

9. Write a python function which accepts two linked lists containing integer data and an integer, n and merges two linked lists, such that list2 is merged with the list1 after n number of nodes.

10. Write a python function which accepts a stack of integers, sort it in ascending order and return the sorted stack.

11. Assume that you have to create such an application for maintaining a database of book titles and their costs.
Part 1: Write the script to create the required database and add data programmatically by using the Insert query.
Part 2: Write a Python script connecting to the database created that has the following features:
1. A books table having the title, author, and price as fields.
2. Accept input from the user for the title and quantity purchased by the customer.
3. Fetch the price from the table by executing the Select query.
4. Calculate the total amount and display it.
Part 3: Write a python script to update, delete records of the database.

12. Consider a case study of direct marketing campaigns (phone calls) of a Portuguese banking institution. The classification goal is to predict whether the client will subscribe (1/0) to a term deposit (variable y).

13. Develop Mini Project using above concepts using Python.

CSPA21201C: Dissertation Phase – I

Teaching Scheme
Credits : 4
Practical : 8 Hrs/week

Examination Scheme
Formative Assessment: 100 Marks
Summative Assessment : 50 Marks

Course Objective:
1. Identify problem faced by society related to respective engineering field.
1. Collecting information related to the problem same through detailed review of literature.
2. To develop the methodology to solve the identified problem.

Course Outcomes:
After completion of the course, student will be able to
1. Analyze the findings from the literature.
2. Demonstrate a solution to the problem selected.
3. Demonstrate an ability to present and defend their research work to a panel of experts

Students can take up problems in the field of respective branch of Engineering as In house Projects. It can be related to the solution to an engineering problem, verification and analysis of experimental data available, conducting experiments on various engineering subjects, material characterization, studying a software tool for the solution of an engineering problem etc.

Continuous Assessment (CE):

Periodic assessment of the student progress, performance and achievements will be done through periodic presentations, Assignments, Tests etc. as instructed by the course teacher/ Guide. Continuous assessment (CA): will be monitored by the respective Guide.

Summative Assessment (SA):

After completion of the program, the student submits a Project report of his/her In-house project and makes a presentation of the same at VIIT, Pune.

A viva –voce Dissertation Phase – I for will be the SA Guidelines for the report are as suggested in ANNEXURE I

Semester - IV

MODULE I

CSPA22201A: Industry Internship Project – II

Teaching Scheme
Credits: 16
Laboratory Work: 32 Hrs/week

Examination Scheme
Formative Assessment: 100 Marks
Summative Assessment : 100 Marks

Course Objectives:

1. Considerably more in-depth knowledge of the major subject/field of study, including deeper insight into current research and development work.
2. The capability to clearly present and discuss the conclusions as well as the knowledge and arguments that form the basis for these findings in written and spoken English.

Course Outcomes:
After completion of the course, student will be able to

1. Demonstrate a depth of knowledge in the respective specialization.
2. Demonstrate an ability to present and defend their research work to a panel of experts.

Continuous Assessment Method (CA):

Project stage II will have scheduled presentations and assessment which will be assessed by jointly by the pair of internal and external examiners, along with oral examination of the same. Continuous assessment(CA): will be monitored by the respective Guide.

Summative Assessment (SA) :

The final dissertation should be submitted in black bound hard copy preferably typed on both the sides of paper as well as a soft copy on CD. The format for dissertation is attached in Annexure II.

(The due weight will be given for the paper(s) on topic of project presented in conference/s or published in referred journals.)

A viva –voce for Industry Internship Project –II will be the SA. Guidelines for the report are as suggested in ANNEXURE II and III

MODULE II

CSPA22201B: Dissertation Phase – II

Teaching Scheme
Credits: 16
Laboratory Work: 32 Hrs/week

Examination Scheme
Formative Assessment: 100 Marks
Summative Assessment : 100 Marks

Course Objectives:

1. Considerably more in-depth knowledge of the major subject/field of study, including deeper insight into current research and development work.
2. The capability to clearly present and discuss the conclusions as well as the knowledge and arguments that form the basis for these findings in written and spoken English.

Course Outcomes:

After completion of the course, student will be able to

1. Demonstrate a depth of knowledge in the respective specialization.
2. Demonstrate an ability to present and defend their research work to a panel of experts.

Continuous Assessment Method (CA):

Project stage II will have scheduled presentations and assessment which will be assessed by jointly by the pair of internal and external examiners, along with oral examination of the same. Continuous assessment(CA): will be monitored by the respective Guide.

Summative Assessment (SA) :

The final dissertation should be submitted in black bound hard copy preferably typed on both the sides of paper as well as a soft copy on CD. The format for dissertation is attached in Annexure II.

(The due weight will be given for the paper(s) on topic of project presented in conference/s or published in referred journals.)

A viva –voce for Dissertation Stage II will be the SA. Guidelines for the report are as suggested in ANNEXURE II and III

ANNEXURE I

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute Of Information Technology
(An Autonomous Institute affiliated to Savitribai Phule Pune University)

Department of Computer Engineering

(Internship/Value Added course/In House) Report on

(Title)

By:

(Name)----------

(Roll No)----------

Semester I/II/III/IV

For the partial fulfillment of M. Tech. degree in (Computer Engineering)

Under the guidance of

(Name of Guide/ Company)

20 - 20

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute Of Information Technology
(An Autonomous Institute affiliated to Savitribai Phule Pune University)

Department of Computer Engineering

CERTIFICATE

This is to certify that the Internship/Value added course Report entitled "_____ _____" is submitted by ---------- bearing Roll No ---------- for the partial fulfillment of M. Tech. degree in (Computer Engineering) of Savitribai Phule Pune University, Pune.

Guide **Guide**

Head of Department **Director**

External Examiner

Guidelines for report writing :

- No. of copies required are **Three spiral bound.** (One each for guide, Department and student)

- **Insert page numbers**: bottom center 11 Times New Roman

1. Use MS-word: for typing the paper in A-4 size paper
2. Margins: left, right, top, bottom 25 mm.
3. Spacing: single line spacing
4. Font type: Times new roman
5. Font size:
   - 14 for the title (Bold)
   - 12 for Author name (Bold, Title case)
   - 12 bold for caption of Figures and Tables
   - Main heading: Bold, all caps
   - Subheading: Bold, Title case
   - Lower level heading: Bold
   - 10 for Abstract and abstract heading
6. Title page:

Title: all caps, bold and centered, Make sure the title is not more than 80 characters in length, including space between the words.

Abstract: should be between 100 to 150 words

7. Heading and Text:
   - Left justified bold,
   - No numbering of main and subheadings,
   - leave one line blank before and after heading
   - No underlines or foot notes
   - Each paragraph should be separated by one blank line
8. Equations:
   - Use equation editor
   - Typed and numbered in sequence
   - Write equation numbers in bracket, right justified
9. Figures and Tables:
   - Centered and numbered in sequence
   - The caption of Figure should be below and centered
   - The caption of Table should be above and centered
10. Reference:
    - Each reference should be cited in the text by the last name of the author(s) and year of publication of the reference
    - Reference should include year of publication, full title, name of source, volume, and page numbers. Format of reference should be IEEE/ASCE etc.

ANNEXURE II

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute Of Information Technology
(An Autonomous Institute affiliated to Savitribai Phule Pune University)

Department of Computer Engineering

A

PROJECT REPORT

On

(NAME OF PROJECT)

Submitted to

Savitribai Phule Pune University, Pune

For the partial fulfillment of M.Tech. degree in (Computer Engineering)

By

(Name of candidate)

University seat No)

Under the Guidance of

(Name of Guide)

20 - 20

Department of Computer Engineering

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute Of Information Technology
(An Autonomous Institute affiliated to Savitribai Phule Pune University)

CERTIFICATE

This is to certify that the Project Report entitled "_____ _____" is submitted by ---------- ----- bearing Roll No ---------- for the partial fulfillment of M.Tech. degree in Computer Engineering of Savitribai Phule Pune University, Pune.

Guide **Guide**

Head of Department **Director**

External Examiner

Guidelines for report writing:

- No. of copies required are **Three with Hard bound.** (One each for guide, Department and student)

- **Insert page numbers**: bottom center 11 Times New Roman

1. Use MS-word: for typing the paper in A-4 size paper
2. Margins: left, right, top, bottom 25 mm.
3. Spacing: single line spacing
4. Font type: Times new roman
5. Font size:
    - 14 for the title (Bold)
    - 12 for Author name (Bold, Title case)
    - 12 bold for caption of Figures and Tables
    - Main heading: Bold, all caps
    - Subheading: Bold, Title case
    - Lower level heading: Bold
    - 10 for Abstract and abstract heading
6. Title page:

Title: all caps, bold and centered, Make sure the title is not more than 80 characters in length, including space between the words.

Abstract: should be between 100 to 150 words

7. Heading and Text:
    - Left justified bold,
    - No numbering of main and subheadings,
    - leave one line blank before and after heading
    - No underlines or foot notes
    - Each paragraph should be separated by one blank line
8. Equations:
    - Use equation editor
    - Typed and numbered in sequence
    - Write equation numbers in bracket, right justified
9. Figures and Tables:
    - Centered and numbered in sequence
    - The caption of Figure should be below and centered
    - The caption of Table should be above and centered
10. Reference:
    - Each reference should be cited in the text by the last name of the author(s) and year of publication of the reference
    - Reference should include year of publication, full title, name of source, volume, and page numbers. Format of reference should be IEEE/ASCE etc.

ANNEXURE III

GUIDELINES FOR INDUSTRY INTERNSHIP PROJECT-II AND DISSERTATION PHASE–II SUBMISSION

Vishwakarma Institute of Information Technology, Pune

1. INTRODUCTION

Purpose:

This document, herein after referred to as the Thesis Guide, lists the general and specific requirements governing thesis preparation including guidelines for structuring the contents.

2. Specifications for thesis format:

2.1 Preparation of Manuscript and Copies:

- The thesis needs to be prepared using a standard text processing software and must be printed in black text (color for images, if necessary)
- The thesis must be printed or photocopied on both sides of white paper. All copies of thesis pages must be clear, sharp and even, with uniform size and uniformly spaced characters, lines and margins on every page
- Thesis should be free from typographical errors.

2.2 Sizes and Margins:

- A-4 size paper should be used
- Margins: left, right, top, bottom 25 mm.
- Content should not extend beyond the bottom margin except for completing a footnote, last line of chapter/subdivision, or figure/table caption.
- A sub-head at the bottom of the page should have at least two full lines of content below it. If the sub-head is too short to allow this, it should begin on the next page.

2.3 Page Numbering:

- Beginning with the first page of the text in the thesis (chapter 1), all pages should be numbered consecutively and consistently.
- Page numbers prior to Chapter 1 should be in lower case Roman numerals. The title page is considered to be page (i) but the number is not printed.
- **Insert page numbers**: bottom center 11 Times New Roman

2.4 Line Spacing

Line spacing in the text should be single and 1.5 lines in Abstract.

2.5 Font:

For the thesis the font should be Times new roman with
Font size:

- 14 for the chapter title (Bold)
- 12 Times new roman for text in thesis
- 12 bold for caption of Figures and Tables
- Main heading e.g 1: Bold, all caps, 12 Times new Roman
- Subheading e.g 1.1 : Bold, Title case, 12 Times new Roman

- Lower level heading e.g 1.1.1: 12 Times new Roman

3.TITLE PAGE

Title: all caps, bold and centered, Make sure the title is not more than 80 characters in length, including space between the words. Refer Annexure I for the format

4. TABLES, FIGURES AND EQUATIONS

- All tables (tabulated data) and figures (charts, graphs, maps, images, diagrams, etc.) should be prepared, wherever possible, on the same paper used to type the text and conform to the specifications as specified here:
  - The caption of Figure should be below and centered, Times New Roman, 12, bold.
  - The caption of Table should be above and centered, Times New Roman, 12, bold.
- Figures used in the report should not be blur.Candidate should try to draw the figures on their own. 8.All the figures and tables should be mentioned/referred/explained in the adjoining paragraphs.
- Tables, figures and equations should be numbered sequentially either throughout the thesis or chapter-wise. They are referred to in the body of the text capitalizing the first letter of the word and number, as for instance, Table 17, Figure 24, Equation (33), or Table 5.3, Figure 3.11, Equation (4.16), etc.
- Use equation editor
- Good quality Line Drawings/figures must be drawn

5. GUIDELINES FOR STRUCTURING CONTENTS:

5.1 Sequence of Contents

The following sequence for the thesis organization should be followed:

(i) Preliminaries
- Title Page - As per the format given in Annexure IIIA
- Certificate – After title page as in Annexure IIIB
- Abstract/Synopsis
- Acknowledgement and/ or Dedication
- Table of Contents
- List of Figures, Tables, Illustrations, Symbols, etc.

(ii) Introduction : The body of the thesis, summary and conclusions
(iii) Reference Material List of References
(iv) Appendices where included
(v) Index where included

6. SYNOPSIS/ABSTRACT

- An M Tech. thesis should contain an abstract not exceeding 300 words. A synopsis/abstract shall be printed in double space with the heading

"SYNOPSIS/ABSTRACT" in uppercase followed by certain preliminary information and the text.

- Synopsis/Abstract should be self-complete and contain no citations.

7. TABLE OF CONTENTS

- The table of contents lists all material that follows it. Chapter titles, sections, first and second order sub-divisions, etc must be listed in it.
- Tables, figures, nomenclature, if used in the thesis, are listed under separate headings.

8. THE TEXT OF THE THESIS

- Introduction

Introduction: the first chapter may be the first chapter or its first major division. In either case, it should contain a brief statement of the problem investigated. It should outline the scope, aim, general character of the work carried out.

- The body of Thesis

This is the substance of the dissertation inclusive of all divisions, subdivisions, tables, figures, etc.

- Summary and conclusions

If required, these are given as the last major division (chapter) of the text. A further and final subdivision titled "*Scope* for Further Work" may follow.

9. REFERENCE

- For referencing an article in a scientific journal the following information should be present in a decided format: authors, title, name of journal, volume number, page numbers and year.
- For referencing an article published in a book, the decided referencing format should contain authors, the title of the book, editors, publisher, year, page number of the article in the book being referred to.
- For referencing a thesis the decided format should contain, author, the title of thesis, where thesis
- was submitted or awarded, year.
- Each reference should be cited in the text by the last name of the author(s) and year of publication of the reference
- Reference should include year of publication, full title, name of source, volume, and page numbers.
- Format of reference should be IEEE/ASCE etc.
- All the mentioned references should be cited in the report compulsorily

10. APPENDIX OR APPENDICES

- Supplementary illustrative material, original data, and quotations too lengthy for inclusion in the text or which is not immediately essential to an understanding of the subject can be presented in Appendix or Appendices (as Appendix A , Appendix B, etc.)
- Each appendix with its title should be listed separately in the table of contents. Likewise,tables and figures contained in the Appendices are to be included in the lists of tables and figures, respectively.

11.BINDING

The student should submit the soft copies/hard copies(if asked by Guide) of the thesis in partially bound form (coiled wire binding, clamping, or filing) for M.Tech (pre thesis), respectively. Once the thesis is accepted, it is the student's responsibility to get it properly bound before depositing the required number of copies with the Department concerned. The front cover of the bound copy should be the same as the title page of the thesis. The front cover should have printing on the side to include the author's name, abbreviated thesis title (optional), degree, department, and the year. **The thesis should be bound in BLACK colored hard cover (Final Thesis) and golden print (engrossed) with written materials in black script on the title page of the report.**

12. PLAGIARISM REPORT

- A plagiarism report (**generated through Urkund: plagiarism check software)** should be submitted with the Project thesis/report with similarity not more than …10..%.
- Exclude Front pages, references, citations

13.THESIS SUBMISSION

To have the thesis examined, the number of thesis copies to be submitted should correspond to the number of examiners, Guide, Department and Student. Hard copy of the report is to be submitted to the Department after corrections done as suggested by external examiner/ Guide/Department at any time when report submission is called by Guide/Department.

14. REQUIREMENTS OF THESIS SUBMISSION

A student should submit the following documents during submission of Thesis

1. Thesis hard copy/soft copy (in CD) with related documents(if any)
2. Plagiarism Report (Generated through plagiarism check software)
3. No Objection Certificate
4. List of examiners – To be submitted by Guide
5. Duly signed Students Declaration

Student Declaration

1. Thesis Title:
2. Degree for which thesis is submitted:
3. Specifications regarding thesis is followed
4. The thesis has been prepared with the rules of plagiarism
5. All sources has been cities properly
6. The thesis has not been submitted elsewhere for a degree

Students signature and Name
Roll No:
Department:

ANNEXURE IIIA

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute Of Information Technology
(An Autonomous Institute affiliated to Savitribai Phule Pune University)

Department of ……

A

Industry Internship Project-II/Dissertation Phase-II

On

(NAME OF PROJECT)

Submitted to

Savitribai Phule Pune University, Pune

For the partial fulfillment of M.Tech. degree in (branch)

By

(Name of candidate)

University seat No)

Under the Guidance of

(Name of Guide)

20 - 20

ANNEXURE IIIB

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute Of Information Technology
(An Autonomous Institute affiliated to Savitribai Phule Pune University)

Department of ……

CERTIFICATE

This is to certify that the **Industry Internship Project-II/Dissertation Phase-II** entitled "_____ _____" is submitted by ---------- ----- bearing Roll No ---------- for the partial fulfillment of M.Tech. (branch name) degree in (Specialization name) of Savitribai Phule Pune University, Pune.

Guide **Guide (External if any/ Internship)**

Head of Department **Director**