

**Vishwakarma Institute of Information Technology, Pune-48**

(An Autonomous Institute affiliated to Savitribai Phule Pune University)

**Department of Electronics and Telecommunication Engineering****Second Year M. Tech. Signal Processing (E&TC) (SYMT) - Semester I (Pattern 2017)**

| Course Code                          | Course  | Course Type | Teaching Scheme |    | Examination Scheme   |    |                      |     |     | Total |    |
|--------------------------------------|---|-------------|-----------------|----|----------------------|----|----------------------|-----|-----|-------|----|
|                                      |   |             |                 |    | Formative Assessment |    | Summative Assessment |     |     |       |    |
|                                      |   |             | L               | P  | ISE                  |    | CE                   | ESE | OR  |       |    |
|                                      |   |             |                 |    | T1                   | T2 |                      |     |     |       |    |
| IOEP21171A / IOEP21171B              | Open Elective (Institute)   | CE          | 3               | -  | 15                   | 15 | 20                   | -   | -   | 50    | 3  |
| IFLP21172A / IFLP21172B / IFLP21172C | Foreign Language: German/French/ Business English   | CE          | 2               | -  | -                    | -  | 50                   | -   | -   | 50    | 2  |
| IES21173                             | Environmental Studies   | CE          | 1               | 2  | -                    | -  | 50                   | -   | -   | 50    | 2  |
| ETPA21174A / ETPA21174B / ETPA21174C | Internship <sup>#</sup> / Value added course <sup>#</sup> / In-house Project <sup>#</sup> | CE-OR       | -               | 8  | -                    | -  | 100                  | -   | 100 | 200   | 8  |
| ETPA21175                            | Project Stage-I <sup>#</sup>  | CE-OR       | -               | 12 | -                    | -  | 100                  | -   | 100 | 200   | 10 |
| AP2                                  | Audit Course  |             | -               | -  | -                    | -  | -                    | -   | -   | -     | -  |
|                                      | Total   |             | 6               | 22 | 15                   | 15 | 320                  | -   | 200 | 550   | 25 |

**Open Elective (Institute)**

IOEP21171A: Cyber Crime and Laws

IOEP21171B: Project Planning and Management

**Foreign Language:**

IFLP21172A: German

IFLP21172B: French

IFLP21172C: Business English

**Audit course: (Institute)**

AP2: Cyber security OR Value Engineering and human rights OR, Legislative procedures OR Technical writing / Documentation OR Languages OR Online Certification Courses (minimum 2 weeks) OR Cost Accountancy OR Department Specific Audit Courses

**Second Year M. Tech. Signal Processing (E&TC) (SYMT) – Semester II (Pattern 2017)**

| Course Code | Course                        | Course Type | Teaching Scheme |    | Examination Scheme   |    |                      |     |     | Total | Credits |
|-------------|-------------------------------|-------------|-----------------|----|----------------------|----|----------------------|-----|-----|-------|---------|
|             |                               |             |                 |    | Formative Assessment |    | Summative Assessment |     |     |       |         |
|             |                               |             | L               | P  | ISE                  |    | CE                   | ESE | OR  |       |         |
|             |                               |             |                 |    | T1                   | T2 |                      |     |     |       |         |
| ETPA22171   | Project Stage II <sup>#</sup> | CE-OR       | -               | 25 | -                    | -  | 100                  | -   | 100 | 200   | 25      |
| AP2         | Audit Course                  | -           | -               | -  | -                    | -  | -                    | -   | -   | -     | -       |
|             | Total                         |             | -               | 25 | -                    | -  | 100                  | -   | 100 | 200   | 25      |

Theory: 1Hr. = 1 Credit, Practical: 2 Hrs. = 1 Credit, <sup>#</sup>1 hr. = 1 Credit, Audit Course: No Credits

Dean Academics

Director

## Open Elective (Institute)

### IOEP21171A: Cyber Crime and Laws

#### Teaching Scheme

**Credits : 3**

**Lectures : 3 Hrs/week**

#### Examination Scheme

Formative Assessment: 50 Marks

#### Course objectives :

The primary objective of this course is to study and practice fundamental techniques in developing secure web based applications, including vulnerability of web based applications and how to protect those applications from attacks. In addition, advanced topics related to Web, such as E-commerce security, collaborative Web-based applications, etc., will also be studied. Students are encouraged to complete a publishable research paper on one of the related topics.

**Course Outcomes:** At the end of the course students should able to :

1. state and explain Cybercrime laws
2. explain basics of Computer Network and Security
3. explain basics of ethical hacking
4. analyze and understand how Network Security Devices (Firewalls, IDS/IPS, NAT, Proxies.) works
5. discover and identify abnormalities within the network related security treats.
6. understand web application security threats

#### Unit I : Introduction

**Basic of Computer Network:** Protocols and Standards, OSI Model, TCP/IP Model, Network topology (Physical & logical), Switching techniques: Circuit switching, Packet switching and message switching, Network Hardware Components: Connectors, Repeaters, hubs, NICs, Bridges and Switches

**Basic of Cyber Security:** Elements of Information security, Types of Attacks, Basic of Encryption and Steganography.

#### Unit II : Cyber Crime Law

Indian IT Act, conductive Digital Investigation, Handling a Digital Crime Scene: Principles, Preservation, Modus Operandi, Motive, and Technology.

#### Unit III : Basic of Ethical Hacking

Footprinting and Reconnaissance, Scanning and Enumeration. ( use of one tool for each step)

#### Unit IV : Internet Security

Introduction, IP security, SSL & TLS Protocols, Electronic Payment Systems. Intrusion detection, IDS: Need, Methods, Types of IDS, Limitations and Challenges, Firewall Introduction, Characteristics and types, Benefits and limitations. Firewall architecture, Trusted Systems, Access Control.

#### Unit V : Web application security Threats

Denial of Service, SQL Injection, Session Hijacking, Sniffing.

#### Unit VI : Case Study

OWASP top ten vulnerabilities( Web Application or Mobile)

#### Reference Books :

1. Digital Evidence & Computer Crime, Eoghan Casey Bs Ma Ac, ELSEVIER-Academic Press, Third Edition, ISBN 13 : 978-0123742681, ISBN 10 : 0123742684
2. Cryptography and Information Security, Dr. V.K. Pachghare, PHI, ISBN 978-81-303-5082-3
3. Data Communication and Networking, Behrouz Fourozon, McGraw Hill Education ISBN-10: 1259064751; ISBN-13: 978-1259064753

#### Web Content:

1. PDF Digital Content : Stuart McCLURE, Joel Scambray, George Kurtz, HackingExposed Network Security Secrets and Solutions, McGrawHill, 2012 ISBN: 978-0-07-178028-5 Digital Ref: <http://84.209.254.175/linux-pdf/Hacking-Exposed-7-Network-Security-Secrets.pdf>

**Open Elective(Institute)**  
**IOEP21171A: Project Planning and Control**

**Teaching Scheme**

**Credits : 3**

**Lectures : 3Hrs/week**

**Prerequisite: Basic understanding of Project Management at UG level**

**Course Objectives:**

- To impart knowledge of project life cycle.
- To introduce students to Project Identification Process, Project Initiation, Pre-Feasibility Study and Project feasibility Studies,
- To construct CPM, PERT network for a project.
- To introduce students to Steps in Risk Management, Risk Identification, Risk Analysis and Reducing Risks
- To introduce students to process of project Performance Measurement, Evaluation and closeout.

**Course Outcomes:**

Upon the completion of the course, students will be able to

1. understand phases of project life cycle
2. understand the Project Identification Process, Project Initiation, Pre-Feasibility Study and Project feasibility Studies,
3. construct CPM, PERT network for a project.
4. understand the concept of Risk Management
5. understand the process of project Performance Measurement, Evaluation and closeout.

**Unit I: Basics of Project Management**

Introduction, Need, Project Management Knowledge Areas and Processes, Concept of Organizational Structure and types, The Project Life Cycle (preferably with case study), Essentials Project Management Principles.

**Unit-II: Project Identification and Selection**

Introduction, Project Identification Process, Project Initiation, Pre-Feasibility Study, Feasibility Studies, Project Break-even point. Case study is preferred

**Unit -III: Project Planning**

Introduction, Need for Project Planning, Work Breakdown Structure (WBS), LOB, CPM and PERT, Network Cost System, Resource Allocation, Scheduling, Project Cost Estimate and Budgets.

**Unit -IV: Project Risk Management and Quality Management**

Introduction, Risk, Risk Management, Role of Risk Management in Overall Project Management, Steps in Risk Management, Risk Identification, Risk Analysis, Reducing Risks. Introduction to Quality, Quality Concepts, Value, Engineering. Case study is preferred.

**Unit V: Project Performance Measurement, Evaluation and closeout**

Introduction, Performance Measurement, Productivity, Project Performance Evaluation, Benefits and Challenges of Performance Measurement and Evaluation, Controlling the Projects. Project Close-out, Steps for Closing the Project, Project Termination, and Project Follow-up. Case study is preferred

**Unit VI - Operation Research in Management**

Introduction, Operation Research as tool for Decision Support System, Overview of OR Research Techniques, Formulation of Linear Programming Problem, Linear Programming Models, Assumptions of Linear Programming, Graphical Method of solving LP problem. Simplex method for solving LP problem.

**Text books:**

1. Operations Research by Premkumar Gupta and D.S. Hira, S. Chand Publications (2014)
2. Project Management – K Nagrajan – New age International Ltd.
3. Project Management – Ahuja H.N. – John Wiley, New York.
4. Project Management-Planning and Control---Rory Burkey 4th ed.—Wiley, India.
5. Reference books: Project Risk Management - Bruce Barkley- McGraw-Hill, 2004.

## **Foreign Language**

### **IFLP21172A: German Language**

**Teaching Scheme:**

**Credits: 2**

**Lectures: 2 hrs/week**

**Examination Scheme:**

Formative Assessment: 50 marks

#### **Course Objectives:**

- To enable the students to understand the basic language structures in German which are used in everyday context
- To read and understand easy text in German
- To be able to communicate in German using simple grammar structures and a core vocabulary
- To be able to write in simple and correct German

#### **Course Outcome:**

On completion of the course students will be able to

1. Communicate (read, write and speak) in German
2. Be aware of the close connection between German and English as well as with Indian languages.
3. Obtain awareness about various opportunities and career options, as well as provide a 'world view'

#### **Unit 1 - Fundamentals and Basic Grammar**

Introduction to script, Cardinal & ordinal numbers (1 to 1000), How to tell date, day & time, Greetings & Introduction, Self-Introduction, Asking about directions, Useful expressions.

Articles, Nouns & Pronouns, Adjectives, Verbs, Prepositions, Conjunctions, Adjectives, Listening

#### **Unit 2 - Countries, Language**

The present tense of related verbs only affirmative related vocabulary the nominative case related nouns and its pronouns simple sentence structure: position of subject & object only as nouns, linking of verbs, and predicate adjectives & introduction to compound nouns

#### **Unit 3 - Food and Shopping**

The present tense of related verbs only affirmative related vocabulary the dative case related nouns and its pronouns simple sentence structure : position of subject & object only as nouns, linking of verbs, and predicate adjectives & introduction to compound nouns

#### **Unit 4 - Holidays, Vacations & city life**

The present tense of related verbs only affirmative related vocabulary the accusative case related nouns and its pronouns simple sentence structure: position of subject & object as pronouns, linking of verbs, and predicate adjectives & introduction to compound nouns

#### **List of assignments:**

1. Introduce yourself and your family in German language
2. Vocabulary building by using dictionary, exercises, framing sentences
3. Translate small passages from English to German
4. Paragraphs for comprehensions.
5. Make posters based on textbook.
6. Make power point presentations on festivals of German

Text Books / Reference Books : Netzwerk A1, Goyal Publishers & Distributors Pvt Ltd, Autohor – Stefanie Dengler, Paul Rusch, Helen Schmitz, Tanja Sieber

## **Foreign Language**

### **IFLP21172B: French Language**

#### **Teaching Scheme**

**Lectures : 2 hrs/week**

#### **Examination Scheme**

**Formative Assessment: 50 Marks**

#### **Course Objectives:**

- To enable the students to understand the basic language structures in French which are used in everyday context
- To read and understand easy text in French
- To be able to communicate in French using simple grammar structures and a core vocabulary
- To be able to write in simple and correct French

#### **Course Outcome:**

Students will be able to

1. Communicate (read, write and speak) in French
2. Aware of the close connection between French and English as well as with Indian languages.
3. Obtain awareness about various opportunities and career options, as well as provide a 'world view'

#### **Unit 1 - Fundamentals and Basic Grammar**

Introduction to script Cardinal & ordinal numbers (1 to 1000), How to tell date, day & time Greetings & Introduction Self Introduction Asking about directions.

Articles, Nouns & Pronouns, Adjectives, Verbs, Prepositions, Conjunctions, Adjectives, Listening, Useful expressions

#### **Unit 2 - Countries, Language**

The present tense of related verbs only affirmative, related vocabulary, subject related nouns and its pronouns, simple sentence structure: position of subject & object, linking of verbs, and predicate adjectives & introduction to compound nouns

#### **Unit 3 - Food and Shopping**

The present tense of related verbs only affirmative related vocabulary the direct object related nouns and its pronouns simple sentence structure: position of subject & object only as nouns, linking of verbs, and predicate adjectives & introduction to compound nouns

#### **Unit 4 - Holidays, Vacations & city life**

The present tense of related verbs only affirmative related vocabulary the indirect object related nouns and its pronouns simple sentence structure: position of subject & object only as nouns, linking of verbs, and predicate adjectives & introduction to compound nouns

#### **List of assignments:**

1. Introduce yourself and your family in French language
2. Vocabulary building by using dictionary, exercises, framing sentences
3. Translate small passages from French to German
4. Paragraphs for comprehensions.
5. Make posters based on textbook.
6. Make power point presentations on festivals of France.

Text Book / Reference Book : Jumelage, Methode de francais, Niveau 1, Author – Manjiri Khandekar and Roopa Luktuke, Saraswati House Pvt Ltd, New Delhi

## Foreign Language

### IFLP21172C: Business English

#### Teaching Scheme :

Lectures/Week: 2Hrs/week

#### Examination Scheme

Formative Assessment: 50 Marks

#### Course objectives :

- To develop the understanding for the basics of Effective Communication.
- To apply various applications of communication in social and professional spheres.
- To apply various tools and techniques of effective communication for self-Development.

#### Course

**Outcomes:** At the end of the course, students should be able to

1. apply principles of effective communication skills
2. develop the public speaking skills
3. Prepare the correspondence related to business communication

#### Unit I : Technology and Communication

Technology and process of Communication, Vitals of Communication, Communicating with Concern and Empathy, The Johari Window, Persuasive Communication and Negotiations, Roles during negotiation, Communication Networks

#### Unit II : Verbal and Non-verbal Communication

Dyadic Communication, Public Speaking and oral Presentations, Active Listening, Meetings, Seminars and Conferences, Debates, Group Discussion and Interviews, Presentation Skills

#### Unit III: Written Communication

Precis Writing, Business and Technical Reports, Technical Proposals, Business Correspondences, Memorandum Writing, Notices, Agenda and Minutes, Articles, E- Communication, Resume with Cover letter. Handbooks and Manuals, Research Papers and Articles, Advertising,

#### Unit IV : Intrapersonal and Interpersonal Communication

Meaning, Importance, factors affecting Intrapersonal and Interpersonal communication, How to improve Intrapersonal and interpersonal Communication, Transactional Analysis, Schutz's Theory of Interpersonal needs Mind- Mapping.

#### Reference books :

1. 'Communication Skills', Sanjay Kuma and Pushpa Lata, Oxford University Press
2. 'Developing Communication Skills', Krishna Mohan and Meera Baneerjee, McMillan India ltd.
3. 'Communication Skills for Engineers', C. Muralikrishna and Sunita Mishra, Pearson.

## **IES21173: Environmental Studies**

### **Teaching Scheme**

**Credits : 2**

**Lectures : 2 Hrs./week**

**Laboratory Work: NA**

### **Examination Scheme**

Formative Assessment: 50 Marks

### **Course Objectives:**

- To introduce the student to the Indian environmental legislation and acts
- To make the student aware of International environmental laws and protocols.
- To impart the knowledge of Natural Wastewater Treatment Systems & Low-Cost Sanitation.
- To make the student aware of Climate Change

### **Course Outcomes:**

By the end of the course,

1. Student would understand the environmental legislation and acts.
2. Student would understand the Natural Wastewater Treatment Systems & Low-Cost Sanitation.
3. Student would understand the climate change.

### **Unit I : Indian environmental legislation and acts.**

Water Act-1974, Air Act-1981; Important rules under Environment Protection Act (EPA) – 1986 such as Biomedical Waste Rules-1998, EIA Rules-1994, Coastal Regulation Zone 1999, Municipal Solid waste rules, Hazardous Waste Rules-2008 etc.

### **Unit II : International environmental laws and protocols**

Stockholm Conference, Montreal Protocol, Rio Earth Summit, Kyoto Summit; – Role of UN authorities in protection of global environment; – Global environmental issues and environmental laws to control global warming, ozone depletion, acid rain, hazardous waste

### **Unit III : Natural Wastewater Treatment Systems & Low-Cost Sanitation**

NATURAL WASTEWATER TREATMENT SYSTEMS: Centralized Vs decentralized, Natural and constructed wetlands – Different types and Mechanisms

LOW-COST SANITATION: Dry sanitation methods – Pit latrines, VIP latrines, Aqua privy, Septic tank

### **Unit IV : Climate Change**

Overview of Earth's Atmosphere; Layers of Atmosphere; – Temperature, Radiation and Variation; – Climate Variability like Floods, Droughts, Drought Indicators, Heat waves; – Kyoto Protocol, Montreal protocol and IPCC Scenarios, Carbon trading and clean development mechanism ; Role of countries and citizens in containing in global warming

### **Text books:**

1. Gurdip Singh, Environmental law in India, Macmillan India, New Delhi. 2005
2. Thakur Kailash, Environmental protection law and policy in India, Deep and Deep publishers. Simla, 2007
3. Anil Markandya, Climate Change and Sustainable Development: Prospects for Developing Countries, Routledge, 2002.

### **Reference books:**

1. Crites R.W., Middlebrooks E.J., Reed S.C., Natural wastewater Treatment Systems, CRC Taylor and Francis, 2006.
2. Martin, A.M., Biological Degradation of Wastes, Elsevier Appl. Science, New York, 1991.
3. Tchobanoglous G., Solid Wastes: Engineering principles and Management issues, McGraw Hill Book Company, Delhi. 1977.

## **ETPA21174A: Internship**

### **Teaching Scheme**

**Credits : 8**

**Practical : 8 Hrs/week**

### **Examination Scheme**

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 Marks

Upon completion of an internship, students will be able to demonstrate the following outcomes:

- Experience of applying the existing engineering knowledge in similar or new situations
- Ability to identify when new engineering knowledge is required, and apply it
- Understanding of lifelong learning processes through critical reflection of internship experiences.

The preferred duration of an Engineering internship is 3 months, full-time placement with an industry/organization/consultancy work etc. (8 x 15=120 hour work week). This is equal to 8 units of academic credit

Subject to approval from the Internship Host Organization, students should complete an internship full-time, but the internship must be completed (and all assessment items submitted) before September 2018.

### **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.

A monthly presentation and report should also be submitted to VIIT, Pune as per the following schedule:

1<sup>st</sup> Internship presentation: End of July 2018

2<sup>nd</sup> Internship Presentation: End of August 2018

3<sup>rd</sup> Internship Presentation: End of September 2018.

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 (SA) :**

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. This will be a part of SA.



## ETPA21174B: Value added course

### Teaching Scheme

**Credits : 8**

**Practical : 8 Hrs/week**

### Examination Scheme

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 Marks

At the end of the course, students will have

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.

VIIT offers the following value added courses:

- **Water Resource and Environmental Engineering (WREE):**

- MATLAB: Introduction to MATLAB
- MIKE-11: Modeling fluid flow using MIKE-11
- HEC-RAS: Modeling fluid flow using HEC-RAS

- **Structures:**

- **Structural Engineering Design Studio:** Modeling of Building using Midas / ETABS/ STAAD, Modeling of PEB using SAP 2000/ Midas / STAAD, Modeling of Spring and support settlement problems using ETABS/ Midas / STAAD, Push over analysis using SAP 2000/ Midas/ STAAD, Time history analysis using SAP 2000/ Midas/ STAAD.
- **Standard Working Practices:** Stakeholders, drawing, safety, Supporting structural systems, concrete production, steel construction.

- **Electronics and Telecommunication:**

- **Python Programming:** The course will comprises of a blend of theory and practicals. Students are exposed to Python programming language and machine learning toolboxes like Tensorflow and Kera. At the end of the course students will go through 3-4 case studies (live projects) demonstrated by industry experts. Finally students will be asked to build a project on which his/her acquired skills will be judged/evaluated.
- **Machine Learning:** The course will introduce to the basics of machine learning, classifications and regression using variants of neural networks, support and relevance vector machines. Object recognition and classification through deep learning techniques and convolutional neural networks.

- **Computer Engineering:**

- **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.
- **Course Content for Cross Platform Mobile App Development:** This course teaches software developers to develop applications for mobile devices with the help of HTML5, CSS3, and JavaScript and third party App converters like **Cordova and PhoneGap**.

- **Mechanical:**

- **CAD Modelling:** Sketcher Workbench, Part Modeling Workbench, Assembly Design, Workbench, Drafting, ADVANCE: Surface Modeling Workbench, Sheet Metal Workbench
- **Meshing: (Using HYPERMESH):** Understanding FEA technology and what is discretization (meshing) for crash applications, Complete knowhow of the tool commands, Creating basic geometrical shapes using Hypermesh, Mid-surface meshing basics for sheet metal, components, Understanding mesh quality requirement and geometry clean-up using Hypermesh, 1-D meshing for beam components, 3-D (Volume) meshing using Hexahedral and Tetrahedral elements, Batch meshing techniques for sheet metal parts.
- **Analysis using FEA software:** ANSYS Element Selection & Loads: Element Type, 1D, 2D, 3D, Structural and Modal Analysis, Coupled Analysis, Dynamic Analysis.
- **Introduction to MATLAB & SIMULINK**
- **ADAMS:** Introduction to Adams/View, Functional Virtual Prototyping workflow , Adams/View GUI Outline, Coordinate, part Classification, and Structure , Bodies, construction, and operational features, Connectors, DOF, and Constraints, Initial Conditions and Point Trace , Friction and Positioning, Construction Geometry, Adams Functions and Motion , Joint Primitives , Point Motions , Measurements, Displacement Functions, and Importing CAD Parts/Assembly , Add-On Constraints, Couplers, and Assembling Models.

Value added courses will be carried out in the college and will be done by student/s under the guidance of the Guide/ Course teacher. It will start from August 2018, with 4 hrs theory and 4 hrs practical.

**Continuous Assessment:**

A 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 or other assessment method as instructed by Institute and/ or course teacher. This will be a part of SA.

## **ETPA21174C: In-house Project**

### **Teaching Scheme**

**Credits : 8**

**Practical : 8 Hrs/week**

### **Examination Scheme**

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 Marks

At the end of this course, students will be able to

1. Identify engineering problems through reviewing available literature.
2. Work on the solutions given and present solution by using his/her technique applying engineering principles.

Students can take up small 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 Method:**

In-House Project will have presentations (3 departmental presentations) and end semester presentation. Presentation 1 will include identification of the problem based on the literature review on the topic referring to latest literature available.

Presentation 2 should be done along with the report on identification of topic for the work and the methodology adopted involving scientific research, collection of data.

Analysis of data and determining solutions highlighting individuals' contribution will be the part for presentation 3.

Continuous assessment of In-House Project will be monitored by the respective Guide.

### **Summative Assessment (SA) :**

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. This will be a part of SA.

## **ETPA21175: Project Stage I**

### **Teaching Scheme**

**Credits: 10**

**Lectures: --**

**Laboratory Work: 12 Hrs/week**

### **Examination Scheme**

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 Marks

### **Course Objectives:**

- To identify a specific problem for the current need of the society and collecting information related to the same through detailed review of literature.
- To develop the methodology to solve the identified problem.
- To train the students in preparing project reports and to face reviews and viva - voce examination.

### **Course Outcomes:**

At the end of the course the students will have a clear idea of his/her area of work and they are in a position to carry out the remaining phase II work in a systematic way.

The project work will start in semester III, and should preferably be a live problem in the industry or macro-issue having a bearing on performance of the construction industry and should involve scientific research, design, collection, and analysis of data, determining solutions and must preferably bring out the individuals contribution.

The dissertation stage I report should be presented in a standard format, in a spiral bound hard copy, preferably printed on both the sides of paper ,containing the following contents.

- i. Introduction including objectives, limitations of study.
- ii. Literature Survey, background to the research.
- iii. Problem statement and methodology of work
- iv. Theoretical contents associated with topic of research
- v. Field Applications, case studies
- vi. Data collection from field/organizations or details of experimental work/analytical work
- vii. Part analysis / inferences
- viii. Details of remaining work to be completed during the project work stage II
- ix. References

Students should prepare a power point presentation to be delivered in 25 minutes and should be able to answer questions asked in remaining five minutes

The student shall submit the report of project work completed partly in standard format discussed in Annexure I.

## **AP2: Audit course**

Any one from the following audit courses can be taken by students for a minimum duration of 2 weeks. An approval of the course content should be taken from the Guide/PG Coordinator and HOD.

1. Cyber security
2. Value Engineering and human rights
3. Legislative procedures
4. Technical writing / Documentation
5. Languages
6. Online Certification Courses (minimum 2 weeks)
7. Cost Accountancy
8. Department Specific Audit Courses.

## **ETPA22171: Project Stage II**

### **Teaching Scheme**

**Credits: 25**

**Lectures:**

**Laboratory Work: 25 Hrs/week**

### **Examination Scheme**

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 Marks

### **Course Objectives:**

- Considerably more in-depth knowledge of the major subject/field of study, including deeper insight into current research and development work.
- 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:**

By the end of the course, students 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.

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 I.

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

The Term Work of Dissertation of semester IV will be assessed jointly by the pair of internal and external examiners, along with oral examination of the same.

## **ANNEXURE I**



**Vishwakarma Institute of Information Technology**  
**Department of Electronics & Telecommunication**  
**Engineering**

**Project Stage-I Report on**  
**(Title)**

By:

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

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

**Batch 2017-18**

**Semester III**

**For the partial fulfillment of M.Tech. degree in (E&TC – Signal Processing)**  
**of**

**Savitribai Phule Pune University**

**Under the guidance of**

**Name of Guide**

**2018 - 2019**

**Vishwakarma Institute of Information Technology**  
**Department of Electronics & Telecommunication**  
**Engineering**

***CERTIFICATE***

This is to certify that the Project Stage-I report entitled  
“ \_\_\_\_\_ ”  
is submitted by ----- bearing Roll No ----- for the  
partial fulfillment of M.TECH. (E&TC) degree in Signal Processing of Savitribai  
Phule Pune University, Pune.

**GUIDE**

**EXTERNAL EXAMINER**

**HEAD OF DEPARTMENT**

**DIRECTOR**



## **GUIDELINES FOR REPORT**

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

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

- **Do not number the sections**

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.