

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 [#] / Value added course [#] / In-house Project [#]	CE-OR	-	8	-	-	100	-	100	200	8
ETPA21175	Project Stage-I [#]	CE-OR	-	10	-	-	100	-	100	200	10
AP2	Audit Course		-	-	-	-	-	-	-	-	-
	Total		6	20	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 [#]	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, [#]1 hr. = 1 Credit, Audit Course: No Credits

Vishwakarma Institute of Information Technology, Pune-48

(An Autonomous Institute affiliated to Savitribai Phule Pune University)

Department of Mechanical Engineering**Second Year M. Tech. Design Engineering (Mechanical Engineering) (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
MEPA21174A / MEPA21174B / MEPA21174C	Internship [#] / Value added course [#] / In-house Project [#]	CE-OR	-	8	-	-	100	-	100	200	8
MEPA21175	Project Stage-I [#]	CE-OR	-	10	-	-	100	-	100	200	10
AP2	Audit Course		-	-	-	-	-	-	-	-	-
	Total		6	20	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. Design Engineering(Mechanical Engineering)(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					
MEPA22171	Project Stage II [#]	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, [#]1 hr. = 1 Credit, Audit Course: No Credits

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute of Information Technology, Pune-48
 (An Autonomous Institute affiliated to Savitribai Phule Pune University)
Department of Computer Engineering

Second Year M. Tech. Computer Engineering (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
CSPA21174A / CSPA21174B / CSPA21174C	Internship [#] / Value added course [#] / In-house Project [#]	CE-OR	-	8	-	-	100	-	100	200	8
CSPA21175	Project Stage-I [#]	CE-OR	-	10	-	-	100	-	100	200	10
AP2	Audit Course		-	-	-	-	-	-	-	-	-
	Total		6	20	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. Computer Engineering (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					
CSPA22171	Project Stage II [#]	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, [#]1 hr. = 1 Credit, Audit Course: No Credits

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute of Information Technology, Pune-48
 (An Autonomous Institute affiliated to Savitribai Phule Pune University)
Department of Civil Engineering

**Second Year M. Tech. Water Resource and Environmental Engineering (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
CVPA21174A / CVPA21174B / CVPA21174C	Internship [#] / Value added course [#] / In-house Project [#]	CE-OR	-	8	-	-	100	-	100	200	8
CVPA21175	Project Stage-I [#]	CE-OR	-	10	-	-	100	-	100	200	10
AP2	Audit Course		-	-	-	-	-	-	-	-	-
	Total		6	20	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. Water Resource and Environmental Engineering (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					
CVPA22171	Project Stage II [#]	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, [#]1 hr. = 1 Credit, Audit Course: No Credits

Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute of Information Technology, Pune-48
 (An Autonomous Institute affiliated to Savitribai Phule Pune University)
Department of Civil Engineering

Department of Civil Engineering
Second Year M. Tech. Structures (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
CVPB21174A / CVPB21174B / CVPB21174C	Internship [#] / Value added course [#] / In-house Project [#]	CE-OR	-	8	-	-	100	-	100	200	8
CVPB21175	Project Stage-I [#]	CE-OR	-	10	-	-	100	-	100	200	10
AP2	Audit Course		-	-	-	-	-	-	-	-	-
	Total		6	20	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. Structures (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					
CVPB22171	Project Stage II [#]	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, #1 hr. = 1 Credit, Audit Course: No Credits

Open Elective (Institute)
IOEP21171A: Cyber Crime and Laws

Teaching Scheme

Credits : 3

Lectures : 3Hrs/week

Examination Scheme

Formative Assessment: 50 Marks

Course objectives :

1. Study and practice fundamental techniques in developing secure web based applications.
2. Understand basics of computer network and security
3. Study vulnerability of web based applications.
4. Study of advanced topics related to Web, as E-commerce security, collaborative applications.
5. Study how to protect web based applications from attacks.
6. Encourage students 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 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)

Students are encouraged to register for On-line course in the relevant above course approved by authority.

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 Management

Teaching Scheme

Credits : 3

Lectures : 3Hrs/week

Course Objectives:

1. To impart knowledge of project life cycle.
2. To introduce students to Project Identification Process, Project Initiation
3. To understand studies related to Pre-Feasibility Study and Project feasibility Studies.
4. To construct CPM, PERT network for a project.
5. To introduce students to Steps in Risk Management, Risk Identification, Risk Analysis and Reducing Risks
6. 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.
3. Understand Pre-Feasibility Study and Project feasibility Studies of a project.
4. construct CPM, PERT network for a project.
5. understand the concept of Risk Management
6. understand the process of project Performance Measurement, Evaluation and closeout.

Unit I: Basics of Project Management (PM)

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

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 and Simplex method for solving LP problem.

Students are encouraged to register for On-line course in the relevant above course approved by authority.

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 Wiely, New York.

Reference Books:

1. Project Management-Planning and Control---Rory Burkey 4th ed.—Wiley, India.
2. 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:

1. To enable the students to understand the basic language structures in German which are used in everyday context
2. To read and understand easy text in German
3. To be able to communicate in German using simple grammar structures and a core vocabulary
4. 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 and write) in German
2. To be able to communicate verbally in German.
3. Be aware of the close connection between German and English as well as with Indian languages.
4. 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

Text Books / Reference Books :

1. 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:

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

Course Outcome:

Students will be able to

1. Communicate (read and write) in French
2. To be able to communicate verbally in French.
3. Aware of the close connection between French and English as well as with Indian languages.
4. 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

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 :

Credits:2

Lectures/Week: 2Hrs/week

Examination Scheme

Formative Assessment: 50 Marks

Course objectives :

1. To develop the understanding for the basics of Effective Communication.
2. To apply various applications of communication in social and professional spheres.
3. To apply various tools and techniques of effective communication for self-Development.
4. To develop the intra-personal and inter-personal skills using various analysis and theories.

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
4. develop their intra-personal and inter-personal skills and relationships.

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, Thesis writing, Research Proposals, Business Correspondences, Memorandum Writing, Notices, Agenda and Minutes, Articles, E- Communication, Resume with Cover letter. Research Papers and Articles.

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 Banerjee, McMillan India ltd.
3. 'Communication Skills for Engineers', C. Muralikrishna and Sunita Mishra, Pearson.

IES21173: Environmental Studies

Teaching Scheme

Examination Scheme

Credits : 2

Formative Assessment: 50 Marks

Lectures : 1 Hrs./week

Laboratory Work: 2 Hrs/week

Course Objectives:

To make the students familiar with the responsibilities to ensure sustainable development

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

1. To understand various types of pollution
2. To understand watershed management methods
3. To understand new sustainable way of life

Unit I : Environmental Pollution

Marine pollution, Thermal pollution, Nuclear hazards, Role of an individual in prevention of pollution, Pollution case studies. Disaster management : floods, earthquake, cyclone and landslides. Solid waste Management: Causes, effects and control measures of urban and industrial wastes.

Unit II : Social issues and the Environment

Water conservation, rain water harvesting, watershed management. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies. Wasteland reclamation

Unit III : Value Education

Environmental Values: Valuing Nature, Valuing cultures, Social justice, Human heritage ,Equitable use of Resources, Common Property Resources , Ecological degradation

Practicals:

1. Assignment I : Study of Municipal SWM Rule 2000 and prepare technical note.
2. Assignment II :Filed survey for municipal solid waste generation for small community.
3. Assignment III :Case study on Disaster Management
4. Assignment IV :Case study on nuclear accidents
5. Assignment V : Case study on Environmental Pollution
6. Assignment VI : Case study on watershed management

Text books:

1. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India,
2. Clark R.S., Marine Pollution, Clarendon Press Oxford (TB)

Reference books:

1. Environmental engineering by H.S. Pavey Rowe , Tata McGrawhill Publication.
2. Introduction to environmental engineering by Mackenzie L Davis. Tata McGrawhill Publication

Course coordinator

__21174A: Internship

Teaching Scheme

Credits : 8

Practical : 8 Hrs/week

Examination Scheme

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 Marks

Course Objective: Enable students to

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: Upon completion of an internship, students 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.

Guidelines for Internship report are mentioned in Annexure I.

__21174B : Value added course

Teaching Scheme

Credits : 8

Practical : 8 Hrs/week

Examination Scheme

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 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: Upon completion of an internship, 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.

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

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

1. **MATLAB: Introduction to MATLAB**

Basics of MATLAB programming, script files, plotting, Good programming practices, Input and output statements, conditional statements, Loops, Arrays, Array functions, Application in WREE

2. **MIKE-11: Modeling fluid flow using MIKE-11**

Basics of equations governing MIKE models, working with MIKE 11 user interface, Setting up simulation, Application of MIKE 11 in modeling fluid flow.

3. **HEC-RAS: Modeling fluid flow using HEC-RAS:**

Basics of HEC-RAS, Building the conceptual model , Mapping the conceptual data to a hydraulic model representation , Running the simulation within HEC-RAS , Viewing results in WMS, Modelling fluid flow using HEC-RAS.

- **Structures:**

1. **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.

2. **Standard Working Practices:** Stakeholders, drawing, safety, Supporting structural systems, concrete production, steel construction.

- **Electronics and Telecommunication:**

1. **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.

2. **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:**

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.
2. **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:**

1. **CAD Modelling:** Sketcher Workbench, Part Modeling Workbench, Assembly Design, Workbench, Drafting, ADVANCE: Surface Modeling Workbench, Sheet Metal Workbench.
2. **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.
3. **Analysis using FEA software:** ANSYS Element Selection & Loads: Element Type, 1D, 2D, 3D, Structural and Modal Analysis, Coupled Analysis, Dynamic Analysis.
4. **Introduction to MATLAB & SIMULINK**
5. **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

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.

Guidelines for the report are as suggested in ANNEXURE I

__21174C: In-house Project

Teaching Scheme

Credits : 8

Practical : 8 Hrs/week

Examination Scheme

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 Marks

Course Objective: Enable students to

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

Course Outcomes: Upon completion of In house project students 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.

Guidelines for the report are as suggested in ANNEXURE II

ETPA21175: Project Stage I

Teaching Scheme

Credits: 10

Lectures: --

Laboratory Work: 10 Hrs/week

Examination Scheme

Formative Assessment: 100 Marks

Summative Assessment (Oral): 100 Marks

Course Objectives:

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

Course Outcomes:

By the end of the course, students will be able to

1. Analyze the collected literature.
2. Define a methodology to arrive at a solution
4. Demonstrate the literature findings and methodology effectively through viva-voce examination.

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 industry and should involve scientific research, design, collection, and analysis of data, determining solutions and must preferably bring out the individuals contribution.

Continuous Assessment Method (CA):

Project stage II will have scheduled presentations and assessment. Continuous assessment(CA): will be monitored by the respective Guide.

Summative Assessment (SA) :

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 II.

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:

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:

By the end of the course,

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 Project Stage II will be the SA.

Course coordinator

ANNEXURE I



Bansilal Ramnath Agarwal Charitable Trust's

Vishwakarma Institute Of Information Technology

(An Autonomous Institute affiliated to Savitribai Phule Pune University)

Department of

**(Internship/Value Added course) Report on
(Title)**

By:

(Name)-----

(Roll No)-----

Semester I/II/III

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

Of

Under guidance of

(Name of Guide)

20 - 20



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 Internship/Value added course Report 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

External Examiner

Head of Department

Director

Guidelines for Seminar 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

A

PROJECT REPORT

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)



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 Project Report 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

External Examiner

Head of Department

Director

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

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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.