



Siddhant College of Engineering ,Sudumbare,Pune (4044)

Academic Year (2022-23)

Savitribai Phule Pune University, Pune

B. E. Civil (2019 Pattern) w. e. f. July 2022

Program Outcomes		
Students are expected to know and be able to–		
PO1	Engineering knowledge	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems..
PO2	Problem analysis	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design / Development of Solutions	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	Conduct Investigation of Complex Problems	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
PO5	Modern Tool Usage	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The Engineer and Society	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and Sustainability	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and Team Work	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10	Communication Skills	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project Management and Finance	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change



Siddhant College of Engineering ,Sudumbare,Pune (4044)

Department of Civil Engineering

Academic Year (2022-23) -BE

401001: Foundation

Engineering Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Perform subsurface investigations for foundations using different methods.
- 02 Estimate the bearing capacity of shallow foundations.
- 03 Calculate immediate and primary consolidation settlement of shallow foundations.
- 04 Decide the capacity of a pile and pile group.
- 05 Understand the steps in geotechnical design of shallow foundations and well foundations.
- 06 Analyze problems related to expansive soil and overcome them using design principles, construction techniques in black cotton soil.

401002: Transportation Engineering

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand principles and practices of transportation planning.
- 02 Demonstrate knowledge of traffic studies, analysis and their interpretation.
- 03 Design Geometric Elements of road pavement.
- 04 Evaluate properties of highway materials as a part of road pavement.
- 05 Appraise different types of pavements and their design.
- 06 Understand the fundamentals of Bridge Engineering and Railway Engineering

401003 a Elective III: Coastal Engineering

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand basic of ocean waves including wave generation, classification, propagation, Wave theories, wave diffraction, wave reflection and wave breaking.
- 02 Understand and apply short term and long-term wave analysis.
- 03 Understand basic characteristics of tides, tide producing forces, dynamic theory of tides.
- 04 Understand coastal process of erosion/accretion due to waves, bed forms, long shore transport (Littoral drift) and estimation of wave induced sediment quantity.
- 05 Understand the coastal structures and shore protection methods.
- 06 Understand coastal zone management activities, issues related to integrated coastal zone management and regulation of coastal zone.

401 003 b Elective III: Advanced Design of Concrete Structures

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand yield line theory and apply it to analyze and design slabs of different shapes having different edge conditions.
- 02 Understand the concepts of ductile detailing
- 03 Analyze and design of flat slab.
- 04 Analyze and design of retaining walls.
- 05 Analyze and design of liquid retaining structures.
- 06 Analyze and design of RC frames and shear walls.

401 003 c Elective III: Integrated Water Resources Planning and Management

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand concerned organizations, IWRP & M objectives, principles, challenges, application & analysis of IWRP&M approaches & principles in a case study.
- 02 Understand PIM, WDS, WALMI, agriculture in the concept of integrated water resources, apply and analyse water requirements for food production
- 03 Understand assessment of surface and ground water quality, EIA, CPCB regulations, application & analysis of effluent quality standards as per CPCB
- 04 Understand water economics and funding, application & analysis of planning for a sustainable water future
- 05 Understand legal regulatory settings of IWRP & M, application & analysis of inter-basin water transfers and IWRP & M
- 06 Understand flood control & power generation for IWRP & M, application QIGIS for analysis of a basin for IWRP & M

401 003 d: Elective III: Finite Element Method

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 To understand the basics of solid mechanics prior to learn finite element analysis.
- 02 Solve simple Engineering problems using 1D, 2D and 3D elements
- 03 Write shape functions of 1D, 2D and 3D elements
- 04 Determine the stresses in three dimensional finite elements using isoperimetric formulation.
- 05 Analyze the truss and beam elements using stiffness matrix and finite element procedure.
- 06 Evaluate the forces and stresses in rigid jointed portal frame and grid elements using stiffnessmatrix and finite element procedure.

401003 e Elective: Data Analytics

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand the basic concepts of Statistics and its analysis and applications

- 02 Solve the problems related to probability and various probability distributions.
- 03 Apply the concept of sampling and distribution and interpret problems using correlation
- 04 Analyze and test of hypothesis
- 05 Examine and prepare the data and use develop regression
- 06 Understand and Apply machine learning algorithms for Regression, Classification and Clustering

401003 f Elective III: Operation Research

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 correlate applications of Operations Research in Civil Engineering field
- 02 Solve the problems related to stochastic programming
- 03 Optimize transportation and assignment problems
- 04 Optimize linear problems.
- 05 Optimize non-linear problems
- 06 Suggest solution for the problems related to dynamic models, games theory and replacement of items

401 004 a Elective IV: Air Pollution and Control

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Recall air pollution, legislation and regulations.
- 02 Evaluate air pollutant concentrations as a function of meteorology.
- 03 Interpret sampling results with prescribed standards.
- 04 Assess emission inventory and air quality models.
- 05 Compare the air pollution control equipments.
- 06 Infer indoor air pollution and its mitigation.

401 004 b Elective IV: Advanced Design of Steel Structures

Course Outcomes:

At the end of the course, the learners will be able to

- 01 Understand the behavior and design of members subjected to combined forces
- 02 Design moment resisting connection
- 03 Design component / structure using cold form light gauge section
- 04 Design members of truss and scaffolding using tubular section
- 05 Design castellated beam
- 06 Analyze and design components of industrial structure such as Portal frame and gable frame

401 004 c Elective IV: Statistical Analysis and Computational Methods

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand the basic concepts of Statistics and perform statistical data analysis
- 02 Understand the concept of probability and fit Binomial, or Poisson or Normal distribution to the givendata
- 03 Understand concept of sampling and perform chi-square test, z test, Student T test
- 04 Perform hypothesis test
- 05 Carry out correlation and regression analysis for the given data
- 06 Calculate variance and perform K-S test for goodness of fit

401 004 d Elective IV: Airport and Bridge Engineering

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand the fundamental of airport.
- 02 Understand and design the runway and taxiway and drainage systems.
- 03 Understand the BIM, AR and VR in airport planning and pavement design.
- 04 Plan the lighting and marking of airport and heliport.
- 05 Estimate various components of bridge and loads on bridges.
- 06 Study and design of bridge structures.

401004 e Elective IV: Design of Prestressed Concrete Structures

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Know the prestressed members.
- 02 Determining the stresses and various losses in prestressed concrete members.
- 03 Design the prestressed concrete structures
- 04 Design the prestressed concrete slab
- 05 Design the prestressed concrete flat slab
- 06 Analysis and design the prestressed continuous beams

401004 f Elective IV: Formwork and Plumbing Engineering

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Select appropriate material and type of formwork
- 02 Analyze the formwork for various loadings.
- 03 Illustrate the design aspects of formwork under various requirements.
- 04 Understand requirement of plumbing in a building.
- 05 Understand plumbing hydraulics and its components in plumbing system.
- 06 Illustrate the design aspects as per the requirement of Indian Standards.

401 005: Project Stage I

Course outcomes

On successful completion of this course, the learner will be able to:

- 01 Appraise the current Civil Engineering research/techniques/developments/interdisciplinary areas.
- 02 Review and organize literature survey utilizing technical resources, journals etc.
- 03 Evaluate and draw conclusions related to technical content studied.
- 04 Demonstrate the ability to perform critical writing by preparing a technical report.
- 05 Develop technical writing and presentation skills.

401 009: Computer Programming in Civil Engineering

Course Outcomes

At the end of course the learner will be able to,

- 01 Understand basics of Python Programming
- 02 Write Python codes for variety of problems in civil Engineering

401010 Audit Course I a: Stress Management by Yoga

Course outcomes

On successful completion of this course, the learner will be able to:

- 01 Develop understanding of Yoga and its impact on human body and mind.
- 02 Learn different Yogasans

- 03 Develop an understanding of meditation through pranayama
- 04 Learn different techniques of Pranayam

401010 Audit Course I b: Communication Etiquette in Workplaces

Course outcome

On successful completion of this course, the learner will be able to,

- 01 Develop an understanding of workplace codes, professionalism at workplace
- 02 Learn the workplace ethics
- 03 Develop an understanding of Business ethics, workplace privacy and ethics
- 04 Learn teamwork at workplace

401011: Dams and Hydraulics Structures

Course Outcomes

At the end of course the learner will be able to,

- 01 Understand types of dams and instrumentation working
- 02 Execute stability analysis of Gravity Dam
- 03 Understand types of spillways & Design of Ogee spillway
- 04 Illustrate the failures and analyze stability of earthen dam
- 05 Design Canals and understand the canal structures
- 06 Analysis of the Diversion headwork and Cross Drainage work

401012: Quantity Surveying, Contracts and Tenders

Course Outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand concept of estimates and prepare approximate estimate for various for Civil Engineering works.
- 02 Describe tendering process, construction contracts, and aspects of Arbitration and prepare tender documents.
- 03 Prepare detailed estimate of various items of work by different methods and calculate quantity of steel from Bar bending schedule.
- 04 Apply engineering knowledge to prepare estimate for roads, culverts, and water tank (Elevated storage tank)
- 05 Apply concepts of specification to draft brief specification, detailed specification and prepare detailed rate analysis report.
- 06 Evaluate depreciation and valuation of property on the basis of present condition, specifications and market trend.

401 013 a Elective V: Earthquake Engineering

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Define the concepts of earthquakes, seismology and vibrations.
- 02 Model physical structures and develop equations of motion.
- 03 Solve the equations of motion for SDOF systems.
- 04 Solve the equations of motion for MDOF systems.
- 05 Perform static seismic analysis for buildings.

06 Perform dynamic seismic analysis for buildings.

401013 b Elective V: Structural Design of Bridges

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Identify loads on bridges and selection of type of bridge for the site condition as per Indian standards.
- 02 Design the reinforced concrete deck slab, culvert slab and T beam deck slab for highway bridges.
- 03 Analysis and design of reinforced concrete and post tension prestressed concrete girders.
- 04 Classify the types of rail bridges and design the plate girder steel bridges
- 05 Analyse and design the steel trussed bridges.
- 06 Study different types of bearing and thereby design the bearings for reinforced concrete highwaybridges.

401013 c Elective V: Irrigation and Drainage

Course Outcomes

On successful completion of this course, the learner will be able to:

- 01 Summarize types of irrigation methods.
- 02 Estimate evapotranspiration and crop-water requirement.
- 03 Understand component parts and their design considerations of lift irrigation system.
- 04 Design drip and sprinkler irrigation systems.
- 05 Understand basics of salt affected soils and estimate leaching requirement.
- 06 Design surface and subsurface drainage systems.

401013 d Elective V: Design of Precast and Composite Structures

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Achieve knowledge of design and development of problem solving skills.
- 02 Explore the concept of precast construction.
- 03 Learn the principles and design of precast structures
- 04 Understand the need, advantages and limitations of composite material.
- 05 Apply basic mechanical principles in analysis of composite structures like beams, columns, floors, shear connectors.
- 06 Understand and apply various provisions as per Indian standards in design of structural components using composite materials.

401013 e Elective V: Hydropower Engineering

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand the classification of power resources & trends in energy use

patterns.

- 02 Identify the components of hydro power plant.
- 03 Analyze the load assessment for turbines.
- 04 Prepare the layout of power house based on the various structures need for it.
- 05 Design the turbines and surge tanks.
- 06 Understand the laws and regulatory aspects of hydroelectric power.

401013 f Elective V: Structural Audit and Retrofitting of Structures

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Identify causes of deterioration in RC and steel structures.
- 02 Explore entire process of structural audit.
- 03 Explore necessity and methods of structural health monitoring.
- 04 Explain method of retrofitting for RC, steel and historical structures.
- 05 Design retrofitting using FRP for RC column.
- 06 Design retrofitting using FRP for RC beams.

401014 a Elective VI: TQM and MIS

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Recognize quality and contribution of quality gurus for evaluation of best practices
- 02 Relate the functioning and application of TQM & Six Sigma in the domain of construction sector
- 03 Recommend ISO 9001 principles in preparation of quality manual to construction business
- 04 Apply management control & certification systems for construction industry
- 05 Choose TQM process implementation and various quality awards for construction sector
- 06 Propose MIS for allied fields in construction sector

401014 b Elective VI: Advanced Transportation Engineering

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Analyze travel demand model and forecasting.
- 02 Evaluate relative importance of various modes and their capacities.
- 03 Design facilities required for non-motorized transportation and pedestrians.
- 04 Estimate basic characteristics of traffic stream and signal design.
- 05 Design flexible pavements.
- 06 Design rigid pavements and overlays.

4010 14 c Elective VI: Geo-Synthetic Engineering

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Explain types of Geo-synthetic material and its application in construction industry
- 02 Define physical and engineering properties of geo-synthetics material
- 03 Describe function of geo-synthetics material and its application in geo environment engineering
- 04 Analyse effect of geo-synthetics in design of flexible pavements
- 05 Design the reinforced soil retaining structures
- 06 Explain mechanism of soil reinforcement to improve bearing capacity of soil

401 014 d Elective VI: Structural Design of Foundations

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Judge suitable type of shallow foundation based on the available soil category.
- 02 Decide suitable type of pile foundation for different soil stratum and evaluation of group capacity by formulation.
- 03 Design Raft foundations.
- 04 Design well and caissons Foundations.
- 05 Design different types of Machine foundations.
- 06 Design Retaining Structures.

401014 e: Elective VI: Green Structures and Smart Cities

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Students should be able to describe the importance of energy and minimization by altering the building materials.
- 02 Students should be able to understand the importance green construction and green rating system
- 03 Students should be able to introduce the applications of energy conservation and efficiency practices in buildings.
- 04 Students should be able to understand phases and approval involved in smart city project.
- 05 Students should be able to assess the national and global experience of smart cities.
- 06 Students should be able to understand the importance of sustainable development and current protocol of sustainable development goals.

401014 f: Elective VI: Rural Water Supply

Engineering Course Outcomes

On successful completion of this course, the learner will be able to,

- 01 Understand issues related to rural water supply with respect to source, water related issues in rural areas.
- 02 Understand role of various government departments and importance of participatory approach.
- 03 Understand various types of rural water supply scheme and infrastructure requirements therein.
- 04 Understand interdisciplinary requirements in RWS including Software
- 05 Understand Automation requirements for a Water Supply Project
- 06 Understand Documentation and O and M issues related Water Supply Project including Leak Detection.

401 015: Project Stage

II Course outcomes

On successful completion of this course, the learner will be able to:

- 01 Appraise the current Civil Engineering research/techniques/developments/interdisciplinary areas.
- 02 Review and organize literature survey utilizing technical resources, journals etc.
- 03 Evaluate and draw conclusions related to technical content studied.
- 04 Demonstrate the ability to perform critical writing by preparing a technical report.
- 05 Develop technical writing and presentation skills.

401019 Audit Course II a: Social Responsibility

Course outcomes

On successful completion of this course, the learner will be able to:

- 01 Develop understanding of social responsibility
- 02 Learn the International framework for Social Responsibility
- 03 Know the drivers of social responsibility in India
- 04 Identify the key stakeholders of social responsibility

401019 Audit Course II b: Human Rights

Course outcomes

On successful completion of this course, the learner will be able to,

- 01 Gather Knowledge about Human rights and Human rights Movement

- 02 Develop understanding of Human rights and Indian Constitution
- 03 Discuss Human Rights of the Different Sections and contemporary issues
- 04 Discuss International scenario towards human rights with reference to engineering Industry.



Siddhant College of Engineering ,Sudumbare,Pune (4044)
Department of Computer Engineering
Academic Year (2022-23)

Name Of Course: Design and Analysis of Algorithms

Course Code: 410241

Course Outcomes:

CO1: Formulate the problem

CO2: Analyze the asymptotic performance of algorithms

CO3: Decide and apply algorithmic strategies to solve given problem

CO4: Find optimal solution by applying various methods

CO5: Analyze and Apply Scheduling and Sorting Algorithms.

CO6: Solve problems for multi-core or distributed or concurrent environments.

Name Of Course :MACHINE LEARNING

Course Code: 410242

Course Outcomes:

CO1: Identify the needs and challenges of machine learning for real time applications.

CO2: Apply various data pre-processing techniques to simplify and speed up machine learning algorithms.

CO3: Select and apply appropriately supervised machine learning algorithms for real time applications.

CO4: Implement variants of multi-class classifier and measure its performance.

CO5 : Compare and contrast different clustering algorithms.

CO6: Design a neural network for solving engineering problems.

Name Of Course : Blockchain Technology

Course Code: 410243

Course Outcomes:

CO1: Interpret the fundamentals and basic concepts in Blockchain**CO2:**

Compare the working of different blockchain platforms **CO3:** Use Crypto wallet for cryptocurrency based transactions

CO4: Analyze the importance of blockchain in finding the solution to the real-world problems.

CO5: Illustrate the Ethereum public block chain platform

CO6: Identify relative application where block chain technology can be effectively used and implemented.

Name Of Course : Cyber Security and Digital Forensics

Course Code: 410244(C)

Course Outcomes

CO1: Analyze threats in order to protect or defend it in cyberspace from cyber-attacks.

CO2: Build appropriate security solutions against cyber-attacks. **CO3:** Underline the need of digital forensic and role of digital evidences. **CO4:** Explain rules and types of evidence collection

CO5: Analyze, validate and process crime scenes

CO6: Identify the methods to generate legal evidence and supporting investigation reports.

Name Of Course : Software Testing and Quality Assurance

Course Code: 410245(D)

Course Outcomes:

CO1: Describe fundamental concepts in software testing such as manual testing, automation testing and software quality assurance.

CO2: Design and Develop project test plan, design test cases, test data, and conduct test operations.

CO3: Apply recent automation tool for various software testing for testing software.

CO4: Apply different approaches of quality management, assurance, and quality standard to software system.

CO5: Apply and analyze effectiveness Software Quality Tools.

CO6: Apply tools necessary for efficient testing framework.

Name Of Course : High Performance Computing

Course Code: 410250

Course Outcomes:

CO1: Understand various Parallel Paradigm

CO2: Design and Develop an efficient parallel algorithm to solve given problem

CO3: Illustrate data communication operations on various parallel architecture **CO4: Analyze** and measure performance of modern parallel computing systems **CO5: Apply** CUDA architecture for parallel programming

CO6: Analyze the performance of HPC application

Name Of Course : Deep Learning

Course Code: 410251

Course Outcomes:

CO1: Understand the basics of Deep Learning and apply the tools to implement deep learning applications

CO2: Evaluate the performance of deep learning models (e.g., with respect to the bias-variance trade-off, overfitting and underfitting, estimation of test error).

CO3: To apply the technique of Convolution (CNN) and Recurrent Neural Network (RNN) for implementing Deep Learning models

CO4: To implement and apply deep generative models.

CO5: Construct and apply on-policy reinforcement learning algorithms

CO6: To Understand Reinforcement Learning Process

Name Of Course : Software Defined Networks

Course Code: 410252(C)

Course Outcomes:

CO1: Interpret the need of Software Defined networking solutions.

CO2: Analyze different methodologies for sustainable Software Defined Networking solutions.

CO3: Select best practices for design, deploy and troubleshoot of next generation networks.

CO4: Develop programmability of network elements.

CO5: Demonstrate virtualization and SDN Controllers using Open Flow protocol

CO6: Design and develop various applications of SDN

Name Of Course : Quantum Computing

Course Code: 410253(D)

Course Outcomes:

CO1: To understand the concepts of Quantum Computing

CO2: To understand and get exposure to mathematical foundation and quantum mechanics

CO3: To understand and implement building blocks of Quantum circuits

CO4: To understand quantum information, its processing and Simulation tools

CO5: To understand basic signal processing algorithms FT, DFT and FFT **CO6 :** To study and solve examples of Quantum Fourier Transforms and their applications



Siddhant College of Engineering ,Sudumbare,Pune (4044)

Department of Mechanical Engineering

Academic Year (2022-23)

402041: Heating, Ventilation, Air Conditioning and Refrigeration

Course Outcomes:

On completion of the course the learner will be able to;

- CO1. ANALYSE different air-craft refrigeration systems and EXPLAIN the properties, applications and environmental issues of different refrigerants.
- CO2. ANALYSE multi pressure refrigeration system used for refrigeration applications.
- CO3. DISCUSS types of compressors, condensers, evaporators and expansion valves along with regulatory and safety controls and DESCRIBES Transcritical and ejector refrigeration systems.
- CO4. ESTIMATE cooling load for air conditioning systems used with concern of design conditions and indoor quality of air.
- CO5. DESIGN air distribution system along with consideration of ventilation and infiltration.
- CO6. EXPLAIN the working of types of desiccants, evaporative, thermal storage, radiant cooling, clean room and heat pump systems.

402042: Dynamics of Machinery

Course Outcomes:

On completion of the course, students will be able to -

- CO1. APPLY balancing technique for static and dynamic balancing of multi cylinder inline and radial engines.
- CO2. ANALYZE the gyroscopic couple or effect for stabilization of Ship, Airplane and Four wheeler vehicles.
- CO3. ESTIMATE natural frequency for single DOF un-damped & damped free vibratory systems.
- CO4. DETERMINE response to forced vibrations due to harmonic excitation, base excitation and excitation due to unbalance forces.
- CO5. ESTIMATE natural frequencies, mode shapes for 2 DOF un-damped free longitudinal and torsional vibratory systems.
- CO6. DESCRIBE noise and vibration measuring instruments for industrial / real life applications along with suitable method for noise and vibration control.

402043: Turbomachinery

Course Outcomes:

On completion of the course the learner will be able to;

- CO 1: VALIDATE impulse moment principle using flat, inclined and curved surfaces and INVESTIGATE performance characteristics of hydraulic turbines.
- CO 2: DETERMINE performance parameters of impulse and reaction steam turbine along with discussion of nozzles, governing mechanism & losses.
- CO 3: MEASURE performance parameters of single & multistage centrifugal pumps along with discussion of cavitation and selection.
- CO 4: EXPLAIN performance parameters of centrifugal compressor along with discussion of theoretical aspects of axial compressor.

402044A: Automobile Design

Course Outcomes:

On completion of the course the learner will be able to;

CO1: DESIGN of Principal Engine Components

CO2: DESIGN of Drive train

CO3: DESIGN of brakes and Suspension

402044B: Design of Heat Transfer Equipments

Course Outcomes:

On completion of the course the learner will be able to;

CO1: EXPLAIN the design aspect of heat exchanger considering fouling factor for Heat Transfer Applications

CO2: SELECT and DESIGN the double tube heat exchangers for process industry

CO3: DESIGN the Shell & Tube Heat Exchangers for specified conditions

CO4: DESIGN the condensers and evaporators for refrigeration applications

CO5: DESIGN the compact heat exchangers

CO6: ANALYSE the performance of counter and cross flow cooling tower

402044C - Modern Machining Processes

Course outcomes

On completion of the course, learner will be able to

CO1. UNDERSTAND and ANALYZE the mechanism, process parameters of mechanical assisted modern machining processes.

CO2. UNDERSTAND the mechanism, construction and working of laser, plasma and electron beam assisted machining.

CO3. CLASSIFY and ANALYZE the mechanism, process parameters of the chemical and electrochemical machining.

CO4. RELATE and ANALYZE the mechanism and select process parameters Electrical Discharge Machining for an application.

CO5. ILLUSTRATE the application of micromachining processes.

CO6. SUGGEST appropriate nano machining process for the specific application.

402044D: Industrial Engineering

Course Outcomes

Learner will be able to:

CO1. EVALUATE the productivity and IMPLEMENT various productivity improvement techniques.

CO2. APPLY work study techniques and UNDERSTANDS its importance for better productivity.

CO3. DEMONSTRATE the ability to SELECT plant location, appropriate layout and material handling equipment.

CO4. USE of Production planning and control tools for effective planning, scheduling and managing the shop floor control.

CO5. PLAN inventory requirements and EXERCISE effective control on manufacturing requirements.

CO6. APPLY Ergonomics and legislations for human comfort at work place and UNDERSTANDS the role of value engineering in improving productivity.

402044E: Internet of Things

Course Outcomes:

On completion of the course the learner will be able to;

CO1. EXPLAIN the Applications/Devices, Protocols and Communication Models of IoT

CO2. DEMONSTRATE small Mechanical Engineering IoT oriented applications using
Sensors, Actuators, Microcontrollers and Cloud

CO3. SELECT commonly used IoT Simulation Hardware platforms

CO4. APPLICATION of Interfacing and Communication Technologies for IoT

CO5. ILLUSTRATE IoT Application Development and Security of IoT Ecosystem

CO6. EVALUATE Present and Future Domain specific Applications of IoT Ecosystem

402044F: Computational Fluid Dynamics

Course Outcomes:

On completion of the course the learner will be able to;

CO1. DISTINGUISH and ANALYSE the governing equations of fluid mechanics and heat transfer in various formulations

CO2. ANALYZE and MODEL the conduction and advection problems

CO3. ANALYZE and MODEL the Convection-Diffusion problems

CO4. IDENTIFY and EVALUATE the External/Internal flow and its simulation

CO5. DISTINGUISH and COMPARE concepts of stability and turbulence.

CO6. USE and APPLY a CFD tool for effectively solving practical Fluid-Structure Interaction problems.

402045A: Product Design and Development

Course Outcomes:

On completion of the course the learner will be able to;

CO1. UNDERSTAND Product design and Product development processes

CO2. UNDERSTAND Processes, tools and techniques for Market Survey & Product
Specification Finalization

CO3. UNDERSTAND Processes, tools and techniques for Concept Inception, Verification and
selection

CO4. UNDERSTAND Processes, tools and techniques for Concept Exploration & Development

CO5. UNDERSTAND Processes, tools and techniques for Design Verification and Validation

CO6. UNDERSTAND Processes, tools and techniques for Robust Design and Development

402045B: Experimental Methods in Thermal Engineering

Course Outcomes:

On completion of the course the learner will be able to;

- CO1. IDENTIFY the suitable instrument for measuring parameters as per performance characteristics
- CO2. ANALYZE experimental data by using different statistical techniques and estimate error
- CO3. DISTINGUISH different methods of temperature measurements and thermal radiation
- CO4. CLASSIFY various pressure measurement instruments and their comparison
- CO5. EXPLAIN different flow measurement methods and flow visualization techniques
- CO6. APPLY knowledge of modern engineering experimentation, including calibration, data acquisition, analysis and interpretation using different AI and ML techniques.

402045C: Additive Manufacturing

Course Outcomes

On completion of the course, learner will be able to

- CO1. USE and CLASSIFY the fundamentals of Additive Manufacturing Technologies for engineering applications.
- CO2. IDENTIFY and CATEGORIZE the methodology to manufacture the products using light-based photo-curing, LASER based technologies and STUDY their applications, benefits.
- CO3. IDENTIFY and CATEGORIZE the methodology to manufacture the products using extrusion-based deposition, inkjet-based technologies and STUDY their applications, benefits.

- CO4. SYNTHESIZE, RECOMMEND and DESIGN the suitable material and process for fabrication and build behavior of verities of product.
- CO5. DESIGN and CONSTRUCT the AM equipment's for appropriate applications and the input CAD model.
- CO6. DEVELOP the knowledge of additive manufacturing for various real-life applications.

402045D: Operations Research

Course Outcomes

On completion of the course, learner will be able to

- CO1. EVALUATE various situations of Games theory and Decision techniques and APPLY them to solve them in real life for decision making.
- CO2. SELECT appropriate model for queuing situations and sequencing situations and FIND the optimal solutions using models for different situations.
- CO3. FORMULATE various management problems and SOLVE them using Linear programming using graphical method and simplex method.
- CO4. FORMULATE variety of problems such as transportation, assignment, travelling salesman and SOLVE these problems using linear programming approach.
- CO5. PLAN optimum project schedule for network models arising from a wide range of applications and for replacement situations find the optimal solutions using appropriate models for the situation.
- CO6. APPLY concepts of simulation and Dynamic programming

402045E: Augmented Reality and Virtual Reality

Course Outcomes:

On completion of the course the learner will be able to;

- CO1. UNDERSTAND fundamental Computer Vision, Computer Graphics and Human-Computer Interaction Techniques related to VR/AR
- CO2. UNDERSTAND Geometric Modeling Techniques
- CO3. UNDERSTAND the Virtual Environment
- CO4. ANALYZE and EVALUATE VR/AR Technologies
- CO5. APPLY various types of Hardware and Software in Virtual Reality systems
- CO6. DESIGN and FORMULATE Virtual/Augmented Reality Applications

402046: Data Analytics Laboratory

Course Outcomes:

On completion of the course, the learner will be able to

- CO1: UNDERSTAND the basics of data analytics using concepts of statistics and probability.
- CO2: APPLY various inferential statistical analysis techniques to describe data sets and withdraw useful conclusions from acquired data set.
- CO3: EXPLORE the data analytics techniques using various tools
- CO4: APPLY data science concept and methods to solve problems in real world context
- CO5: SELECT advanced techniques to conduct thorough and insightful analysis and interpret the results

402047: Project (Stage I)

Course Outcomes:

On completion of the course the learner will be able to;

- CO1. Implement systems approach.
- CO2. To conceptualize a novel idea / technique into a product.
- CO3. To think in terms of a multi-disciplinary environment.
- CO4. To take on the challenges of teamwork, and document all aspects of design work.

CO5. To understand the management techniques of implementing a project.

402048: Computer Integrated Manufacturing

Course Outcomes:

On completion of the course the learner will be able to;

CO1. EXPLAIN CIM and factory automation.

CO2. UNDERSTAND the integration of hardware and software elements for CIM

CO3. APPLY CNC program for appropriate manufacturing techniques.

CO4. ANALYZE processes planning, quality and MRP integrated with computers.

CO5. INTERPRET flexible, cellular manufacturing and group technology.

CO6. ANALYZE the effect of IOT, Industry-4.0 and cloud base manufacturing.

402049: Energy Engineering

Course Outcomes:

On completion of the course the learner will be able to;

CO1: EXPLAIN the power generation scenario, the layout components of thermal power plant and ANALYZE the improved Rankine cycle.

CO2: ANALYZE the performance of steam condensers, cooling tower system; RECOGNIZE an environmental impact of energy systems and methods to control the same.

CO3: EXPLAIN the layout, component details of diesel engine plant, hydel and nuclear energy systems.

CO4: ANALYZE gas and improved power cycles.

CO5: EXPLAIN the fundamentals of renewable energy systems.

CO6: EXPLAIN basic principles of energy management, storage and economics of power generation.

402050A: Quality & Reliability Engineering

Course Outcomes:

On completion of the course the learner will be able to:

CO1. UNDERSTAND basic concepts of quality and RELATE various quality tools

CO2. DEVELOP analytical competencies to SOLVE problems on control charts and process capability.

CO3. UNDERSTAND fundamental concepts of reliability.

CO4. EVALUATE system reliability.

CO5. IDENTIFY various failure modes and CREATE fault tree diagram.

CO6. UNDERSTAND the concept of reliability centered maintenance and APPLY reliability tests methods.

402050B: Energy Audit and Management

Course Outcomes:

On completion of the course the learner will be able to;

CO1. EXPLAIN the energy need and role of energy management

CO2. CARRY OUT an energy audit of the Institute/Industry/Organization

CO3. ASSESS the ENCON opportunities using energy economics

CO4. ANALYSE the energy conservation performance of Thermal Utilities

CO5. ANALYSE the energy conservation performance of Electrical Utilities

CO6. EXPLAIN the energy performance improvement by Cogeneration and WHR method

402050C: Manufacturing System and Simulation

Course Outcomes

On completion of the course the learner will be able to;

- CO1. UNDERSTAND the concepts of manufacturing system, characteristics, type, etc.
- CO2. UNDERSTAND the concepts of Facilities, manufacturing planning & control and Support System.
- CO3. UNDERSTAND the concepts of manufacturing towards solving productivity related problems.
- CO4. DEVELOP a virtual model to solve industrial engineering related issues such as capacity utilization, line balancing.
- CO5. BUILDING tools to view and control simulations and their results.
- CO6. PLAN the data representation & Evaluate the results of the simulation.

402050D: Engineering Economics and Financial Management

Course Outcomes

On completion of the course, students will be able to -

- CO1. UNDERSTAND the business environment, concepts of economics and demand-supply scenario.
- CO2. APPLY the concepts of costing and pricing to evaluate the pricing of mechanical components.
- CO3. UNDERSTAND accounting systems and analyze financial statements using ratio analysis
- CO4. SELECT and PREPARE the appropriate type of budget and understand the controlling aspects of budget.
- CO5. UNDERSTAND the international business and trade system functioning
- CO6. DEMONSTRATE understanding of financing decisions of new ventures and performance

402050E: Organizational Informatics

Course Outcomes

Learner will be able to:

- CO1. Demonstrate an understanding of the scope, purpose and value of information systems in an organization.
- CO2. Understand the constituents of the information system.
- CO3. Demonstrate the Understanding of the management of product data and features of various PLM aspects.
- CO4. Relate the basic concepts of manufacturing system and the ERP functionalities in context of information usage.
- CO5. Understand the manufacturing execution system and it's applications in functional areas.
- CO6. Outline the role of the information system in various types of business and allied emerging technologies.

402050F: Computational Multi Body Dynamics

Course Outcomes:

On completion of the course the learner will be able to;

- CO1. APPLY the basic terminology and concepts used in Multibody Dynamics to solve varieties of motion related applications
- CO2. IDENTIFY and EVALUATE the types of joints, its kinematics and relevant transformations
- CO3. DISTINGUISH and COMPARE the formulation methods
- CO4. DERIVE equations of motion and EVALUATE the kinematics and dynamics of rigid Planar inter-connected bodies
- CO5. DERIVE equations of motion and EVALUATE the kinematics of rigid Spatial inter-connected bodies

CO6. APPLY MBD tool effectively and SIMULATE it to solve and validate practical Multibody Dynamics problems and its solutions.

402051A: Process Equipment Design

Course Outcomes:

On completion of the course the learner will be able to;

CO1. INTERPRET the different parameters involved in design of process Equipments.

CO2. ANALYZE thin and thick walled cylinder

CO3. DESIGN cylindrical vessel, spherical vessel, tall vessels and thick walled high pressure vessels

CO4. DESIGN different process Equipments and select pump, compressor etc. and auxiliary services

CO5. EVALUATE Process parameters and their correlation

CO6. APPLY the concepts of process equipment design for specific applications.

402051B: Renewable Energy Technologies

Course Outcomes:

On completion of the course the learner will be able to;

CO1. DESCRIBE fundamentals, needs and scopes of renewable energy systems.

CO2. EXPLAIN performance aspects of flat and concentric solar collectors along with applications.

CO3. DESIGN solar photovoltaic system for residential applications.

CO4. DESIGN AND ANALYSIS of wind energy conversion system.

CO5. APPLY Installation practices of Wind and Solar Photovoltaic Systems for grid connection.

CO6. DETERMINE performance parameters of bio-energy conversion systems.

402051C: Automation and Robotics

Course Outcomes:

On completion of the course the learner will be able to;

CO1. UNDERSTAND the basic concepts of Automation

CO2. UNDERSTAND the basic concepts of Robotics

CO3. IDENTIFY and EVALUATE appropriate Drive for Robotic Applications

CO4. COMPARE and SELECT End-effectors and Sensors as per Application

CO5. DEVELOPE the Mathematical Modeling Approaches of Robot

CO6. EVALUATE the fundamentals of robot programming and CLASSIFY the Applications.

402051D: Industrial Psychology and Organizational Behavior

Course Outcomes

On completion of the course the learner will be able to;

CO1. DEMONSTRATE fundamental knowledge about need and scope of industrial - organizational psychology and behavior.

CO2. ANALYZE the job requirement, have understanding of fatigue, boredom and improve the job satisfaction.

CO3. UNDERSTAND the approaches to enhance the performance.

CO4. KNOWLEDGE of theories of organizational behavior, learning and social-system.

CO5. UNDERSTAND the mechanism of group behavior, various aspects of team, leadership and conflict management.

CO6. EVALUATE the organizational culture, manage the change and understands organizational development approaches.

402051E: Electric and Hybrid Vehicle

Course Outcomes:

On completion of the course the learner will be able to;

- CO1. UNDERSTAND the basics related to e-vehicle
- CO2. CLASSIFY the different hybrid vehicles
- CO3. IDENTIFY and EVALUATE the Prime Movers, Energy Storage and Controllers
- CO4. DISCOVER and CATEGORIZE the Electric Vehicle Configuration with respect to Propulsion, Power distribution and Drive-Train Topologies
- CO5. DEVELOP body frame with appropriate suspension system and TESTING of for e-Vehicles
- CO6. CLASSIFY and EVALUATE Battery Charging techniques and management

402052: Mechanical Systems Analysis Laboratory

Course Outcomes:

On completion of the course the learner will be able to;

- CO1. DEVELOP an understanding of the Systems Engineering Process and the range of factors that influence the product need, problem-specific information collection, Problem Definition, Task Specification, Solution Concept inception, Concept Development, System's Mathematical Modelling, Synthesis, Analysis, final solution Selection, Simulation, Detailed Design, Construction, Prototyping, Testing, fault-finding, Diagnosis, Performance Analysis, and Evaluation, Maintenance, Modification, Validation, Planning, Production, Evaluation and use of a system using manual calculation, computational tools to automate product development process, redesign from customer feedback and control of technological systems.
- CO2. ILLUSTRATE the concepts and USE the developed skill-set of use of computational tools (FEA, CFD, MBD, FSI, CAE) to automate the complete product development process.
- CO3. EVALUATE the knowledge of new developments and innovations in technological systems to carry forward to next stage of employment after passing your Undergraduate Degree Examination.
- CO4. APPRAISE how technologies have transformed people's lives and can be used to SOLVE challenges associated with climate change, efficient energy use, security, health, education and transport, which will be coming your ways in the coming future.
- CO5. PRIORITIZE the concept of quality and standards, including systems reliability, safety and fitness for the intended purpose.
- CO6. INVENT yourself to face the challenges of future technologies and their associated Problem.

402053: Project (Stage II)

Course Outcomes:

On completion of the course the learner will be able to;

- CO1. Implement systems approach.
- CO2. To conceptualize a novel idea / technique into a product.
- CO3. To think in terms of a multi-disciplinary environment.
- CO4. To take on the challenges of teamwork, and document all aspects of design work.
- CO5. To understand the management techniques of implementing a project.



Siddhant College of Engineering ,Sudumbare,Pune (4044)

Department of Information Technology

Academic Year (2022-23)

Department of Information Technology

414441: Information Storage and Retrieval

- CO1.** Understand the concept of Information retrieval and to apply clustering in information retrieval.
- CO2.** Use an indexing approach for retrieval of text and multimedia data.
- CO3.** Evaluate performance of information retrieval systems.
- CO4.** Apply the concepts of multimedia and distributed information retrieval.
- CO5.** Use appropriate tools in analyzing the web information
- CO6.** Simulate the working of a search engine and recommender system.

414442: Software Project Management

- CO1.** Apply the practices and methods for successful Software Project Management
- CO2.** Create Design and Evaluate Project
- CO3.** Analyze Project Schedule and calculate Risk Management with help of tools. **CO4.** Demonstrate different tools used for Project Tracking, Monitoring & Control. **CO5.** Identify Staff Selection Process and the issues related to Staff Management.
- CO6.** Discuss and use modern tools for Software Project Management.

414443: Deep Learning

- CO1.** Understand the theoretical foundations, algorithms, and methodologies of Deep Learning.
- CO2.** Apply the concepts of Convolution Neural Networks and use of popular CNN architectures.
- CO3.** Compare Feed Forward Neural Network and Recurrent Neural Network and learn modeling the time dimension using RNN and LSTM.
- CO4.** Elaborate unsupervised deep learning algorithms like Autoencoders.
- CO5.** Explore Representation Learning and Transfer Learning techniques using variants of CNN architecture.
- CO6.** Evaluate the performance of deep learning algorithms and to provide solution for various real-world applications.

414444: Elective – III (Mobile Computing)

- CO1.** understand the basic concepts of mobile computing, MAC and different multiplexing technics. **CO2.** understand Protocols, Connection Establishment, Frequency Allocation, Routing of mobile telecommunication system like GSM, GPRS, UMTS.
- CO3.** understand the Generations of Mobile Communication Technologies

CO4. learn mobile IP , Adhoc – Network, Reactive Routing protocols, Multicast Routing. **CO5.** obtaining knowledge of transport layer protocol TCP, File System, and different application layer protocols.

CO6. gain knowledge about different mobile platforms, operating Systems, Software Development Kit, Security Issues.

414444: Elective – III (High Performance Computing)

CO1. Understand concepts of parallel computing, its application areas and parallel computing platforms

CO2. Apply different Parallel programming paradigm and Decomposition Techniques.

CO3. Correlate various communication calls.

CO4. Analyze and Measure different Performance Metrics.

CO5. Perform CUDA Programming.

CO6. Build the logic to develop parallel algorithms for high performance computing.

414444: Elective – III (Multimedia Technology)

CO1. Understand basic building block and applications of Multimedia.

CO2. Solve and analyze different algorithms for text and image compression.

CO3. Classify different audio and video file formats of Multimedia.

CO4. Apply open-source authoring tools of animation.

CO5. List various devices used in virtual reality and its use in daily life.

CO6. Recognize emerging trends in Multimedia.

414444: Elective – III (Smart Computing)

CO1. Demonstrate the knowledge of design of smart computing and its applications.

CO2. Describe different generations of mobile and mobile computing projects

CO3. Demonstrate the knowledge of design of Ubicomp and its applications. **CO4.** Explain smart devices and services used Ubicomp.

CO5. Implement interfacing of various sensors, actuators to the development boards

CO6. Compare various IoT communication technologies and smart computing applications.

414445: Elective – IV (Bioinformatics)

CO1. Integrate biological concepts with information technologies to study the biological system.

CO2. Study Gene structure, various biological database, and methods to manage the different types of biological data.

CO3. Describe principles and algorithms of pairwise and multiple alignments.

CO4. Study various bioinformatics tools and Algorithm.

CO5. Understand modeling and simulation in bioinformatics, drug discovery process. and ProteinStructure.

CO6. To Gain awareness in field of System Biology and Human Disease.

414445: Elective – IV (Introduction to DevOps)

CO1. Understand the fundamental concepts of DevOps

CO2. Link the background of DevOps with other technologies

CO3. Comprehend the concept of continuous integration and continuous delivery

CO4. Compare various stages of continuous deployment and test strategies

CO5. Justify the importance of monitoring system and reliability engineering

CO6. Use the latest tools in DevOps

414445: Elective – IV (Computer Vision)

CO1. Implement fundamental image processing techniques required for computer vision.

CO2. Apply feature extraction techniques.

CO3. Apply Hough Transform for line, circle, and ellipse detections.

CO4. Understand three-dimensional analysis techniques.

CO5. Develop skills to develop applications using computer vision techniques.

414445: Elective – IV (Wireless Communication)

CO1: Articulate the fundamental concept of cellular system.

CO2: Analyse the fundamentals of cellular systems.

CO3: Illustrate multiple access technique for effective utilization of spectrum.

CO4: Design and analyse the WAP Programming Model in networking environment.

CO5: Learn and understand security issues, challenges and tools in wireless communication.

CO6: Explore the emerging trends and applications in wireless communication.

414446: Lab Practice III

CO1. Understand the concept of Information retrieval and to apply clustering in informationretrieval.

CO2. Use appropriate indexing approach for retrieval of text and multimedia data. Evaluate performanceof information retrieval systems.

CO3. Apply appropriate tools in analyzing the web information.

CO4. Map the concepts of the subject on recent developments in the Information retrieval field.

414447: Lab Practice IV

- CO1.** Learn and Use various Deep Learning tools and packages.
- CO2.** Build and train a deep Neural Network models for use in various applications.
- CO3.** Apply Deep Learning techniques like CNN, RNN Auto encoders to solve real word Problems.
- CO4.** Evaluate the performance of the model build using Deep Learning.

414448: Project Stage I

- CO1.** To apply knowledge of mathematics, science, and engineering to formulate the Problem statement.
- CO2.** To design and conduct experiments, as well as to analyze and interpret data.
- CO3.** Understand the professional and ethical responsibility.
- CO4.** To communicate effectively.
- CO5.** Get broad education which is necessary to understand the impact of engineering solutions in aglobal, economic, environmental, and societal context.
- CO6.** Recognition of the need for, and an ability to engage in life-long learning.
- CO7.** To use the techniques, skills, and modern engineering tools necessary for engineering practices.
- CO8.** To design a system, component, or process to meet desired needs within realistic constraints suchas economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

414449A: Audit Course 7

Copyrights and Patents

- CO1.** Understand the concepts of Intellectual Property Rights.
- CO2.** Understand the knowledge about Copyrights and Trademark.
- CO3.** Understand the knowledge how to protect trade secrets.

414449B: Audit Course 7

Stress Management By Yoga

- CO1.** Understand the reasonsfor
- CO2.** Understand the role Yoga.
- CO3.** Develop healthy mind in a healthy body.
- CO4.** Develop overall efficiency.

414449C: Audit Course 7

English for Research Paper Writing

- CO1.** Understand that how to improve writing skills and level of readability.
- CO2.** Identify and categorize about what to write in each section.
- CO3.** Ensure the good quality of paper at very first-time submission.

414450: Distributed Systems

- CO1.** Demonstrate the core concepts of distributed systems.
- CO2.** Understand the concept of middleware of distributed systems.
- CO3.** Understand Inter-process communication methods and analyze different coordinationalgorithms.
- CO4.** Comprehend the importance of replication to achieve fault tolerance in distributed systems.
- CO5.** Analyze the design and functioning of existing distributed file systems, distributed multimedia, and distributed web-based systems.
- CO6.** Understand various Recent Trends in distributed systems.

414451: Elective-V (Software Defined Network)

- CO1.** Acquire fundamental knowledge of SDN exploring the need, characteristics, and architecture of SDN and methods of API's in SDN.
- CO2.** Recognize Open Flow protocols and its forwarding, pipeline model and use cases of SDN controller.
- CO3.** Demonstrate virtualization and Cloud computing services of SDN.
- CO4.** Comprehend IT Infrastructure and understand the data center in SDN.
- CO5.** Analyse various security issues and challenges in SDN.
- CO6.** Comprehend SDN application areas and future.

414451: Elective- V (Social Computing)

- CO1.** Understand basics of Social Media Analytics
- CO2.** Correlate Network Measures for Social Media Data
- CO3.** Visualize mining in social media data
- CO4.** Discuss the Social Similarities
- CO5.** Interpret social media behavior
- CO6.** Apply Social Media Computations for Google+

414451: Elective V (Natural Language Processing)

- CO1.** Understand and analyze the natural language text and model.
- CO2.** Analyze the natural language syntactically.
- CO3.** Analyze and study natural language logically.
- CO4.** Process the natural language text based on relations and knowledge.
- CO5.** Evaluate the natural language text using models and apply modeling techniques for

automatic document separation and text mining.

CO6. Apply information retrieval techniques.

414451: Elective-V (Soft Computing)

CO1. Learn soft computing techniques and their roles in problemsolving.

CO2. Understand and Analyze various Artificial neural network techniques

CO3. Understand and define the fuzzy systems for problem solving.

CO4. Understand and apply the concepts of genetic algorithms for problem solving.

CO5. Identify and select a suitable Soft Computing method to solve the problem

CO6. Identify and understand the role of soft computing models in various applications

414451: Elective V (Game Engineering)

CO1. Describe fundamentals of game engineering and the social- ethical issues in gamedevelopment.

CO2. Develop creative and critical thinking skills for designing compelling games.

CO3. Apply game mechanics to make game more enjoyable.

CO4. Analyze Games over Networks and Peer Effects.

CO5. Demonstrate an understanding of various tools that are used in game development.

CO6. Apply mathematical and game programming knowledge and skills to solve developmenttasks.

414452: ElectiveVI (Ethical Hacking and Security)

CO1. Identify Ethical hacking processes and become acquainted with Penetration testing.

CO2. Recognize Foot printing techniques and apply in real time applications

CO3. Build knowledge about Meta sploit tool with Kali Linux

CO4. Differentiate Privilege Escalation in Windows and Linux

CO5. Construct Secure Web Applications to understand Hacking Techniques.

CO6. Recognize Wifi Hacking and Security techniques.

414452: Elective-VI (Augmented and Virtual Reality)

CO1. Analyze how Virtual Reality systems work.

CO2. Understand the representation of Virtual world.

CO3. Describe the importance of motion and tracking in VRsystems.

CO4. Analyze how AR systems work and list the applications of AR. **CO5.** Identify the working of various AR components and AR devices.

CO6. Make use of computer vision concepts for AR.

414452: Elective VI (Business Analytics and Intelligence)

- CO1.** Apply conceptual knowledge on how Business Intelligence is used in decision making process
- CO2.** Use modelling concepts in Business Intelligence
- CO3.** Understand and apply the concepts of business reports and analytics with the help of visualization for business performance management
- CO4.** Comprehend the model-based decision making using prescriptive analytics
- CO5.** Analyze the role of analytics and intelligence in Business
- CO6.** Comprehend different Business Intelligence trends and its future impacts

414452: Elective-VI (Blockchain Technology)

- CO1.** Understand the concept of cryptography and decentralization.
- CO2.** Acquire fundamental knowledge of blockchain with issues associated with it.
- CO3.** Acquire knowledge of Ethereum blockchain platform.
- CO4.** Understand hyper ledger fabric platform.
- CO5.** Acquire the knowledge regarding working of tokenization.
- CO6.** Describe the applications and risk involved

414453: Startup and Entrepreneurship

1. able to understand key concepts and framework of innovation and start-up ecosystem.
2. gain knowledge of how to develop start up ecosystem, its key components and how to influence and managedynamics between them and increase the productivity of ecosystem.
3. understand the role of different stakeholders in ecosystem in building and supporting growth of start-ups.
4. have insight into global trend in start-up ecosystem and product development. mapping different start-up ecosystems and developing performance indicators.

414454: Lab Practice - V

1. Demonstrate knowledge of the core concepts and techniques in distributed systems.
2. Learn how to apply principles of state-of-the-Art Distributed systems in practical application.
3. Design, build and test application programs on distributed systems

414455: Lab Practice VI (Ethical Hacking and Security)

- CO1.** Perform internal and external vulnerability analysis on web application and network.
- CO2.** Comprehend the hacker's mindset while conducting reconnaissance and system hacking.
- CO3.** Implement industry standard security protocols to prevent cyber-attacks.
- CO4.** Carry-out the same tactics, techniques, and procedures as actual hackers.

414455: Lab Practice VI (Business Analytics and Intelligence)

- CO1.** Compare and analyze different analytical tools used by businesses
- CO2.** Understand the application of critical notion of KPI using real time case studies
- CO3.** Design and implement the analytical models using suitable tools
- CO4.** Create visualizations using suitable tools

414455: Lab Practice VI (Blockchain Technology)

1. To implement small blockchain experimentations.
2. Identify Consensus mechanism for Blockchain Application.

414456 : Project-II

1. To apply engineering and mathematical knowledge to investigate / select proper technology / Algorithms suitable to solve the problem in hand.
 2. To apply knowledge of statistics for analysis of results and express conclusion and justification for the same.
 3. To design and conduct experiments, as well as to analyze and interpret data or develop prototype model of the application.
 4. To communicate effectively.
 5. Get broad education which is necessary to understand the impact of engineering solutions in a global, economic, environmental, ethically and societal context.
- Recognition of the need for, and an ability to engage in life-long learning.

414457A: Audit Course 8

Functional Programming in Haskell

- CO1.** Understand the correctness of programs.
- CO2.** Make use of higher-order functions.
- CO3.** Make use of the data encapsulation and parametric polymorphism for functional programming.
- CO4.** Understand the importance of the 'type checking' of values/functions to develop programs relatively faster.

414457B: Audit Course 8

Cyber Laws And Use Of Social Media

CO1. Understand the importance of IT Act.

CO2. Understand the significance of cyber laws and its practices.

CO3. Identify and Analyze software vulnerabilities and security solutions to reduce the risk of exploitation.

CO4. To study various privacy and security concerns of Online social media.

414457C: Audit Cours8

Constitution Of India

CO1. Understand the Principles of the Indian Constitution.

CO2. Understand and identify the growth of the demand for civil rights in India.

CO3. Understand the organizations of governance.

CO4. Understand the role and functions of local Administration.



Siddhant College of Engineering ,Sudumbare,Pune (4044)
Department of Electronics and Tele. Engineering
Academic Year (2022-23)

404181 VLSI Design & Technology

Course Objectives:

- To explore HDL and related design approach.
- To nurture students with CMOS circuit designs.
- To realize importance of testability in logic circuit design.
- To overview ASIC issues and understand PLD architectures with advanced features.

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

1. Write effective HDL coding for digital design.
2. Apply knowledge of real time issues in digital design.
3. Model digital circuit with HDL, simulate, synthesis and prototype in PLDs.
4. Design CMOS circuits for specified applications.
5. Analyze various issues and constraints in design of an ASIC
6. Apply knowledge of testability in design and build self test circuit.



404182 Computer Networks & Security

Course Objectives:

To understand state-of-the-art in network protocols, architectures, and applications To provide students with a theoretical and practical base in computer networks issues To outline the basic network configurations
To understand the transmission methods underlying LAN and WAN technologies. To understand security issues involved in LAN and Internet.

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

1. Understand fundamental underlying principles of computer networking
2. Describe and analyze the hardware, software, components of a network and their interrelations.
3. Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies
4. Have a basic knowledge of installing and configuring networking applications.
5. Specify and identify deficiencies in existing protocols, and then go onto select new and better protocols.
6. Have a basic knowledge of the use of cryptography and network security.

404183 Radiation and Microwave Techniques

Course Objectives:

To introduce fundamental theory of radiation and microwaves. To understand design principles of various radiating elements.
To understand theory of passive and active components of microwave systems. To learn microwave measurement techniques.

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

1. Differentiate various performance parameters of radiating elements.
2. Analyze various radiating elements and arrays.

3. Apply the knowledge of waveguide fundamentals in design of transmission lines.
4. Design and set up a system consisting of various passive microwave components.
5. Analyze tube based and solid state active devices along with their applications.
6. Measure various performance parameters of microwave components

404184 Embedded Systems and RTOS(Elective-I)

Course Objectives:

- To understand and able to design an application specific systems.To develop implementation skill for application specific systems.
- To understand design and implementation of real time system using RTOS.To understand open source platform for embedded system

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

1. Understand design of embedded system
2. Use RTOS in embedded application
3. Use modern architecture for embedded system
4. Use Linux for embedded system development
5. Use open platform for embedded system development

404184 Internet of Things (Elective-I)

Course Objectives:

- To study fundamental concepts of IoT
- To understand roles of sensors in IoT
- To Learn different protocols used for IoT design
- To be familiar with data handling and analytics tools in IoT

Course Outcomes:

1. On completion of the course, student will be able to
2. Understand the various concepts, terminologies and architecture of IoT systems.
3. Use sensors and actuators for design of IoT.
4. Understand and apply various protocols for design of IoT systems
5. Use various techniques of data storage and analytics in IoT
6. Understand various applications of IoT

404185 Electronic Product Design (Elective-II)

Course Objectives:

- To understand the stages of product (hardware/ software) design and development.To learn the different considerations of analog, digital and mixed circuit design.
- To be acquainted with methods of PCB design and different tools used for PCB Design.
- To understand the importance of testing in product design cycle. To understand the processes and importance of documentation.

Course Outcomes: After Successfully completing the course students will be able to

- Understand various stages of hardware, software and PCB design.
- Importance of product test & test specifications.
- Special design considerations and importance of documentation

Audit Course 5 (2) :Human Behavior

Course Objectives:

- To develop understanding of Behavioral Aspects.
- To identify and develop Attitude and Core Faith values
- To expose students to Family Relations, time and career management
- To enable student to understand Creative Thinking and Problem solving
- To enable students to understand Humanistic Education.

Course Outcomes: On completion of the course, society will observe – 1. Change in awareness levels, knowledge and understanding of student 2. Change in attitudes / behavior of students with regards to their education improved teamwork, institutional leadership and other life skills 3. Improvement in social health and attitude.

404189 Mobile Communication

Course Objectives

- To understand switching techniques for voice and data traffic.
- To nurture students with knowledge of traffic engineering to design networks. To realize importance of cellular concepts and its propagation mechanism.
- To understand architecture of GSM system. To overview 4G LTE and 5G technologies.

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

1. Apply the concepts of switching technique and traffic engineering to design multistage networks.
2. Explore the architecture of GSM.
3. Differentiate thoroughly the generations of mobile technologies.

404190 Broadband Communication Systems

Course Objectives:

- To comprehend the three primary components of a fiber optic communication system.
- To understand the system design issues and the role of WDM components in advanced light wave systems.
- To understand the basics of orbital mechanics and the look angles from ground station to the satellite.
- To apply subject understanding in Link Design.

Course Outcomes: After successfully completing the course students will be able to:

1. Perform Link power budget and Rise Time Budget by proper selection of components and check its viability.
2. Perform Satellite Link design for Up Link and Down Link.

404191 Audio Video Engineering (Elective III)

Course Objectives:

After learning AVE course, students will get benefit to learn and understand the working of real life video system and the different elements of video system plus the encoding/decoding techniques.

The learners will be groomed up to understand different channel allocations, difference between various systems present in this world, their transmission and reception techniques.

Students will get insight on functioning of individual blocks, different standards of compression techniques and they will be acquainted with different types of analog, digital TV and HDTV systems.

The students will get overview of fundamentals of Audio systems and basics of Acoustics

Course Outcomes: On successful completion of the course, students able to:

1. Apply the fundamentals of Analog Television and Colour Television standards.
2. Explain the fundamentals of Digital Television, DTV standards and parameters.
3. Study and understand various HDTV standards and Digital TV broadcasting systems and acquainted with different types of analog, digital TV and HDTV systems.
4. Understand acoustic fundamentals and various acoustic systems.

404194 Wireless Sensor Networks (Elective-IV)

Course Objectives:

- To learn basic concepts of Wireless sensor networks
- To be familiar with architecture and protocols used in Wireless sensor networks
- To provide knowledge of deployment and security issues of Wireless sensor networks

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

1. Explain various concepts and terminologies used in WSN
2. Describe importance and use of radio communication and link management in WSN
3. Explain various wireless standards and protocols associated with WSN
4. Recognize importance of localization and routing techniques used in WSN
5. Understand techniques of data aggregation and importance of security in WSN
6. Examine the issues involved in design and deployment of WSN

Audit Course 6 (2) Environmental Issues And Disaster Management

Course objective :

- To develop understanding of Environment Issues and Biodiversity To
- introduce to the students the environment, Disaster Management
- To enable students to understand ecosystem and preservation of environment To
- understand Disaster Management and handling them

Course Outcomes : On completion of course students will be able:

1. To learn the different environmental issues and disasters.
2. To deal with problems associated with environment and effectively handle the disasters.



CAYMET's

SIDDHANT COLLEGE OF ENGINEERING, SUDUMBARE**Department of Civil Engineering**

Academic Year : 2022-23

Name of Faculty: Prof. A.K.Rahane

Class : TE

Semester: VI

Subject : SWM

Div :

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CAYMET's

SIDDHANT COLLEGE OF ENGINEERING, SUDUMBARE**Department of Civil Engineering**

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Prof. Anita Rahane 
Name and Sign of Faculty


HOD
H.O.D.
Civil Engineering
Siddhant College of Engineering

ASSIGNMENT NO1
Project Management

1. What is Management? Describe its benefits. CO1
2. What are the functions of Management ? CO1
3. Describe scientific management and its principles. CO2
4. Describe Project life cycle/process. CO2
5. Describe domain areas of PMBOK. CO1,2
6. Write notes on PMI and certified Project management Professional. CO1
7. Describe the importance of organization structure. CO1
8. What is project planning? Describe its process. CO1
9. Write notes on (a) CPM (b) PERT c) Work Breakdown Structure. CO2
10. What is Network Diagram? How do we create it? CO2
12. Define Critical Path, Floats, Tasks and Dependencies CO2

ASSIGNMENT NO-2 Project Management

1. Bring out the importance of Material Management in Construction industry.

CO3

2. What are the objectives of material management. CO3

3. Write a short note on material Procurement Process. CO3

4. Explain Merits and Demerits of ERP System. CO3,4

5. What do mean by Inventory Control? And how it can be achieve. CO4

6. What is ABC Analysis. Writes its advantages and disadvantages. CO3,4

7. Write a note on EOQ. CO4

8. Enlist the various factors affecting Manpower planning. CO4

9. Explain Steps in project Monitoring. CO4

10. What do you mean by EVA? Explain any one in detail. CO3,4

ASSIGNMENT NO-3 Project Management

1. Explain Project Economics. CO5,6
2. Define cost, price and value with the help of suitable example. CO5
3. Write a note on cash flow. CO5
4. Explain law of demand. What are the factors affecting on demand. CO5
5. What are the types of elasticity? Explain in brief. CO5
6. What are the types of project Appraisals? CO6
7. Write a short note on cost benefit Analysis. CO6
8. Write a note on IRR. CO6
9. Explain with neat sketch "Break even analysis" CO5,6
10. Discuss role of project management consultant in civil Engg. Field. CO6

CAYMETS SIDDHANT COLLEGE OF ENGINEERING
SUDUMBARE PUNE

UNIT TEST

Branch: - SE CIVIL
Subject: - PM

Date: 29/3/2023
Marks: 30
Time: 1-2 PM

- Q.1 a)** Write a short note on : Functions of management (5M)CO1
- b) What are the importance of Project Management. (5M)CO1
- OR**
- Q.1 c)** Explain different project categories. (5M) CO1
- d) Enlist the causes of failure of project. (5M)CO1
- Q.2 a)** Write a note on: PMBOK (5M) CO1,2
- b) Explain the steps in project scheduling for a construction of a road. CO2 (5M)
- OR**
- Q.2 c)** Explain significance of organization structure in management.(5M) CO2
- d) Explain in detail Work Breakdown Structure with suitable example. CO2 (5M)
- Q.3 a)** Differentiate between CPM and PERT. (5M)CO3
- b) Listed below are the activities of a project along their duration CO3

Activity	1-2	2-3	2-4	2-5	3-10	4-6	4-7	5-10	6-8	7-8	8-9	9-10
Duration(Day)	4	5	7	4	15	4	Dummy	10	6	7	12	10

Find critical path and project duration. (5M)

OR

- Q.3 c)** Write a short note on: Importance of planning and network techniques in civil engineering works. (5M) CO2,3
- d) The following table shows the project along its duration. Draw a neat diagram and also find critical path. Follow the rules. CO3

Activity	1-2	1-3	1-4	2-4	2-5	3-4	4-5
Duration(Day)	3	2	6	5	7	2	4

(5M)



C.A.Y.M. EDUCATION TRUSTS
SIDDHANT COLLEGE OF ENGINEERING, SUDUMBARE
DEPARTMENT OF CIVIL ENGINEERING
PRELIM EXAMINATION

SUBJECT: PROJECT MANAGEMENT

MARKS: 40 MARKS

CLASS: SE (CIVIL)

DATE: 31/5/23

TIME: 11:00 - 1:30 pm

Q1) a) What is ABC analysis? Write its advantages and disadvantages?

CO3,4 (05 Marks)

b) Annual requirement of a cement for a firm AADI Constructions is 4000 bags. The cost of bag of cements is Rs.300. Ordering cost of Rs. 110 per order and annual inventory carrying cost is 20% of avg. inventory. Find EOQ and No. of orders to be placed. **CO3 (05 Marks)**

OR

Q1) a) Write a note on EOQ. CO3 (05 Marks)

b) Explain the various factors affecting Manpower Planning. CO3,4 (05 Marks)

Q2) a) Explain step in project Monitoring. CO4 (05 Marks)

b) What do you mean by EVA? Explain any one in details. CO4 (05 Marks)

OR

Q2) a) For a project, following information is given,

- a) Draw project network, b) Calculate length and variance of critical path, and
 c) With what probability, the critical path calculated in d) will be achieved?

Job i-j	Duration in days		
	Optimistic t_o	Most likely t_L	Pessimistic t_p
7-5	3	5	13
7-6	1	2	15
5-4	6	7	8
5-3	2	4	12
6-4	2	5	14
4-2	4	6	8
4-3	5	9	13
2-1	1	2	3
3-1	1	4	7

(10Marks)

CO4

b) Difference between Cost and Value? CO4

(05 Marks)

Q3) a) How to calculate simple and compound interest? What is the difference between the simple interest and compound interest payable on a principle of Rs. 15000 in 3 years at the rate of 20%. CO5

(10 Marks)

OR

Q3) a) Write a note on NVP. CO5

(05 Marks)

b) Explain Criteria Selection for project. CO5,6

(05 Marks)

Q4) a) Explain IRR method with formula, selection criteria. CO6

(05 Marks)

b) Write a note on Cash Flow. CO6

(05 Marks)

OR

Q4) a) Explain IRR method with formula, selection criteria. CO6

(05 Marks)

b) Write a note on Cash Flow.

CO6

(05 Marks)

Siddhant College Of Engineering, Sudumbare										
Course Exit Survey 22-23 BE Mechanical Subject-CIM										
Timestamp	Email address	Name of the Student	Exam Seat Number	CO1: Do You Explain	CO2 :Do You Underst	CO3:Do You APPLY	CO4:Do You ANALYZ	CO5:Do You INTERP	CO6: Do you ANALYZE the effect of	
5/24/2023 16:02:02	vaibhvmundes@gmail.com	Vaibhav	Yu	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:04:36	vaibhvmundes@gmail.com	Vaibhav	Hu	Poor	Poor	Poor	Poor	Poor	Poor	
5/24/2023 16:08:24	pratikshinkar99@gmail.com	Pratik shinkar	B190440859	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:09:02	rajdaundkar68@gmail.com	Rajkumar Balasaheb	B190440813	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:10:33	priyasuryawanships@gmail.com	Priyanka Suryawansh	B190440848	Good	Good	Poor	Good	Good	Good	
5/24/2023 16:10:34	shubhamtakbhate345@gmail.com	Shubham Jagdish tak	B190440860	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:10:40	kusumkardeepak24@gmail.com	Dipak kusumkar	B190440814	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:12:32	arjun.dinde@gmail.com	Arjun yashwant dinde	B190440816	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:14:22	anupchaudhari225@gmail.com	Anup Chaudhari	B190440811	Good	Good	Good	Good	Good	Good	
5/24/2023 16:21:05	prashantdixit799@gmail.com	Dixit Prashant Manikr	B190440817	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:22:47	jayeshwankarjw9112@gmail.com	Jayesh wankar	Roll no 69	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:23:57	santosh.259630@gmail.com	Santosh Sarjerao Ga	B190440853	Excellent	Excellent	Excellent	Good	Good	Good	
5/24/2023 16:30:58	kamblenaganath1999@gmail.com	Naganath bharat kam	B190440829	Good	Good	Good	Good	Good	Excellent	
5/24/2023 16:36:08	1999ankitgupta@gmail.com	Ankit Gupta	B190440804	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:39:43	rushikesh7137@gmail.com	Rushikesh sutar	B190440864	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 16:40:12	prasadmre1706@gmail.com	Prasad Dharmraj Mor	B190440837	Good	Excellent	Excellent	Good	Excellent	Excellent	
5/24/2023 16:45:15	parashrampatil17@gmail.com	Parashram Patil	B190440044	Good	Good	Good	Good	Good	Good	
5/24/2023 16:57:01	ppdahivalkar@gmail.com	Puja dahivalkar	BE190440812	Good	Good	Good	Good	Good	Good	
5/24/2023 17:09:11	akashjadhav2016d@gmail.com	Akash Dadaso Jadhav	S190440825	Excellent	Good	Good	Excellent	Good	Excellent	
5/24/2023 18:09:49	nileshtelgote101@gmail.com	Nilesh Telgote	Roll no. 66	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 19:00:25	sanketspatil654@gmail.com	Sanket patil	B190440845	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 19:04:54	kajinkya650@gmail.com	AJINKYA BALIBA KA	B190440828	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 19:10:21	jadhavrshubham200@gmail.com	Shubham Rajendra J	B190440826	Good	Excellent	Excellent	Good	Excellent	Excellent	
5/24/2023 19:18:34	sahilpawar2478@gmail.com	SHAHIL PAWAR	B190440857	Excellent	Excellent	Good	Excellent	Excellent	Excellent	
5/24/2023 20:00:15	guptakrishna8308706708@gmail.com	GUPTA KRISHNA DII	B190440823	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 20:36:36	mansikk605@gmail.com	Mansi kokane	B1....830	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 22:04:22	22abhishek07@gmail.com	Abhishek kumar yada	B190440801	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/24/2023 23:21:32	hiratotshrishail@gmail.com	Shrishail Hiratot	B190440824	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	
5/25/2023 6:46:04	manishmourya3612@gmail.com	Manish Umesh Moury	B190440838	Good	Good	Good	Good	Good	Good	
5/25/2023 8:10:11	jvpatil@gmail.com	Jitendra Vasant Patil	51	Good	Excellent	Good	Excellent	Good	Excellent	
5/25/2023 22:17:01	narayanankumbhar@gmail.com	Narayan Kallappa Ku	B190440840	Excellent	Good	Excellent	Good	Excellent	Good	
5/26/2023 0:06:45	sagarjadhav7625@gmail.com	Sagar sanjay jadhav	B190440851	Good	Good	Excellent	Excellent	Good	Excellent	
5/27/2023 9:55:50	pawarchandrakant975@gmail.com	Chandrakant Kailas P	B190440846	Excellent	Good	Excellent	Excellent	Excellent	Excellent	
5/27/2023 16:49:21	ganeshshinde3059@gmail.com	Shinde Ganesh Balas	62	Excellent	Good	Excellent	Good	Good	Excellent	
6/2/2023 9:34:47	bharatborye1111@gmail.com	Bharat borye	B190440809	Good	Good	Excellent	Good	Good	Good	
6/2/2023 9:34:47	dhananjayugwekar029@gmail.com	DHANANJAY SHRIK	B190440867	Good	Good	Good	Good	Excellent	Good	
6/2/2023 9:36:39	ppdahivalkar@gmail.com	Puja dahivalkar	B190440812	Good	Good	Good	Good	Good	Good	
6/2/2023 9:37:45	prathameshvichare649@gmail.com	Prathamesh dipak vic	B190440868	Excellent	Good	Good	Excellent	Good	Good	
6/2/2023 9:40:32	akashjadhav2016d@gmail.com	Akash Jadhav	B190440825	Good	Good	Good	Excellent	Good	Excellent	
6/2/2023 10:04:57	yashbidaye316@gmail.com	Yash Ramchandra bic	B190440810	Good	Good	Excellent	Excellent	Good	Good	
6/2/2023 10:33:04	ganeshkumbhar262@gmail.com	Ganesh Tulshidas Ku	B190440832	Good	Good	Good	Good	Good	Good	
6/2/2023 10:34:30	parashrampatil17@gmail.com	Parashram Patil	B 1904400844	Good	Good	Good	Good	Good	Excellent	

